Appendix T

NEPA Disclosure Statements

NEPA DISCLOSURE STATEMENT FOR PREPARATION OF THE
GREAT NORTHERN TRANSMISSION LINE PROJECT (GNTL)
ENVIRONMENTAL IMPACT STATEMENT

The Council on Environmental Quality (CEQ) Regulations at Title 40 of the *Code of Federal Regulations* (CFR) Section 1506.5(c), which have been adopted by the U.S. Department of Energy (10CFR Part 1021), require contractors who will prepare an environmental impact statement to execute a disclosure specifying that they have no financial or other interest in the outcome of the project.

"Financial or other interest in the outcome of the project" is defined as any direct financial benefit such as a promise of future construction or design work on the project, as well as indirect financial benefits the contractor is aware of (e.g. if the project would aid proposals sponsored by the firm's other clients). It excludes any benefits such person or entity may enjoy in common with other electricity ratepayers in the same service territory.

In accordance with these requirements, Barr Engineering Co. shall complete this document. Barr Engineering Co., on behalf of itself, its subsidiaries and its employees, hereby certifies as follows, to the best of its knowledge as of the date set forth below:

(a) Barr Engineering Co. has no financial or other interest in the outcome of the project.

Certified by:

John Wachtler, Vice President, Principal in Charge
Name Title

Barr Engineering Co.
Company

6/20/2014
Date

NEPA DISCLOSURE STATEMENT FOR PREPARATION OF THE
GREAT NORTHERN TRANSMISSION LINE PROJECT (GNTL)
ENVIRONMENTAL IMPACT STATEMENT

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In accordance with these requirements, H. John Mye shall complete this document. Ecology and Environment, Inc., on behalf of itself, its subsidiaries and its employees, hereby certifies as follows, to the best of its knowledge as of the date set forth below:

(a) Ecology and Environment, Inc. has no financial or other interest in the outcome of the project.

Certified by:

H. John Mye, Chief Financial Officer
Name Title

Ecology and Environment, Inc.
Company

06/17/14
Date

NEPA DISCLOSURE STATEMENT FOR PREPARATION OF THE
GREAT NORTHERN TRANSMISSION LINE PROJECT (GNTL)
ENVIRONMENTAL IMPACT STATEMENT

The Council on Environmental Quality (CEQ) Regulations at Title 40 of the *Code of Federal Regulations* (CFR) Section 1506.5(c), which have been adopted by the U.S. Department of Energy (10CFR Part 1021), require contractors who will prepare an environmental impact statement to execute a disclosure specifying that they have no financial or other interest in the outcome of the project.

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In accordance with these requirements, Lauren Azar shall complete this document.
Azar Law LLC, on behalf of itself, its subsidiaries and its employees, hereby certifies as follows, to the best of its knowledge as of the date set forth below:

(a) Azar Law LLC has no financial or other interest in the outcome of the project.

Certified by:

Name

Owner
Title

Azar Law LLC
Company

June 19, 2014
Date

NEPA DISCLOSURE STATEMENT FOR PREPARATION OF THE
GREAT NORTHERN TRANSMISSION LINE PROJECT (GNTL)
ENVIRONMENTAL IMPACT STATEMENT

The Council on Environmental Quality (CEQ) Regulations at Title 40 of the *Code of Federal Regulations* (CFR) Section 1506.5(c), which have been adopted by the U.S. Department of Energy (10CFR Part 1021), require contractors who will prepare an environmental impact statement to execute a disclosure specifying that they have no financial or other interest in the outcome of the project.

"Financial or other interest in the outcome of the project" is defined as any direct financial benefit such as a promise of future construction or design work on the project, as well as indirect financial benefits the contractor is aware of (e.g. if the project would aid proposals sponsored by the firm's other clients). It excludes any benefits such person or entity may enjoy in common with other electricity ratepayers in the same service territory.

In accordance with these requirements, Rick Holton shall complete this document. Rick Holton, on behalf of itself, its subsidiaries and its employees, hereby certifies as follows, to the best of its knowledge as of the date set forth below:

(a) Rick Holton has no financial or other interest in the outcome of the project.

Certified by:

Frederick S. Holton

Frederick S. (Rick) Holton	Principal
Name	Title

Rick Holton
Company

June 19, 2014
Date

Appendix U

USFWS Information

Pages excerpted from full comment in Appendix Y from Lynn Lewis

United States Department of the Interior

FISH AND WILDLIFE SERVICE

5600 American Boulevard West, Suite 990
Bloomington, Minnesota 55437-1458

IN REPLY REFER TO:

AUG 10 2015

FWS/R3/ER15-306

Ms. Julie Ann Smith, Environmental Protection Specialist
Office of Electricity Delivery and Energy Reliability (OE–20)
U.S. Department of Energy
1000 Independence Avenue S.W.
Washington, D.C. 20585

Dear Ms. Smith,

The Fish and Wildlife Service (Service) thanks the Department of Energy (DOE) for the opportunity to comment on the Draft Environmental Impact Statement for the Great Northern Transmission Line (GNTL, DOE/EIS 0499). The Service has been closely involved in this project for several years providing technical assistance regarding impacts of this project on important wildlife, resources, and habitat. The Service has submitted four letters to date on this project:

- March 4, 2014: From the Service to the Minnesota Department of Commerce.
- July 1, 2014: From the Service to Minnesota Power (the Applicant).
- August 11, 2014: From Department of Interior (Office of Environmental Policy and Compliance) to DOE (electronically submitted as a draft letter by the Service to DOE November 20, 2014 and again as a signed letter by the Service to DOE July 22, 2015 due to a clerical error).
- August 14, 2014: From the Service to DOE.

In all of these letters, the Service has stated that the GNTL (both construction and long-term use) has the potential to impact Service interest lands, threatened, endangered, or species of concern, migratory birds, bald and golden eagles, wetlands, and wildlife habitat. The Service has emphasized avoidance and minimization of impacts to these resources, as well as appropriate mitigation for impacts that cannot be practicably avoided. The Service continues to stand by these previous comments and recommendations. This letter serves to outline the Service's recommendations on route selection, alignment modification, and additional comments on avoiding and minimizing impacts to migratory birds, listed species, and wetland/vegetation resources. The Service has additionally included a path forward for minimization and mitigation of potential impacts to Service interest lands. The Service makes these recommendations pursuant to the National Wildlife Refuge

Administration Act (NWRA), Endangered Species Act (ESA), Migratory Bird Treaty Act (MBTA), Executive Order (E.O.) 13186, Department of Energy's Migratory Bird Program Partnership Agreement, Bald and Golden Eagle Protection Act (BGEPA), Federal Aid in Wildlife Restoration Act (Pittman-Robertson Act), Federal Aid in Sport Fish Restoration Act (Dingell-Johnson Act), and Fish and Wildlife Act of 1956.

Route Recommendation and Avoidance of Service Interest Lands

The Service administers numerous tracts within the proposed GNTL routing options as part of the National Wildlife Refuge System (NWRS). Service administered and managed lands are acquired for the preservation of wildlife and their habitats. As stated in previous letters (see above), preservation and avoidance of impact to Service interest lands is one of the Service's highest priorities. The Service is supportive of both route alternatives and alignment modifications that maximize avoidance of Service interest lands. The Service favors a weighted tiered approach of avoidance, minimization, and mitigation of impacts.

The Service recommends the following routes and alignments be chosen for the final route selection:

- In the West section of the project, the Service recommends the selection of the Cedar Bend WMA variation, Hop 2 and the Beltrami North Central Variation 4. The Service believes the combination of these variations is the least impactful option with respect to wildlife, wetland, and forestry resources, as compared to the Applicant's preferred route outlined in the DEIS. Additionally, these variations will completely avoid all refuge impacts in the Western Section of this project. Our reasoning is as follows:
    - The Service prefers the Cedar Bend WMA Variation because:
        - It completely avoids Service interest lands and state Wildlife Management Areas (the Applicant-proposed route impacts 6 acres of Service Lands).
        - It impacts less state forest land and wetlands, fewer sites identified by the Minnesota Department of Natural Resources (MN DNR) as having Biodiversity Significance, High Conservation Value Forests, or Native Plant Communities, and fewer wildlife resources.
        - The impacts to listed species are similar to the Applicant's preferred route.
        - This variation will result in an overall shorter route and can be built within an existing ROW.

    - The Service prefers the Beltrami North Central Variation Routes 4 because:
        - It completely avoids Service interest lands (the Applicant-proposed route impacts 18 acres).
        - It impacts fewer rare (plant) species, fewer sites of Biodiversity Significance, fewer overall impacts to forestry, vegetation, wildlife, shrub wetlands, and rare features.

- It impacts less State Forest and State Fee lands.
- It impacts a similar (but slightly higher) acreage of National Wetland Inventory (NWI) Wetlands (305 vs. 272 acres of the Applicant-proposed route).
- It can be built within the existing ROW (except for <1 mile stretch).
- Impacts to federally listed wildlife resources are similar.
- The Service acknowledges these variations will result in a slightly longer transmission line and will have a greater impact to water resources. Additionally, slightly more emergent and forested wetlands will be impacted (28 and 169 vs. 23 and 119 acres respectively).

- The Service then recommends adoption of the blue route (where Beltrami North Central Variation 4 connects to the Blue Route).
- In the Central Section of the project the Service recommends utilization of the Silver Creek WMA Alignment Modification to avoid Service interest lands (specifically the parcel located T-160, R-30, S-27)). The Service acknowledges this would create a new ROW and possible habitat fragmentation, but prefers this option to expanding the existing ROW on Service lands.
- The Service then recommends the Blue Route be followed to the terminus of the project.

These recommendations by the Service should be considered our strongest recommendation and highest priority; not just one in a series of equally weighted options.

Should the above recommendations not be chosen for the final route selection, the Service recommends the following:

- In the West Section: Should the Cedar Bend WMA variation and the Beltrami North Central Variation 4 <u>not</u> be selected, the Service recommends examining the side-by-side comparison of the preferred route with the Beltrami North Variations 1&2, and the preferred route with the Beltrami North Central Variations 1, 2, 3, and 5 (detailed in the DEIS) to determine the least environmentally impactful alternative. Consideration should be given to existing ROW corridors as well as minimization of impact to wetland and forest resources.
- In the Central Section: If the Orange Route is selected as the final route, the Service recommends examining the side-by-side comparison of the proposed Orange Route and the Beltrami South Central and Beltrami South variations to determine the least environmentally impactful alternative. Consideration should be given to existing ROW corridors as well as minimization of impact to wetland and forest resources.
- In the Central Section: If the Orange Route (with the J2 Segment Option) is selected as the final route, the Service recommends the adoption of the Northolm Variation to avoid impacts to Service interest lands. Because neither the J2 Segment nor the Northolm variation parallel existing corridors, the Service would prefer the Service lands not be impacted.

Appendix V

Draft Programmatic Agreement

PROGRAMMATIC AGREEMENT
AMONG
THE U.S. DEPARTMENT OF ENERGY
AND
THE U.S. ARMY CORPS OF ENGINEERS
AND
THE MINNESOTA STATE HISTORIC PRESERVATION OFFICE
FOR
MANAGING HISTORIC PROPERTIES THAT MAY BE AFFECTED
BY THE
GREAT NORTHERN TRANSMISSION LINE PROJECT

WHEREAS, pursuant to the authority delegated by the President of the United States under Executive Order 10485, as amended by Executive Order 12038, the U.S. Department of Energy ("DOE") receives and considers applications for permits for the construction, operation, maintenance, and connection of facilities for the transmission of electric energy at the borders of the United States ("Presidential permit"); and

WHEREAS, Executive Order 10485, amended by Executive Order 12038, authorizes DOE to issue a Presidential permit if, *inter alia*, the issuance of the permit is found to be consistent with the public interest; and

WHEREAS, in deciding whether issuance of a Presidential permit is in the public interest, DOE determines the proposed project's impact on electric reliability as well as its potential environmental impacts, including potential impacts to cultural and historic resources; and

WHEREAS, Minnesota Power, an operating division of ALLETE, Inc., has applied to DOE's Office of Electricity Delivery and Energy Reliability for a Presidential Permit for the Great Northern Transmission Line Project ("Project") in accordance with the DOE's applicable administrative procedures at 10 CFR § 205.320 *et. seq*.; and

WHEREAS, the issuance of a Presidential permit by DOE for the border crossing indicates that there is no federal objection to the proposed international border crossing and Project, but does not mandate that the Project be undertaken; and

WHEREAS, the proposed Project consists of an approximately 220-mile, overhead, single-circuit 500 kV AC transmission line between the Minnesota - Manitoba border crossing northwest of Roseau, Minnesota, and terminating at the existing Blackberry 230/115 kV Substation near Grand Rapids, Minnesota; includes associated substation facilities and new transmission system modifications at the Blackberry Substation site, and construction of a new 500 kV Series Compensation Substation adjacent to and east of the existing Blackberry 230/115kV Substation; and ancillary facilities (such as temporary work areas, contractor yards, lay down areas, access roads, borrow and disposal sites); and

WHEREAS, Section 106 of the National Historic Preservation Act of 1966, as amended (16U.S.C. 470f) ("Section 106"), directs federal agencies to take into account the effects of their

undertakings on historic properties listed in or eligible for inclusion in the National Register of Historic Places ("National Register") and to afford the Advisory Council on Historic Preservation ("ACHP") a reasonable opportunity to comment; and

WHEREAS, the procedures set forth in 36 CFR Part 800 - Protection of Historic Properties define how federal agencies meet their statutory responsibilities pursuant to Section 106; and

WHEREAS, in considering whether issuance of a Presidential permit to Minnesota Power would be consistent with the public interest, the DOE has determined to treat the issuance of a Presidential permit for the proposed Project is an undertaking ("Undertaking,") as defined in 36 CFR § 800.16(y),; and

WHEREAS, construction of portions of the Project will also require authorization by the U.S. Army Corps of Engineers ("USACE") pursuant to Section 404 of the Clean Water Act of 1973 (33U.S.C. §1344), and of the Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C § 403), and the USACE and the DOE have agreed that the DOE is the lead federal agency for purposes of compliance with Section 106, in accordance with 36 CFR § 800.2(a)(2); and

WHEREAS, consistent with 36 CFR § 800.4(a) and 800.16(d), DOE has determined that the area of potential effects("APE") for this undertaking is defined to include all areas that could be directly or indirectly affected by construction and/or operation of the Project, including ground-disturbing activities associated with installation of the transmission line, construction of the converter station, and ancillary facilities (such as temporary work areas, contractor yards, laydown areas, and access roads), whether contiguous with the route or not; and

WHEREAS, consistent with 36 CFR § 800.4(a) and 800.16(d), DOE has determined that the APE for this undertaking includes a direct APE which encompasses the maximum width of a route alternative, an area approximately 3000-feet wide for initial identification and evaluation efforts; and

WHEREAS, the proposed Project will be constructed within a 200-foot right-of-way ("ROW") that is located within a 1000-3000 foot-wide route alternative; and

WHEREAS, the Minnesota Public Utilities Commission ("MN PUC") will select the final route alternative and proposed alignment and issue a Route Permit for the Project under the Minnesota Power Plant Siting Act ("PPSA"), and

WHEREAS, DOE has determined the direct APE will encompass the 200-foot wide ROW for detailed identification and evaluation efforts once the route for the proposed Project is determined by the MN PUC; and

WHEREAS, consistent with 36 CFR § 800.4(a) and 800.16(d), DOE has determined that the APE for this undertaking includes an indirect APE that will address the potential indirect visual effects of the undertaking, which will extend for a maximum of [one-quarter mile] on either side of the centerline (will vary with topography) of the proposed 200-foot ROW once the final alignment is established by the MN PUC; and

WHEREAS, the Project's APE generally includes the geographic area defined in the attached maps and may be further refined as a result of additional consultation and/or cultural resources investigations and/or engineering assessments; and

WHEREAS, the Project is located within the identified area of interest of federally recognized Indian tribes, and DOE invited the Assiniboine and Sioux Tribes of the Fort Peck Reservation; Bad River of Lake Superior Chippewa; the Bois Forte Band of Ojibwe; the Cheyenne River Sioux Tribe; the Crow Creek Sioux; the Flandreau Santee Sioux; the Fond du Lac Band of Lake Superior Chippewa; the Forest County Potawatomi Community; the Grand Portage Band of Ojibwe; the Hannahville Indian Community; the Keweenaw Bay Indian Communty; the Lac Courte Orilles Band of Lake Superior Chippewa; the Lac Vieux Band of Lake Superior Chippewa; the Leech Lake Band of Ojibwe; the Lower Brule Sioux; the Lower Sioux Tribe; Mille Lacs Band of Ojibwe; the Northern Arapaho Tribe; the Northern Cheyenne Nation; the Prairie Island Indian Community; the Shakopee Mdewakanton Sioux Community; the Sokaogon Chippewa Community; the Red Cliff Band of Lake Superior Chippewa; the Red Band of Chippewa Nation; the Rosebud Sioux Tribe; the Santee Sioux Nation; Sisseton-Wahpeton Oyate of Lake Traverse Reservation; the Spirit Lake Tribe; the Standing Rock Sioux Tribe; the Three Affiliated Tribes of Fort Berthold; the Turtle Mountain Band of Chippewa; the Upper Sioux Community; the Wahpekute Band of Dakota; the White Earth Band of Ojibwe; and the Yankton Sioux Tribe to participate in government-to-government consultation for the Project; and

WHEREAS, the DOE has consulted and continues to consult with the Assiniboine and Sioux Tribes of the Fort Peck Reservation; Bad River of Lake Superior Chippewa; the Bois Forte Band of Ojibwe; the Cheyenne River Sioux Tribe; the Crow Creek Sioux; the Flandreau Santee Sioux; the Leech Lake Band of Ojibwe; the Lower Brule Sioux; the Lower Sioux Tribe; Mille Lacs Band of Ojibwe; the Northern Arapaho Tribe; the Northern Cheyenne Nation; the Red Cliff Band of Lake Superior Chippewa; the Red Lake Band of Chippewa Nation; the Rosebud Sioux Tribe; the Santee Sioux Nation; Sisseton-Wahpeton Oyate of Lake Traverse Reservation; the Spirit Lake Tribe; the Standing Rock Sioux; the Turtle Mountain Band of Chippewa; the Wahpekute Band of Dakota; and the White Earth Band of Ojibwe on a government-to-government basis in accordance with 36 CFR § 800.2(c)(ii); and

WHEREAS, for the purposes of providing the public the opportunity to comment on the National Historic Preservation Act Section 106 Consultation process and in accordance with 36 CFR §800.3(b), DOE makes cultural resources reports and information, including any "adverse effect" determinations publicly available on the GNTL project EIS website (http://www.greatnortherneis.org); and

WHEREAS, the DOE has determined that its undertaking associated with the Project has the potential to adversely affect historic properties listed in or eligible for the National Register and has consulted with the ACHP, the USACE, the Minnesota State Historic Preservation Office (SHPO), federally recognized Indian tribes, additional consulting parties, and the public, pursuant to 36 CFR § 800.14 of the regulations implementing Section 106; and

WHEREAS, DOE is phasing identification and evaluation of historic properties and application of the criteria of adverse effects in accordance with 36 CFR § 800.4(b)(2) and 36 CFR § 800.5(a)(3), respectively, because the GNTL project alternatives consist of route corridors covering a large land area; and

WHEREAS, pursuant to 36 CFR § 800.14(b)(1)(ii) and § 800.14(b)(1)(v), DOE has elected to execute this Programmatic Agreement ("PA") because effects on historic properties cannot be fully determined prior to the undertaking and other circumstances warrant a departure from the normal Section 106 process; and

WHEREAS, for the purposes of this PA, Consulting Parties are parties that have consultative roles in the Section 106 consultation under 36 CFR §800.2; Signatories are parties with sole authority to execute, amend, or terminate this PA under 36 CFR §800.6(c)(1) and §800.14(b)(2)(iii); Invited Signatories are parties that sign this PA at the invitation of DOE under §800.6(c)(2) and by signing have the same rights with regard to seeking amendment or termination of this PA as other signatories except that refusal of any party invited to become a signatory to this PA does not invalidate this PA, as set forth in §800.6(c)(2)(i)-(iv); and

WHEREAS, pursuant to 36CFR §§ 800.2(c)(2), 800.6(c)(3), and 800.2(c)(4), the Red Lake Band of Chippewa Indians ("Red Lake Nation") and Minnesota Power have participated in consultation and have been asked to be Invited Signatories to this PA; and

WHEREAS, pursuant to 36CFR §§ 800.2(c)(2), 800.6(c)(3), and 800.2(c)(4), the Bois Forte Band of Chippewa Indians, and White Earth Band of Ojibwe, Leech Lake Band of Ojibwe, and Mille Lacs Band of Ojibwe have participated in consultation and have been asked to be Concurring Parties to this PA; and

WHEREAS, on January 14, 2015, DOE invited the ACHP to participate in consultation, in accordance with 36 CFR § 800.6(a)(1)(i)(C), providing the specific documentation; and

WHEREAS, the ACHP has elected to participate in consultation pursuant to36 CFR § 800.6(a)(1)(iii).

NOW, THEREFORE, the DOE, the USACE and the Minnesota SHPO (the "Signatory Parties") agree that the Project shall be administered and implemented in accordance with the following stipulations to satisfy the responsibilities of the DOE under Section 106 for all aspects of the Project.

STIPULATIONS

I. APPLICABILITY

DOE, USACE, and Minnesota Power and Red Lake Nation shall ensure that the following stipulations are carried out:

A. DOE, USACE, and SHPO will review the undertaking in accordance with the terms of this PA.

B. This PA will be in effect for a period of five (5) years from the date of its execution.

C. Six (6) months prior to the date on which the PA will expire; the DOE shall notify the Signatories, Invited Signatories and Consulting parties of the impending expiration. DOE, as appropriate, may consult with the signatory and consulting parties to reconsider the terms of the PA to amend it and shall notify the parties as to the course to be pursued.

D. This PA may be amended when such an amendment is agreed to in writing by all Signatories to this PA. The amendment will be effective on the date it is executed by all of the Signatories to this PA and filed with the ACHP.

E. DOE will send a copy of this PA to the ACHP upon execution.

II. CONDITIONS

This PA is prepared with reference to:

1. The ACHP's Section 106 Archaeological Guidance (1/1/2009);

2. The ACHP's February 23, 2007 *Policy Statement Regarding the Treatment of Burial Sites, Human Remains, and Funerary Objects*;

3. The ACHP's *Meeting the "Reasonable and Good Faith Effort" Identification Standard in Section 106 Review.*

3. The Native American Graves Protection and Repatriation Act of 1990(25 USC 3001 *et seq*.) (NAGPRA) and its implementing regulations at 43 CFR Part 10;[1]

4. Minnesota Statute 307.8, "Private Cemeteries Act", provisions established by the State Archaeologist and the Indian Affairs Council;

5. The Minnesota Historical Society's *SHPO Guidelines for History/Architecture Projects in Minnesota* (July 2009) and the Minnesota Historical Society's *SHPO Manual for Archaeological Projects in Minnesota* (July 2005);

[1]Pursuant to 43 CFR Part 10, NAGPRA applies to human remains, sacred objects, and items of cultural patrimony (described as "cultural items" in the statute) located on federal or tribal lands or in the possession and control of federal agencies or certain museums. The Project will not occupy federal or tribal lands. Notwithstanding the limits of NAGPRA's applicability, the principles described in NAGPRA and its implementing regulations will serve as guidance for MN Power's actions should remains or associated artifacts be identified as Native American, and to the extent such principles and procedures are consistent with any other applicable requirements.

6. *The Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation* (48 FR 44716-44742, September 29, 1983), as amended and revised;

7. The DOE's *American Indian and Alaska Native Tribal Government Policy* (DOE 2006); and

8. DOE Policy 141.1: *Management of Cultural Resources*.

III. PROFESSIONAL STANDARDS

A. The identification, evaluation and other surveys and studies required under the terms of this PA will be carried out by or under the direct supervision of an individual who meets, or individuals who meet, at minimum, the professional qualification standards for Archaeology and/or Architectural Historian defined in the *Secretary of the Interior's Professional Qualification Standards* (48 FR 44738–44739, September 29, 1983).

IV. IDENTIFICATION AND EVALUATION

A. Level of Effort

1. In accordance with 36 CFR §800.4(a) through (c), DOE and USACE shall consult with SHPO, Minnesota Power, Red Lake Nation, THPO(s), participating tribes, and other consulting parties to ensure that the level of effort for the cultural resource survey (or surveys) that will be conducted to identify and evaluate historic properties, including those to which Indian tribes might attach religious or cultural significance, that may exist within the APE.

2. In implementing Stipulation III.B, DOE and USACE shall acknowledge the special expertise of Indian tribes in assessing the National Register eligibility of historic properties that may possess religious and cultural significance to them.

B. Identification of Historic Properties Within the APE for Visual Effects

DOE and USACE shall consult with the SHPO to determine the level of effort, including survey scope, methods and procedures, needed to identify National Register listed or eligible architectural resources in the visual APE which might be affected by the Project.

1. In determining the level of effort for survey, DOE and USACE shall take into account the influence of the existing topography, vegetation, landuse, with the recognition that, pursuant to 36 CFR §800.5(a), an adverse effect occurs when the integrity, specifically the setting and feeling, of one or more of the qualifying characteristics of a historic property is diminished.

2. Minnesota Power shall implement the level of effort for any identification survey once its scope, methods and procedures have been agreed upon by DOE, USACE and the SHPO. If the parties cannot reach agreement, the matter will be resolved in accordance with Stipulation XII.

3. Upon completion, Minnesota Power will describe the implementation of the survey in a draft report prepared pursuant to Stipulation XI.

C. Identification and Evaluation of Historic Properties Within the APE for Direct Effects

DOE and USACE shall consult with SHPO, Minnesota Power, Red Lake Nation, THPO(s), participating tribes, and other consulting parties to ensure that the level of effort for the identification survey meets the reasonable and good faith effort per 36 CFR 800.4(b)(1) and that identification will be in accordance with the *Secretary of the Interior's Standards and Guidelines for Identification*.

1. For those portions of the APE for direct effects lying within the exterior boundaries of Red Lake Reservation, DOE and USACE shall consult with Red Lake Nation in lieu of the SHPO in accordance with 36 CFR §800.3(c)(1).

2. DOE, USACE, Red Lake Nation, THPO(s) and participating tribes agree that the APE for Direct Effects may represent only a portion of a larger traditional landscape that is considered eligible for listing in the National Register for the purposes of Section 106 review under the terms of this PA. Traditional resources identified in the APE for Direct Effects by DOE, therefore, may be considered contributing to this eligible traditional landscape. Traditional resources that are part of this National Register eligible landscape will be treated in a manner that preserves their integrity and potential to contribute to the historic property.

3. DOE and USACE shall consider applicable guidance prepared by the SHPO, the ACHP, DOE, USACE, and the National Park Service as discussed in Stipulation II and be guided by the findings and recommendation of the *Great Northern Transmission Line Cultural Resources Phase 1A Report*.

4. DOE and USACE shall consult with the SHPO, Red Lake Nation, THPO(s) and participating tribes to determine the level of effort, including the scope, methods and procedures, of the survey or surveys to be conducted to identify National Register listed or eligible archeological sites and traditional resources in the APE for direct effects.

5. In determining level of effort, DOE and USACE will consult with SHPO, Red Lake Nation, THPO(s), and other participating tribes to ascertain that:

a. survey results of identification activities are integrated into the preservation planning process; and

b. identification activities include explicit procedures for record keeping and information distribution that takes into account the need to restrict certain information that may be sensitive to tribal culture or history.

6. The identification of direct effects effort will include:

   a. an archaeological survey (Phase I, and recommendations for Phase II evaluation, if necessary);

   b. an history architecture survey (Phase I and recommendations for Phase II survey, if necessary); and

   c. an ethnographic, ethnohistoric, or traditional cultural properties study.

7. Minnesota Power shall implement the level of effort for the identification survey once its scope, methods and procedures have been agreed upon by DOE, USACE, the SHPO, and, as appropriate, THPO(s) and participating tribes. If the parties cannot reach agreement, the matter will be resolved in accordance with Stipulation XII.

8. Upon completion, the Minnesota Power will describe the implementation of the Survey(s) in a report prepared pursuant to Stipulation IV.F.

D. Evaluation

1. When applying the National Register criteria to identified architectural resources, DOE, USACE, and Minnesota Power shall consult with the SHPO. If Minnesota Power and the SHPO can agree on National Register eligibility, then the resource will be treated on the basis of that agreement. If the parties fail to reach agreement, Minnesota Power shall submit the matter to DOE and USACE for resolution in accordance with 36 CFR §800.4(c)(2).

2. When applying the National Register criteria to identified historic architectural, archeological and traditional resources located *off tribal lands,* Minnesota Power shall evaluate the historic properties and consult with the SHPO and participating tribes. If Minnesota Power, the SHPO, and participating tribes can agree on National Register eligibility, then the resource will be considered in accordance with this determination. If the parties fail to reach agreement, Minnesota Power shall submit them after to DOE and USACE for resolution in accordance with 36CFR§800.4(c)(2).

3. When applying the National Register criteria to identified archeological and traditional resources located *on tribal lands,* DOE, USACE, and Minnesota

Power shall consult with the SHPO and participating tribes. If Minnesota Power, the SHPO, and participating tribes can agree on National Register eligibility, then the resource will be considered in accordance with this determination. If the parties fail to reach agreement, Minnesota Power shall submit them after to DOE and USACE for resolution in accordance with 36CFR§800.4(c)(2).

4. In implementing Stipulation IV, DOE and USACE shall acknowledge the special expertise of Indian tribes in assessing the National Register eligibility of historic properties that may possess religious and cultural significance to them.

E. Avoidance

1. Prior to completing an evaluation in accordance with Stipulation IV.D, Minnesota Power may propose measures to avoid effects to identified archeological, architectural, or traditional resources.

2. Under the terms of this PA, avoidance of adverse effects is preferred.

3. DOE and USACE shall consult with the SHPO, Red Lake Nation, THPO(s) and participating Indian tribes to identify reasonable avoidance measures. Minnesota Power shall incorporate agreed upon measures into the Great Northern Transmission Line Project plans and specifications.

F. Reporting

1. The survey report(s) drafted in accordance with Stipulations IV.B and C shall include a map or maps showing the APE and ROW along with the location of identified archeological, architectural, or traditional resources, including any that are National Register listed or have been previously determined eligible.

2. The draft reports shall also contain recommendations regarding the National Register eligibility of identified resources; specify those resources for which additional study might be needed; and make recommendations regarding effects and those measures that might avoid, minimize or mitigate adverse effects.

3. Minnesota Power shall submit the draft report to DOE, USACE, Red Lake Nation, THPOs, and participating tribes for review. All parties shall have thirty (30) days from receipt to provide written comments to DOE and Minnesota Power on the findings and recommendations presented in the draft survey report.

4. DOE and Minnesota Power shall ensure that written comments submitted in a timely manner are taken into account in the preparation of the final report(s) and implementation of the terms of the PA.

5. Minnesota Power shall provide each federal agency, the SHPO, Red Lake Nation and participating parties with one (1) bound hard copy of the final survey report with unbound individual historic property inventory forms.

6. Red Lake Nation shall provide each federal agency, the SHPO, and Minnesota Power with one (1) unbound hard copy of their final survey report.

V. TREATMENT

A. If, through implementation of Stipulation IV historic properties are identified in the APE, DOE and USACE shall consult with the SHPO, Red Lake Nation, other THPO(s) and participating Indian tribes to apply the criteria of adverse effect in accordance with 36 CFR §800.5(a).

B. If historic properties will be adversely affected, DOE and USACE shall consult in accordance with 36 CFR §800.6(a) to identify appropriate measures that are in the public interest to avoid, minimize or mitigate adverse effects to historic properties, following public notification of an "adverse effect" determination. If National Register eligible archeological or traditional resources that are on tribal lands will be adversely affected, DOE and USACE shall consult with Red Lake Nation instead of SHPO in accordance with 36 CFR §800.3(c)(1).

C. When agreement between DOE, USACE, the SHPO, Red Lake Nation, THPO(s) and participating tribes can be reached on how to resolve the adverse effect, Minnesota Power shall prepare a Treatment Plan (Plan) describing the measures to be carried out, the manner in which they will be carried out, and a schedule for their implementation.

   1. In resolving adverse effects to National Register listed or eligible archeological sites, the federal agencies and consulting parties shall not be limited to the consideration of data recovery.

   2. When treatment measures include archeological data recovery, the Plan will identify the specific research questions to be addressed with an explanation of the irrelevance, the archeological methods to be used, and provisions for public interpretation and education subject to restrictions established by 36 CFR §800.6(a)(5).

   3. In resolving adverse effects to National Register eligible traditional cultural properties or those contributing to the traditional landscape identified in Stipulation IV.B, DOE shall take into account the recommendations of the Red Lake Nation Report and participating tribes.

D. Minnesota Power shall submit the Plan to DOE, USACE, Red Lake Nation, THPO(s) and the participating Indian tribes for review. These parties shall have thirty (30) days from receipt to submit a written review of the measures and terms

of the Plan. DOE and USACE shall ensure that the Plan which is implemented takes into account timely comments and recommendations submitted by the consulting parties.

E. If the agencies and consulting parties cannot agree on measures to resolve adverse effects, the dispute shall be resolved in accordance with Stipulation XII.

VI. TIMING

A. DOE and USACE shall ensure that the requirements of Stipulations IV and V are implemented prior to the start of Great Northern Transmission Line Project construction.

B. [OTHER TIMING CONSTRAINTS IDENTIFED THROUGH CONSULTATION OR DUE TO OTHER ENVIRONMENTAL CONCERNS (e.g., for threatened or endangered species]

VII. CURATION

A. Minnesota Power shall return all artifacts and materials recovered through implementation of the terms of this PA to the respective landowner. Prior to the return, Minnesota Power shall afford the landowner an opportunity to donate the artifacts and materials to Red Lake Nation or appropriate THPO(s) for curation of tribal archives.

B. Any artifacts, materials, or records removed from federal land that are not subject to the Native American Graves Protection and Repatriation Act (NAGPRA) or will be curated in accordance with 36 CFR Part 79, *"Curation of Federally-Owned and Administered Archaeological Collections."*

C. Artifacts and materials retrieved from *tribal lands* will be curated in accordance with appropriate THPO standards and policy.

VIII. CONSTRUCTION MONITORING

A. If determined as a treatment measure (Stipulation V), Minnesota Power will develop a Monitoring Plan for the monitoring of construction activities in close proximity to historic properties. Construction monitors (archaeological consultants or tribal) will be under the direct supervision of a professional who meets the SOI Professional Qualifications Standards for archaeology. Any unanticipated discoveries or effects will be treated in accordance with Stipulation X.

B. It is understood that Minnesota Power will permit Red Lake Nation or other construction monitors (archaeological or other tribal) to inspect construction in a manner that is both safe and unimpeded.

C. Costs associated with construction monitoring by contractors or Red Lake Nation will be the responsibility of Minnesota Power.

IX. CONFIDENTIALITY

DOE will protect information about historic properties of religious and cultural significance to Indian tribes, including location information or information provided by Indian tribes to assist in the identification of such properties, to the extent allowed by Section 304 of the National Historic Preservation Act [16 U. S. C. 470w3], 36 CFR §800.11(c) and other applicable laws, including Exemption 3 of the Freedom of Information Act [5 U.S.C. 552(b)].

X. POST-REVIEW UNANTICIPATED DISCOVERIES

A. If previously unidentified historic properties or unanticipated effects to historic properties are discovered during the Great Northern Transmission Line Project construction, the construction contractor shall immediately halt all activity within a one hundred (100) foot radius of the discovery, notify Minnesota Power of the discovery and implement interim measures to protect the discovery from looting and vandalism.

B. Immediately upon receipt of the notification required in Stipulation X.A, Minnesota Power shall ensure that construction activities have halted, inspect the construction site to determine the extent of the discovery, clearly mark the area of the discovery, implement additional measures, as appropriate, to protect the discovery from looting and vandalism, and notify DOE, SHPO, Red Lake and the following Indian tribes upon discovery: – **[TRIBES].**

C. Upon receipt of notification, DOE, as appropriate, shall treat the discovery in accordance with 36 CFR § 800.13(b)(3) and (c).

D. Treatment of Human Remains

1. When the unanticipated discovery contains human remains or funerary objects and is located on federal tribal lands, DOE shall comply with NAGPRA [25 U.S.C. 3001 et. seq.] and its implementing regulations (43 CFR Part 10). Minnesota Power will implement the procedures in Attachment A for inadvertent discoveries of NAGPRA human remains and cultural items on non-tribal federal lands.

2. Immediately following the discovery of human remains, Minnesota Power will notify Red Lake Nation and the following Indian tribes of the discovery**: [TRIBES]**

3. If the construction contractor for Minnesota Power believes that a discovery contains human remains and the discovery is not located on federal or tribal lands, the construction contractor shall comply with Stipulation X.A. Immediately upon receipt of such notification, Minnesota Power shall comply with the procedures required by Minnesota Statute 390.005.

    a. Minnesota Power shall notify the county coroner. Under the terms of this PA, Minnesota Power will also notify DOE, SHPO and consulting tribes of the discovery.

    b. If the unidentified human remains are found outside of platted, recorded, or identified cemeteries and in contexts which indicate antiquity of greater than fifty (50) years, the coroner shall notify the Minnesota Office of the State Archaeologist (OSA) and the Minnesota Indian Affairs Council in compliance with Section 307-08 of the Minnesota Private Cemeteries Act.

    c. Suspected human remains shall not be further disturbed or removed until disposition has been determined by the OSA and the Minnesota Indian Affairs Council consistent with the guidance titled *State Archaeologist's Procedures for Implementing Minnesota's Private Cemeteries Act*. (Anfinson, 2008).

F. At all times human remains must be treated with the utmost dignity and respect, and in a manner consistent with the ACHP's Policy Statement on the Treatment of Human Remains, Burial Sites and Funerary Objects (February 23, 2007).

G. Minnesota Power shall ensure that the requirements of Stipulation X are incorporated into all construction contracts.

XI. REPORTING

Quarterly following the execution of this PA until construction is complete, Minnesota Power shall submit a written report to DOE, USACE, SHPO, Red Lake Nation, THPO(s) and participating tribes describing progress on implementation of the terms of this PA.

A. At a minimum the report shall contain a summary of construction completed and underway during the period covered by the report and describe the location of this work.

B. If mitigation measures are implemented as part of a Treatment Plan, Minnesota Power will also describe any mitigation measures that have been implemented, the schedule for completion of mitigation, the treatment of any post-review discoveries pursuant to Stipulation X, any scheduling changes proposed, any problems encountered, and any disputes addressed pursuant to Stipulation XII in the report.

C. Minnesota Power may submit the report electronically to DOE, USACE, SHPO and consulting parties.

XII. DISPUTE RESOLUTION

A. If at any time during implementation of this PA, a Signatory, Invited Signatory, or Concurring parties object to any action or any failure to act pursuant to this PA, they may file written objections with the DOE.

1. The DOE will consult with the objecting party, and with other Signatory and/or Concurring parties as appropriate, to resolve the objection. The DOE may initiate on its own such consultation to resolve any of the DOE's objections to actions taken or products produced by any party pursuant to this PA.

2. If the DOE determines that the objection cannot be resolved through consultation alone, the DOE will forward all documentation relevant to the dispute to the ACHP and request that the ACHP comment. After receiving all pertinent documentation, the ACHP will either:

   a) Provide the DOE with recommendations, which the DOE will take into account in reaching a final decision regarding the dispute; or

   b) Notify the DOE that it will comment pursuant to 36 CFR § 800.7(c)(1) through (c)(3) and Section 110(l) of the National Historic Preservation Act of 1966, as amended, and proceed to comment.

3. The DOE will take into account any ACHP comments provided in response to such a request, with reference to the subject of the dispute, and will issue a decision on the matter. The DOE's responsibility to carry out all actions under this PA that are not the subject of dispute will remain unaffected.

XIII. DURATION, AMENDMENT, AND TERMINATION OF THIS PROGRAMMATIC AGREEMENT

A. This PA shall take effect on the date it has been fully executed by the Signatories to this PA and will remain in effect for a period of five (5) years.

B. Any amendments to this PA shall take effect on the dates they are fully executed by the Signatories to this PA and filed with the ACHP.

C. Any Signatory to this PA may propose that the PA be amended, whereupon the parties that have signed this PA shall consult to consider such an amendment. This PA is amended when such an amendment is agreed to in writing by all of those parties. The DOE or its

designess shall provide a copy of the amended PA to the ACHP within thirty (30) days of execution.

D. Any party that signs this PA may terminate this agreement by providing thirty (30) days written notice to the other signing parties, provided that the other signing parties are consulted during the thirty (30)-day notice period in order to seek agreement on amendments or other actions that would avoid termination. In the event of termination, the DOE will comply with 36 CFR Part 800 with regard to individual actions covered by this PA.

EXECUTION of this PA by the Signatories and implementation of the stipulations provided herein evidences that the DOE and USACE have taken into account the effects of this Project on historic properties and afforded the ACHP an opportunity to comment on those effects.

SIGNATORIES

MINNESOTA STATE HISTORIC PRESERVATION OFFICE

BY: DATE:

Name Barbara M. Howard
Title Deputy State Historic Preservation Officer

U.S. DEPARTMENT OF ENERGY

BY: DATE:

Name Meghan Conklin
Title Deputy Assistant Secretary
National Electricity Delivery Division
Office of Electricity Delivery and Energy Reliability

U.S. ARMY CORPS OF ENGINEERS

BY:

Name
Title

INVITED SIGNATORIES

MINNESOTA POWER

BY: DATE:

Name
Title

RED LAKE NATION

BY: DATE:

Name
Title

CONCURRING PARTIES

BOIS FORTE BAND OF OJIBWE

BY: DATE:

Name
Title

WHITE EARTH BAND OF OJIBWE

BY: DATE:

Name
Title

LEECH LAKE BAND OF OJIBWE

BY: DATE:

Name
Title

OTHER

BY: DATE:

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BY: DATE:

Name

Appendix W

Air Emissions Information

Appendix W

Air Emissions Information

Criteria Pollutant and Greenhouse Gas Emissions Analysis: Methodology

Construction activities associated with the proposed Project would result in short-term increases in air emissions as a result of the combustion of fossil fuels in construction equipment and vehicles, and from the fugitive dust emissions associated with site ground disturbance. In addition, the clearing of the ROW would require clearing of forest lands. Deforestation is another source of carbon dioxide (CO_2) to the atmosphere, because removing forests releases most of the stored carbon sink, either through burning or decay.

Construction of the proposed Project would take approximately four years, but activities would not occur at a single construction location for more than a year. Because specific scheduling and construction documentation have not yet been developed, annual emissions of criteria pollutants from construction of the proposed Project have been estimated using an average emissions per mile for typical construction based on a hypothetical 50-mile ROW project site, 1,000 acres of forest clearing, and a 20-acre substation (See Table 1.2). Assumptions for equipment use by activity are provided in Tables 4.1, 4.2, and 4.3. Construction emissions for the hypothetical project activities are provided for non-road equipment (See Tables 5.1, 5.2, 5.3, 5.4); on-road equipment (See Tables 6.1, 6.2, 6.3, 6.4, 7); and helicopter operations (See Table 8). A summary of total emissions by activity and average emission values for the hypothetical project is provided in Table 3.

The Applicant would use large equipment to clear trees and other vegetation and to level construction areas. Large cranes and flatbed trucks would be used to place transmission lines and substation components. Helicopters may be used to place lines and structures. Temporary concrete batch plants may be utilized to supply concrete for foundations. Equipment and material deliveries, the removal of waste, and worker activities and commuting would produce indirect emissions on paved and unpaved roads within the region of influence (ROI). Criteria pollutant and greenhouse gas (GHG) emission factors are based on the size and type of equipment, developed using the EPA's MOVES2014 modeling program for on-road and non-road equipment (See Tables 9 and 10 for emission factors). Helicopter emissions have been calculated using US Air Force helicopter emission factors (See Table 11). Fugitive dust emissions have been calculated using AP-42 Section 13.2 (See Tables 12.1 and 12.2). Concrete batch plant emissions have been calculated using AP-42 Section 11.12, Table 11.12-2 (See Table 12.3).

Total proposed Project construction emissions of nitrogen oxides (NO_x), volatile organic compounds (VOCs), carbon monoxide (CO), sulfur dioxide (SO_2), PM_{10}, $PM_{2.5}$ and CO_2 have been calculated for the West, Central, and East sections and for each variation using the total mileage and forest removal areas for both the Proposed Blue Route and Proposed Orange Route (See Tables 1.1, 2, 2.1 and 2.2). The sum of each proposed route within a section is greater than the sum of the Proposed Blue Route and Route Orange Route, as a whole route, because there is some overlap between the sections.

The loss of carbon sink that results from the removed forest has been estimated using *Methods for Calculating Forest Ecosystem and Harvested Carbon with Standard Estimates for Forest Types of the United States* (See Table 13). The calculations assume the removal of "Northern Lake States Spruce-balsam Pine"

forests that are an average of 55 years old. Carbon sink is defined and reported as the total amount of carbon, in metric tons, and in the equivalent amount of CO_2 in metric tons, calculated using the atomic weight ratio of 12 for Carbon to 44 for CO_2. In addition to the loss of existing carbon sink, removal of forested land eliminates the CO_2 sink that would be provided by continued growth of trees in the forest.

Appendix W Construction Emission Calculations Great Northern Transmission Line, MN	
Table No.	**Title**
Table 1.1	Total Project Construction Emissions
Table 1.2	Summary of Construction Types Used to Estimate Construction Emissions
Table 2	Total Project Construction Emissions, By Route Variation
Table 2.1	Construction Emissions from Placement of Line and Structures on Existing or Cleared ROW
Table 2.2	Construction Emissions from Clearing Forest
Table 3	Construction Emissions by Activity, By Type of Construction Example
Table 4.1	Site Construction Equipment - Replacement of Line and Structures on Existing ROW (50 Mile ROW Example)
Table 4.2	Site Construction Equipment - Clearing Forest (1000 acres example)
Table 4.3	Site Construction Equipment - Substation(40 acre example)
Table 5.1	Nonroad Equipment Exhaust Emissions - Replacement of Line and Structures on Existing ROW (50 Mile ROW Example)
Table 5.2	Nonroad Equipment Exhaust Emissions - Clearing Forest (1000 acres example)
Table 5.3	Nonroad Equipment Exhaust Emissions - Converter Station Construction
Table 5.4	Nonroad Equipment Exhaust Emissions - Concrete Batch Plant
Table 6.1	On Road Construction Equipment - Replacement of Line and Structures on Existing ROW (50 Mile ROW Example)
Table 6.2	On Road Construction Equipment - Clearing Forest (1000 acres example)
Table 6.3	On-Road Construction Equipment Exhaust Emissions - Converter Station Construction
Table 6.4	On-Road Construction Equipment Exhaust Emissions - Concrete Batch Plant
Table 7	On-Road Vehicle (Commuter Vehicles) Exhaust Emissions
Table 8	Helicopter Exhaust Emissions - Transmission Line Segment Construction
Table 9	Nonroad Equipment Exhaust Emission Factors - Koochiching County MN
Table 10	On-Road Vehicle Exhaust Emission Factors
Table 11	Helicopter Exhaust Emission Factors
Table 12.1	Fugitive Dust Emissions - Roads
Table 12.2	Fugitive Dust Emissions - General Construction Activities
Table 12.3	Fugitive Dust Emissions - Concrete Batch Plant
Table 13	Forest Carbon Sink Removed and Loss of Average Annual CO2 uptake emissions , All Route Variations

Table 1.1 Total Project Construction Emissions									
			Emissions (tons)						Emissions (metric tons)
Route	Miles of ROW	Acres of Forest Removal	NO_x	VOC	CO	SO_2	PM_{10}	$PM_{2.5}$	CO_2
West Section									
Proposed Blue/Orange Route	108.4	1736.0	129.9	12.3	77.3	2.2	499.5	82.5	39626.2
Central Section									
Proposed Blue Route	109.8	1770.0	131.6	12.4	78.3	2.3	507.0	83.7	40147.0
Proposed Orange Route	105.4	1751.0	127.0	12.0	75.5	2.2	492.2	81.2	38708.4
East Section									
Proposed Blue Route	61.7	686.0	70.5	6.7	42.1	1.3	252.4	42.2	21635.2
Proposed Orange Route	66.5	682.0	75.4	7.1	45.1	1.4	266.1	44.6	23157.6
Total Route									
Proposed Blue Route	219.0	4829.0	277.2	26.1	164.1	4.5	1147.8	187.2	83981.2
Proposed Orange Route	220.0	4883.4	278.8	26.3	165.0	4.6	1156.5	188.5	84461.3
Substations		30.0	15.1	1.4	12.1	0.0	19.3	2.9	4589.1

Notes: The Sum of Section Route totals are greater than Total Route Totals because Section Routes overlap.

Emissions have been calculated using EPA's MOVES2014 Nonroad and Onroad emission factors for Koochiching, MN, 2018

Average emissions per mile or per acre for forest clearing are estimated using a hypothetical 50-mile ROW construction site. Refer to Appendix X.

Table 1.2 Summary of Construction Types Used to Estimate Construction Emissions Great Northern Transmission Line, MN			
Type of Construction	**Parameters**	**Total**	**Units**
Placement of Line and Structures on Existing or Cleared ROW (50 miles example project). Includes equipment material delivery, site preparation, tower foundations, tower placement, line placement, maintenance, and commuting vehicles	Total Mileage (for Construction Assumptions)	50.00	Miles
	Width of Construction (expanded and disturbed) ROW	200.00	feet
	Area of Impact	1209.12	acres
	Concrete Batch Plants	1.00	#
	Estimated Construction Time	12.00	months
Clearing of Forest. Includes forest removal equipment delivery and use, site preparation, removal of timber and debris, and communiting vehicles	Estimated length of ROW (assuming all forest cover)	42.00	Miles
	Width of Construction (New and disturbed) ROW	200.00	feet
	Area of Impact (Forest removal)	1000.00	acres
	Estimated Construction Time	12.00	months
Substation. Includes equipment material delivery, site preparation, equipment placement, line placement, maintenance, and commuting vehicles	Area of Impact	20.00	acres
	Estimated Construction Time	12.00	months

Table 2
Total Project Construction Emissions, By Route Variation

		Route Variation	Base Length	Total Forest	Construction Emissions							Construction GHG Emissions
		Unit	(mi)	Area (ac)	(tons)							(metric tons)
Section	**Sect. #**	**Buffer (ft.)**	**100**	**100**	**NO_x**	**VOC**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**	**CO_2**	**CO_2**
West	1.1.1	Border Crossing Proposed Route	25.0	354	29.5	2.8	17.6	0.5	110.4	18.3	9929.3	9007.9
West	1.1.1	Border Crossing Pine Creek Variation	25.7	313	29.7	2.8	17.7	0.5	108.1	18.0	10029.1	9098.4
West	1.1.1	Border Crossing Hwy 310 Variation	18.6	239	21.7	2.0	12.9	0.4	79.6	13.3	7313.4	6634.7
West	1.1.1	Border Crossing 500kV Variation	10.1	143	11.8	1.1	7.1	0.2	44.4	7.4	3989.6	3619.4
West	1.1.1	Border Crossing 230kV Variation	8.2	99	9.4	0.9	5.6	0.2	34.3	5.7	3183.1	2887.7
West	1.1.2	Roseau Lake WMA Proposed Route	30.7	443	36.3	3.4	21.6	0.6	136.4	22.6	12218.0	11084.2
West	1.1.2	Roseau Lake WMA Variation 1	44.1	121	46.3	4.4	27.9	0.9	141.8	24.5	15847.9	14377.2
West	1.1.2	Roseau Lake WMA Variation 2	37.5	219	40.7	3.8	24.4	0.8	132.7	22.6	13855.5	12569.7
West	1.1.3	Cedar Bend WMA Proposed Route	24.7	433	30.0	2.8	17.8	0.5	117.6	19.4	10063.1	9129.2
West	1.1.3	Cedar Bend WMA Variation	19.6	209	22.3	2.1	13.4	0.4	79.3	13.3	7557.9	6856.5
West	1.1.3	Cedar Bend WMA Variation Hop 1	0.7	13	0.8	0.1	0.5	0.0	3.3	0.5	277.4	251.6
West	1.1.3	Cedar Bend WMA Variation Hop 2	1.2	25	1.5	0.1	0.9	0.0	6.2	1.0	509.4	462.2
West	1.1.3	Cedar Bend WMA Variation Hop 3	0.9	19	1.2	0.1	0.7	0.0	4.7	0.8	388.2	352.1
West	1.1.4	Beltrami North Proposed Route	16.5	295	20.1	1.9	11.9	0.3	79.1	13.0	6730.7	6106.1
West	1.1.4	Beltrami North Variation 1	15.8	283	19.2	1.8	11.4	0.3	75.9	12.5	6456.6	5857.4
West	1.1.4	Beltrami North Variation 2	19.7	356	24.0	2.3	14.3	0.4	94.9	15.6	8051.9	7304.7
West	1.1.4	Beltrami North Variation Hop 1	1.0	19	1.2	0.1	0.7	0.0	4.8	0.8	395.2	358.5
West	1.1.4	Beltrami North Variation Hop 2	0.9	19	1.2	0.1	0.7	0.0	4.7	0.8	388.2	352.1
West	1.1.5	Beltrami North Central Proposed Route	11.6	211	14.1	1.3	8.4	0.2	55.9	9.2	4738.6	4298.8
West	1.1.5	Beltrami North Central Variation Hop	3.5	46	4.1	0.4	2.4	0.1	15.0	2.5	1366.4	1239.6
West	1.1.5	Beltrami North Central Variation 1	13.7	219	16.4	1.5	9.7	0.3	63.0	10.4	5503.7	4993.0
West	1.1.5	Beltrami North Central Variation 2	12.6	225	15.3	1.4	9.1	0.3	60.4	9.9	5138.3	4661.4
West	1.1.5	Beltrami North Central Variation 3	12.2	184	14.5	1.4	8.6	0.3	55.0	9.1	4870.4	4418.4
West	1.1.5	Beltrami North Central Variation 4	13.5	193	16.0	1.5	9.5	0.3	59.9	9.9	5376.2	4877.3
West	1.1.5	Beltrami North Central Variation 5	15.0	227	17.8	1.7	10.6	0.3	67.8	11.2	6002.8	5445.7
Central	1.2.1	Pine Island Proposed Blue Route	109.8	1770	131.6	12.4	78.3	2.3	507.0	83.7	44253.7	40147.0
Central	1.2.1	Pine Island Proposed Orange Route	105.4	1751	127.0	12.0	75.5	2.2	492.2	81.2	42667.9	38708.4
Central	1.2.2	Beltrami South Central Proposed Route	1.2	29	1.6	0.1	0.9	0.0	6.6	1.1	522.6	474.1
Central	1.2.2	Beltrami South Central Variation	1.7	37	2.2	0.2	1.3	0.0	9.0	1.5	731.0	663.2
Central	1.2.3	Beltrami South Proposed Route	5.6	119	7.0	0.7	4.2	0.1	28.9	4.7	2348.9	2130.9
Central	1.2.3	Beltrami South Variation	7.5	148	9.3	0.9	5.5	0.2	37.6	6.2	3123.6	2833.8
Central	1.2.4	North Black River Proposed Route	8.4	156	10.3	1.0	6.1	0.2	40.9	6.7	3447.6	3127.7
Central	1.2.4	North Black River Variation	9.2	148	11.0	1.0	6.6	0.2	42.4	7.0	3701.4	3357.9
Central	1.2.5	C2 Proposed Route	32.8	541	39.5	3.7	23.5	0.7	152.9	25.2	13279.2	12046.9
Central	1.2.5	C2 Variation	46.0	919	57.1	5.4	33.9	0.9	231.1	37.8	19130.8	17355.5

		Route Variation	Base Length	Total Forest	Construction Emissions							Construction GHG Emissions
		Unit	(mi)	Area (ac)	(tons)							(metric tons)
Section	**Sect. #**	**Buffer (ft.)**	**100**	**100**	**NO_x**	**VOC**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**	**CO_2**	**CO_2**
Central	1.2.6	J2 Proposed Route	42.2	531	49.0	4.6	29.2	0.9	179.3	29.9	16531.0	14996.9
Central	1.2.6	J2 Variation	45.2	414	50.7	4.8	30.4	0.9	175.7	29.6	17186.2	15591.4
Central	1.2.7	Northome Proposed Route	3.7	18	4.0	0.4	2.4	0.1	12.8	2.2	1368.9	1241.8
Central	1.2.7	Northome Variation	4.0	15	4.3	0.4	2.6	0.1	13.4	2.3	1464.1	1328.2
Central	1.2.8	Cutfoot Proposed Route	4.2	69	5.1	0.5	3.0	0.1	19.6	3.2	1704.7	1546.5
Central	1.2.8	Cutfoot Variation	4.8	51	5.4	0.5	3.2	0.1	19.3	3.2	1831.1	1661.2
East	1.3.1	Effie Proposed Blue Route	41.1	505	47.5	4.5	28.4	0.8	173.2	28.9	16049.8	14560.4
East	1.3.1	Effie Proposed Orange Route	44.6	478	50.7	4.8	30.4	0.9	180.6	30.2	17176.1	15582.2
East	1.3.1	Effie Variation	49.8	607	57.6	5.4	34.4	1.0	209.5	34.9	19445.8	17641.3
East	1.3.2	East Bear Lake Proposed Route	8.9	113	10.4	1.0	6.2	0.2	38.0	6.3	3498.8	3174.1
East	1.3.2	East Bear Lake Variation	10.5	111	12.0	1.1	7.2	0.2	42.4	7.1	4049.0	3673.2
East	1.3.3	Balsam Proposed Blue Route	12.9	94	14.2	1.3	8.5	0.3	47.7	8.1	4837.0	4388.1
East	1.3.3	Balsam Proposed Orange Route	13.7	109	15.2	1.4	9.1	0.3	51.5	8.7	5148.9	4671.1
East	1.3.3	Balsam Variation	17.8	168	20.0	1.9	12.0	0.4	69.8	11.7	6796.2	6165.6
East	1.3.4	Dead Man's Pond Proposed Route	2.2	17	2.4	0.2	1.5	0.0	8.2	1.4	826.3	749.6
East	1.3.4	Dead Man's Pond Variation	2.3	11	2.4	0.2	1.5	0.0	7.8	1.3	834.6	757.1
East	1.3.5	Blackberry Proposed Blue Route	5.4	70	6.3	0.6	3.8	0.1	23.3	3.9	2135.2	1937.1
East	1.3.5	Blackberry Proposed Orange Route	6.1	78	7.0	0.7	4.2	0.1	25.9	4.3	2375.1	2154.7
Central	1.4.2.1	Silver Creek WMA Alignment Modification		26	0.3	0.0	0.2	0.0	2.7	0.4	85.3	77.3
Central	1.4.2.2	Airstrip Alignment Modification		38	0.4	0.0	0.2	0.0	4.0	0.6	125.0	113.4
Central	1.4.2.3	Mizpah Alignment Modification		67	0.8	0.1	0.4	0.0	7.0	1.0	220.7	200.2
Central	1.4.2.4	Gravel Pit Alignment Modification		29	0.3	0.0	0.2	0.0	3.1	0.5	96.0	87.1
East	1.4.3.1	Bass Lake Alignment Modification		60	0.7	0.1	0.4	0.0	6.3	0.9	196.6	178.3
East	1.4.3.2	Wilson Lake Alignment Modification		59	0.7	0.1	0.4	0.0	6.2	0.9	193.8	175.8
East	1.4.3.3	Grass Lake Alignment Modification		32	0.4	0.0	0.2	0.0	3.3	0.5	104.7	95.0
East	1.4.3.4	Dead Man's Pond Alignment Modification		35	0.4	0.0	0.2	0.0	3.7	0.5	115.0	104.3
East	1.4.3.5	Trout Lake Alignment Modification		26	0.3	0.0	0.2	0.0	2.7	0.4	85.5	77.6
Total		**Proposed Blue Route**	**219.0**	**4829**	**277.2**	**26.1**	**164.1**	**4.5**	**1147.8**	**187.2**	**92571.9**	**83981.2**
Total		**Proposed Orange Route**	**220.0**	**4883**	**278.8**	**26.3**	**165.0**	**4.6**	**1156.5**	**188.5**	**93101.1**	**84461.3**
Substation		Iron Range 500 kV Substation		23	11.6	1.1	9.3	0.0	14.6	2.2	3871.5	3512.2
Substation		500 kV Series Compensation Station		6	3.0	0.3	2.4	0.0	4.1	0.6	1017.5	923.1
Substation		(3) Regeneration Stations		1	0.5	0.0	0.4	0.0	0.7	0.1	169.6	153.8
Substation		**Substations total**		**30**	**15.1**	**1.4**	**12.1**	**0.0**	**19.3**	**2.9**	**5058.6**	**4589.1**

Table 2.1
Construction Emissions from Placement of Line and Structures on Existing or Cleared ROW

		Route Variation	Base Length	Total Forest	Construction Emissions							Construction GHG Emissions
		Unit	(mi)	Area (ac)	(tons)							(metric tons)
Section	**Sect. #**	**Buffer (ft.)**	**100**	**100**	**NO_x**	**VOC**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**	**CO_2**	**CO_2**
West	1.1.1	Border Crossing Proposed Route	25.0	354	25.5	2.4	15.4	0.5	73.2	12.8	8765.0	7951.6
West	1.1.1	Border Crossing Pine Creek Variation	25.7	313	26.2	2.5	15.8	0.5	75.2	13.2	8999.6	8164.4
West	1.1.1	Border Crossing Hwy 310 Variation	18.6	239	19.0	1.8	11.5	0.4	54.5	9.5	6527.3	5921.6
West	1.1.1	Border Crossing 500kV Variation	10.1	143	10.2	1.0	6.2	0.2	29.4	5.1	3519.3	3192.7
West	1.1.1	Border Crossing 230kV Variation	8.2	99	8.3	0.8	5.0	0.2	23.9	4.2	2857.5	2592.3
West	1.1.2	Roseau Lake WMA Proposed Route	30.7	443	31.3	3.0	18.9	0.6	89.9	15.7	10761.0	9762.4
West	1.1.2	Roseau Lake WMA Variation 1	44.1	121	45.0	4.2	27.2	0.9	129.1	22.6	15449.9	14016.1
West	1.1.2	Roseau Lake WMA Variation 2	37.5	219	38.2	3.6	23.1	0.8	109.7	19.2	13135.2	11916.3
West	1.1.3	Cedar Bend WMA Proposed Route	24.7	433	25.1	2.4	15.2	0.5	72.2	12.6	8638.9	7837.2
West	1.1.3	Cedar Bend WMA Variation	19.6	209	20.0	1.9	12.1	0.4	57.4	10.0	6870.5	6232.9
West	1.1.3	Cedar Bend WMA Variation Hop 1	0.7	13	0.7	0.1	0.4	0.0	2.0	0.3	234.6	212.8
West	1.1.3	Cedar Bend WMA Variation Hop 2	1.2	25	1.2	0.1	0.8	0.0	3.6	0.6	427.2	387.6
West	1.1.3	Cedar Bend WMA Variation Hop 3	0.9	19	0.9	0.1	0.6	0.0	2.7	0.5	325.7	295.4
West	1.1.4	Beltrami North Proposed Route	16.5	295	16.8	1.6	10.1	0.3	48.1	8.4	5760.4	5225.9
West	1.1.4	Beltrami North Variation 1	15.8	283	16.1	1.5	9.7	0.3	46.2	8.1	5525.8	5013.0
West	1.1.4	Beltrami North Variation 2	19.7	356	20.0	1.9	12.1	0.4	57.5	10.1	6881.0	6242.5
West	1.1.4	Beltrami North Variation Hop 1	1.0	19	1.0	0.1	0.6	0.0	2.8	0.5	332.7	301.8
West	1.1.4	Beltrami North Variation Hop 2	0.9	19	0.9	0.1	0.6	0.0	2.7	0.5	325.7	295.4
West	1.1.5	Beltrami North Central Proposed Route	11.6	211	11.8	1.1	7.1	0.2	33.8	5.9	4044.6	3669.2
West	1.1.5	Beltrami North Central Variation Hop	3.5	46	3.5	0.3	2.1	0.1	10.2	1.8	1215.1	1102.4
West	1.1.5	Beltrami North Central Variation 1	13.7	219	13.9	1.3	8.4	0.3	40.0	7.0	4783.4	4339.5
West	1.1.5	Beltrami North Central Variation 2	12.6	225	12.8	1.2	7.7	0.3	36.7	6.4	4398.2	3990.1
West	1.1.5	Beltrami North Central Variation 3	12.2	184	12.4	1.2	7.5	0.2	35.6	6.2	4265.2	3869.4
West	1.1.5	Beltrami North Central Variation 4	13.5	193	13.8	1.3	8.3	0.3	39.6	6.9	4741.4	4301.4
West	1.1.5	Beltrami North Central Variation 5	15.0	227	15.3	1.4	9.3	0.3	43.9	7.7	5256.2	4768.4
Central	1.2.1	Pine Island Proposed Blue Route	109.8	1770	111.8	10.6	67.7	2.2	321.1	56.2	38432.1	34865.6
Central	1.2.1	Pine Island Proposed Orange Route	105.4	1751	107.4	10.1	65.0	2.1	308.4	54.0	36908.8	33483.7
Central	1.2.2	Beltrami South Central Proposed Route	1.2	29	1.2	0.1	0.8	0.0	3.6	0.6	427.2	387.6
Central	1.2.2	Beltrami South Central Variation	1.7	37	1.8	0.2	1.1	0.0	5.1	0.9	609.3	552.8
Central	1.2.3	Beltrami South Proposed Route	5.6	119	5.7	0.5	3.4	0.1	16.4	2.9	1957.5	1775.8
Central	1.2.3	Beltrami South Variation	7.5	148	7.7	0.7	4.6	0.2	22.0	3.9	2636.8	2392.1
Central	1.2.4	North Black River Proposed Route	8.4	156	8.5	0.8	5.2	0.2	24.5	4.3	2934.5	2662.2
Central	1.2.4	North Black River Variation	9.2	148	9.4	0.9	5.7	0.2	26.9	4.7	3214.6	2916.3

		Route Variation	Base Length	Total Forest	Construction Emissions							Construction GHG Emissions
		Unit	(mi)	Area (ac)	(tons)							(metric tons)
Section	**Sect. #**	**Buffer (ft.)**	**100**	**100**	**NO_x**	**VOC**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**	**CO_2**	**CO_2**
Central	1.2.5	C2 Proposed Route	32.8	541	33.5	3.2	20.2	0.7	96.1	16.8	11499.9	10432.7
Central	1.2.5	C2 Variation	46.0	919	46.9	4.4	28.4	0.9	134.6	23.5	16108.2	14613.4
Central	1.2.6	J2 Proposed Route	42.2	531	43.0	4.1	26.0	0.9	123.5	21.6	14784.5	13412.5
Central	1.2.6	J2 Variation	45.2	414	46.0	4.3	27.9	0.9	132.2	23.1	15824.6	14356.0
Central	1.2.7	Northome Proposed Route	3.7	18	3.8	0.4	2.3	0.1	10.9	1.9	1309.7	1188.1
Central	1.2.7	Northome Variation	4.0	15	4.1	0.4	2.5	0.1	11.8	2.1	1414.7	1283.4
Central	1.2.8	Cutfoot Proposed Route	4.2	69	4.3	0.4	2.6	0.1	12.3	2.2	1477.8	1340.6
Central	1.2.8	Cutfoot Variation	4.8	51	4.8	0.5	2.9	0.1	13.9	2.4	1663.3	1509.0
East	1.3.1	Effie Proposed Blue Route	41.1	505	41.9	4.0	25.3	0.8	120.2	21.0	14388.8	13053.6
East	1.3.1	Effie Proposed Orange Route	44.6	478	45.4	4.3	27.5	0.9	130.4	22.8	15604.0	14155.9
East	1.3.1	Effie Variation	49.8	607	50.8	4.8	30.7	1.0	145.8	25.5	17449.4	15830.1
East	1.3.2	East Bear Lake Proposed Route	8.9	113	9.1	0.9	5.5	0.2	26.1	4.6	3127.1	2836.9
East	1.3.2	East Bear Lake Variation	10.5	111	10.7	1.0	6.5	0.2	30.8	5.4	3683.9	3342.0
East	1.3.3	Balsam Proposed Blue Route	12.9	94	13.2	1.2	8.0	0.3	37.8	6.6	4527.8	4107.6
East	1.3.3	Balsam Proposed Orange Route	13.7	109	13.9	1.3	8.4	0.3	40.0	7.0	4790.4	4345.9
East	1.3.3	Balsam Variation	17.8	168	18.2	1.7	11.0	0.4	52.2	9.1	6243.7	5664.3
East	1.3.4	Dead Man's Pond Proposed Route	2.2	17	2.2	0.2	1.4	0.0	6.4	1.1	770.4	698.9
East	1.3.4	Dead Man's Pond Variation	2.3	11	2.3	0.2	1.4	0.0	6.7	1.2	798.4	724.3
East	1.3.5	Blackberry Proposed Blue Route	5.4	70	5.5	0.5	3.4	0.1	15.9	2.8	1905.0	1728.2
East	1.3.5	Blackberry Proposed Orange Route	6.1	78	6.2	0.6	3.7	0.1	17.7	3.1	2118.6	1922.0
Central	1.4.2.1	Silver Creek WMA Alignment Modification		26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central	1.4.2.2	Airstrip Alignment Modification		38	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central	1.4.2.3	Mizpah Alignment Modification		67	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central	1.4.2.4	Gravel Pit Alignment Modification		29	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
East	1.4.3.1	Bass Lake Alignment Modification		60	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
East	1.4.3.2	Wilson Lake Alignment Modification		59	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
East	1.4.3.3	Grass Lake Alignment Modification		32	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
East	1.4.3.4	Dead Man's Pond Alignment Modification		35	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
East	1.4.3.5	Trout Lake Alignment Modification		26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total		**Proposed Blue Route**	**219.0**	**4829**	**223.1**	**21.1**	**135.0**	**4.4**	**640.7**	**112.1**	**76689.1**	**69572.3**
Total		**Proposed Orange Route**	**220.0**	**4883**	**224.2**	**21.2**	**135.6**	**4.4**	**643.7**	**112.6**	**77039.3**	**69890.0**
Substation		Iron Range 500 kV Substation	0.0	23	11.4	1.0	9.2	0.0	13.1	2.0	3824.8	3469.9
Substation		500 kV Seriec Compensation Station		6	3.0	0.3	2.4	0.0	3.4	0.5	997.8	905.2
Substation		(3) Regeneration Stations		1	0.5	0.0	0.4	0.0	0.6	0.1	166.3	150.9
Substation		**Substations total**		**30**	**14.9**	**1.4**	**12.0**	**0.0**	**17.1**	**2.6**	**4988.9**	**4525.9**

Table 2.2 Construction Emissions from Clearing Forest												
		Route Variation	Base Length	Total Forest	Construction Emissions							Construction GHG Emissions
		Unit	(mi)	Area (ac)	(tons)							(metric tons)
Section	**Sect. #**	**Buffer (ft.)**	**100**	**100**	**NO_x**	**VOC**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**	**CO_2**	**CO_2**
West	1.1.1	Border Crossing Proposed Route	25.0	354	4.0	0.37	2.13	0.01	37.2	5.5	1164.3	1056.3
West	1.1.1	Border Crossing Pine Creek Variation	25.7	313	3.5	0.33	1.88	0.01	32.9	4.9	1029.5	933.9
West	1.1.1	Border Crossing Hwy 310 Variation	18.6	239	2.7	0.25	1.44	0.01	25.1	3.7	786.1	713.1
West	1.1.1	Border Crossing 500kV Variation	10.1	143	1.6	0.15	0.86	0.00	15.0	2.2	470.3	426.7
West	1.1.1	Border Crossing 230kV Variation	8.2	99	1.1	0.10	0.60	0.00	10.4	1.5	325.6	295.4
West	1.1.2	Roseau Lake WMA Proposed Route	30.7	443	5.0	0.47	2.67	0.01	46.5	6.9	1457.0	1321.8
West	1.1.2	Roseau Lake WMA Variation 1	44.1	121	1.4	0.13	0.73	0.00	12.7	1.9	398.0	361.0
West	1.1.2	Roseau Lake WMA Variation 2	37.5	219	2.4	0.23	1.32	0.00	23.0	3.4	720.3	653.5
West	1.1.3	Cedar Bend WMA Proposed Route	24.7	433	4.8	0.45	2.61	0.01	45.5	6.7	1424.2	1292.0
West	1.1.3	Cedar Bend WMA Variation	19.6	209	2.3	0.22	1.26	0.00	21.9	3.2	687.4	623.6
West	1.1.3	Cedar Bend WMA Variation Hop 1	0.7	13	0.1	0.01	0.08	0.00	1.4	0.2	42.8	38.8
West	1.1.3	Cedar Bend WMA Variation Hop 2	1.2	25	0.3	0.03	0.15	0.00	2.6	0.4	82.2	74.6
West	1.1.3	Cedar Bend WMA Variation Hop 3	0.9	19	0.2	0.02	0.11	0.00	2.0	0.3	62.5	56.7
West	1.1.4	Beltrami North Proposed Route	16.5	295	3.3	0.31	1.78	0.01	31.0	4.6	970.3	880.2
West	1.1.4	Beltrami North Variation 1	15.8	283	3.2	0.30	1.70	0.01	29.7	4.4	930.8	844.4
West	1.1.4	Beltrami North Variation 2	19.7	356	4.0	0.37	2.14	0.01	37.4	5.5	1170.9	1062.2
West	1.1.4	Beltrami North Variation Hop 1	1.0	19	0.2	0.02	0.11	0.00	2.0	0.3	62.5	56.7
West	1.1.4	Beltrami North Variation Hop 2	0.9	19	0.2	0.02	0.11	0.00	2.0	0.3	62.5	56.7
West	1.1.5	Beltrami North Central Proposed Route	11.6	211	2.4	0.22	1.27	0.00	22.2	3.3	694.0	629.6
West	1.1.5	Beltrami North Central Variation Hop	3.5	46	0.5	0.05	0.28	0.00	4.8	0.7	151.3	137.3
West	1.1.5	Beltrami North Central Variation 1	13.7	219	2.4	0.23	1.32	0.00	23.0	3.4	720.3	653.5
West	1.1.5	Beltrami North Central Variation 2	12.6	225	2.5	0.24	1.35	0.01	23.6	3.5	740.0	671.4
West	1.1.5	Beltrami North Central Variation 3	12.2	184	2.1	0.19	1.11	0.00	19.3	2.9	605.2	549.0
West	1.1.5	Beltrami North Central Variation 4	13.5	193	2.2	0.20	1.16	0.00	20.3	3.0	634.8	575.9
West	1.1.5	Beltrami North Central Variation 5	15.0	227	2.5	0.24	1.37	0.01	23.8	3.5	746.6	677.3
Central	1.2.1	Pine Island Proposed Blue Route	109.8	1770	19.8	1.86	10.65	0.04	185.9	27.5	5821.6	5281.4
Central	1.2.1	Pine Island Proposed Orange Route	105.4	1751	19.6	1.84	10.54	0.04	183.9	27.2	5759.1	5224.7
Central	1.2.2	Beltrami South Central Proposed Route	1.2	29	0.3	0.03	0.17	0.00	3.0	0.5	95.4	86.5
Central	1.2.2	Beltrami South Central Variation	1.7	37	0.4	0.04	0.22	0.00	3.9	0.6	121.7	110.4
Central	1.2.3	Beltrami South Proposed Route	5.6	119	1.3	0.12	0.72	0.00	12.5	1.9	391.4	355.1
Central	1.2.3	Beltrami South Variation	7.5	148	1.7	0.16	0.89	0.00	15.5	2.3	486.8	441.6
Central	1.2.4	North Black River Proposed Route	8.4	156	1.7	0.16	0.94	0.00	16.4	2.4	513.1	465.5
Central	1.2.4	North Black River Variation	9.2	148	1.7	0.16	0.89	0.00	15.5	2.3	486.8	441.6
Central	1.2.5	C2 Proposed Route	32.8	541	6.1	0.57	3.26	0.01	56.8	8.4	1779.4	1614.2
Central	1.2.5	C2 Variation	46.0	919	10.3	0.96	5.53	0.02	96.5	14.3	3022.6	2742.1
Central	1.2.6	J2 Proposed Route	42.2	531	5.9	0.56	3.20	0.01	55.8	8.3	1746.5	1584.4

		Route Variation	Base Length	Total Forest	Construction Emissions							Construction GHG Emissions
		Unit	(mi)	Area (ac)	(tons)							(metric tons)
Section	**Sect. #**	**Buffer (ft.)**	**100**	**100**	**NO_x**	**VOC**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**	**CO_2**	**CO_2**
Central	1.2.6	J2 Variation	45.2	414	4.6	0.43	2.49	0.01	43.5	6.4	1361.7	1235.3
Central	1.2.7	Northome Proposed Route	3.7	18	0.2	0.02	0.11	0.00	1.9	0.3	59.2	53.7
Central	1.2.7	Northome Variation	4.0	15	0.2	0.02	0.09	0.00	1.6	0.2	49.3	44.8
Central	1.2.8	Cutfoot Proposed Route	4.2	69	0.8	0.07	0.42	0.00	7.2	1.1	226.9	205.9
Central	1.2.8	Cutfoot Variation	4.8	51	0.6	0.05	0.31	0.00	5.4	0.8	167.7	152.2
East	1.3.1	Effie Proposed Blue Route	41.1	505	5.6	0.53	3.04	0.01	53.0	7.9	1661.0	1506.8
East	1.3.1	Effie Proposed Orange Route	44.6	478	5.3	0.50	2.88	0.01	50.2	7.4	1572.2	1426.3
East	1.3.1	Effie Variation	49.8	607	6.8	0.64	3.65	0.01	63.7	9.4	1996.5	1811.2
East	1.3.2	East Bear Lake Proposed Route	8.9	113	1.3	0.12	0.68	0.00	11.9	1.8	371.7	337.2
East	1.3.2	East Bear Lake Variation	10.5	111	1.2	0.12	0.67	0.00	11.7	1.7	365.1	331.2
East	1.3.3	Balsam Proposed Blue Route	12.9	94	1.1	0.10	0.57	0.00	9.9	1.5	309.2	280.5
East	1.3.3	Balsam Proposed Orange Route	13.7	109	1.2	0.11	0.66	0.00	11.4	1.7	358.5	325.2
East	1.3.3	Balsam Variation	17.8	168	1.9	0.18	1.01	0.00	17.6	2.6	552.6	501.3
East	1.3.4	Dead Man's Pond Proposed Route	2.2	17	0.2	0.02	0.10	0.00	1.8	0.3	55.9	50.7
East	1.3.4	Dead Man's Pond Variation	2.3	11	0.1	0.01	0.07	0.00	1.2	0.2	36.2	32.8
East	1.3.5	Blackberry Proposed Blue Route	5.4	70	0.8	0.07	0.42	0.00	7.4	1.1	230.2	208.9
East	1.3.5	Blackberry Proposed Orange Route	6.1	78	0.9	0.08	0.47	0.00	8.2	1.2	256.5	232.7
Central	1.4.2.1	Silver Creek WMA Alignment Modification		26	0.3	0.03	0.16	0.00	2.7	0.4	85.3	77.3
Central	1.4.2.2	Airstrip Alignment Modification		38	0.4	0.04	0.23	0.00	4.0	0.6	125.0	113.4
Central	1.4.2.3	Mizpah Alignment Modification		67	0.8	0.07	0.40	0.00	7.0	1.0	220.7	200.2
Central	1.4.2.4	Gravel Pit Alignment Modification		29	0.3	0.03	0.18	0.00	3.1	0.5	96.0	87.1
East	1.4.3.1	Bass Lake Alignment Modification		60	0.7	0.06	0.36	0.00	6.3	0.9	196.6	178.3
East	1.4.3.2	Wilson Lake Alignment Modification		59	0.7	0.06	0.35	0.00	6.2	0.9	193.8	175.8
East	1.4.3.3	Grass Lake Alignment Modification		32	0.4	0.03	0.19	0.00	3.3	0.5	104.7	95.0
East	1.4.3.4	Dead Man's Pond Alignment Modification		35	0.4	0.04	0.21	0.00	3.7	0.5	115.0	104.3
East	1.4.3.5	Trout Lake Alignment Modification		26	0.3	0.03	0.16	0.00	2.7	0.4	85.5	77.6
Total		**Proposed Blue Route**	**219.0**	**4829**	**54.0**	**5.07**	**29.06**	**0.11**	**507.1**	**75.1**	**15882.8**	**14408.9**
Total		**Proposed Orange Route**	**220.0**	**4883**	**54.6**	**5.13**	**29.39**	**0.11**	**512.8**	**75.9**	**16061.8**	**14571.3**
Substation		Iron Range 500 kV Substation	0.0	14	0.2	0.01	0.09	0.00	1.5	0.2	46.7	42.4
Substation		500 kV Series Compensation Station		6	0.1	0.01	0.04	0.00	0.6	0.1	19.7	17.9
Substation		(3) Regeneration Stations		1	0.0	0.00	0.01	0.00	0.1	0.0	3.3	3.0
Substation		**Substations total**		**21**	**0.2**	**0.02**	**0.13**	**0.00**	**2.2**	**0.3**	**69.7**	**63.3**

Table 3
Construction Emissions by Activity, By Type of Construction Example
Great Northern Transmission Line Project

Activity		Emissions (tons)							GHG Emissions (metric tons)	Reference
Miles or Acres	**Emission Source**	**NO_x**	**VOC**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**	**CO_2**	**CO_2**	**Table**
Placement of Line and Structures on Existing or Cleared ROW (50 miles example project)	Exhaust Emissions - Nonroad Equipment	30.07	3.17	17.11	0.05	2.07	1.83	8345.81	7571.32	T5.1
	Exhaust Emissions - On-Road Vehicle (Construction Vehicles)	4.39	0.23	1.60	0.01	0.14	0.13	1552.72	1408.63	T6.1
	Exhaust Emissions - On-Road Vehicles (Commuter Vehicles)	0.38	0.07	3.58	0.00	0.01	0.01	476.65	432.41	T7
	Exhaust Emissions - Helicopters	13.84	1.06	6.78	0.94	4.01	4.01	6640.17	6023.96	T8
	Fugitive Dust Emissions - Work Site	-	-	-	-	102.29	15.67	-	-	T12.1
	Fugitive Dust Emissions - Roads	-	-	-	-	36.36	3.69	-	-	T12.2
	Concrete Batch Plant: Exhaust Emissions - Nonroad Equipment	2.06	0.28	1.71	0.00	0.24	0.14	423.39	384.10	T5.4
	Concrete Batch Plant: Exhaust Emissions - On-Road Vehicles	0.21	0.01	0.05	0.00	0.01	0.01	70.19	63.67	T6.4
	Concrete Batch Plant: Fugitive Dust Emissions - Plant	-	-	-	-	0.20	0.02	-	-	T12.3
	Concrete Batch Plant: Fugitive Dust Emissions - Roads	-	-	-	-	0.94	0.09	-	-	T12.1
	Total	**50.94**	**4.81**	**30.83**	**1.01**	**146.29**	**25.60**	**17508.93**	**15884.10**	
50.0	**per Mile**	**1.02**	**0.10**	**0.62**	**0.02**	**2.93**	**0.51**	**350.18**	**317.68**	
Clearing of Forest.	Exhaust Emissions - Nonroad Equipment	7.91	0.87	3.69	0.01	0.61	0.49	2083.28	1889.95	T5.2
	Exhaust Emissions - On-Road Vehicle (Construction Vehicles)	3.14	0.15	0.99	0.01	0.10	0.09	1027.45	932.11	T6.2
	Exhaust Emissions - On-Road Vehicles (Commuter Vehicles)	0.14	0.03	1.34	0.00	0.01	0.00	178.31	161.77	T7.2
	Exhaust Emissions - Helicopters	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	Fugitive Dust Emissions - Work Site					84.60	12.96			T12.2
	Fugitive Dust Emissions - Roads					19.69	1.99			T12.1
	Total	**11.19**	**1.05**	**6.02**	**0.02**	**105.01**	**15.55**	**3289.05**	**2983.82**	
1000.0	**per Acre**	**0.01**	**0.00**	**0.01**	**0.00**	**0.11**	**0.02**	**3.29**	**2.98**	
Converter Station	Exhaust Emissions - Nonroad Equipment	7.17	0.73	5.17	0.01	0.44	0.43	2178.53	1976.36	T5.3
	Exhaust Emissions - On-Road Vehicle (Construction Vehicles)	2.63	0.15	1.70	0.01	0.08	0.08	999.93	907.13	T6.3
	Exhaust Emissions - On-Road Vehicles (Commuter Vehicles)	0.12	0.02	1.11	0.00	0.00	0.00	147.45	133.77	T7.3
	Fugitive Dust Emissions - Work Site	-	-	-	-	1.69	0.26	-	-	T12.2
	Fugitive Dust Emissions - Roads	-	-	-	-	9.19	0.95	-	-	T12.1
	Total	**9.91**	**0.90**	**7.98**	**0.02**	**11.41**	**1.72**	**3325.91**	**3017.26**	
20.00	**per Acre**	**0.50**	**0.05**	**0.40**	**0.00**	**0.57**	**0.09**	**166.30**	**150.86**	

Table 4.1

Site Construction Equipment - Replacement of Line and Structures on Existing ROW (50 Mile ROW Example)

Equipment Type	Equipment Description	ROW Clearing	Access Roads & Pads	Foundation Constr.	Tower Lacing (assembly)	Tower Setting (erection)	Wire Stringing	Restoration	Supervision	Materials Mngmt	Mechanic & Equipment Mngmt	Refueling	Watering & Dust Control	Blasting	Construction Insp.	Materials Testing	ENV Compliance	Surveyors	Sanitation/ Cleanup	Total
		No. of Crews:																		
		2	2	2	2	2	2	2	2	2	2	2	2	0	2	2	2	2	2	-
		Quantity of Equipment:																		
Non-Road Equipment	3-Drum Puller (Heavy)						2													**2**
	3-Drum Puller (Medium)						2													**2**
	Air Compressor				2						2									**4**
	All Terrain Vehicle (ATV)																	2		**2**
	Backhoe		2																2	**4**
	Bobcat		2	2																**4**
	Bulldozer (D-8 Cat or Equivalent)	2	2				2													**6**
	Chipper	2																		**2**
	Crane (30-ton)						2													**2**
	Crane (Rubber-Tired)				2															**2**
	(Heavy)						2													**2**
	Double Bull-Wheel Tensioner (Light)						2													**2**
	Drill Rig			2																**2**
	Excavator	2	2	0																**4**
	Feller Buncher	2																		**2**
	Flail mower or Bush hog	2																		**2**
	Fork Lift									2										**2**
	Generator			1	2	1														**4**
	Hydra-Ax or Mulcher	2																		**2**
	Loader	2	1	1				2												**6**
	Motor Grader		2					2												**4**
	Office Trailer								2											**2**
	Plate Compactor			2																**2**
	Road Sweeper																		2	**2**
	Roller Compactor		2																	**2**
	Scraper		2																	**2**
	Single-Drum Puller (Large)						2													**2**
	Skidder	2																		**2**
	Wagon Drill																			**0**
	Wire Reel Trailer																			**0**
	Total Non-road																			**76**
On-Road Vehicles	Boom Truck									2										**2**
	Concrete Truck			2																**2**
	Crane (20-ton)			2		2	2													**6**
	Cranes (120- to 300-ton)					0														**0**
	Dump Truck		1	1						1									2	**5**
	Fuel Truck											2								**2**
	Mechanics' Truck										2									**2**
	Pick-up Truck	2	2	2	2	2	2	2	2	2				0	2	2	2	2	2	**28**
	Splicing Truck						2													**2**
	Steel Haul Truck									2										**2**
	Truck (1-ton)			1		1	1													**3**
	Truck (2-ton)				1	1	1													**3**
	Truck (5-ton)						0													**0**
	Water Truck		2										2							**4**
	Total On-road																			**61**
Helicopters	Helicopter (Small)						1													**1**
	Helicopter (Large)					1														**1**
	Total All Equipment	18	20	16	9	8	23	6	4	9	4	2	2	0	2	2	2	4	8	**139**

Table 4.2

Site Construction Equipment - Clearing Forest (1000 acres example)

Equipment Type	Equipment Description	ROW Clearing	Access Roads & Pads	Foundation Const.	Tower Lacing (assembly)	Tower Setting (erection)	Wire Stringing	Restoration	Supervision	Materials Mngmt	Mechanic & Equipment Mngmt	Refueling	Watering & Dust Control	Blasting	Construction Insp.	Materials Testing	ENV Comp.	Surveyors	Sanitation / Cleanup	Total
		No. of Crews:																		
		2	2	2	2	2	2	2	2	2	2	2	2	0	5	5	3	3	5	-
		Quantity of Equipment:																		
Non-Road Equipment	3-Drum Puller (Heavy)																			**0**
	3-Drum Puller (Medium)																			**0**
	Air Compressor										2									**2**
	All Terrain Vehicle (ATV)																	2		**2**
	Backhoe																		2	**2**
	Bobcat																			**0**
	Equivalent)	1																		**1**
	Chipper	1																		**1**
	Crane (30-ton)																			**0**
	Crane (Rubber-Tired)																			**0**
	Tensioner (Heavy)																			**0**
	Tensioner (Light)																			**0**
	Drill Rig																			**0**
	Excavator	1																		**1**
	Feller Buncher	1																		**1**
	Flail mower or Bush hog	1																		**1**
	Fork Lift									2										**2**
	Generator																			**0**
	Hydra-Ax or Mulcher	1																		**1**
	Loader	1																		**1**
	Motor Grader																			**0**
	Office Trailer								2											**2**
	Plate Compactor																			**0**
	Road Sweeper																		2	**2**
	Roller Compactor																			**0**
	Scraper																			**0**
	Single-Drum Puller (Large)																			**0**
	Skidder	1																		**1**
	Wagon Drill																			**0**
	Wire Reel Trailer																			**0**
	Total Non-road																			**20**
On-Road Vehicles	Boom Truck									2										**2**
	Concrete Truck																			**0**
	Crane (20-ton)																			**0**
	Cranes (120- to 300-ton)																			**0**
	Dump Truck									2									2	**4**
	Fuel Truck											2								**2**
	Mechanics' Truck										2									**2**
	Pick-up Truck	1							2	2				0	2	2	2	2	2	**15**
	Splicing Truck																			**0**
	Steel Haul Truck									5										**5**
	Truck (1-ton)																			**0**
	Truck (2-ton)																			**0**
	Truck (5-ton)																			**0**
	Water Truck												2							**2**
	Total On-road																			**32**
Helicopters	Helicopter (Small)																			**0**
	Helicopter (Large)																			**0**
	Total All Equipment	**9**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**13**	**4**	**2**	**2**	**0**	**2**	**2**	**2**	**4**	**8**	**52**

Table 4.3

Site Construction Equipment - Substation(40 acre example)

Equipment Type	Equipment Description	Site Mngmt	Surveyors	Site Develop.	Fence Installation	Equipment Footings	Cable Trench, Conduits, Grounding	Steel Structures, Electrical Equip.	Control Bldg. and Wiring	Traffic Control	Construction Insp.	Materials Testing	Total
		Quantity of Equipment:											
Non-Road Equipment	Air Compressor				0	1	0	1	1				**3**
	All Terrain Vehicle (ATV)	1											**1**
	Bobcat\Skid Loader				1	1	0	0					**2**
	Boom Lift							2	2				**4**
	Bulldozer (D-8 Cat or Equivalent)			1	1								**2**
	Bulldozer (D-4 Cat or Equivalent)			1	1								**2**
	Concrete Line Pump				1	1							**2**
	Excavator Mini					1	1						**2**
	Excavator 100 Series			1		1	1						**3**
	Excavator 300 Series			1		1	1						**3**
	Forklift (Telescopic)				3	1		1					**5**
	Generator	1				1		1					**3**
	Wheel Loader (5 CY)			3		1							**4**
	Loader Backhoe	1		1	1	1	1						**5**
	Motor Grader			1		1	1						**3**
	Office Trailer	5		0		0		0					**5**
	Plate Compactor			1		1	1						**3**
	Road Sweeper			1									**1**
	Scraper			1									**1**
	Trencher						1		1				**2**
	Articulated Dump Truck			1									**1**
	Vibratory Compactor			1		1	1						**3**
	Total Off-Road												**60**
On-Road Vehicles	Concrete Truck				1	1							**2**
	Concrete Pump Truck					1							**1**
	Crane (15-ton Boom Truck)					0		1					**1**
	Crane (30-ton)					0		1					**1**
	Crane (120- to 300-ton)					1		1	1				**3**
	Dump Truck			1		1							**2**
	Fuel Truck			1		1		0					**2**
	Welder Truck							1					**1**
	Lowboy Truck			1		1							**2**
	Mechanics' Truck			1		1							**2**
	Pick-up Truck	1	1	3	1	1	1	1	1	1	1	1	**13**
	Splicing Truck								1				**1**
	Truck (1-ton)				1	1	1	1		1			**5**
	Truck (2-ton)						1	1	1				**3**
	Utility Van		1	1					1				**3**
	Water Truck			1									**1**
	Total On-road												**43**
	Total	**9**	**2**	**23**	**11**	**22**	**11**	**12**	**9**	**2**	**1**	**1**	**103**

Table 5.1

Nonroad Equipment Exhaust Emissions - Replacement of Line and Structures on Existing ROW (50 Mile ROW Example)

Equipment Type	Fuel Type	Total No. of Units	Daily Operation per Unit (hrs/day)	Total Working Days per Unit	Equipment Engine Size (hp)	Load Factor	Total Equipment Hourly Usage (hrs)	Emissions (tons)							Emission Factor Reference
								NO_x	VOC	CO	SO_2	PM_{10}	$PM_{2.5}$	CO_2	
3-Drum Puller (Heavy)	Diesel	2	8	260	240	21%	4,160	0.4	0.0	0.1	0.0	0.0	0.0	120.7	Other Construction Equipment
3-Drum Puller (Medium)	Diesel	2	8	260	160	21%	4,160	0.3	0.0	0.1	0.0	0.0	0.0	71.1	Other Construction Equipment
Air Compressor	Diesel	4	7	260	197	59%	7,280	2.1	0.2	0.5	0.0	0.1	0.1	611.1	Air Compressors
All Terrain Vehicle (ATV)	Diesel	2	8	260	22	21%	4,160	0.1	0.0	0.1	0.0	0.0	0.0	14.2	Specialty Vehicle Carts
Backhoe	Diesel	4	9	260	106	59%	9,360	2.0	0.4	2.6	0.0	0.4	0.2	390.2	Tractors/Loaders/Backhoes
Bobcat	Diesel	4	7	260	49	59%	7,280	0.9	0.1	0.5	0.0	0.1	0.1	147.8	Skid Steer Loaders
Bulldozer (D-8 Cat or Equivalent)	Diesel	6	6	260	305	59%	9,360	4.3	0.4	1.8	0.0	0.3	0.3	1388.6	Crawler Tractors/Dozers
Chipper	Diesel	2	8	260	85	59%	4,160	0.8	0.1	0.4	0.0	0.1	0.1	134.6	Chippers/Stump Grinders
Crane (30-ton)	Diesel	2	8	260	152	43%	4,160	0.4	0.0	0.1	0.0	0.0	0.0	151.9	Cranes
Crane (Rubber-Tired)	Diesel	2	8	260	235	43%	4,160	0.7	0.1	0.1	0.0	0.0	0.0	248.7	Cranes
Double Bull-Wheel Tensioner (Heavy)	Diesel	2	8	260	130	21%	4,160	0.3	0.0	0.1	0.0	0.0	0.0	71.1	Other Construction Equipment
Double Bull-Wheel Tensioner (Light)	Diesel	2	8	260	85	21%	4,160	0.2	0.0	0.2	0.0	0.0	0.0	48.3	Other Construction Equipment
Drill Rig	Diesel	2	8	260	325	43%	4,160	3.2	0.2	0.9	0.0	0.1	0.1	467.5	Bore/Drill Rigs
Excavator	Diesel	4	8	260	159	59%	8,320	0.7	0.1	0.3	0.0	0.1	0.1	399.3	Excavators
Feller Buncher	Diesel	2	8	260	243	59%	4,160	1.1	0.1	0.4	0.0	0.1	0.1	339.1	Feller/Bunch/Skidders
Flail mower or Bush hog	Diesel	2	6	260	50	21%	3,120	0.1	0.0	0.0	0.0	0.0	0.0	19.1	Front Mowers
Fork Lift	Diesel	2	8	260	300	59%	4,160	1.0	0.1	0.3	0.0	0.1	0.1	332.4	Rough Terrain Forklifts
Generator	Diesel	4	10	260	43	59%	10,400	1.3	0.1	0.4	0.0	0.1	0.1	180.1	Generator Sets
Hydra-Ax or Mulcher	Diesel	2	8	260	210	59%	4,160	1.1	0.1	0.4	0.0	0.1	0.1	339.1	Other Construction Equipment
Loader	Diesel	6	9	260	369	21%	14,040	2.9	0.2	1.2	0.0	0.2	0.2	731.0	Rubber Tire Loaders
Motor Grader	Diesel	4	10	260	297	59%	10,400	1.6	0.2	0.5	0.0	0.1	0.1	838.7	Graders
Office Trailer	Diesel	2	18	260	43	59%	9,360	1.2	0.1	0.4	0.0	0.1	0.1	162.1	Generator Sets
Plate Compactor	Gasoline	2	8	260	7.9	43%	4,160	0.0	0.1	4.4	0.0	0.0	0.0	17.0	Plate Compactors
Road Sweeper	Diesel	2	6	260	50	43%	3,120	0.2	0.0	0.0	0.0	0.0	0.0	38.1	Sweepers/Scrubbers
Roller Compactor	Diesel	2	8	260	133	43%	4,160	0.4	0.0	0.2	0.0	0.0	0.0	139.8	Rollers
Scraper	Diesel	2	6	260	407	59%	3,120	1.5	0.1	0.6	0.0	0.1	0.1	459.8	Scrapers
Single-Drum Puller (Large)	Diesel	2	10	260	210	21%	5,200	0.5	0.1	0.2	0.0	0.0	0.0	150.9	Other Construction Equipment
Skidder	Diesel	2	8	260	182	59%	4,160	0.8	0.1	0.3	0.0	0.1	0.1	333.7	Rubber Tire Loaders
Wagon Drill	Diesel	0	6	260	450	43%	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Bore/Drill Rigs
Wire Reel Trailer	Diesel	0	2	260	450	21%	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Other Construction Equipment
Total		**76**						**30**	**3**	**17**	**0.05**	**2.1**	**1.8**	**8,346**	**-**

Note:Conservatively assumes all equipment works each day, 5 days per week for a year

Table 5.2
Nonroad Equipment Exhaust Emissions - Clearing Forest (1000 acres example)

Equipment Type	Fuel Type	Total No. of Units	Daily Operation per Unit (hrs/day)	Total Working Days per Unit	Equipment Engine Size (hp)	Load Factor	Total Equipment Hourly Usage (hrs)	Emissions (tons)							Emission Factor Reference
								NO_x	VOC	CO	SO_2	PM_{10}	$PM_{2.5}$	CO_2	
3-Drum Puller (Heavy)	Diesel	0	8	260	240	21%	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Other Construction Equipment
3-Drum Puller (Medium)	Diesel	0	8	260	160	21%	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Other Construction Equipment
Air Compressor	Diesel	2	7	260	197	59%	3,640	1.0	0.1	0.2	0.0	0.0	0.0	305.5	Air Compressors
All Terrain Vehicle (ATV)	Diesel	2	8	260	22	21%	4,160	0.1	0.0	0.1	0.0	0.0	0.0	14.2	Specialty Vehicle Carts
Backhoe	Diesel	2	9	260	106	59%	4,680	1.0	0.2	1.3	0.0	0.2	0.1	195.1	Tractors/Loaders/Backhoes
Bobcat	Diesel	0	7	260	49	59%	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Skid Steer Loaders
Bulldozer (D-8 Cat or Equivalent)	Diesel	1	6	260	305	59%	1,560	0.7	0.1	0.3	0.0	0.0	0.0	231.4	Crawler Tractors/Dozers
Chipper	Diesel	1	8	260	85	59%	2,080	0.4	0.0	0.2	0.0	0.0	0.0	67.3	Chippers/Stump Grinders
Crane (30-ton)	Diesel	0	8	260	152	43%	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Cranes
Crane (Rubber-Tired)	Diesel	0	8	260	235	43%	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Cranes
Double Bull-Wheel Tensioner (Light)	Diesel	0	8	260	130	21%	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Other Construction Equipment
Drill Rig	Diesel	0	8	260	85	21%	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Other Construction Equipment
Excavator	Diesel	0	8	260	325	43%	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Bore/Drill Rigs
Feller Buncher	Diesel	1	8	260	159	59%	2,080	0.2	0.0	0.1	0.0	0.0	0.0	99.8	Excavators
Flail mower or Bush hog	Diesel	1	8	260	243	59%	2,080	0.6	0.1	0.2	0.0	0.0	0.0	169.5	Feller/Bunch/Skidders
Fork Lift	Diesel	1	6	260	50	21%	1,560	0.1	0.0	0.0	0.0	0.0	0.0	9.5	Front Mowers
Generator	Diesel	2	8	260	300	59%	4,160	1.0	0.1	0.3	0.0	0.1	0.1	332.4	Rough Terrain Forklifts
Hydra-Ax or Mulcher	Diesel	0	10	260	43	59%	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Generator Sets
Loader	Diesel	1	8	260	210	59%	2,080	0.6	0.1	0.2	0.0	0.0	0.0	169.5	Other Construction Equipment
Motor Grader	Diesel	1	9	260	369	21%	2,340	0.5	0.0	0.2	0.0	0.0	0.0	121.8	Rubber Tire Loaders
Office Trailer	Diesel	0	10	260	297	59%	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Graders
Plate Compactor	Diesel	2	18	260	43	59%	9,360	1.2	0.1	0.4	0.0	0.1	0.1	162.1	Generator Sets
Road Sweeper	Gasoline	0	8	260	7.9	43%	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Plate Compactors
Roller Compactor	Diesel	2	6	260	50	43%	3,120	0.2	0.0	0.0	0.0	0.0	0.0	38.1	Sweepers/Scrubbers
Scraper	Diesel	0	8	260	133	43%	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Rollers
Single-Drum Puller (Large)	Diesel	0	6	260	407	59%	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Scrapers
Skidder	Diesel	0	10	260	210	21%	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Other Construction Equipment
Wagon Drill	Diesel	1	8	260	182	59%	2,080	0.4	0.0	0.1	0.0	0.0	0.0	166.9	Rubber Tire Loaders
Wagon Drill	Diesel	0	6	260	450	43%	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Bore/Drill Rigs
Wire Reel Trailer	Diesel	0	2	260	450	21%	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Other Construction Equipment
Total		**20**						**8**	**1**	**4**	**0.01**	**0.6**	**0.5**	**2,083**	**-**

Note: Conservatively assumes all equipment works each day, 5 days per week for a year

Table 5.3
Nonroad Equipment Exhaust Emissions - Converter Station Construction

Equipment Type	Fuel Type	Total No. of Units	Daily Operation per Unit (hrs/day)	Total Working Days per Unit	Equipment Engine Size (hp)	Load Factor	Total Equipment Hourly Usage (hrs)	Emissions (tons)							Emission Factor Reference
								NO_x	VOC	CO	SO_2	PM_{10}	$PM_{2.5}$	CO_2	
Air Compressor	Diesel	3	6	130	197	59%	2,340	0.66	0.07	0.15	0.00	0.03	0.03	196.42	Air Compressors
All Terrain Vehicle (ATV)	Diesel	1	5	130	22	21%	650	0.02	0.00	0.02	0.00	0.00	0.00	2.21	Specialty Vehicle Carts
Bobcat\Skid Loader	Diesel	2	6	130	49	59%	1,560	0.19	0.02	0.11	0.00	0.02	0.02	31.66	Skid Steer Loaders
Boom Lift	Diesel	4	6	130	110	43%	3,120	0.20	0.02	0.07	0.00	0.01	0.01	66.62	Rough Terrain Forklifts
Bulldozer (D-8 Cat or Equivalent)	Diesel	2	8	130	305	59%	2,080	0.96	0.09	0.39	0.00	0.06	0.06	308.57	Crawler Tractors/Dozers
Bulldozer (D-4 Cat or Equivalent)	Diesel	2	8	130	85	59%	2,080	0.27	0.02	0.11	0.00	0.02	0.02	86.00	Crawler Tractors/Dozers
Concrete Line Pump	Diesel	2	6	130	40	59%	1,560	0.07	0.01	0.02	0.00	0.00	0.00	21.19	Other Construction Equipment
Excavator Mini	Diesel	2	8	130	20	59%	2,080	0.02	0.00	0.01	0.00	0.00	0.00	12.56	Excavators
Excavator 100 Series	Diesel	3	8	130	81	59%	3,120	0.13	0.02	0.05	0.00	0.01	0.01	76.29	Excavators
Excavator 300 Series	Diesel	3	8	130	115	59%	3,120	0.19	0.03	0.08	0.00	0.02	0.02	108.31	Excavators
Forklift (Telescopic)	Diesel	5	8	130	100	59%	5,200	0.41	0.04	0.14	0.00	0.03	0.03	138.50	Rough Terrain Forklifts
Generator	Diesel	3	6	130	43	59%	2,340	0.29	0.02	0.10	0.00	0.02	0.02	40.52	Generator Sets
Wheel Loader (5 CY)	Diesel	4	8	130	300	59%	4,160	1.97	0.15	0.81	0.00	0.11	0.11	494.74	Rubber Tire Loaders
Loader Backhoe	Diesel	5	8	130	80	21%	5,200	0.22	0.02	0.09	0.00	0.01	0.01	72.02	Tractors/Loaders/Backhoes
Motor Grader	Diesel	3	6	130	297	59%	2,340	0.35	0.05	0.11	0.00	0.02	0.02	188.72	Graders
Office Trailer	Diesel	5	10	130	43	21%	6,500	0.29	0.02	0.10	0.00	0.02	0.02	40.07	Generator Sets
Plate Compactor	Gasoline	3	6	130	7.9	43%	2,340	0.02	0.05	2.47	0.00	0.00	0.00	9.55	Plate Compactors
Road Sweeper	Diesel	1	4	130	50	43%	520	0.03	0.00	0.00	0.00	0.00	0.00	6.35	Sweepers/Scrubbers
Scraper	Diesel	1	8	130	407	59%	1,040	0.49	0.04	0.20	0.00	0.03	0.03	153.27	Scrapers
Trencher	Diesel	2	8	130	80	21%	2,080	0.07	0.01	0.02	0.00	0.00	0.00	20.11	Other Construction Equipment
Roller Compactor	Diesel	3	8	130	133	43%	3,120	0.29	0.03	0.12	0.00	0.03	0.03	104.85	Rollers
Total		**59**						**7.17**	**0.73**	**5.17**	**0.01**	**0.44**	**0.43**	**2178.53**	**-**

Note: Conservatively assumes all equipment works each day, 5 days per week for 1/2 a year

Table 5.4
Nonroad Equipment Exhaust Emissions - Concrete Batch Plant

Equipment Type	Fuel Type	Total No. of Units	Daily Operation per Unit (hrs/day)	Total Working Days per Unit	Equipment Engine Size (hp)	Load Factor	Total Equipment Hourly Usage (hrs)	Emissions (tons)							Emission Factor Reference
								NO_x	VOC	CO	SO_2	PM_{10}	$PM_{2.5}$	CO_2	
Generator	Diesel	1	6	260	43	59%	1,560	0.20	0.02	0.06	0.00	0.01	0.01	27.02	Generator Sets
Wheel Loader (5 CY)	Diesel	1	6	260	300	59%	1,560	0.74	0.06	0.30	0.00	0.04	0.04	185.53	Rubber Tire Loaders
Office Trailer	Diesel	1	6	260	43	21%	1,560	0.07	0.01	0.02	0.00	0.00	0.00	9.62	Generator Sets
Backhoe	Diesel	1	6	260	450	43%	1,560	1.05	0.20	1.32	0.00	0.19	0.08	201.23	Tractors/Loaders/Backhoes
Total								**2.06**	**0.280**	**1.71**	**0.0027**	**0.245**	**0.140**	**423**	**-**

Note: Conservatively assumes all equipment works each day, 5 days per week for one year

Table 6.1

On Road Construction Equipment - Replacement of Line and Structures on Existing ROW (50 Mile ROW Example)

Vehicle	Fuel	Equipment Engine Size (hp)	Load (%)	No. of Units	Round Trips per Day per Unit	Total Round Trips per Day	Travel Distance per Roundtrip		Total Working Days per Unit	Total VMT for Construction Period			Emissions (tons)						
							Paved Roads	Unpaved Roads		Paved Roads	Unpaved Roads	Total	NOx	VOC	CO	SO_2	PM_{10}	$PM_{2.5}$	CO_2
Boom Truck	Diesel	355	21	2	2	4	22.5	7.5	260	23,400	7,800	31,200	0.17	0.01	0.04	0.0005	0.005	0.005	56
Concrete Truck	Diesel	450	59	2	4	8	45	15	260	93,600	31,200	124,800	0.67	0.03	0.15	0.0020	0.020	0.018	224
Crane (20-ton)	Diesel	235	43	6	1	6	22.5	7.5	260	35,100	11,700	46,800	0.25	0.01	0.06	0.0007	0.007	0.007	84
Cranes (120- to 300-ton)	Diesel	245	43	0	1	0	0.05	0.45	260	0	0	0	0.00	0.00	0.00	0.0000	0.000	0.000	0
Dump Truck	Diesel	455	21	5	4	20	22.5	7.5	260	117,000	39,000	156,000	0.84	0.03	0.19	0.0024	0.025	0.023	279
Fuel Truck	Diesel	450	21	2	4	8	30	10	260	62,400	20,800	83,200	0.45	0.02	0.10	0.0013	0.013	0.012	149
Mechanics' Truck	Diesel	400	43	2	2	4	26.25	8.75	260	27,300	9,100	36,400	0.04	0.01	0.07	0.0002	0.002	0.002	22
Pick-up Truck	Diesel	400	43	28	1	28	30	10	260	218,400	72,800	291,200	0.31	0.04	0.46	0.0016	0.012	0.011	189
Splicing Truck	Diesel	400	21	2	1	2	0.1	0.9	260	52	468	520	0.001	0.0001	0.001	0.00000	0.00003	0.00002	0
Steel Haul Truck	Diesel	455	43	2	4	8	30	10	260	62,400	20,800	83,200	0.56	0.02	0.13	0.0014	0.019	0.017	157
Truck (1-ton)	Diesel	400	43	3	4	12	22.5	7.5	260	70,200	23,400	93,600	0.10	0.02	0.17	0.0005	0.005	0.004	57
Truck (2-ton)	Diesel	400	43	3	4	12	22.5	7.5	260	70,200	23,400	93,600	0.50	0.02	0.11	0.0015	0.015	0.014	168
Truck (5-ton)	Diesel	325	43	0	4	0	22.5	7.5	260	0	0	0	0.00	0.00	0.00	0.0000	0.000	0.000	0
Water Truck	Diesel	325	21	4	6	24	7.5	7.5	260	46,800	46,800	93,600	0.50	0.02	0.11	0.0015	0.015	0.014	168
Total				**61**						**826,852**	**307,268**	**1,134,120**	**4**	**0.23**	**1.6**	**0.01**	**0.14**	**0.13**	**1,553**

Note: Conservatively assumes all equipment works each day, 5 days per week

Totals for paved and unpaved roads used for fugitive dust calculations in Table 12.1

Table 6.2
On Road Construction Equipment - Clearing Forest (1000 acres example)

Vehicle	Fuel	Equipment Engine Size (hp)	Load (%)	No. of Units	Round Trips per Day per Unit	Total Round Trips per Day	Travel Distance per Roundtrip		Total Working Days per Unit	Total VMT for Construction Period			Emissions (tons)						
							Paved Roads	Unpaved Roads		Paved Roads	Unpaved Roads	Total	NOx	VOC	CO	SO_2	PM_{10}	$PM_{2.5}$	CO_2
Boom Truck	Diesel	355	21	2	2	4	22.5	7.5	260	23,400	7,800	31,200	0.17	0.01	0.04	0.0005	0.005	0.005	56
Concrete Truck	Diesel	450	59	0	4	0	45	15	260	0	0	0	0.00	0.00	0.00	0.0000	0.000	0.000	0
Crane (20-ton)	Diesel	235	43	0	1	0	22.5	7.5	260	0	0	0	0.00	0.00	0.00	0.0000	0.000	0.000	0
Cranes (120- to 300-ton)	Diesel	245	43	0	1	0	0.05	0.45	260	0	0	0	0.00	0.00	0.00	0.0000	0.000	0.000	0
Dump Truck	Diesel	455	21	4	4	16	22.5	7.5	260	93,600	31,200	124,800	0.67	0.03	0.15	0.0020	0.020	0.018	224
Fuel Truck	Diesel	450	21	2	4	8	30	10	260	62,400	20,800	83,200	0.45	0.02	0.10	0.0013	0.013	0.012	149
Mechanics' Truck	Diesel	400	43	2	2	4	26.25	8.75	260	27,300	9,100	36,400	0.04	0.01	0.07	0.0002	0.002	0.002	22
Pick-up Truck	Diesel	400	43	15	1	15	30	10	260	117,000	39,000	156,000	0.17	0.02	0.25	0.0009	0.006	0.006	101
Splicing Truck	Diesel	400	21	0	1	0	0.1	0.9	260	0	0	0	0.000	0.0000	0.000	0.00000	0.00000	0.00000	0
Steel Haul Truck	Diesel	455	43	5	4	20	30	10	260	156,000	52,000	208,000	1.40	0.06	0.32	0.0034	0.047	0.043	392
Truck (1-ton)	Diesel	400	43	0	4	0	22.5	7.5	260	0	0	0	0.00	0.00	0.00	0.0000	0.000	0.000	0
Truck (2-ton)	Diesel	400	43	0	4	0	22.5	7.5	260	0	0	0	0.00	0.00	0.00	0.0000	0.000	0.000	0
Truck (5-ton)	Diesel	325	43	0	4	0	22.5	7.5	260	0	0	0	0.00	0.00	0.00	0.0000	0.000	0.000	0
Water Truck	Diesel	325	21	2	6	12	7.5	7.5	260	23,400	23,400	46,800	0.25	0.01	0.06	0.0007	0.007	0.007	84
Total				**32**						**503,100**	**183,300**	**686,400**	**3**	**0.15**	**1.0**	**0.01**	**0.10**	**0.09**	**1,027**

Note: Conservatively assumes all equipment works each day, 5 days per week

Totals for paved and unpaved roads used for fugitive dust calculations in Table 12.1

Table 6.3

On-Road Construction Equipment Exhaust Emissions - Converter Station Construction

Vehicle	Fuel	Equipment Engine Size (hp)	Load (%)	No. of Units	Round Trips per Day per Unit	Total Round Trips per Day	Travel Distance per Roundtrip		Total Working Days per Unit	Total VMT for Construction Period			Emissions (tons)						
							Paved Roads	Unpaved Roads		Paved Roads	Unpaved Roads	Total	NOx	VOC	CO	SO_2	PM_{10}	$PM_{2.5}$	CO_2
Concrete Truck	Diesel	450	59%	2	5	10	28.5	1.5	260	74,100	3,900	78,000	0.419	0.017	0.096	0.00122	0.01244	0.01144	140
Concrete Pump Truck	Diesel	450	59%	1	1	1	28.5	1.5	260	7,410	390	7,800	0.042	0.0017	0.010	0.00012	0.00124	0.00114	14.0
Crane (15-ton Boom Truck)	Diesel	215	43%	1	1	1	28.5	1.5	260	3,705	195	3,900	0.021	0.0009	0.005	0.00006	0.00062	0.00057	7.0
Crane (30-ton)	Diesel	235	43%	1	1	1	28.5	1.5	260	3,705	195	3,900	0.021	0.0009	0.005	0.00006	0.00062	0.00057	7.0
Crane (120- to 300-ton)	Diesel	245	43%	3	1	3	28.5	1.5	260	22,230	1,170	23,400	0.126	0.0052	0.0287	0.00037	0.00373	0.00343	41.9
Dump Truck	Diesel	455	21%	2	6	12	28.5	1.5	260	88,920	4,680	93,600	0.502	0.0208	0.115	0.00146	0.01492	0.01373	167.7
Fuel Truck	Diesel	450	21%	2	2	4	28.5	1.5	260	29,640	1,560	31,200	0.167	0.007	0.038	0.00049	0.00497	0.00458	56
Welder Truck	Diesel	300	43%	1	2	2	28.5	1.5	260	14,820	780	15,600	0.017	0.0026	0.028	0.00008	0.00077	0.00071	9.6
Lowboy Truck	Diesel	455	21%	2	6	12	28.5	1.5	260	88,920	4,680	93,600	0.502	0.021	0.115	0.00146	0.01492	0.01373	168
Mechanics' Truck	Diesel	400	43%	2	2	4	28.5	1.5	260	29,640	1,560	31,200	0.035	0.0051	0.056	0.00017	0.00153	0.00141	19.2
Pick-up Truck	Gasoline	400	43%	13	2	26	28.5	1.5	260	192,660	10,140	202,800	0.083	0.015	0.724	0.00058	0.00247	0.00219	87
Splicing Truck	Diesel	400	21%	1	1	1	28.5	1.5	260	7,410	390	7,800	0.009	0.0013	0.014	0.00004	0.00038	0.00035	4.8
Truck (1-ton)	Diesel	300	43%	5	4	20	28.5	1.5	260	148,200	7,800	156,000	0.173	0.026	0.282	0.00084	0.00767	0.00706	95.8
Truck (2-ton)	Diesel	400	43%	3	2	6	28.5	1.5	260	44,460	2,340	46,800	0.251	0.0104	0.057	0.00073	0.00746	0.00686	83.8
Utility Van	Diesel	300	43%	3	2	6	28.5	1.5	260	44,460	2,340	46,800	0.052	0.008	0.084	0.00025	0.00230	0.00212	28.7
Water Truck	Diesel	400	21%	1	5	5	28.5	1.5	260	37,050	1,950	39,000	0.209	0.0087	0.048	0.00061	0.00622	0.00572	69.9
Total										**837,330**	**44,070**	**881,400**	**2.6**	**0.15**	**1.7**	**0.009**	**0.08**	**0.08**	**1,000**

Note: Conservatively assumes all equipment works each day, 5 days per week

Totals for paved and unpaved roads used for fugitive dust calculations in Table 12.1

Table 6.4
On-Road Construction Equipment Exhaust Emissions - Concrete Batch Plant

Vehicle	Fuel	Equipment Engine Size (hp)	No. of Units	Round Trips per Day per Unit	Total Round Trips per Day	Travel Distance per Roundtrip		Total Working Days per Unit	Total VMT for Construction Period			Emissions (tons)						
						Paved Roads	Unpaved Roads		Paved Roads	Unpaved Roads	Total	NOx	VOC	CO	SO_2	PM_{10}	$PM_{2.5}$	CO_2
Concrete Redi-Mix Truck	Diesel	400	4	1	4	45	15	120	21,600	7,200	28,800	0.15	0.006	0.035	0.0005	0.0046	0.0042	52
Dump Truck	Diesel	450	1	1	1	22.5	7.5	120	2,700	900	3,600	0.02	0.001	0.004	0.00006	0.0006	0.0005	6
Pick-up Truck	Diesel	400	1	1	1	30	10	120	3,600	1,200	4,800	0.01	0.001	0.008	0.00003	0.0002	0.0002	3
Bulk Cement Tanker Truck	Diesel	450	1	1	1	30	10	120	3,600	1,200	4,800	0.03	0.001	0.007	0.00008	0.0011	0.0010	9
Total									**31,500**	**10,500**	**42,000**	**0.21**	**0.009**	**0.055**	**0.0006**	**0.006**	**0.006**	**70**

Note: Conservatively assumes all equipment works each day, 5 days per week

Totals for paved and unpaved roads used for fugitive dust calculations in Table 12.1

Table 7
On-Road Vehicle (Commuter Vehicles) Exhaust Emissions

Construction Activity	Total Days	# Workers	VMT/ worker/ day	Daily Totals (VMT/day)		Construction Totals (VMT)			Emissions[a] (tons)						
				Paved Roads	Unpaved Roads	Paved Roads	Unpaved Roads	TOTAL	NOx	VOC	CO	SO_2	PM_{10}	$PM_{2.5}$	CO_2
Replacement of Line and Structures on Existing ROW (50 Mile ROW Example)	260	139	35	4622	243	1,201,655	63,245	1,264,900	0.383	0.067	3.58	0.0032	0.0139	0.0123	477
Site Construction Equipment - Clearing Forest (1000 acres example)	260	52	35	1729	91	449,540	23,660	473,200	0.143	0.025	1.34	0.0012	0.0052	0.0046	178
Converter Station Construction	260	43	35	1430	75	371,735	19,565	391,300	0.119	0.021	1.11	0.0010	0.0043	0.0038	147

Notes: Commuter vehicles include 50% passenger cars and 50% passenger trucks.
One worker, one commute per piece of equipment estimated in Table 4.1-4,3, 5 days per week for a year
5% of commute will be on unpaved roads for fugitive dust calculations in Table 12.1

Table 8
Helicopter Exhaust Emissions - Transmission Line Segment Construction

Aircraft	Engine	No. of Engines	Days of Operation	Mode	Engine Setting	Mode Duration (hrs/day)	Total Emissions (tons)					
							NO_x	VOC	CO	SO_2	PM	CO_2
Helicopter (Small)	T400-CP-400	1	260	Idle Out	Ground Idle	0.058	0.003	0.011	0.031	0.001	0.002	4
				Climb Out	Cruise	0.11	0.006	0.017	0.062	0.001	0.003	7
				Work	Military	7.67	1.383	0.051	0.745	0.147	0.626	1035
				Approach	Cruise	0.11	0.039	0.001	0.004	0.003	0.015	21
				Idle In	Ground Idle	0.058	0.003	0.011	0.031	0.001	0.002	4
				Subtotal		**8.00**	**1.434**	**0.091**	**0.873**	**0.152**	**0.647**	**1071**
Helicopter (Large)	T700-GE-700	2	260	Idle Out	Ground Idle	0.058	0.006	0.114	0.107	0.001	0.003	7
				Climb Out	Flight Max	0.11	0.106	0.005	0.074	0.007	0.018	52
				Work	Overspeed	9.67	12.113	0.726	5.553	0.770	3.288	5430
				Approach	Flight Max	0.11	0.171	0.008	0.061	0.010	0.052	73
				Idle In	Ground Idle	0.058	0.006	0.114	0.107	0.001	0.003	7
				Subtotal		**10.00**	**12.402**	**0.967**	**5.903**	**0.790**	**3.363**	**5569**
Total						**-**	**14**	**1**	**7**	**1**	**4**	**6,640**

Table 9
Nonroad Equipment Exhaust Emission Factors - Koochiching County MN

Equipment Type	Fuel Type	Equipment Engine Size (hp)	Emission Factor (gm/hp-hr per hour)							Emission Factor Reference
			NO_x	VOC	CO	SO_2	PM_{10}	$PM_{2.5}$	CO_2	
3-Drum Puller (Heavy)	Diesel	240	1.72	0.17	0.58	0.003	0.11	0.11	522	Other Construction Equipment
3-Drum Puller (Medium)	Diesel	160	1.65	0.17	0.68	0.003	0.15	0.15	461	Other Construction Equipment
Air Compressor	Diesel	197	2.20	0.22	0.49	0.004	0.10	0.09	655	Air Compressors
All Terrain Vehicle (ATV)	Diesel	22	5.74	1.50	6.27	0.005	0.89	0.86	668	Specialty Vehicle Carts
Backhoe	Diesel	100	3.16	0.61	3.97	0.004	0.56	0.25	605	Tractors/Loaders/Backhoes
Bobcat	Diesel	49	3.92	0.45	2.16	0.004	0.36	0.34	637	Skid Steer Loaders
Bulldozer (D-8 Cat or Equivalent)	Diesel	305	2.33	0.21	0.95	0.004	0.14	0.14	748	Crawler Tractors/Dozers
Chipper	Diesel	85	3.44	0.37	1.92	0.004	0.33	0.32	585	Chippers/Stump Grinders
Crane (30-ton)	Diesel	152	1.48	0.16	0.42	0.003	0.10	0.10	507	Cranes
Crane (Rubber-Tired)	Diesel	235	1.45	0.16	0.32	0.003	0.06	0.06	537	Cranes
Double Bull-Wheel Tensioner (Heavy)	Diesel	130	2.04	0.21	0.84	0.003	0.19	0.18	568	Other Construction Equipment
Double Bull-Wheel Tensioner (Light)	Diesel	85	2.23	0.23	2.08	0.004	0.27	0.26	590	Other Construction Equipment
Drill Rig	Diesel	325	4.97	0.34	1.45	0.004	0.22	0.21	729	Bore/Drill Rigs
Excavator	Diesel	159	0.81	0.13	0.33	0.003	0.07	0.07	464	Excavators
Feller Buncher	Diesel	243	1.70	0.17	0.58	0.003	0.11	0.11	516	Other Construction Equipment
Flail mower or Bush hog	Diesel	50	3.04	0.15	0.55	0.003	0.08	0.08	528	Other Construction Equipment
Fork Lift	Diesel	300	1.22	0.13	0.41	0.002	0.08	0.08	410	Rough Terrain Forklifts
Generator	Diesel	43	4.49	0.36	1.47	0.005	0.28	0.27	619	Generator Sets
Hydra-Ax or Mulcher	Diesel	210	1.97	0.20	0.67	0.003	0.13	0.12	597	Other Construction Equipment
Loader	Diesel	369	2.43	0.19	0.99	0.004	0.14	0.14	610	Rubber Tire Loaders
Motor Grader	Diesel	297	0.78	0.11	0.24	0.002	0.04	0.04	418	Graders
Office Trailer	Diesel	43	4.49	0.36	1.47	0.005	0.28	0.27	619	Generator Sets
Plate Compactor	Gasoline	7.9	2.61	5.43	282.28	0.015	0.12	0.11	1,090	Plate Compactors
Road Sweeper	Diesel	50	2.73	0.12	0.24	0.003	0.03	0.03	515	Sweepers/Scrubbers
Roller Compactor	Diesel	133	1.47	0.17	0.63	0.003	0.15	0.14	533	Rollers
Scraper	Diesel	407	1.79	0.16	0.73	0.003	0.11	0.10	557	Scrapers
Single-Drum Puller (Large)	Diesel	210	1.97	0.20	0.67	0.003	0.13	0.12	597	Other Construction Equipment
Skidder	Diesel	182	1.72	0.20	0.58	0.004	0.11	0.10	678	Rubber Tire Loaders
Wagon Drill	Diesel	450	3.59	0.25	1.05	0.003	0.16	0.15	527	Bore/Drill Rigs
Wire Reel Trailer	Diesel	450	2.69	0.19	1.15	0.003	0.16	0.15	527	Other Construction Equipment

Source: Emission Factors from MOVES2014, NONROAD modeling of Koochinching County, MN, 2018

Notes: Nonroad only outputs THC, so THC assumed equivalent to VOC

Table 10 On-Road Vehicle Exhaust Emission Factors								
		Emission Factor[1] (g/VMT)						
Vehicle Type	**Fuel Type**	**NO_x**	**VOC**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**	**CO_2**
Passenger Car	Gasoline	0.18	0.03	1.89	0.002	0.01	0.01	293.16
Passenger Truck	Gasoline	0.37	0.07	3.24	0.003	0.01	0.01	390.55
Passenger Truck	Diesel	0.96	0.13	1.45	0.005	0.04	0.03	588.17
Light Commercial Truck	Diesel	1.01	0.15	1.64	0.005	0.04	0.04	557.29
Combination Short-Haul Truck	Diesel	4.87	0.20	1.11	0.014	0.14	0.13	1625.08
Combination Long-Haul Truck	Diesel	6.09	0.26	1.40	0.015	0.20	0.19	1708.15

(1) Emission factors for EPA MOVES2014, modeling of Koochinching County, MN, 2018

Table 11
Helicopter Exhaust Emission Factors

Engine	Engine Setting	Fuel Flow (lb/hr)	Emission Factor (lb/1000 lb of fuel) (1), (2), (3)						Emission Factor (lb/hr)					
			NO_x	VOC	CO	SO_2	PM	CO_2	NO_x	VOC	CO	SO_2	PM	CO_2
T400-CP-400	Ground Idle	138	3.05	10.42	29.78	0.52	1.48	3667	0.42	1.438	4.11	0.072	0.20	506
	Flight Idle	143	3.08	8.65	30.71	0.52	1.26	3667	0.44	1.237	4.39	0.074	0.18	524
	Cruise	283	4.90	0.18	2.64	0.52	2.22	3667	1.39	0.051	0.75	0.147	0.63	1038
	Military	412	6.68	0.13	0.75	0.52	2.60	3667	2.75	0.054	0.31	0.214	1.07	1511
T700-GE-700	Ground Idle	133	2.78	56.67	53.18	0.52	1.48	3667	0.37	7.537	7.07	0.069	0.20	488
	Flight Idle	500	7.56	0.37	5.25	0.52	1.26	3667	3.78	0.185	2.63	0.260	0.63	1833
	Flight Max	589	8.18	0.49	3.75	0.52	2.22	3667	4.82	0.289	2.21	0.306	1.31	2160
	Overspeed	706	8.61	0.39	3.09	0.52	2.60	3667	6.08	0.275	2.18	0.367	1.84	2589

Source: United States Air Force IERA. 2002. Air Emissions Inventory Guidance Document for Mobile Sources at Air Force Installations. IERA-RS-BR-SR-2001-0010. January.

(1) SO2 emission factor calculated by assuming sulfur content of fuel of 0.026% by weight.

(2) PM and HAP emission factors for T400-CP-400 engine based on PM and HAP emission factors listed for T700-GE-700 engine.

(3) CO2 emission factors calculated by multiplying ratio of CO2 to C (44/12) by 1,000.

Table 12.1 Fugitive Dust Emissions - Roads							
				Emission Factor[1] (lb/VMT)		Emissions (tons)	
Construction Activity	**Vehicle Type**	**Road Type**	**Total Mileage (VMT)**	**PM_{10}**	**$PM_{2.5}$**	**PM_{10}**	**$PM_{2.5}$**
Placement of Line and Structures on Existing or Cleared ROW	Construction Vehicles	Paved	826,852	0.0068	0.0007	2.8	0.3
		Unpaved	307,268	0.16	0.016	24.4	2.4
	Commuter Vehicles	Paved	1,201,655	0.0068	0.0007	4.1	0.4
		Unpaved	63,245	0.16	0.016	5.0	0.5
	Total					**36.4**	**3.7**
Clearing Forest	Construction Vehicles	Paved	503,100	0.01	0.001	1.7	0.2
		Unpaved	183,300	0.16	0.016	14.6	1.5
	Commuter Vehicles	Paved	449,540	0.01	0.001	1.5	0.2
		Unpaved	23,660	0.16	0.016	1.9	0.2
	Total					**19.7**	**2.0**
Converter Station	Construction Vehicles	Paved	837,330	0.0068	0.0007	2.9	0.3
		Unpaved	44,070	0.16	0.016	3.5	0.3
	Commuter Vehicles	Paved	371,735	0.0068	0.0007	1.3	0.1
		Unpaved	19,565	0.16	0.016	1.6	0.2
	Total					**9.2**	**1.0**
Concrete Batch Plant	-	Paved	31,500	0.01	0.001	0.1	0.0
		Unpaved	10,500	0.16	0.016	0.83	0.08
	Total					**0.9**	**0.1**

(1) Derivation table below.

Paved Roads - Emission Factor Derivation Table

E = (k(s/12)0.65(W/3)1.5-C)	AP-42 Section 13.2.1 (11/06 version)			
where: E = particulate emission factor (lb/VMT) k = particle size multiplier sL = road surface silt loading (g/m2) W = average vehicle weight (tons) C = emission factor for 1980's vehicle fleet exhaust, break wear and tire wear				
Parameter	**Units**	**PM_{10}**	**$PM_{2.5}$**	**Reference**
Mean Vehicle Weight	tons	3	3	Assumption
k factor	lb/VMT	0.016	0.0024	Table 13.2-1.1
Silt Loading, sL	g/m2	0.6	0.6	Table 13.2.1-3
Emission factor, C	lb/VMT	0.00047	0.00036	Table 13.2.1-2

Unpaved Roads - Emission Factor Derivation

E = k(s/12)a(W/3)b	AP-42 Section 13.2.2 (11/06 version)			
Controlled E = E * ((100-CE)/100) where: E = particulate emission factor (lb/VMT) k, a, b = empirical constants for industrial roads s = surface material silt content (%) W = average vehicle weight (tons)				
Parameter	**Units**	**PM_{10}**	**$PM_{2.5}$**	**Reference**
Mean Vehicle Weight	**tons**	4	4	Assumption
Constant, k	lb/VMT	1.5	0.15	Table 13.2.2-2
Constant, a		0.9	0.9	Table 13.2.2-2
Constant, b		0.45	0.45	Table 13.2.2-2
Silt content, s	%	4	4	Unpaved Road Surface Material Silt Content Values Used in the 1999 NEI
Control Efficiency, CE	**%**	75	75	Assumption based on regular watering

Table 12.2 Fugitive Dust Emissions - General Construction Activities						
Construction Activity	Disturbance[1] (acres)	Duration of Activity (months)	Emission Factor[2] (ton/acre/month)		Emissions (tons)	
			PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$
Placement of Line and Structures on Existing or Cleared ROW	60.46	12	0.141	0.0216	102.3	15.7
Cleared Forest	50.00	12	0.141	0.0216	84.6	13.0
Converter Station	1.00	12	0.141	0.0216	1.7	0.3

(1) Area of disturbance is listed as estimated average disturbance area, assumed to be 5% of total disturbed area

(2) See emission factor derivation table below.

Emission Factor Derivation Table

Parameter			Units	TSP [3]	PM_{10} [4]	$PM_{2.5}$ [5]
Uncontrolled Emission Factor [3] (based on 30 days/month)			ton/acre/month	1.2	0.56	0.086
Controlled Emission Factor [6] (based on 30 days/month)			ton/acre/month	0.3	0.141	0.0216

(3) Emission factor from AP-42 Section 13.2.3 for TSP.

(4) PM10 emission factor calculated by multiplying TSP emission factor by 0.42 (ratio of PM10 to PM30 in AP-42 Section 13.2.4)

(5) PM2.5 emission factor calculated by multiplying TSP emission factor by 0.072 (ratio of PM2.5 to PM30 in AP-42 Section 13.2.4)

(6) Assume 75% dust control factor based on watering.

Table 12.3 Fugitive Dust Emissions - Concrete Batch Plant					
Emission Source	Material	Material Throughput (tons)	PM_{10} Emission Factor[1] (lb/ton)	Emissions[2] (tons)	
				PM_{10}	$PM_{2.5}$
Cement Unloading to Silo	Cement	3,030	0.00034	0.0005	0.000052
Cement Supplement Unloading to Silo	Cement Supplement	450	0.0049	0.0011	0.00011
Mixer Loading	Cement & Cement Supplement	3,480	0.0184	0.032	0.0032
Truck Loading	Cement & Cement Supplement	3,480	0.098	0.1705	0.01705
TOTAL				**0.20**	**0.020**

(1) Emission Factors from AP-42 Section 11.12, Table 11.12-2. Assuming Default Emission controls per AP-42 Section 11.12

(2) PM2.5 emissions assumed to be 10% of PM10 emissions.

Material Data

Parameter	Material Throughput (tons)
Concrete[3]	24,832
Course Aggregate[4]	11,509
Sand[4]	8,812
Cement[4]	3,030
Cement Supplement[4]	450

(3) Based on production of 12,800 cubic yards of concrete and wet concrete density of 1.94 tons/cubic yard (2,300 kg/m3).

(4) Based on average material composition in AP-42 Section 11.12.

Table 13
Forest Carbon Sink Removed and Loss of Average Annual CO2 uptake emissions , All Route Variations
Great Northern Transmission Line Project

Route Variation	Total Acres Forest within 1500 ft Buffer (only within 100 ft will be removed)	Acres of Forest Land Removed 100ft Buffer	% Removed	C/CO_2e Sink Removed Calculations			Average Annual CO_2 uptake emission factors (CO_2)/acre[2]	Annual Reduction in CO2 uptake (MT CO_2/ year)
				Mean Carbon density (Total nonsoil) at age of forest years (Average MT/acre)[1]	Total Carbon Sink Removed MT Carbon	Total Carbon Sink Removed MT CO_2		
Border Crossing Proposed Route	5836.74	354	6.07%	45.3	16,036.2	58,853	2.37	838
Border Crossing Pine Creek Variation	5249.16	313	5.96%	45.3	14,178.9	52,037	2.37	741
Border Crossing Hwy 310 Variation	4455.97	239	5.36%	45.3	10,826.7	39,734	2.37	566
Border Crossing 500kV Variation	2796.1	143	5.11%	45.3	6,477.9	23,774	2.37	339
Border Crossing 230kV Variation	1896	99	5.22%	45.3	4,484.7	16,459	2.37	234
Roseau Lake WMA Proposed Route	7340.2	443	6.04%	45.3	20,067.9	73,649	2.37	1,049
Roseau Lake WMA Variation 1	2615.04	121	4.63%	45.3	5,481.3	20,116	2.37	286
Roseau Lake WMA Variation 2	4259.87	219	5.14%	45.3	9,920.7	36,409	2.37	518
Cedar Bend WMA Proposed Route	8033.66	433	5.39%	45.3	19,614.9	71,987	2.37	1,025
Cedar Bend WMA Variation	4176.5	209	5.00%	45.3	9,467.7	34,746	2.37	495
Cedar Bend WMA Variation Hop 1	405.82	13	3.20%	45.3	588.9	2,161	2.37	31
Cedar Bend WMA Variation Hop 2	604.54	25	4.14%	45.3	1,132.5	4,156	2.37	59
Cedar Bend WMA Variation Hop 3	502.12	19	3.78%	45.3	860.7	3,159	2.37	45
Beltrami North Proposed Route	5961.19	295	4.95%	45.3	13,363.5	49,044	2.37	698
Beltrami North Variation 1	5392.49	283	5.25%	45.3	12,819.9	47,049	2.37	670
Beltrami North Variation 2	7189.81	356	4.95%	45.3	16,126.8	59,185	2.37	843
Beltrami North Variation Hop 1	507.94	19	3.74%	45.3	860.7	3,159	2.37	45
Beltrami North Variation Hop 2	502.12	19	3.78%	45.3	860.7	3,159	2.37	45
Beltrami North Central Proposed Route	4305.51	211	4.90%	45.3	9,558.3	35,079	2.37	499
Beltrami North Central Variation Hop	1421.43	46	3.24%	45.3	2,083.8	7,648	2.37	109
Beltrami North Central Variation 1	5005.19	219	4.38%	45.3	9,920.7	36,409	2.37	518
Beltrami North Central Variation 2	4653.29	225	4.84%	45.3	10,192.5	37,406	2.37	533
Beltrami North Central Variation 3	4460.42	184	4.13%	45.3	8,335.2	30,590	2.37	436
Beltrami North Central Variation 4	4674.42	193	4.13%	45.3	8,742.9	32,086	2.37	457
Beltrami North Central Variation 5	5219.19	227	4.35%	45.3	10,283.1	37,739	2.37	537
Pine Island Proposed Blue Route	38203.29	1770	4.63%	45.3	80,181.0	294,264	2.37	4,190
Pine Island Proposed Orange Route	37684.73	1751	4.65%	45.3	79,320.3	291,106	2.37	4,145
Beltrami South Central Proposed Route	599	29	4.84%	45.3	1,313.7	4,821	2.37	69
Beltrami South Central Variation	778.03	37	4.76%	45.3	1,676.1	6,151	2.37	88
Beltrami South Proposed Route	2185.38	119	5.45%	45.3	5,390.7	19,784	2.37	282
Beltrami South Variation	2887.65	148	5.13%	45.3	6,704.4	24,605	2.37	350
North Black River Proposed Route	3190.65	156	4.89%	45.3	7,066.8	25,935	2.37	369
North Black River Variation	3296.35	148	4.49%	45.3	6,704.4	24,605	2.37	350
C2 Proposed Route	11921.63	541	4.54%	45.3	24,507.3	89,942	2.37	1,281
C2 Variation	16120.7	919	5.70%	45.3	41,630.7	152,785	2.37	2,175
J2 Proposed Route	15110.07	531	3.51%	45.3	24,054.3	88,279	2.37	1,257
J2 Variation	15860.45	414	2.61%	45.3	18,754.2	68,828	2.37	980
Northome Proposed Route	1417.5	18	1.27%	45.3	815.4	2,993	2.37	43
Northome Variation	1553.8	15	0.97%	45.3	679.5	2,494	2.37	36
Cutfoot Proposed Route	1651.52	69	4.18%	45.3	3,125.7	11,471	2.37	163
Cutfoot Variation	1875.06	51	2.72%	45.3	2,310.3	8,479	2.37	121
Effie Proposed Blue Route	14722.47	505	3.43%	45.3	22,876.5	83,957	2.37	1,195
Effie Proposed Orange Route	15801.32	478	3.03%	45.3	21,653.4	79,468	2.37	1,131
Effie Variation	17696.3	607	3.43%	45.3	27,497.1	100,914	2.37	1,437
East Bear Lake Proposed Route	3382.14	113	3.34%	45.3	5,118.9	18,786	2.37	267
East Bear Lake Variation	3909.32	111	2.84%	45.3	5,028.3	18,454	2.37	263
Balsam Proposed Blue Route	4540.96	94	2.07%	45.3	4,258.2	15,628	2.37	223
Balsam Proposed Orange Route	4828.18	109	2.26%	45.3	4,937.7	18,121	2.37	258
Balsam Variation	6189.32	168	2.71%	45.3	7,610.4	27,930	2.37	398
Dead Man's Pond Proposed Route	903.82	17	1.88%	45.3	770.1	2,826	2.37	40
Dead Man's Pond Variation	924.75	11	1.19%	45.3	498.3	1,829	2.37	26
Blackberry Proposed Blue Route	2004.22	70	3.49%	45.3	3,171.0	11,638	2.37	166
Blackberry Proposed Orange Route	1982.51	78	3.93%	45.3	3,533.4	12,968	2.37	185
Silver Creek WMA Alignment Modification	538.17	26	4.83%	45.3	1,177.8	4,323	2.37	62
Airstrip Alignment Modification	712.91	38	5.33%	45.3	1,721.4	6,318	2.37	90
Mizpah Alignment Modification	1047.23	67	6.40%	45.3	3,035.1	11,139	2.37	159
Gravel Pit Alignment Modification	582.97	29	4.97%	45.3	1,313.7	4,821	2.37	69
Bass Lake Alignment Modification	1045.95	60	5.74%	45.3	2,718.0	9,975	2.37	142
Wilson Lake Alignment Modification	1023.82	59	5.76%	45.3	2,672.7	9,809	2.37	140
Grass Lake Alignment Modification	546.32	32	5.86%	45.3	1,449.6	5,320	2.37	76
Dead Man's Pond Alignment Modification	684.1	35	5.12%	45.3	1,585.5	5,819	2.37	83
Trout Lake Alignment Modification	525.03	26	4.95%	45.3	1,177.8	4,323	2.37	62
Proposed Blue Route	71398.45	4828.5	6.76%	45.3	218,731.1	802,743	2.37	11,430
Proposed Orange Route	72228.92	4883.4	6.76%	45.3	221,218.0	811,870	2.37	11,560

(1) Smith et al. 2006, Spruce-Balsam Pine Northern Lake States, Table A11

(2) Net annual stock change in live tree carbon between year 25 and 45, which is from the difference in stocks divided by the length of the interval between stocks x total acres

Appendix X

Relative Merits Tables

West Section (1), (2)			Border Crossing					
Factor	**Element**	**Indicator**	Proposed Border Crossing-Blue/Orange Route	Border Crossing Pine Creek Variation	Border Crossing Hwy 310 Variation	Border Crossing 500kV Variation	Border Crossing 230kV Variation	NOTES
Human settlement	Displacement	Proximity to residences	See section on Human Settlement in the Border Crossing Variation Area for details					There would be no differences in the impacts for the alternatives.
Human settlement	Noise	Proximity to noise receptors	See section on Human Settlement in the Border Crossing Variation Area for details					There would be no differences in the impacts for the alternatives.
Human settlement	Air quality	Air emissions (criteria pollutants and greenhouse gases)	See section on Human Settlement in the Border Crossing Variation Area for details					There would be no differences in the impacts for the alternatives.
Human settlement	Property values	Proximity to residences	See section on Human Settlement in the Border Crossing Variation Area for details					There would be no differences in the impacts for the alternatives.
Human settlement	Electronic interference	Proximity to communication towers	See section on Human Settlement in the Border Crossing Variation Area for details					There would be no differences in the impacts for the alternatives.
Human settlement	Transportation and public services	Proximity to roadways, railways	See section on Human Settlement in the Border Crossing Variation Area for details					There would be no differences in the impacts for the alternatives.
Human settlement	Transportation and public services	Proximity to airstrips	See section on Human Settlement in the Border Crossing Variation Area for details					There would be no differences in the impacts for the alternatives.
Human settlement	Environmental justice	Minority populations, low-income populations	See section on Human Settlement in the Border Crossing Variation Area for details					There would be no differences in the impacts for the alternatives.
Human settlement	Environmental justice	Low-income populations	See section on Human Settlement in the Border Crossing Variation Area for details					There would be no differences in the impacts for the alternatives.
Human settlement	Socioeconomics	Population, employment, taxes and revenue generated, housing availability	See section on Human Settlement in the Border Crossing Variation Area for details					There would be no differences in the impacts for the alternatives.
Human settlement	Socioeconomics	Employment	See section on Human Settlement in the Border Crossing Variation Area for details					There would be no differences in the impacts for the alternatives.
Human settlement	Socioeconomics	Taxes and revenue generated	See section on Human Settlement in the Border Crossing Variation Area for details					There would be no differences in the impacts for the alternatives.
Human settlement	Socioeconomics	Housing availability	See section on Human Settlement in the Border Crossing Variation Area for details					There would be no differences in the impacts for the alternatives.

West Section (1), (2)			Border Crossing					
Factor	**Element**	**Indicator**	Proposed Border Crossing-Blue/Orange Route	Border Crossing Pine Creek Variation	Border Crossing Hwy 310 Variation	Border Crossing 500kV Variation	Border Crossing 230kV Variation	NOTES
Human settlement	Recreation and tourism	Proximity to recreational resources (county, state, and federal parks and forests, state Scientific and Natural Areas, state trails, scenic byways, and snowmobile and water trails)	See section on Human Settlement in the Border Crossing Variation Area for details					There would be no differences in the impacts for the alternatives.
Human settlement	Cultural values	Proximity to residences	See section on Human Settlement in the Border Crossing Variation Area for details					There would be no differences in the impacts for the alternatives.
Human settlement	**Aesthetics**	Proximity to residences (Count within 0-500, 0-1,000, & 0-1,500 ft from the anticipated alignment)	2--2--4	2--3--5	0--0--2	0--0--3	0--1--5	Border Crossing Hwy 310 Variation would pass by the least number of residences within 1,500 feet of the anticipated alignment. Border Crossing 500kV Variation and Border Crossing 230kV Variation would parallel an existing transmission line for their entire lengths.
Human settlement	**Land use compatibility**	Summary - land use type data and land ownership data						Border Crossing Pine Creek Variation would cross the most private land. An airstrip would be located within 1,500 feet from the anticipated alignment for the Border Crossing Hwy 310 Variation.
Human settlement	Land use compatibility	Land use type data (crosses USFWS Interest Lands or other features, e.g. airstrips)						An airstrip would be located within 1,500 feet from the anticipated alignment for the Border Crossing Hwy 310 Variation.
Human settlement	Land use compatibility	Land ownership type data - total acres in ROW (acres of public and private land in the ROW)	Total: 608 (436--172)	Total: 624 (381--243)	Total: 453 (300--153)	Total: 244 (131--113)	Total: 199 (97--102)	Border Crossing Pine Creek Variation would cross the most private land.
Public health and safety	Electric and magnetic Fields	Proximity to residences	See section on Public Health and Safety in the Border Crossing Variation Area for details					There would be no differences in the impacts for the alternatives.
Public health and safety	Implantable medical devices	Proximity to residences	See section on Public Health and Safety in the Border Crossing Variation Area for details					There would be no differences in the impacts for the alternatives.
Public health and safety	Stray voltage	Proximity to residences	See section on Public Health and Safety in the Border Crossing Variation Area for details					There would be no differences in the impacts for the alternatives.
Public health and safety	Induced voltage	Proximity to residences	See section on Public Health and Safety in the Border Crossing Variation Area for details					There would be no differences in the impacts for the alternatives.

West Section (1), (2)			Border Crossing					
Factor	**Element**	**Indicator**	Proposed Border Crossing-Blue/Orange Route	Border Crossing Pine Creek Variation	Border Crossing Hwy 310 Variation	Border Crossing 500kV Variation	Border Crossing 230kV Variation	NOTES
Public health and safety	Intentional destructive acts	Intentional destructive acts	See section on Public Health and Safety in the Border Crossing Variation Area for details					There would be no differences in the impacts for the alternatives.
Public health and safety	Environmental contamination	Registered sites of contamination	See section on Public Health and Safety in the Border Crossing Variation Area for details					There would be no differences in the impacts for the alternatives.
Public health and safety	Worker health and safety	Worker health and safety	See section on Public Health and Safety in the Border Crossing Variation Area for details					There would be no differences in the impacts for the alternatives.
Land based economies	**Agriculture**	Proximity to farmland - total acres in ROW (acres of prime farmland, farmland of statewide importance, and prime farmland if drained in ROW)	Total: 110 (3--4--103)	Total: 171 (3--4--164)	Total: 96 (3--4--89)	Total: 85 (9--0--76)	Total: 77 (5--<0.5--72)	Border Crossing Pine Creek Variation would cross the most farmland.
Land based economies	**Forestry**	Proximity to forest land (acres of state forest land in ROW)	394	339	294	120	96	Proposed Border Crossing-Blue/Orange Route, Border Crossing Pine Creek Variation, and Border Crossing Hwy 310 Variation would cross the most state forest land.
Land based economies	**Mining and mineral resources**	Proximity to state mining lease lands (active and/or expired/terminated; acres in ROW) and aggregate resources (count in ROW)	0--0	0--0	0--0	0--0	0--0	No active or expired mineral lease lands or aggregate resources are present in the ROW of any alternative.
Archaeological and historic architectural resources		Summary - proximity to archaeological and historic architectural resources						Border Crossing Pine Creek Variation and Border Crossing 500kV Variation would cross sections identified as containing known archaeological resources; the other alternatives do not cross any of these sections. There is one historic architectural site within 1,500 feet of the Border Crossing Hwy 310 Variation.
Archaeological and historic resources	Archaeological sites	Proximity to archaeological sites (count within 0-100 ft and 0-1,500 ft from the anticipated alignment)	0--0	1--2	0--0	1--1	0--0	Border Crossing Pine Creek Variation and Border Crossing 500kV Variation would cross sections identified as containing known archaeological sites; the other alternatives do any cross any of these sections.
Archaeological and historic resources	Historic architectural sites	Proximity to historic architectural sites (count within 0-100 ft, 0-1,500 ft, and 0-1 mile from the anticipated alignment)	0--0--0	0--0--0	0--1--1	0--0--0	0--0--0	There is one historic architectural site within 1,500 feet of the Border Crossing Hwy 310 Variation. The other alternatives do not have any known historic architectural sites within 1 mile.

West Section (1), (2)			Border Crossing					
Factor	**Element**	**Indicator**	Proposed Border Crossing-Blue/Orange Route	Border Crossing Pine Creek Variation	Border Crossing Hwy 310 Variation	Border Crossing 500kV Variation	Border Crossing 230kV Variation	NOTES
Natural environment	**Water resources**	Summary - proximity to watercourses, waterbodies, floodplains, and wetlands						Border Crossing Pine Creek Variation would cross the most watercourses/waterbodies; however, all crossings are expected to be spanned. Proposed Border Crossing-Blue/Orange Route, Border Crossing Pine Creek Variation, and Border Crossing Hwy 310 Variation ROWs would have areas of FEMA-designated floodplain that cannot be spanned. All alternatives would cross wetlands that are too large to span. Proposed Border Crossing-Blue/Orange Route has the most total wetland and the most forested wetland, requiring the most forested wetland type conversion. Border Crossing 500kV Variation would cross the most shrub wetland, requiring the most shrub wetland type conversion.
Natural environment	Water resources	Proximity to watercourses and waterbodies - Total number of crossings in ROW (number of PWI crossings, non-PWI crossings); - Trout stream (number of crossings)	Total: 19 (2--17) (0)	Total: 25 (3--22) (0)	Total: 17 (2--15) (0)	Total: 7 (0--7) (0)	Total: 9 (0--9) (0)	Border Crossing Pine Creek Variation would cross the most watercourses/waterbodies; however, all crossings are expected to be spanned.
Natural environment	Water resources	Proximity to floodplains - total acres of floodplain in ROW (acres of Zone A, acres of Zone B)	Total: 334 (329--5)	Total: 343 (343--0)	Total: 213 (213--0)	Total: 0	Total: 0	Proposed Border Crossing-Blue/Orange Route, Border Crossing Pine Creek Variation, and Border Crossing Hwy 310 Variation ROWs would cross areas of FEMA-designated floodplain that cannot be spanned; the Border Crossing 500kV Variation and Border Crossing Hwy 310 Variation would not cross floodplain.
Natural environment	Water resources	Proximity to wetlands (acres of PSS wetlands in ROW resulting in wetland type conversion)	94	94	93	107	49	Border Crossing 500kV Variation would cross the most shrub wetland.
Natural environment	Water resources	Proximity to wetlands (acres of PFO wetlands in ROW resulting in wetland type conversion)	150	96	65	30	23	Proposed Border Crossing-Blue/Orange Route would cross the most forested wetland.
Natural environment	Water resources	Proximity to wetlands (acres of total wetlands in ROW too large to span)	464	415	310	172	102	All alternatives would cross wetlands that are too large to span. Proposed Border Crossing-Blue/Orange Route has the most total wetland.
Natural environment	**Vegetation**	Cover type (acres of forested land cover in ROW)	411	369	288	184	125	Proposed Border Crossing-Blue/Orange Route, Border Crossing Pine Creek Variation, and Border Crossing Hwy 310 Variation cross the most forested land cover. These alternatives parallel minimal existing corridor.

West Section (1), (2)			Border Crossing					
Factor	**Element**	**Indicator**	Proposed Border Crossing-Blue/Orange Route	Border Crossing Pine Creek Variation	Border Crossing Hwy 310 Variation	Border Crossing 500kV Variation	Border Crossing 230kV Variation	NOTES
Natural environment	**Wildlife**	Proximity to wildlife resources - Wildlife Management Areas, Grassland Bird Conservation Areas, Important Bird Areas (acres in ROW) Proximity to shallow lakes (count in ROW), Gray Owl Management Area (count in 0-1,500 feet)	Acres: 25--81--0 Count: 0--0	Acres: 25--81--0 Count: 0--0	Acres: 0--81--0 Count: 0--1	Acres: 0--0--0 Count: 0--0	Acres: 0--0--0 Count: 0--0	Proposed Border Crossing-Blue/Orange Route, Border Crossing Pine Creek Variation, and Border Crossing Hwy 310 Variation cross a WMA and/or Grassland Bird Conservation Areas. Border Crossing Hwy 310 Variation has a Gray Owl Management Area located within 1,500 feet, but none of this area is within the ROW.
Rare and unique natural resources	**Federal and state listed species**	Summary - proximity of federal and state-listed species (based on the Natural Heritage Information System (NHIS) database)						Proposed Border Crossing-Blue/Orange Route, Border Crossing Pine Creek Variation, and Border Crossing Hwy 310 Variation have a NHIS record for a federal candidate species (Sprague's pipit) within 1 mile. Proposed Border Crossing-Blue/Orange Route and Border Crossing Pine Creek Variation have the most NHIS records within 1 mile, including records of state threatened or endangered species.
Rare and unique natural resources	Federally listed species	Federally-listed species (# of records within 1 mile)	1	1	1	0	0	Proposed Border Crossing-Blue/Orange Route, Border Crossing Pine Creek Variation, and Border Crossing Hwy 310 Variation have a NHIS record for a federal candidate species (Sprague's pipit) within 1 mile.
Rare and unique natural resources	State listed species	State-listed species (total # of NHIS records within 1 mile)	14	10	5	3	1	Proposed Border Crossing-Blue/Orange Route, Border Crossing Pine Creek Variation, and Border Crossing Hwy 310 Variation have the most NHIS records within 1 mile.
Rare and unique natural resources	State listed species	State-listed species (# of threatened and endangered NHIS records within 1 mile)	4	3	2	0	0	Proposed Border Crossing-Blue/Orange Route has the most threatened or endangered NHIS records within 1 mile, followed by the Border Crossing Pine Creek Variation and the Border Crossing Hwy 310 Variation.

West Section (1), (2)			Border Crossing					
Factor	**Element**	**Indicator**	Proposed Border Crossing-Blue/Orange Route	Border Crossing Pine Creek Variation	Border Crossing Hwy 310 Variation	Border Crossing 500kV Variation	Border Crossing 230kV Variation	NOTES
Rare and unique natural resources	**State rare communities**	Summary - proximity to Scientific and Natural Areas (SNA), SNA Watershed Protection Area (WPA), MBS Sites of Biodiversity Significance, MBS native plant communities, High Conservation Value Forest, and Ecologically Important Lowland Conifer stands						Proposed Border Crossing-Blue/Orange Route would be located within 1,500 feet of an SNA. Proposed Border Crossing-Blue/Orange Route, Border Crossing Pine Creek Variation, and Border Crossing Hwy 310 Variation would cross SNA WPAs. Proposed Border Crossing-Blue/Orange Route would cross the most MBS Sites of Biodiversity Significance, including those ranked outstanding or high, followed by the Border Crossing Pine Creek Variation and Border Crossing Hwy 310 Variation. Proposed Border Crossing-Blue/Orange Route would cross through the most MnDNR High Conservation Value Forest areas, followed by the Border Crossing Pine Creek Variation and the Border Crossing Hwy 310 Variation. Proposed Border Crossing-Blue/Orange Route would cross the most MBS native plant communities, followed by the Border Crossing Pine Creek Variation and the Border Crossing Hwy 310 Variation. Only the Border Crossing 230 kV Variation would avoid MBS native plant communities with a conservation status ranks of S2 or S3. Border Crossing 500 kV would parallel an existing corridor through these native plant communities.
Rare and unique natural resources	State rare communities	Proximity to Scientific and Natural Areas (SNAs) (Count within 1,500 feet) and SNA Watershed Protection Area (acres within ROW)	1--178	0--123	0--97	0--0	0--0	Proposed Border Crossing-Blue/Orange Route would be located within 1,500 feet of an SNA. The Proposed Border Crossing-Blue/Orange Route, Border Crossing Pine Creek Variation, and Border Crossing Hwy 310 Variation would cross SNA WPAs.
Rare and unique natural resources	State rare communities	Proximity to MBS Sites of Biodiversity Significance - (total acres within ROW)	381	326	265	162	91	Proposed Border Crossing-Blue/Orange Route would cross the most MBS Sites of Biodiversity Significance, followed by the Border Crossing Pine Creek Variation and Border Crossing Hwy 310 Variation.
Rare and unique natural resources	State rare communities	Proximity to MBS Sites of Biodiversity Significance - Rank Outstanding + High (acres within ROW)	124	69	73	62	42	Proposed Border Crossing-Blue/Orange Route would cross the most MBS Sites of Biodiversity Significance ranked outstanding or high. Border Crossing Pine Creek Variation and Border Crossing Hwy 310 Variation would cross more MBS Sites of Biodiversity Significance ranked outstanding or high than the other two alternatives.

West Section [1], [2]			Border Crossing					
Factor	**Element**	**Indicator**	Proposed Border Crossing-Blue/Orange Route	Border Crossing Pine Creek Variation	Border Crossing Hwy 310 Variation	Border Crossing 500kV Variation	Border Crossing 230kV Variation	NOTES
Rare and unique natural resources	State rare communities	Proximity to MnDNR High Conservation Value Forest, MnDNR Ecologically Important Lowland Conifer Areas (acres within ROW)	82--0	27--0	29--0	0--0	0--0	Proposed Border Crossing-Blue/Orange Route would cross through the most MnDNR High Conservation Value Forest areas, followed by the Border Crossing Pine Creek Variation and the Border Crossing Hwy 310 Variation.
Rare and unique natural resources	State rare communities	Proximity to MBS native plant communities (total acres in ROW)	124	68	69	60	34	Proposed Border Crossing-Blue/Orange Route would cross the most MBS native plant communities, followed by the Border Crossing Pine Creek Variation and the Border Crossing Hwy 310 Variation. The Border Crossing 230kV Variation and Border Crossing 500kV Variation would parallel existing corridor through these communities.
Rare and unique natural resources	State rare communities	Proximity to MBS native plant communities (acres of conservation status rank S2 and S3 communities in ROW)	22	16	20	29	0	All alternatives other than the Border Crossing 230 kV Variation would cross MBS native plant communities with a conservation status ranks of S2 or S3. Border Crossing 500kV Variation would parallel existing corridor through these communities.
Use or paralleling of existing rights-of-way		Proximity to high voltage transmission lines, roadways, and trails (percent of total length)	30	32	34	100	100	Border Crossing 230kV Variation and Border Crossing 500kV Variation parallel existing transmission line, roadway, and/or trail corridors for their entire lengths. The other alternatives would parallel existing corridors for approximately one-third of their lengths.
Electrical system reliability		Proximity to two or more high voltage transmission lines (percent of total length)	-	-	-	-	-	There are no issues with electrical reliability since there would not be three transmission lines paralleling the same corridor.
Costs of constructing, operating, and maintaining the facility which are dependent on design and route		Total construction cost[3]	$29,012,219	$29,292,118	$21,144,610	$11,512,144	$9,862,110	The alternatives cost less than the Proposed Border Crossing-Blue/Orange Route .

(1) Colors represent least impacts (green), moderate impacts (yellow), greatest impacts (red), and no impacts or similar impacts (gray) relative to the specific factor.

(2) Red text indicates information in these rows are included within the DEIS.

(3) Using the Applicant's methodology (see comment in Appendix U), the Applicant-proposed route is green; if the maximum cost of the alternative is less than the Applicant-proposed route - it is green; if the maximum cost of the alternative is up to 20% more than the Applicant-proposed route - it is yellow; if the maximum cost of the alternative is more than 20% above the cost of the Applicant-proposed route - it is red.

West Section (1), (2)			Roseau Lake WMA				Cedar Bend WMA		
Factor	Element	Indicator	Proposed Blue/Orange Route	Roseau Lake WMA Variation 1	Roseau Lake WMA Variation 2	NOTES	Proposed Blue/Orange Route	Cedar Bend WMA Variation	NOTES
Human settlement	Displacement	Proximity to residences	See section on Human Settlement in the Roseau Lake WMA Variation Area for details			There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Cedar Bend WMA Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Noise	Proximity to noise receptors	See section on Human Settlement in the Roseau Lake WMA Variation Area for details			There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Cedar Bend WMA Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Air quality	Air emissions (criteria pollutants and greenhouse gases)	See section on Human Settlement in the Roseau Lake WMA Variation Area for details			There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Cedar Bend WMA Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Property values	Proximity to residences	See section on Human Settlement in the Roseau Lake WMA Variation Area for details			There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Cedar Bend WMA Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Electronic interference	Proximity to communication towers	See section on Human Settlement in the Roseau Lake WMA Variation Area for details			There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Cedar Bend WMA Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Transportation and public services	Proximity to roadways, railways	See section on Human Settlement in the Roseau Lake WMA Variation Area for details			There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Cedar Bend WMA Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Transportation and public services	Proximity to airstrips	See section on Human Settlement in the Roseau Lake WMA Variation Area for details			There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Cedar Bend WMA Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Environmental justice	Minority populations, low-income populations	See section on Human Settlement in the Roseau Lake WMA Variation Area for details			There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Cedar Bend WMA Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Environmental justice	Low-income populations	See section on Human Settlement in the Roseau Lake WMA Variation Area for details			There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Cedar Bend WMA Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Socioeconomics	Population, employment, taxes and revenue generated, housing availability	See section on Human Settlement in the Roseau Lake WMA Variation Area for details			There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Cedar Bend WMA Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Socioeconomics	Employment	See section on Human Settlement in the Roseau Lake WMA Variation Area for details			There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Cedar Bend WMA Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Socioeconomics	Taxes and revenue generated	See section on Human Settlement in the Roseau Lake WMA Variation Area for details			There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Cedar Bend WMA Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Socioeconomics	Housing availability	See section on Human Settlement in the Roseau Lake WMA Variation Area for details			There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Cedar Bend WMA Variation Area for details		There would be no differences in the impacts for the alternatives.

West Section (1), (2)			Roseau Lake WMA				Cedar Bend WMA		
Factor	**Element**	**Indicator**	Proposed Blue/Orange Route	Roseau Lake WMA Variation 1	Roseau Lake WMA Variation 2	NOTES	Proposed Blue/Orange Route	Cedar Bend WMA Variation	NOTES
Human settlement	Recreation and tourism	Proximity to recreational resources (county, state, and federal parks and forests, state Scientific and Natural Areas, state trails, scenic byways, and snowmobile and water trails)	See section on Human Settlement in the Roseau Lake WMA Variation Area for details			There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Cedar Bend WMA Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Cultural values	Proximity to residences	See section on Human Settlement in the Roseau Lake WMA Variation Area for details			There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Cedar Bend WMA Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	**Aesthetics**	Proximity to residences (Count within 0-500, 0-1,000, & 0-1,500 ft from the anticipated alignment)	2--5--13	3--19--50	0--8--23	Roseau Lake WMA Variation 1 would pass by the most residences within 1,500 feet of the anticipated alignment. Roseau Lake WMA Variation 1 parallels the least amount of existing transmission line corridor.	0--5--11	16--52--101	Cedar Bend WMA Variation 1 would pass by more residences within 1,500 feet of the anticipated alignment. Both alternatives parallel transmission line corridors for their entire lengths.
Human settlement	**Land use compatibility**	Summary - land use type data and land ownership data				Roseau Lake WMA Variation 1 and Roseau Lake WMA Variation 2 would cross the most private land.			Proposed Blue/Orange Route would cross USFWS Interest Lands, while Cedar Bend WMA Variation would not. Cedar Bend WMA Variation would cross more private land.
Human settlement	Land use compatibility	Land use type data (crosses USFWS Interest Lands or other features, e.g. airstrips)				There are no land use compatibility issues identified for the alternatives.			Proposed Blue/Orange Route would cross USFWS Interest Lands (6 acres), while the Cedar Bend WMA Variation would not. Crossing this land would require obtaining a provisional special use permit for construction from the USFWS.
Human settlement	Land use compatibility	Land ownership type data - total acres in ROW (acres of public and private land in the ROW)	Total: 746 (453--293)	Total: 1,070 (6--1,064)	Total: 910 (145--765)	Roseau Lake WMA Variation 1 and 2 would cross the most private land.	Total: 599 (441--158)	Total: 476 (84--392)	Cedar Bend WMA Variation would cross more private land.
Public health and safety	Electric and magnetic Fields	Proximity to residences	See section on Public Health and Safety in the Roseau Lake WMA Variation Area for details			There would be no differences in the impacts for the alternatives.	See section on Public Health and Safety in the Cedar Bend WMA Variation Area for details		There would be no differences in the impacts for the alternatives.
Public health and safety	Implantable medical devices	Proximity to residences	See section on Public Health and Safety in the Roseau Lake WMA Variation Area for details			There would be no differences in the impacts for the alternatives.	See section on Public Health and Safety in the Cedar Bend WMA Variation Area for details		There would be no differences in the impacts for the alternatives.
Public health and safety	Stray voltage	Proximity to residences	See section on Public Health and Safety in the Roseau Lake WMA Variation Area for details			There would be no differences in the impacts for the alternatives.	See section on Public Health and Safety in the Cedar Bend WMA Variation Area for details		There would be no differences in the impacts for the alternatives.
Public health and safety	Induced voltage	Proximity to residences	See section on Public Health and Safety in the Roseau Lake WMA Variation Area for details			There would be no differences in the impacts for the alternatives.	See section on Public Health and Safety in the Cedar Bend WMA Variation Area for details		There would be no differences in the impacts for the alternatives.

West Section (1), (2)			Roseau Lake WMA				Cedar Bend WMA		
Factor	**Element**	**Indicator**	Proposed Blue/Orange Route	Roseau Lake WMA Variation 1	Roseau Lake WMA Variation 2	NOTES	Proposed Blue/Orange Route	Cedar Bend WMA Variation	NOTES
Public health and safety	Intentional destructive acts	Intentional destructive acts	See section on Public Health and Safety in the Roseau Lake WMA Variation Area for details			There would be no differences in the impacts for the alternatives.	See section on Public Health and Safety in the Cedar Bend WMA Variation Area for details		There would be no differences in the impacts for the alternatives.
Public health and safety	Environmental contamination	Registered sites of contamination	See section on Public Health and Safety in the Roseau Lake WMA Variation Area for details			There would be no differences in the impacts for the alternatives.	See section on Public Health and Safety in the Cedar Bend WMA Variation Area for details		There would be no differences in the impacts for the alternatives.
Public health and safety	Worker health and safety	Worker health and safety	See section on Public Health and Safety in the Roseau Lake WMA Variation Area for details			There would be no differences in the impacts for the alternatives.	See section on Public Health and Safety in the Cedar Bend WMA Variation Area for details		There would be no differences in the impacts for the alternatives.
Land based economies	**Agriculture**	Proximity to farmland - total acres in ROW (acres of prime farmland, farmland of statewide importance, and prime farmland if drained in ROW)	Total: 184 (18--23--143)	Total: 493 (84--21--388)	Total: 412 (33--23--356)	Roseau Lake WMA Variations 1 and 2 would cross the most amount of farmland.	Total: 101 (15--18--68)	Total: 192 (25--6--161)	All alternatives would cross a relatively similar amount of farmland.
Land based economies	**Forestry**	Proximity to forest land (acres of state forest land in ROW)	334	6	52	Proposed Blue/Orange Route would cross more state forest land, followed by Roseau Lake WMA Variation 2.	372	78	Proposed Blue/Orange Route would cross more state forest land.
Land based economies	**Mining and mineral resources**	Proximity to state mining lease lands (active and/or expired/terminated; acres in ROW) and aggregate resources (count in ROW)	0--0	0--0	0--0	No active or expired/terminated mineral lease lands or aggregate resources are present in the ROW of any alternative.	97--0	0--0	Proposed Blue/Orange Route would cross expired/terminated mineral lease lands; Cedar Bend WMA Variation would not cross any mineral lease lands.
Archaeological and historic architectural resources		Summary - proximity to archaeological and historic architectural resources				Roseau Lake WMA Variation 1 and Roseau Lake WMA Variation 2 would cross sections identified as containing known archaeological sites.			Cedar Bend WMA Variation would cross more sections identified as containing known archaeological sites. There are 8 historic architectural sites within 1 mile of the Cedar Bend WMA Variation, but none in the ROW.
Archaeological and historic resources	Archaeological sites	Proximity to archaeological sites (count within 0-100 ft and 0-1,500 ft from the anticipated alignment)	0--0	0--3	0--3	Roseau Lake WMA Variation 1 and Roseau Lake WMA Variation 2 would cross sections identified as containing known archaeological sites and have historic architectural sites present within 1 mile.	0--0	1--2	Cedar Bend WMA Variation would cross sections identified as containing known archaeological sites, while the Proposed Blue/Orange Route would not.
Archaeological and historic resources	Historic architectural sites	Proximity to historic architectural sites (count within 0-100 ft, 0-1,500 ft, and 0-1 mile from the anticipated alignment)	0--0--0	0--1--1	0--1--2	Roseau Lake WMA Variation 1 and Roseau Lake WMA Variation 2 have historic architectural sites present within 1 mile.	0--0--0	0--0--8	Cedar Bend WMA Variation has 8 historic architectural sites within 1 mile; no historic architectural sites have been identified within 1 mile of the Proposed Blue/Orange Route.

West Section (1), (2)			Roseau Lake WMA				Cedar Bend WMA		
Factor	**Element**	**Indicator**	Proposed Blue/Orange Route	Roseau Lake WMA Variation 1	Roseau Lake WMA Variation 2	NOTES	Proposed Blue/Orange Route	Cedar Bend WMA Variation	NOTES
Natural environment	**Water resources**	Summary - proximity to watercourses, waterbodies, floodplains, and wetlands				All alternatives would cross relatively similar numbers of watercourses/waterbodies, which are expected to be spanned. All alternatives would cross relatively similar areas of FEMA-designated floodplain areas that are too large to span. All alternatives would cross wetlands that are too large to span. Proposed Blue/Orange Route has the most total wetland. Proposed Blue/Orange Route would also have the most forested and shrub wetland; therefore, it would require the most wetland type conversion.			Both alternatives have the same number of crossings of watercourses and waterbodies, which are expected to be spanned. Cedar Bend WMA would cross floodplain that cannot be spanned. Proposed Blue/Orange Route would not cross floodplain. Both alternatives would cross wetlands that are too large to span. Proposed Blue/Orange Route has the most total wetland. Proposed Blue/Orange Route would also have the most forested and shrub wetland; therefore, it would require the most wetland type conversion.
Natural environment	Water resources	Proximity to watercourses and waterbodies - Total number of crossings in ROW (number of PWI crossings, non-PWI crossings); - Trout stream (number of crossings)	Total: 25 (2--23) (0)	Total: 48 (10--38) (0)	Total: 36 (3--33) (0)	All alternatives would cross relatively similar numbers of watercourses/waterbodies.	Total: 16 (4--12) (0)	Total: 16 (5--11) (0)	Both alternatives have same number of crossings, all of which are expected to be spanned.
Natural environment	Water resources	Proximity to floodplains - total acres of floodplain in ROW (acres of Zone A, acres of Zone B)	Total: 321 (321--0)	Total: 202 (200--2)	Total: 307 (304--3)	All alternatives would cross relatively similar areas of FEMA-designated floodplain areas that are too large to span.	Total: 0	Total: 32 (32--0)	Cedar Bend WMA would cross floodplain that cannot be spanned. Proposed Blue/Orange Route would not cross floodplain.
Natural environment	Water resources	Proximity to wetlands (acres of PSS wetlands in ROW resulting in wetland type conversion)	136	21	88	Proposed Blue/Orange route would cross the most shrub wetland.	128	14	Proposed Blue/Orange route would cross the most shrub wetland.
Natural environment	Water resources	Proximity to wetlands (acres of PFO wetlands in ROW resulting in wetland type conversion)	132	35	53	Proposed Blue/Orange Route would cross the most forested wetland.	253	95	Proposed Blue/Orange Route would cross the most forested wetland.
Natural environment	Water resources	Proximity to wetlands (acres of total wetlands in ROW too large to span)	547	102	272	All alternatives would cross wetlands that are too large to span. Proposed Blue/Orange Route has the most total wetland.	466	154	Both alternatives would cross wetlands that are too large to span. Proposed Blue/Orange Route has the most total wetland.
Natural environment	**Vegetation**	Cover type (acres of forested land cover in ROW)	515	156	275	Proposed Blue/Orange Route and Roseau Lake WMA Variation 2 would cross the most forested land cover.	543	266	Proposed Blue/Orange Route would cross more forested land cover.

West Section (1), (2)			Roseau Lake WMA				Cedar Bend WMA		
Factor	**Element**	**Indicator**	Proposed Blue/Orange Route	Roseau Lake WMA Variation 1	Roseau Lake WMA Variation 2	NOTES	Proposed Blue/Orange Route	Cedar Bend WMA Variation	NOTES
Natural environment	**Wildlife**	Proximity to wildlife resources - Wildlife Management Areas, Grassland Bird Conservation Areas, Important Bird Areas (acres in ROW) Proximity to shallow lakes (count in ROW), Gray Owl Management Area (count in 0-1,500 feet)	Acres: 69--131--0 Count: 0--0	Acres: 0--40--0 Count: 0--0	Acres: 44--220--0 Count: 0--0	Proposed Blue/Orange Route and Roseau Lake WMA Variation 2 cross a WMA and more acres of Grassland Bird Conservation Area.	Acres: 44--50--0 Count: 1--0	Acres: 0--10--0 Count: 0--0	Proposed Blue/Orange Route crosses a WMA, more acres of Grassland Bird Conservation Area, and crosses a shallow lake.
Rare and unique natural resources	**Federal and state listed species**	Summary - proximity of federal and state-listed species (based on the Natural Heritage Information System (NHIS) database)				Proposed Blue/Orange Route has a NHIS record for a federal candidate species (Sprague's pipit; also state-endangered) within 1 mile. Proposed Blue/Orange Route and Roseau Lake WMA Variation 2 have a state-threatened species documented within 1 mile.			There are no federally-listed species identified for these alternatives. Proposed Blue/Orange Route has more NHIS records within 1 mile, including threatened NHIS records.
Rare and unique natural resources	Federally listed species	Federally-listed species (# of records within 1 mile)	1	0	0	Proposed Blue/Orange Route has a NHIS record for a federal candidate species (Sprague's pipit) within 1 mile.	0	0	There are no federally-listed species identified for these alternatives.
Rare and unique natural resources	State listed species	State-listed species (total # of NHIS records within 1 mile)	7	4	5	All alternatives have a relatively similar number of NHIS records within 1 mile of them.	6	1	Proposed Blue/Orange Route has more NHIS records within 1 mile.
Rare and unique natural resources	State listed species	State-listed species (# of threatened and endangered NHIS records within 1 mile)	2	0	1	Proposed Blue/Orange Route and Roseau Lake WMA Variation 2 have threatened or endangered NHIS records within 1 mile. One of the 2 records for the Proposed Blue/Orange Route is the Sprague's pipit (state endangered), which is also accounted for above under Federally listed species.	2	0	Proposed Blue/Orange Route has 2 threatened NHIS records within 1 mile.

West Section (1), (2)			Roseau Lake WMA				Cedar Bend WMA		
Factor	**Element**	**Indicator**	Proposed Blue/Orange Route	Roseau Lake WMA Variation 1	Roseau Lake WMA Variation 2	NOTES	Proposed Blue/Orange Route	Cedar Bend WMA Variation	NOTES
Rare and unique natural resources	**State rare communities**	Summary - proximity to Scientific and Natural Areas (SNA), SNA Watershed Protection Area (WPA), MBS Sites of Biodiversity Significance, MBS native plant communities, High Conservation Value Forest, and Ecologically Important Lowland Conifer stands				Proposed Blue/Orange Route would be located close to an SNA, but not within 1,500 feet. Proposed Blue/Orange Route would cross the most acres of SNA WPAs than the variations. Proposed Blue/Orange Route and Roseau Lake WMA Variation 2 would cross the most acres of MBS Sites of Biodiversity Significance, including those ranked outstanding or high. Proposed Blue/Orange Route would cross the most acres of High Conservation Value Forest. Proposed Blue/Orange Route and Roseau Lake WMA Variation 2 would cross the most MBS native plant communities, including those with conservation status ranks of S2 and S3.			Proposed Blue/Orange Route would cross more MBS Sites of Biodiversity Significance (including outstanding or high rank), High Conservation Value Forest, and more MBS native plant communities, including communities with a conservation status rank of S2 and S3.
Rare and unique natural resources	State rare communities	Proximity to Scientific and Natural Areas (SNAs) (Count within 1,500 feet) and SNA Watershed Protection Area (acres within ROW)	0--117	0--6	0--6	Proposed Blue/Orange Route would be located close to an SNA, but not within 1,500 feet. Proposed Blue/Orange Route would cross the most acres of SNA WPAs than the variations.	0--0	0--0	No SNAs would be located within 1,500 feet of any alternative; neither alternative would cross an SNA WPA.
Rare and unique natural resources	State rare communities	Proximity to MBS Sites of Biodiversity Significance - (total acres within ROW)	404	14	153	Proposed Blue/Orange Route would cross the most acres of MBS Sites of Biodiversity Significance, followed by Roseau Lake WMA Variation 2.	454	112	Proposed Blue/Orange Route would cross more MBS Sites of Biodiversity Significance.
Rare and unique natural resources	State rare communities	Proximity to MBS Sites of Biodiversity Significance - Rank Outstanding + High (acres within ROW)	107	7	77	Proposed Blue/Orange Route and Roseau Lake WMA Variation 2 would cross the most acres of MBS Sites of Biodiversity Significance ranked outstanding or high.	43	0	Proposed Blue/Orange Route would cross MBS Sites of Biodiversity Significance ranked outstanding or high rank, while the Cedar Bend WMA Variation would not cross any of these sites.

West Section [1], [2]			Roseau Lake WMA				Cedar Bend WMA		
Factor	**Element**	**Indicator**	Proposed Blue/Orange Route	Roseau Lake WMA Variation 1	Roseau Lake WMA Variation 2	NOTES	Proposed Blue/Orange Route	Cedar Bend WMA Variation	NOTES
Rare and unique natural resources	State rare communities	Proximity to MnDNR High Conservation Value Forest, MnDNR Ecologically Important Lowland Conifer Areas (acres within ROW)	22--0	6--0	6--0	Proposed Blue/Orange Route would cross the most acres of High Conservation Value Forest.	8--0	0--0	Proposed Blue/Orange Route would cross High Conservation Value Forest; the Cedar Bend WMA Variation does not cross any of these areas.
Rare and unique natural resources	State rare communities	Proximity to MBS native plant communities (total acres in ROW)	107	5	75	Proposed Blue/Orange Route and Roseau Lake WMA Variation 2 would cross the most MBS native plant communities.	43	0	Proposed Blue/Orange Route would cross MBS native plant communities; the Cedar Bend WMA Variation does not cross any of these communities.
Rare and unique natural resources	State rare communities	Proximity to MBS native plant communities (acres of conservation status rank S2 and S3 communities in ROW)	39	0	22	Proposed Blue/Orange Route and Roseau Lake WMA Variation 2 would cross the most MBS native plant communities with conservation status ranks of S2 and S3.	22	0	Proposed Blue/Orange Route would cross MBS native plant communities with conservation status ranks of S2 and S3; the Cedar Bend WMA Variation does not cross any of these communities.
Use or paralleling of existing rights-of-way		Proximity to high voltage transmission lines, roadways, and trails (percent of total length)	52	11	43	Roseau Lake WMA Variation 1 would parallel the least existing transmission line, roadway, and/or trail corridor.	100	100	Both alternatives parallel existing transmission line, roadway, and/or trail corridors for their entire lengths.
Electrical system reliability		Proximity to two or more high voltage transmission lines (percent of total length)	-	-	-	There are no issues with electrical reliability since there would not be three transmission lines paralleling the same corridor.	-	-	There are no issues with electrical reliability since there would not be three transmission lines paralleling the same corridor.
Costs of constructing, operating, and maintaining the facility which are dependent on design and route		Total construction cost[3]	$33,247,089	$57,086,075	$46,162,144	The cost of the alternatives are more than 20% above the cost of the Proposed Blue/Orange Route.	$27,197,650	ranges from $22,860,378 to $23,172,312	The range of cost for the Cedar Bend WMA Variation is less than the cost of the Proposed Blue/Orange Route.

(1) Colors represent least impacts (green), moderate impacts (yellow), greatest impacts (red), and no impacts or similar impacts (gray) relative to the specific factor.

(2) Red text indicates information in these rows are included within the DEIS.

(3) Using the Applicant's methodology (see comment in Appendix U), the Applicant-proposed route is green; if the maximum cost of the alternative is less than the Applicant-proposed route - it is green; if the maximum cost of the alternative is up to 20% more than the Applicant-proposed route - it is yellow; if the maximum cost of the alternative is more than 20% above the cost of the Applicant-proposed route - it is red.

West Section (1), (2)			Beltrami North				Beltrami North Central						
Factor	Element	Indicator	Proposed Blue/Orange Route	Beltrami North Variation 1	Beltrami North Variation 2	NOTES	Proposed Blue/Orange Route	Beltrami North Central Variation 1	Beltrami North Central Variation 2	Beltrami North Central Variation 3	Beltrami North Central Variation 4	Beltrami North Central Variation 5	NOTES
Human settlement	Displacement	Proximity to residences	See section on Human Settlement in the Beltrami North Variation Area for details			There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Beltrami North Central Variation Area for details						There would be no differences in the impacts for the alternatives.
Human settlement	Noise	Proximity to noise receptors	See section on Human Settlement in the Beltrami North Variation Area for details			There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Beltrami North Central Variation Area for details						There would be no differences in the impacts for the alternatives.
Human settlement	Air quality	Air emissions (criteria pollutants and greenhouse gases)	See section on Human Settlement in the Beltrami North Variation Area for details			There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Beltrami North Central Variation Area for details						There would be no differences in the impacts for the alternatives.
Human settlement	Property values	Proximity to residences	See section on Human Settlement in the Beltrami North Variation Area for details			There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Beltrami North Central Variation Area for details						There would be no differences in the impacts for the alternatives.
Human settlement	Electronic interference	Proximity to communication towers	See section on Human Settlement in the Beltrami North Variation Area for details			There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Beltrami North Central Variation Area for details						There would be no differences in the impacts for the alternatives.
Human settlement	Transportation and public services	Proximity to roadways, railways	See section on Human Settlement in the Beltrami North Variation Area for details			There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Beltrami North Central Variation Area for details						There would be no differences in the impacts for the alternatives.
Human settlement	Transportation and public services	Proximity to airstrips	See section on Human Settlement in the Beltrami North Variation Area for details			There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Beltrami North Central Variation Area for details						There would be no differences in the impacts for the alternatives.
Human settlement	Environmental justice	Minority populations, low-income populations	See section on Human Settlement in the Beltrami North Variation Area for details			There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Beltrami North Central Variation Area for details						There would be no differences in the impacts for the alternatives.
Human settlement	Environmental justice	Low-income populations	See section on Human Settlement in the Beltrami North Variation Area for details			There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Beltrami North Central Variation Area for details						There would be no differences in the impacts for the alternatives.
Human settlement	Socioeconomics	Population, employment, taxes and revenue generated, housing availability	See section on Human Settlement in the Beltrami North Variation Area for details			There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Beltrami North Central Variation Area for details						There would be no differences in the impacts for the alternatives.
Human settlement	Socioeconomics	Employment	See section on Human Settlement in the Beltrami North Variation Area for details			There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Beltrami North Central Variation Area for details						There would be no differences in the impacts for the alternatives.
Human settlement	Socioeconomics	Taxes and revenue generated	See section on Human Settlement in the Beltrami North Variation Area for details			There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Beltrami North Central Variation Area for details						There would be no differences in the impacts for the alternatives.
Human settlement	Socioeconomics	Housing availability	See section on Human Settlement in the Beltrami North Variation Area for details			There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Beltrami North Central Variation Area for details						There would be no differences in the impacts for the alternatives.

West Section (1), (2)			Beltrami North				Beltrami North Central						
Factor	**Element**	**Indicator**	Proposed Blue/Orange Route	Beltrami North Variation 1	Beltrami North Variation 2	NOTES	Proposed Blue/Orange Route	Beltrami North Central Variation 1	Beltrami North Central Variation 2	Beltrami North Central Variation 3	Beltrami North Central Variation 4	Beltrami North Central Variation 5	NOTES
Human settlement	Recreation and tourism	Proximity to recreational resources (county, state, and federal parks and forests, state Scientific and Natural Areas, state trails, scenic byways, and snowmobile and water trails)	See section on Human Settlement in the Beltrami North Variation Area for details			There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Beltrami North Central Variation Area for details						There would be no differences in the impacts for the alternatives.
Human settlement	Cultural values	Proximity to residences	See section on Human Settlement in the Beltrami North Variation Area for details			There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Beltrami North Central Variation Area for details						There would be no differences in the impacts for the alternatives.
Human settlement	**Aesthetics**	Proximity to residences (Count within 0-500, 0-1,000, & 0-1,500 ft from the anticipated alignment)	0--2--3	0--0--6	0--0--1	Beltrami North Variation 1 would pass by the most residences within 1,500 feet of the anticipated alignment.	1--2--3	0--0--2	1--1--2	1--1--4	3--5--10	2--4--8	Beltrami North Central Variation 4 and Beltrami North Central Variation 5 would pass by the most residences within 1,500 feet of the anticipated alignment. Beltrami North Central Variation 4 would parallel existing corridor for more of its length than Beltrami North Central Variation 5.
Human settlement	**Land use compatibility**	Summary - land use type data and land ownership data				Proposed Blue/Orange Route would cross USFWS Interest Lands, while the other alternatives would not. Beltrami North Variation 1 would cross more private land.							Proposed Blue/Orange Route and Beltrami North Central Variation 2 would cross USFWS Interest Lands (18 acres and 1 acre, respectively). Beltrami North Central Variation 4 and Beltrami North Central Variation 5 would cross the most private land.
Human settlement	Land use compatibility	Land use type data (crosses USFWS Interest Lands or other features, e.g. airstrips)				The Proposed Blue/Orange Route would cross USFWS Interest Lands (6 acres), while the other alternatives would not. Crossing this land would require obtaining a provisional special use permit for construction from the USFWS.							Proposed Blue/Orange Route would cross USFWS Interest Lands (18 acres) but would parallel an existing transmission line corridor. Beltrami North Central Variation 2 would cross USFWS land (1 acre) and not parallel existing corridor. Crossing this land would require obtaining a provisional special use permit for construction from the USFWS.
Human settlement	Land use compatibility	Land ownership type data - total acres in ROW (acres of public and private land in the ROW)	Total: 400 (364--36)	Total: 383 (297--86)	Total: 477 (450--27)	Beltrami North Variation 1 would cross the most private land.	Total: 281 (213--68)	Total: 332 (217--115)	Total: 305 (246--59)	Total: 296 (184--112)	Total: 329 (178--151)	Total: 365 (210--155)	Beltrami North Central Variation 4 and Beltrami North Central Variation 5 would cross the most private land.
Public health and safety	Electric and magnetic Fields	Proximity to residences	See section on Public Health and Safety in the Beltrami North Variation Area for details			There would be no differences in the impacts for the alternatives.	See section on Public Health and Safety in the Beltrami North Central Variation Area for details						There would be no differences in the impacts for the alternatives.
Public health and safety	Implantable medical devices	Proximity to residences	See section on Public Health and Safety in the Beltrami North Variation Area for details			There would be no differences in the impacts for the alternatives.	See section on Public Health and Safety in the Beltrami North Central Variation Area for details						There would be no differences in the impacts for the alternatives.
Public health and safety	Stray voltage	Proximity to residences	See section on Public Health and Safety in the Beltrami North Variation Area for details			There would be no differences in the impacts for the alternatives.	See section on Public Health and Safety in the Beltrami North Central Variation Area for details						There would be no differences in the impacts for the alternatives.
Public health and safety	Induced voltage	Proximity to residences	See section on Public Health and Safety in the Beltrami North Variation Area for details			There would be no differences in the impacts for the alternatives.	See section on Public Health and Safety in the Beltrami North Central Variation Area for details						There would be no differences in the impacts for the alternatives.

West Section (1), (2)			Beltrami North				Beltrami North Central						
Factor	**Element**	**Indicator**	Proposed Blue/Orange Route	Beltrami North Variation 1	Beltrami North Variation 2	NOTES	Proposed Blue/Orange Route	Beltrami North Central Variation 1	Beltrami North Central Variation 2	Beltrami North Central Variation 3	Beltrami North Central Variation 4	Beltrami North Central Variation 5	NOTES
Public health and safety	Intentional destructive acts	Intentional destructive acts	See section on Public Health and Safety in the Beltrami North Variation Area for details			There would be no differences in the impacts for the alternatives.	See section on Public Health and Safety in the Beltrami North Central Variation Area for details						There would be no differences in the impacts for the alternatives.
Public health and safety	Environmental contamination	Registered sites of contamination	See section on Public Health and Safety in the Beltrami North Variation Area for details			There would be no differences in the impacts for the alternatives.	See section on Public Health and Safety in the Beltrami North Central Variation Area for details						There would be no differences in the impacts for the alternatives.
Public health and safety	Worker health and safety	Worker health and safety	See section on Public Health and Safety in the Beltrami North Variation Area for details			There would be no differences in the impacts for the alternatives.	See section on Public Health and Safety in the Beltrami North Central Variation Area for details						There would be no differences in the impacts for the alternatives.
Land based economies	**Agriculture**	Proximity to farmland - total acres in ROW (acres of prime farmland, farmland of statewide importance, and prime farmland if drained in ROW)	Total: 27 (0--0--27)	Total: 27 (8--0--19)	Total: 27 (<0.5--0--27)	All alternatives would cross a relatively similar amount of farmland.	Total: 6 (0--6--0)	Total: 5 (0--5--0)	Total: 0 (0--0--0)	Total: 5 (0--5--0)	Total: 39 (6--20--13)	Total: 39 (6--20--13)	Beltrami North Central Variation 4 and Beltrami North Central Variation 5 would cross the most farmland. Beltrami North Central Variation 4 would parallel existing transmission line, roadway, or trail corridor for 92% of its length.
Land based economies	**Forestry**	Proximity to forest land (acres of state forest land in ROW)	372	291	462	All alternatives would cross a relatively similar amount of state forest land.	224	237	255	184	178	230	All alternatives would cross similar amounts of state forest. The Proposed Blue/Orange Route and Beltrami North Central Variation 4 would parallel the most existing transmission line, roadway, or trail corridor.
Land based economies	**Mining and mineral resources**	Proximity to state mining lease lands (active and/or expired/terminated; acres in ROW) and aggregate resources (count in ROW)	97--0	97--0	152--0	All alternatives would cross a relatively similar amount of expired/terminated mineral lease lands.	0--0	0--0	0--0	0--0	0--0	0--0	No active or expired/terminated mineral lease lands or aggregate resources are present in the ROW of any alternative.
Archaeological and historic architectural resources		Summary - proximity to archaeological and historic architectural resources				Beltrami North Variation 2 crosses near more sections identified as containing known archaeological sites. There are 2 historic architectural sites within 1 mile of Beltrami North Variation 2.							There are no known archaeological sites that would be affected by the alternatives. Beltrami North Central Variation 4 and Beltrami North Central Variation 5 have one historic architectural site within 1 mile.
Archaeological and historic resources	Archaeological sites	Proximity to archaeological sites (count within 0-100 ft and 0-1,500 ft from the anticipated alignment)	0--0	0--0	1--2	Beltrami North Variation 2 crosses near sections identified as containing known archaeological sites; the other alternatives do not cross known archaeological sites.	0--0	0--0	0--0	0--0	0--0	0--0	There are no known archaeological sites that would be affected by the alternatives.
Archaeological and historic resources	Historic architectural sites	Proximity to historic architectural sites (count within 0-100 ft, 0-1,500 ft, and 0-1 mile from the anticipated alignment)	0--0--0	0--0--0	0--0--2	Beltrami North Variation 2 has 2 historic architectural sites within 1 mile; the other alternatives do not have known historic architectural sites within 1 mile.	0--0--0	0--0--0	0--0--0	0--0--0	0--0--1	0--0--1	Beltrami North Central Variation 4 and Beltrami North Central Variation 5 have one historic architectural site within 1 mile.

West Section (1), (2)			Beltrami North				Beltrami North Central						
Factor	**Element**	**Indicator**	Proposed Blue/Orange Route	Beltrami North Variation 1	Beltrami North Variation 2	NOTES	Proposed Blue/Orange Route	Beltrami North Central Variation 1	Beltrami North Central Variation 2	Beltrami North Central Variation 3	Beltrami North Central Variation 4	Beltrami North Central Variation 5	NOTES
Natural environment	**Water resources**	Summary - proximity to watercourses, waterbodies, floodplains, and wetlands				All alternatives would cross relatively similar numbers of watercourses/waterbodies. None of the alternatives would cross FEMA-designated floodplain. All alternatives would cross relatively similar areas of wetlands that are too large to span and would result in relatively similar areas of shrub and forested wetland type conversion.							All alternatives would cross relatively similar numbers of watercourses/waterbodies. All alternatives would cross relatively similar small areas of FEMA-designated floodplain that are expected to be spanned. All alternatives would cross relatively similar areas of wetlands that are too large to span and would result in relatively similar areas of shrub and forested wetland type conversion.
Natural environment	Water resources	Proximity to watercourses and waterbodies - Total number of crossings in ROW (number of PWI crossings, non-PWI crossings); - Trout stream (number of crossings)	Total: 11 (4--7) (0)	Total: 13 (9--4) (0)	Total: 15 (3--12) (0)	All alternatives would cross relatively similar numbers of watercourses/waterbodies.	Total: 5 (0--5) (0)	Total: 7 (3--4) (0)	Total: 6 (1--5) (0)	Total: 6 (2--4) (0)	Total: 9 (2--7) (0)	Total: 10 (3--7) (0)	All alternatives would cross relatively similar numbers of watercourses/waterbodies.
Natural environment	Water resources	Proximity to floodplains - total acres of floodplain in ROW (acres of Zone A, acres of Zone B)	Total: 0	Total: 0	Total: 0	None of the alternatives would cross FEMA-designated floodplains.	Total: 1 (1--0)	Total: 2 (2--0)	Total: 2 (2--0)	Total: 2 (2--0)	Total: 2 (2--0)	Total: 2 (2--0)	All alternatives would cross relatively similar small areas of FEMA-designated floodplain that are expected to be spanned.
Natural environment	Water resources	Proximity to wetlands (acres of PSS wetlands in ROW resulting in wetland type conversion)	87	99	128	All alternatives would cross relatively similar areas of shrub wetland.	130	97	118	115	108	90	All alternatives would cross relatively similar areas of shrub wetland.
Natural environment	Water resources	Proximity to wetlands (acres of PFO wetlands in ROW resulting in wetland type conversion)	213	185	217	All alternatives would cross relatively similar areas of forested wetland.	119	191	147	154	169	205	All alternatives would cross relatively similar areas of forested wetland.
Natural environment	Water resources	Proximity to wetlands (acres of total wetlands in ROW too large to span)	323	294	391	All alternatives would cross relatively similar areas of total wetland that are too large to span.	272	314	291	282	305	337	All alternatives would cross relatively similar areas of total wetland that are too large to span.
Natural environment	**Vegetation**	Cover type (acres of forested land cover in ROW)	389	367	473	All alternatives would cross a relatively similar amount of forested land cover. The Beltrami North Variation 2 parallels the least amount of existing transmission line, roadway, or trail corridor.	277	323	303	287	306	342	All alternatives would cross a relatively similar amount of forested land cover. The Proposed Blue/Orange Route and Beltrami North Central Variation 4 would parallel the most existing transmission line, roadway, or trail corridor.

West Section (1), (2)			Beltrami North				Beltrami North Central						
Factor	**Element**	**Indicator**	Proposed Blue/Orange Route	Beltrami North Variation 1	Beltrami North Variation 2	NOTES	Proposed Blue/Orange Route	Beltrami North Central Variation 1	Beltrami North Central Variation 2	Beltrami North Central Variation 3	Beltrami North Central Variation 4	Beltrami North Central Variation 5	NOTES
Natural environment	**Wildlife**	Proximity to wildlife resources - Wildlife Management Areas, Grassland Bird Conservation Areas, Important Bird Areas (acres in ROW) Proximity to shallow lakes (count in ROW), Gray Owl Management Area (count in 0-1,500 feet)	Acres: 0--0--0 Count: 1--0	Acres: 0--0--0 Count: 0--0	Acres: 0--0--23 Count: 1--0	Beltrami North Variation 2 would cross an Important Bird Area. Both the Proposed Blue/Orange Route and the Beltrami North Variation 1 cross a shallow lake but would parallel an existing corridor in this area.	Acres: 0--0--117 Count: 0--0	Acres: 0--0--31 Count: 0--0	Acres: 0--0--157 Count: 0--0	Acres: 0--0--31 Count: 0--0	Acres: 0--0--33 Count: 0--0	Acres: 0--0--33 Count: 0--0	Proposed Blue/Orange Route and Beltrami North Central Variation 2 cross more of the Big Bog Important Bird Area. The Proposed Blue/Orange Route would parallel existing corridor through this area while Beltrami North Central Variation 2 would not parallel existing corridor.
Rare and unique natural resources	**Federal and state listed species**	Summary - proximity of federal and state-listed species (based on the Natural Heritage Information System (NHIS) database)				There are no federally-listed species identified for these alternatives. Beltrami North Variation 2 has more NHIS records, including records of state threatened and/or endangered species, within 1 mile.							There are no federally-listed species identified for these alternatives. Beltrami North Central Variation 1 has the most NHIS records within 1 mile. All alternatives (except Beltrami North Central Variation 4) have threatened and endangered NHIS records within 1 mile.
Rare and unique natural resources	Federally listed species	Federally-listed species (# of records within 1 mile)	0	0	0	There are no federally-listed species identified for these alternatives.	0	0	0	0	0	0	There are no federally-listed species identified for these alternatives.
Rare and unique natural resources	State listed species	State-listed species (total # of NHIS records within 1 mile)	6	3	22	Beltrami North Variation 2 has the most NHIS records within 1 mile.	9	12	5	5	0	7	Beltrami North Central Variation 1 has the most NHIS records within 1 mile.
Rare and unique natural resources	State listed species	State-listed species (# of threatened and endangered NHIS records within 1 mile)	2	0	7	Beltrami North Variation 2 has the most NHIS records of threatened and/or endangered species within 1 mile.	2	3	2	2	0	1	All alternatives (except Beltrami North Central Variation 4) have threatened and endangered NHIS records within 1 mile.

West Section (1), (2)			Beltrami North				Beltrami North Central						
Factor	**Element**	**Indicator**	Proposed Blue/Orange Route	Beltrami North Variation 1	Beltrami North Variation 2	NOTES	Proposed Blue/Orange Route	Beltrami North Central Variation 1	Beltrami North Central Variation 2	Beltrami North Central Variation 3	Beltrami North Central Variation 4	Beltrami North Central Variation 5	NOTES
Rare and unique natural resources	**State rare communities**	Summary - proximity to Scientific and Natural Areas (SNA), SNA Watershed Protection Area (WPA), MBS Sites of Biodiversity Significance, MBS native plant communities, High Conservation Value Forest, and Ecologically Important Lowland Conifer stands				Beltrami North Variation 2 would cross the most MBS Sites of Biodiversity Significance ranked outstanding or high, followed by Beltrami North Variation 1. Both the Proposed Blue/Orange Route and Beltrami North Variation 2 would cross High Conservation Value Forest. Beltrami North Variation 2 would cross MBS native plant communities, including communities with a conservation status rank of S2 and S3, while the other alternatives would not cross any MBS native plant communities.							Beltrami North Central Variation 2 would cross a SNA WPA. Proposed Blue/Orange Route and Beltrami North Central Variation 2 would cross the most MBS Sites of Biodiversity Significance ranked outstanding or high. Proposed Blue/Orange Route and Beltrami North Central Variation 4 would parallel the most existing transmission line, roadway, or trail corridor.
Rare and unique natural resources	State rare communities	Proximity to Scientific and Natural Areas (SNAs) (Count within 1,500 feet) and SNA Watershed Protection Area (acres within ROW)	0--0	0--0	0--0	No SNAs would be located within 1,500 feet of any alternative; none of the alternatives would cross a SNA WPA.	0--0	0--0	0--23	0--0	0--0	0--0	Beltrami North Central Variation 2 would cross a SNA WPA, while the other alternatives do not cross a SNA or SNA WPA.
Rare and unique natural resources	State rare communities	Proximity to MBS Sites of Biodiversity Significance - (total acres within ROW)	369	276	460	All alternatives would cross relatively similar amounts of MBS Sites of Biodiversity Significance.	145	97	174	105	102	94	All alternatives would cross a relatively similar amount of MBS Sites of Biodiversity Significance. The Proposed Blue/Orange Route and Beltrami North Central Variation 4 would parallel the most existing transmission line, roadway, or trail corridor.
Rare and unique natural resources	State rare communities	Proximity to MBS Sites of Biodiversity Significance - Rank Outstanding + High (acres within ROW)	0	6	30	Beltrami North Variation 2 would cross the most MBS Sites of Biodiversity Significance ranked outstanding or high.	101	15	115	15	0	0	Proposed Blue/Orange Route and Beltrami North Central Variation 2 would cross the most MBS Sites of Biodiversity Significance ranked outstanding or high; these alternatives would parallel existing corridor through these areas. Beltrami North Central Variation 4 and Beltrami North Central Variation 5 would not cross MBS Sites of Biodiversity Significance ranked outstanding or high.

West Section [(1), (2)]			Beltrami North				Beltrami North Central						
Factor	**Element**	**Indicator**	Proposed Blue/Orange Route	Beltrami North Variation 1	Beltrami North Variation 2	NOTES	Proposed Blue/Orange Route	Beltrami North Central Variation 1	Beltrami North Central Variation 2	Beltrami North Central Variation 3	Beltrami North Central Variation 4	Beltrami North Central Variation 5	NOTES
Rare and unique natural resources	State rare communities	Proximity to MnDNR High Conservation Value Forest, MnDNR Ecologically Important Lowland Conifer Areas (acres within ROW)	8--0	0--0	8--0	Proposed Blue/Orange Route and Beltrami North Variation 2 each cross eight acres of High Conservation Value Forest. Both alternatives would cross along the edge, while paralleling an existing corridor.	0--0	0--0	0--0	0--0	0--0	0--0	There are no known High Conservation Value Forests that would be affected by the alternatives.
Rare and unique natural resources	State rare communities	Proximity to MBS native plant communities (total acres in ROW)	0	0	30	Beltrami North Variation 2 would cross MBS native plant communities, while the other alternatives would not cross these communities.	0	0	0	0	0	0	No MBS native plant community data are available for this area.
Rare and unique natural resources	State rare communities	Proximity to MBS native plant communities (acres of conservation status rank S2 and S3 communities in ROW)	0	0	8	Beltrami North Variation 2 would cross MBS native plant communities with conservation status ranks of S2 and S3, while the alternatives would not cross these communities.	0	0	0	0	0	0	No MBS native plant community data are available for this area.
Use or paralleling of existing rights-of-way		Proximity to high voltage transmission lines, roadways, and trails (percent of total length)	100	72	53	All alternatives would parallel existing transmission line, roadway, and/or trail corridor for at least one-half of their length.	100	48	49	70	92	70	Beltrami North Central Variation 1 and Beltrami North Central Variation 2 would parallel the least existing transmission line, roadway, and/or trail corridor.
Electrical system reliability		Proximity to two or more high voltage transmission lines (percent of total length)	-	-	-	There are no issues with electrical reliability since there would not be three transmission lines paralleling the same corridor.	-	-	-	-	-	-	There are no issues with electrical reliability since there would not be three transmission lines paralleling the same corridor.
Costs of constructing, operating, and maintaining the facility which are dependent on design and route		Total construction cost[(3)]	$18,984,370	ranges from $18,741,668 to $19,591,668	$24,571,721	The maximum cost for the Beltrami North Variation 1 is within 20% of the cost of the Proposed Blue/Orange Route. The cost of the Beltrami North Variation 2 is more than 20% above the cost of the Proposed Blue/Orange Route.	$12,574,123	ranges from $14,038,602 to $14,368,602	$14,478,550	ranges from $16,155,266 to $18,393,663	ranges from $17,168,969 to $25,069,516	ranges from $16,966,730 to $22,958,880	The maximum cost for the Beltrami North Central Variation 1 and Beltrami North Central Variation 2 are within 20% of the cost of the Proposed Blue/Orange Route. The cost of the Beltrami North Central Variation 3, Beltrami North Central Variation 4, and Beltrami North Central Variation 5 are more than 20% above the cost of the Proposed Blue/Orange Route.

(1) Colors represent least impacts (green), moderate impacts (yellow), greatest impacts (red), and no impacts or similar impacts (gray) relative to the specific factor.

(2) Red text indicates information in these rows are included within the DEIS.

(3) Using the Applicant's methodology (see comment in Appendix U), the Applicant-proposed route is green; if the maximum cost of the alternative is less than the Applicant-proposed route - it is green; if the maximum cost of the alternative is up to 20% more than the Applicant-proposed route - it is yellow; if the maximum cost of the alternative is more than 20% above the cost of the Applicant-proposed route - it is red.

Central Section [(1), (2)]			Pine Island			Beltrami South Central		
Factor	Element	Indicator	Proposed Blue Route	Proposed Orange Route	NOTES	Proposed Orange Route	Beltrami South Central Variation	NOTES
Human settlement	Displacement	Proximity to residences	See section on Human Settlement in the Pine Island Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Beltrami South Central Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Noise	Proximity to noise receptors	See section on Human Settlement in the Pine Island Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Beltrami South Central Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Air quality	Air emissions (criteria pollutants and greenhouse gases)	See section on Human Settlement in the Pine Island Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Beltrami South Central Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Property values	Proximity to residences	See section on Human Settlement in the Pine Island Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Beltrami South Central Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Electronic interference	Proximity to communication towers	See section on Human Settlement in the Pine Island Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Beltrami South Central Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Transportation and public services	Proximity to roadways, railways	See section on Human Settlement in the Pine Island Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Beltrami South Central Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Transportation and public services	Proximity to airstrips	See section on Human Settlement in the Pine Island Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Beltrami South Central Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Environmental justice	Minority populations	See section on Human Settlement in the Pine Island Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Beltrami South Central Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Environmental justice	Low-income populations	See section on Human Settlement in the Pine Island Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Beltrami South Central Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Socioeconomics	Population	See section on Human Settlement in the Pine Island Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Beltrami South Central Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Socioeconomics	Employment	See section on Human Settlement in the Pine Island Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Beltrami South Central Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Socioeconomics	Taxes and revenue generated	See section on Human Settlement in the Pine Island Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Beltrami South Central Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Socioeconomics	Housing availability	See section on Human Settlement in the Pine Island Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Beltrami South Central Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Recreation and tourism	Proximity to recreational resources (county, state, and federal parks and forests, state Scientific and Natural Areas (SNAs), state trails, scenic byways, and snow and water trails)	See section on Human Settlement in the Pine Island Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Beltrami South Central Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Cultural values	Proximity to residences	See section on Human Settlement in the Pine Island Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Beltrami South Central Variation Area for details		There would be no differences in the impacts for the alternatives.

Central Section [(1), (2)]			Pine Island			Beltrami South Central		
Factor	**Element**	**Indicator**	Proposed Blue Route	Proposed Orange Route	NOTES	Proposed Orange Route	Beltrami South Central Variation	NOTES
Human settlement	**Aesthetics**	Proximity to residences (count within 0-500, 0-1,000, & 0-1,500 ft from the anticipated alignment)	1--9--14	0--0--2	Proposed Blue Route would pass by more residences within 1,500 feet of the anticipated alignment. Proposed Orange Route passes near the Big Bog Recreation Area, but is not visible.	0--0--0	0--0--0	No residences are present within 1,500 feet of the anticipated alignment for either alternative.
Human settlement	**Land use compatibility**	Summary - land use type data and land ownership data			Proposed Blue Route and Proposed Orange Route would cross USFWS Interest Lands (8 acres and 16 acres, respectively), but the Proposed Blue Route could avoid it by using the Silver Creek Alignment Modification. Proposed Orange Route passes near the Big Bog Recreation Area, but is not visible. Proposed Blue Route crosses more private land than the Proposed Orange Route.			Proposed Orange Route would cross USFWS Interest Lands (16 acres), while the Beltrami South Central Variation would not. Neither alternative would cross private land.
Human settlement	Land use compatibility	Land use type data (crosses USFWS Interest Lands or other features, e.g. airstrips)			Proposed Blue Route and Proposed Orange Route would cross USFWS Interest Lands (8 acres and 16 acres, respectively), but the Proposed Blue Route could avoid it by using the Silver Creek Alignment Modification. Proposed Orange Route passes near the Big Bog Recreation Area, but is not visible.			Proposed Orange Route would cross USFWS Interest Lands (16 acres), while the Beltrami South Central Variation would not. Crossing this land would require obtaining a provisional special use permit for construction from the USFWS.
Human settlement	Land use compatibility	Land ownership type data - total acres in ROW (acres of public and private land in the ROW)	Total: 2,661 (2,099--562)	Total: 2,556 (2,310--246)	Proposed Blue Route crosses more private land than the Proposed Orange Route.	Total: 30 (30--0)	Total: 43 (43--0)	Neither alternative would cross private land.
Public health and safety	Electric and magnetic Fields	Proximity to residences	See section on Public Health and Safety in the Pine Island Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Public Health and Safety in the Beltrami South Central Variation Area for details		There would be no differences in the impacts for the alternatives.
Public health and safety	Implantable medical devices	Proximity to residences	See section on Public Health and Safety in the Pine Island Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Public Health and Safety in the Beltrami South Central Variation Area for details		There would be no differences in the impacts for the alternatives.
Public health and safety	Stray voltage	Proximity to residences	See section on Public Health and Safety in the Pine Island Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Public Health and Safety in the Beltrami South Central Variation Area for details		There would be no differences in the impacts for the alternatives.
Public health and safety	Induced voltage	Proximity to residences	See section on Public Health and Safety in the Pine Island Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Public Health and Safety in the Beltrami South Central Variation Area for details		There would be no differences in the impacts for the alternatives.
Public health and safety	Intentional destructive acts	Intentional destructive acts	See section on Public Health and Safety in the Pine Island Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Public Health and Safety in the Beltrami South Central Variation Area for details		There would be no differences in the impacts for the alternatives.
Public health and safety	Environmental contamination	Registered sites of contamination	See section on Public Health and Safety in the Pine Island Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Public Health and Safety in the Beltrami South Central Variation Area for details		There would be no differences in the impacts for the alternatives.
Public health and safety	Worker health and safety	Worker health and safety	See section on Public Health and Safety in the Pine Island Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Public Health and Safety in the Beltrami South Central Variation Area for details		There would be no differences in the impacts for the alternatives.

Central Section [(1), (2)]			Pine Island			Beltrami South Central		
Factor	**Element**	**Indicator**	Proposed Blue Route	Proposed Orange Route	NOTES	Proposed Orange Route	Beltrami South Central Variation	NOTES
Land based economies	**Agriculture**	Proximity to farmland - total acres in ROW (acres of prime farmland, farmland of statewide importance, and prime farmland if drained in ROW)	Total: 666 (70--289--307)	Total: 693 (70--120--503)	Proposed Blue Route and Proposed Orange Route would cross a relatively similar amounts of farmland.	Total: 0 (0--0--0)	Total: 0 (0--0--0)	Neither alternative would cross farmland.
Land based economies	**Forestry**	Proximity to forest land (acres of state forest land in ROW)	2,291	1,980	Proposed Blue Route and Proposed Orange Route would cross relatively similar amounts of state forest land.	30	43	Both alternatives cross relatively similar amounts of state forest land. Proposed Orange Route parallels existing corridor for its entire length.
Land based economies	**Mining and mineral resources**	Proximity to state mining lease lands (active and/or expired/terminated; acres in ROW) and aggregate resources (count in ROW)	1,205--0	370--2	Proposed Blue Route would cross more expired/terminated mineral lease lands. Proposed Orange route would pass in close proximity to more aggregate resources.	0--0	0--0	No active or expired/terminated mineral lease lands or aggregate resources are present in the ROW of any alternative.
Archaeological and historic architectural resources		Summary - proximity to archaeological and historic architectural resources			Proposed Blue Route would cross a section identified as containing known archaeological resources; Proposed Orange Route does not cross any of these sections. Proposed Orange Route has more historic architectural sites within 1 mile than the Proposed Blue Route.			There are no known archaeological or historic architectural resources that would be affected by the alternatives.
Archaeological and historic resources	Archaeological sites	Proximity to archaeological sites (count within 0-100 ft and 0-1,500 ft from the anticipated alignment)	0--1	0--0	Proposed Blue Route would cross a section identified as containing known archaeological sites; the Proposed Orange Route does not cross any of these sections.	0--0	0--0	There are no known archaeological sites that would be affected by the alternatives.
Archaeological and historic resources	Historic architectural sites	Proximity to historic architectural sites (count within 0-100 ft, 0-1,500 ft, and 0-1 mile from the anticipated alignment)	0--2--2	0--0--7	Proposed Orange Route has more historic architectural sites within 1 mile than the Proposed Blue Route.	0--0--0	0--0--0	There are no known historic architectural sites that would be affected by the alternatives.

Central Section [(1), (2)]			Pine Island			Beltrami South Central		
Factor	**Element**	**Indicator**	Proposed Blue Route	Proposed Orange Route	NOTES	Proposed Orange Route	Beltrami South Central Variation	NOTES
Natural environment	**Water resources**	Summary - proximity to watercourses, waterbodies, floodplains, and wetlands			Proposed Blue Route and Proposed Orange Route would cross similar numbers of watercourses/ waterbodies; however, the Proposed Blue Route would cross one trout stream. All crossings are expected to be spanned, although clearing vegetation adjacent to trout streams could result in increased water temperature, potentially resulting in less suitable trout habitat. Both alternatives would cross relatively similar areas of FEMA-designated floodplain areas that cannot be spanned. Both alternatives would cross relatively similar areas of wetlands that are too large to span and would result in relatively similar areas of shrub and forested wetland type conversion.			There are no differences between the alternatives for crossing watercourses, waterbodies, and floodplains. Proposed Orange Route and Beltrami South Central Variation would cross wetlands that are too large to span. Proposed Orange Route and Beltrami South Central Variation would cross relatively similar areas of wetlands that are too large to span would result in relatively similar areas of forest wetland type conversion. Beltrami South Central Variation would have the most shrub wetland; therefore, would require the most shrub wetland type conversion.
Natural environment	Water resources	Proximity to watercourses and waterbodies - Total number of crossings in ROW (number of PWI crossings, non-PWI crossings); - Trout stream (number of crossings)	Total: 66 (18--48); (1)	Total: 71 (25--46); (0)	Proposed Blue Route and Proposed Orange Route would cross similar numbers of watercourses/waterbodies; however, the Proposed Blue Route would cross one trout stream. All crossings are expected to be spanned, though clearing vegetation adjacent to trout streams could result in increased water temperature, potentially resulting in less suitable trout habitat.	Total: 0	Total: 0	There are no differences between the alternatives.
Natural environment	Water resources	Proximity to floodplains - total acres of floodplain in ROW (acres of Zone A, acres of Zone B)	Total: 20 (20--0)	Total: 11 (11--0)	Both alternatives would cross relatively similar areas of FEMA-designated floodplain areas that are too large to span;	Total: 0	Total: 0	There are no differences between the alternatives.
Natural environment	Water resources	Proximity to wetlands (acres of PSS wetlands in ROW resulting in wetland type conversion)	657	774	Both alternatives would cross relatively similar areas of shrub wetland.	8	28	Beltrami South Central Variation would cross the most shrub wetland.
Natural environment	Water resources	Proximity to wetlands (acres of PFO wetlands in ROW resulting in wetland type conversion)	1,240	1,039	Both alternatives would cross relatively similar areas of forested wetland.	20	11	Both alternatives would cross relatively similar areas of forested wetland.
Natural environment	Water resources	Proximity to wetlands (acres of total wetlands in ROW too large to span)	2,102	1,875	Both alternatives would cross relatively similar areas of total wetland that are too large to span.	30	43	Both alternatives would cross relatively similar areas of total wetland that are too large to span.

Central Section (1), (2)			Pine Island			Beltrami South Central		
Factor	**Element**	**Indicator**	Proposed Blue Route	Proposed Orange Route	NOTES	Proposed Orange Route	Beltrami South Central Variation	NOTES
Natural environment	**Vegetation**	Cover type (acres of forested land cover in ROW)	2,554	2,520	Proposed Blue Route and Proposed Orange Route would cross a relatively similar amount of forested land cover.	30	43	Both alternatives would cross a relatively similar amounts of forested land cover. Proposed Orange Route parallels existing corridor for its entire length.
Natural environment	**Wildlife**	Proximity to wildlife resources - Wildlife Management Areas, Important Bird Areas (acres in ROW) Proximity to shallow lakes (count in ROW)	49--1,405--0	274--1,722--0	Both alternatives would cross a WMA and Important Bird Area. Proposed Orange Route would cross a greater portion of these areas.	0--30--0	0--43--0	Both alternatives would cross a relatively similar amount of Important Bird Area. Proposed Orange Route parallels existing corridor for its entire length.
Rare and unique natural resources	**Federal and state listed species**	Summary - proximity of federal and state-listed species (based on the Natural Heritage Information System (NHIS) database)			There are no federally-listed species identified for these alternatives. Both alternatives would cross critical habitat designated for gray wolf. Proposed Orange Route has more threatened and endangered NHIS records within 1 mile.			There are no federally-listed species identified for these alternatives. Both alternatives have the same number of NHIS records within 1 mile.
Rare and unique natural resources	Federally listed species	Federally-listed species (# of records within 1 mile), designated critical habitat (miles crossed)	0--60	0--85	Both alternatives would cross relatively similar amounts of critical habitat designated for gray wolf.	0--0	0--0	There are no federally-listed species identified for these alternatives. Neither alternative would cross critical habitat designated for gray wolf.
Rare and unique natural resources	State listed species	State-listed species (total # of NHIS records within 1 mile)	16	21	Both alternatives have a relatively similar number of NHIS records within 1 mile.	8	8	Both alternatives have the same number of NHIS records within 1 mile.
Rare and unique natural resources	State listed species	State-listed species (# of threatened and endangered NHIS records within 1 mile)	2	6	The Proposed Orange Route has more threatened and endangered NHIS records within 1 mile.	3	3	Both alternatives have the same number of threatened and endangered NHIS records within 1 mile.

Central Section [(1), (2)]			Pine Island			Beltrami South Central		
Factor	**Element**	**Indicator**	Proposed Blue Route	Proposed Orange Route	NOTES	Proposed Orange Route	Beltrami South Central Variation	NOTES
Rare and unique natural resources	**State rare communities**	Summary - proximity to Scientific and Natural Areas (SNAs), SNA Watershed Protection Area (WPA), MBS Sites of Biodiversity Significance, MBS native plant communities, High Conservation Value Forest, and Ecologically Important Lowland Conifer stands			Proposed Blue Route and Proposed Orange Route would have an SNA within 1,500 feet; however, the Proposed Blue Route would parallel an existing corridor in this area, while the Proposed Orange Route would not. Proposed Orange Route would cross more SNA WPAs. Proposed Blue Route would cross more Ecologically Important Lowland Conifer Areas.			Both alternatives would cross a relatively similar amount of MBS Sites of Biodiversity Significance. Proposed Orange Route would parallel existing corridor for its entire length.
Rare and unique natural resources	State rare communities	Proximity to Scientific and Natural Areas (SNAs) (count within 1,500 feet) and SNA Watershed Protection Area (acres within ROW)	1--125	1--247	Proposed Blue Route would have 100 acres of a SNA within 1,500 feet and the Proposed Orange Route would have 50 acres of a SNA within 1,500 feet; neither alternative has an SNA within its ROW. Proposed Blue Route would parallel an existing corridor in this area, while the Proposed Orange Route would require new corridor. Proposed Orange Route would cross more acres of SNA WPAs.	0--0	0--0	No SNAs would be located within 1,500 feet of any alternative; no alternative would cross an SNA WPA.
Rare and unique natural resources	State rare communities	Proximity to MBS Sites of Biodiversity Significance (total acres within ROW)	1,514	1,639	Both alternatives would cross a relatively similar amount of MBS Sites of Biodiversity Significance.	30	43	Both alternatives would cross a relatively similar amount of MBS Sites of Biodiversity Significance.
Rare and unique natural resources	State rare communities	Proximity to MnDNR High Conservation Value Forest, MnDNR Ecologically Important Lowland Conifer Areas (acres within ROW)	0--29	0--5	Proposed Blue Route would cross more Ecologically Important Lowland Conifer Areas.	0--0	0--0	There are no known Ecologically Important Lowland Conifer Areas that would be affected by the alternatives.
Rare and unique natural resources	State rare communities	Proximity to MBS native plant communities (total acres in ROW)	-	-	No MBS native plant community data are available for this area.	-	-	No MBS native plant community data are available for this area.

Central Section [1], [2]			Pine Island			Beltrami South Central		
Factor	**Element**	**Indicator**	Proposed Blue Route	Proposed Orange Route	NOTES	Proposed Orange Route	Beltrami South Central Variation	NOTES
Use or paralleling of existing rights-of-way		Proximity to high voltage transmission lines, roadways, and trails (percent of total length)	40	23	Both alternatives would parallel existing transmission line, roadway, and/or trail corridor.	100	0	Proposed Orange Route would parallel an existing transmission line, roadway, and/or trail corridor for the entire length. Beltrami South Central Variation would not parallel any corridors.
Electrical system reliability		Proximity to two or more high voltage transmission lines (percent of total length)	-	-	There are no issues with electrical reliability since there would not be three transmission lines paralleling the same corridor.	-	-	There are no issues with electrical reliability since there would not be three transmission lines paralleling the same corridor.
Costs of constructing, operating, and maintaining the facility which are dependent on design and route		Total construction cost[3]	$118,546,237	ranges from $112,884,087 to $118,876,237	The cost of the alternative is within 20% of the cost of the Proposed Blue Route.	$1,214,573	$3,440,123	The cost of the alternative is more than 20% above the cost of the Proposed Orange Route.

(1) Colors represent least impacts (green), moderate impacts (yellow), greatest impacts (red), and no impacts or similar impacts (gray) relative to the specific factor.

(2) Red text indicates information in these rows are included within the DEIS.

(3) Using the Applicant's methodology (see comment in Appendix U), the Applicant-proposed route is green; if the maximum cost of the alternative is less than the Applicant-proposed route - it is green; if the maximum cost of the alternative is up to 20% more than the Applicant-proposed route - it is yellow; if the maximum cost of the alternative is more than 20% above the cost of the Applicant-proposed route - it is red.

Central Section [(1), (2)]			Beltrami South			North Black River		
Factor	Element	Indicator	Proposed Orange Route	Beltrami South Variation	NOTES	Proposed Blue Route	North Black River Variation	NOTES
Human settlement	Displacement	Proximity to residences	See section on Human Settlement in the Beltrami South Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the North Black River Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Noise	Proximity to noise receptors	See section on Human Settlement in the Beltrami South Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the North Black River Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Air quality	Air emissions (criteria pollutants and greenhouse gases)	See section on Human Settlement in the Beltrami South Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the North Black River Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Property values	Proximity to residences	See section on Human Settlement in the Beltrami South Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the North Black River Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Electronic interference	Proximity to communication towers	See section on Human Settlement in the Beltrami South Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the North Black River Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Transportation and public services	Proximity to roadways, railways	See section on Human Settlement in the Beltrami South Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the North Black River Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Transportation and public services	Proximity to airstrips	See section on Human Settlement in the Beltrami South Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the North Black River Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Environmental justice	Minority populations	See section on Human Settlement in the Beltrami South Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the North Black River Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Environmental justice	Low-income populations	See section on Human Settlement in the Beltrami South Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the North Black River Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Socioeconomics	Population	See section on Human Settlement in the Beltrami South Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the North Black River Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Socioeconomics	Employment	See section on Human Settlement in the Beltrami South Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the North Black River Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Socioeconomics	Taxes and revenue generated	See section on Human Settlement in the Beltrami South Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the North Black River Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Socioeconomics	Housing availability	See section on Human Settlement in the Beltrami South Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the North Black River Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Recreation and tourism	Proximity to recreational resources (county, state, and federal parks and forests, state Scientific and Natural Areas (SNAs), state trails, scenic byways, and snow and water trails)	See section on Human Settlement in the Beltrami South Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the North Black River Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Cultural values	Proximity to residences	See section on Human Settlement in the Beltrami South Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the North Black River Variation Area for details		There would be no differences in the impacts for the alternatives.

Central Section [(1), (2)]			Beltrami South			North Black River		
Factor	**Element**	**Indicator**	Proposed Orange Route	Beltrami South Variation	NOTES	Proposed Blue Route	North Black River Variation	NOTES
Human settlement	**Aesthetics**	Proximity to residences (count within 0-500, 0-1,000, & 0-1,500 ft from the anticipated alignment)	0--0--0	0--0--0	No residences are present within 1,500 feet of the anticipated alignment for either alternative.	0--0--1	3--4--5	North Black River Variation would pass by more residences within 1,500 feet of the anticipated alignment. North Black River would parallel existing transmission line corridor for its entire length.
Human settlement	**Land use compatibility**	Summary - land use type data and land ownership data			Beltrami South Variation would avoid USFWS Interest Lands. It is unknown whether the anticipated alignment of the Proposed Orange Route would impact USFWS Interest Lands; land surveys would need to be completed to determine impacts. Beltrami South Variation would cross more private land.			North Black River Variation would cross more private land.
Human settlement	Land use compatibility	Land use type data (crosses USFWS Interest Lands or other features, e.g. airstrips)			Beltrami South Variation would avoid USFWS Interest Lands. It is unknown whether the anticipated alignment of the Proposed Orange Route would impact USFWS land; land surveys would need to be completed to determine impacts.			There are no land use compatibility issues identified for the alternatives.
Human settlement	Land use compatibility	Land ownership type data - total acres in ROW (acres of public and private land in the ROW)	Total: 136 (136--0)	Total: 183 (181--2)	Beltrami South Variation would cross more private land.	Total: 204 (184--20)	Total: 223 (158--65)	North Black River Variation would cross more private land.
Public health and safety	Electric and magnetic Fields	Proximity to residences	See section on Public Health and Safety in the Beltrami South Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Public Health and Safety in the North Black River Variation Area for details		There would be no differences in the impacts for the alternatives.
Public health and safety	Implantable medical devices	Proximity to residences	See section on Public Health and Safety in the Beltrami South Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Public Health and Safety in the North Black River Variation Area for details		There would be no differences in the impacts for the alternatives.
Public health and safety	Stray voltage	Proximity to residences	See section on Public Health and Safety in the Beltrami South Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Public Health and Safety in the North Black River Variation Area for details		There would be no differences in the impacts for the alternatives.
Public health and safety	Induced voltage	Proximity to residences	See section on Public Health and Safety in the Beltrami South Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Public Health and Safety in the North Black River Variation Area for details		There would be no differences in the impacts for the alternatives.
Public health and safety	Intentional destructive acts	Intentional destructive acts	See section on Public Health and Safety in the Beltrami South Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Public Health and Safety in the North Black River Variation Area for details		There would be no differences in the impacts for the alternatives.
Public health and safety	Environmental contamination	Registered sites of contamination	See section on Public Health and Safety in the Beltrami South Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Public Health and Safety in the North Black River Variation Area for details		There would be no differences in the impacts for the alternatives.
Public health and safety	Worker health and safety	Worker health and safety	See section on Public Health and Safety in the Beltrami South Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Public Health and Safety in the North Black River Variation Area for details		There would be no differences in the impacts for the alternatives.

Central Section [(1), (2)]			Beltrami South			North Black River		
Factor	**Element**	**Indicator**	Proposed Orange Route	Beltrami South Variation	NOTES	Proposed Blue Route	North Black River Variation	NOTES
Land based economies	**Agriculture**	Proximity to farmland - total acres in ROW (acres of prime farmland, farmland of statewide importance, and prime farmland if drained in ROW)	Total: 0 (0--0--0)	Total: 0 (0--0--0)	Neither alternative would cross farmland.	Total: 41 (0--29--12)	Total: 64 (0--14--50)	Both alternatives would cross a relatively similar amount of farmland.
Land based economies	**Forestry**	Proximity to forest land (acres of state forest land in ROW)	136	183	Both alternatives cross relatively similar amounts of state forest land. Proposed Orange Route would parallel an existing transmission line corridor for its entire length.	188	156	Both alternatives would cross a relatively similar amount of state forest land. North Black River Variation would parallel an existing transmission line corridor for its entire length.
Land based economies	**Mining and mineral resources**	Proximity to state mining lease lands (active and/or expired/terminated; acres in ROW) and aggregate resources (count in ROW)	58--0	287--0	Beltrami South Variation crosses more expired/terminated mineral lease lands.	405--0	362--0	Both alternatives would cross a relatively similar amount of expired/terminated mineral lease lands. North Black River Variation would parallel an existing transmission line corridor for its entire length.
Archaeological and historic architectural resources		Summary - proximity to archaeological and historic architectural resources			There are no known archaeological and historic architectural resources that would be affected by the alternatives.			There are no known archaeological and historic architectural resources that would be affected by the alternatives.
Archaeological and historic resources	Archaeological sites	Proximity to archaeological sites (count within 0-100 ft and 0-1,500 ft from the anticipated alignment)	0--0	0--0	There are no known archaeological sites that would be affected by the alternatives.	0--0	0--0	There are no known archaeological sites that would be affected by the alternatives.
Archaeological and historic resources	Historic architectural sites	Proximity to historic architectural sites (count within 0-100 ft, 0-1,500 ft, and 0-1 mile from the anticipated alignment)	0--0--0	0--0--0	There are no known historic architectural sites that would be affected by the alternatives.	0--0--0	0--0--0	There are no known historic architectural sites that would be affected by the alternatives.

Central Section [(1), (2)]			Beltrami South			North Black River		
Factor	**Element**	**Indicator**	Proposed Orange Route	Beltrami South Variation	NOTES	Proposed Blue Route	North Black River Variation	NOTES
Natural environment	**Water resources**	Summary - proximity to watercourses, waterbodies, floodplains, and wetlands			There are no differences between the alternatives for crossing watercourses, waterbodies, or floodplains. Both alternatives would cross relatively similar areas of wetlands that are too large to span and would result in relatively similar areas of shrub and forested wetland type conversion.			There would be no differences between the alternatives for crossing watercourses, waterbodies, and floodplains. Both alternatives would cross relatively similar areas of wetlands that are too large to span and would result in relatively similar areas of shrub and forested wetland type conversion.
Natural environment	Water resources	Proximity to watercourses and waterbodies - Total number of crossings in ROW (number of PWI crossings, non-PWI crossings); - Trout stream (number of crossings)	Total: 0	Total: 0	There are no differences between the alternatives.	Total: 4 (0--4) (0)	Total: 4 (0--4) (0)	There are no differences between the alternatives.
Natural environment	Water resources	Proximity to floodplains - total acres of floodplain in ROW (acres of Zone A, acres of Zone B)	Total: 0	Total: 0	There are no differences between the alternatives.	Total: 0	Total: 0	There are no differences between the alternatives.
Natural environment	Water resources	Proximity to wetlands (acres of PSS wetlands in ROW resulting in wetland type conversion)	40	20	Both alternatives would cross relatively similar areas of shrub wetland.	72	83	Both alternatives would cross relatively similar areas of shrub wetland.
Natural environment	Water resources	Proximity to wetlands (acres of PFO wetlands in ROW resulting in wetland type conversion)	93	160	Both alternatives would cross relatively similar areas of forested wetland.	113	73	Both alternatives would cross relatively similar areas of forested wetland.
Natural environment	Water resources	Proximity to wetlands (acres of total wetlands in ROW too large to span)	136	183	Both alternatives would cross relatively similar areas of total wetland that are too large to span.	193	198	Both alternatives would cross relatively similar areas of total wetland that are too large to span.

Central Section [(1), (2)]			Beltrami South			North Black River		
Factor	**Element**	**Indicator**	Proposed Orange Route	Beltrami South Variation	NOTES	Proposed Blue Route	North Black River Variation	NOTES
Natural environment	**Vegetation**	Cover type (acres of forested land cover in ROW)	135	183	Both alternatives would cross relatively similar amounts of state forest land. Proposed Orange Route would parallel an existing transmission line corridor for its entire length.	204	197	Both alternatives would cross a relatively similar amount of forested land cover. North Black River Variation would parallel an existing transmission line corridor for its entire length.
Natural environment	**Wildlife**	Proximity to wildlife resources - Wildlife Management Areas, Important Bird Areas (acres in ROW) Proximity to shallow lakes (count in ROW)	0--136--0	0--183--0	Both alternatives would cross a relatively similar amount of Important Bird Area. Proposed Orange Route would parallel existing corridor for its entire length.	0--191--0	0--214--0	Both alternatives would cross a relatively similar amount of Important Bird Area. North Black River Variation would parallel an existing transmission line corridor for its entire length.
Rare and unique natural resources	**Federal and state listed species**	Summary - proximity of federal and state-listed species (based on the Natural Heritage Information System (NHIS) database)			There are no federally-listed species identified for these alternatives. Both alternatives cross minimal amounts of critical habitat designated for gray wolf, with Beltrami South Variation crossing slightly more than the Proposed Orange Route. Beltrami South Variation has more NHIS records within 1 mile, including a NHIS record for a threatened species.			There are no federally-listed species identified for these alternatives. The alternatives avoid critical habitat designated for gray wolf. There are no documented NHIS records within 1 mile of these alternatives.
Rare and unique natural resources	Federally listed species	Federally-listed species (# of records within 1 mile), designated critical habitat (miles crossed)	0--1	0--3	There are no federally-listed species identified for these alternatives. The alternatives cross minimal amounts of critical habitat designated for gray wolf, with Beltrami South Variation crossing slightly more than the Proposed Orange Route.	0--0	0--0	There are no federally-listed species identified for these alternatives. Neither alternative would cross critical habitat designated for gray wolf.
Rare and unique natural resources	State listed species	State-listed species (total # of NHIS records within 1 mile)	1	4	Beltrami South Variation has more NHIS records within 1 mile.	0	0	There are no NHIS records within 1 mile of these alternatives.
Rare and unique natural resources	State listed species	State-listed species (# of threatened and endangered NHIS records within 1 mile)	0	1	Beltrami South Variation has one threatened NHIS record within 1 mile.	0	0	No threatened or endangered NHIS records have been documented within 1 mile of either alternative.

Central Section [(1), (2)]			Beltrami South			North Black River		
Factor	**Element**	**Indicator**	Proposed Orange Route	Beltrami South Variation	NOTES	Proposed Blue Route	North Black River Variation	NOTES
Rare and unique natural resources	**State rare communities**	Summary - proximity to Scientific and Natural Areas (SNAs), SNA Watershed Protection Area (WPA), MBS Sites of Biodiversity Significance, MBS native plant communities, High Conservation Value Forest, and Ecologically Important Lowland Conifer stands			Both alternatives would cross a relatively similar amount of MBS Sites of Biodiversity Significance. Proposed Orange Route would parallel an existing transmission line corridor for its entire length.			Both alternatives would cross a relatively similar amount of a SNA WPA and MBS Sites of Biodiversity Significance. North Black River Variation would parallel an existing transmission line corridor for its entire length.
Rare and unique natural resources	State rare communities	Proximity to Scientific and Natural Areas (SNAs) (count within 1,500 feet) and SNA Watershed Protection Area (acres within ROW)	0--0	0--0	No SNAs would be located within 1,500 feet of any alternative; no alternative would cross an SNA WPA.	0--86	0--94	Both alternatives would cross a relatively similar amount of a SNA WPA. North Black River Variation would parallel an existing transmission line corridor for its entire length.
Rare and unique natural resources	State rare communities	Proximity to MBS Sites of Biodiversity Significance (total acres within ROW)	120	161	Both alternatives would cross a relatively similar amount of MBS Sites of Biodiversity Significance. The Proposed Orange Route would parallel an existing transmission line corridor for its entire length.	165	109	Both alternatives would cross a relatively similar amount of MBS Sites of Biodiversity Significance. North Black River Variation would parallel an existing transmission line corridor for its entire length.
Rare and unique natural resources	State rare communities	Proximity to MnDNR High Conservation Value Forest, MnDNR Ecologically Important Lowland Conifer Areas (acres within ROW)	0--0	0--0	There are no known Ecologically Important Lowland Conifer Areas that would be affected by the alternatives.	0--0	0--0	There are no known Ecologically Important Lowland Conifer Areas that would be affected by the alternatives.
Rare and unique natural resources	State rare communities	Proximity to MBS native plant communities (total acres in ROW)	-	-	No MBS native plant communities data are available for this area.	-	-	No MBS native plant community data are available for this area.

Central Section [1], [2]			Beltrami South			North Black River		
Factor	**Element**	**Indicator**	Proposed Orange Route	Beltrami South Variation	NOTES	Proposed Blue Route	North Black River Variation	NOTES
Use or paralleling of existing rights-of-way		Proximity to high voltage transmission lines, roadways, and trails (percent of total length)	100	0	Proposed Orange Route would parallel an existing transmission line, roadway, and/or trail corridor for the entire length. Beltrami South Variation would not parallel any corridors.	0	100	North Black River Variation would parallel an existing transmission line, roadway, and/or trail corridor for its entire length. Proposed Blue Route would not parallel any corridors.
Electrical system reliability		Proximity to two or more high voltage transmission lines (percent of total length)	-	-	There are no issues with electrical reliability since there would not be three transmission lines paralleling the same corridor.	-	-	There are no issues with electrical reliability since there would not be three transmission lines paralleling the same corridor.
Costs of constructing, operating, and maintaining the facility which are dependent on design and route		Total construction cost[3]	$5,805,518	$9,925,396	The cost of the alternative is more than 20% above the cost of the Proposed Orange Route.	$9,893,560	$10,552,560	The cost of the alternative is within 20% of the cost of the Proposed Blue Route.

(1) Colors represent least impacts (green), moderate impacts (yellow), greatest impacts (red), and no impacts or similar impacts (gray) relative to the specific factor.

(2) Red text indicates information in these rows are included within the DEIS.

(3) Using the Applicant's methodology (see comment in Appendix U), the Applicant-proposed route is green; if the maximum cost of the alternative is less than the Applicant-proposed route - it is green; if the maximum cost of the alternative is up to 20% more than the Applicant-proposed route - it is yellow; if the maximum cost of the alternative is more than 20% above the cost of the Applicant-proposed route - it is red.

Central Section (1), (2)			**C2 Segment Option**			**J2 Segment Option**		
Factor	**Element**	**Indicator**	Proposed Blue Route	C2 Segment Option Variation	NOTES	Proposed Orange Route	J2 Segment Option Variation	NOTES
Human settlement	Displacement	Proximity to residences	See section on Human Settlement in the C2 Segment Option Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the J2 Segment Option Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Noise	Proximity to noise receptors	See section on Human Settlement in the C2 Segment Option Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the J2 Segment Option Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Air quality	Air emissions (criteria pollutants and greenhouse gases)	See section on Human Settlement in the C2 Segment Option Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the J2 Segment Option Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Property values	Proximity to residences	See section on Human Settlement in the C2 Segment Option Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the J2 Segment Option Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Electronic interference	Proximity to communication towers	See section on Human Settlement in the C2 Segment Option Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the J2 Segment Option Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Transportation and public services	Proximity to roadways, railways	See section on Human Settlement in the C2 Segment Option Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the J2 Segment Option Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Transportation and public services	Proximity to airstrips	See section on Human Settlement in the C2 Segment Option Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the J2 Segment Option Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Environmental justice	Minority populations	See section on Human Settlement in the C2 Segment Option Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the J2 Segment Option Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Environmental justice	Low-income populations	See section on Human Settlement in the C2 Segment Option Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the J2 Segment Option Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Socioeconomics	Population	See section on Human Settlement in the C2 Segment Option Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the J2 Segment Option Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Socioeconomics	Employment	See section on Human Settlement in the C2 Segment Option Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the J2 Segment Option Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Socioeconomics	Taxes and revenue generated	See section on Human Settlement in the C2 Segment Option Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the J2 Segment Option Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Socioeconomics	Housing availability	See section on Human Settlement in the C2 Segment Option Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the J2 Segment Option Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Recreation and tourism	Proximity to recreational resources (county, state, and federal parks and forests, state Scientific and Natural Areas (SNAs), state trails, scenic byways, and snow and water trails)	See section on Human Settlement in the C2 Segment Option Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the J2 Segment Option Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Cultural values	Proximity to residences	See section on Human Settlement in the C2 Segment Option Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the J2 Segment Option Variation Area for details		There would be no differences in the impacts for the alternatives.

Central Section [(1), (2)]			C2 Segment Option			J2 Segment Option		
Factor	**Element**	**Indicator**	Proposed Blue Route	C2 Segment Option Variation	NOTES	Proposed Orange Route	J2 Segment Option Variation	NOTES
Human settlement	**Aesthetics**	Proximity to residences (count within 0-500, 0-1,000, & 0-1,500 ft from the anticipated alignment)	0--0--0	4--14--29	C2 Segment Option Variation would pass by more residences within 1,500 feet of the anticipated alignment. C2 Segment Option Variation would parallel existing transmission line corridor for the majority of its length.	0--0--0	1--5--6	J2 Segment Option Variation would pass by more residences within 1,500 feet of the anticipated alignment.
Human settlement	**Land use compatibility**	Summary - land use type data and land ownership data			C2 Segment Option Variation would pass near an airstrip, but could avoid potential impacts by using the Airstrip Alignment Modification. C2 Segment Option Variation would cross more private land.			J2 Segment Option Variation would cross USFWS Interest Lands (28 acres) and would cross more private land.
Human settlement	Land use compatibility	Land use type data (crosses USFWS Interest Lands or other features, e.g. airstrips)			C2 Segment Option Variation would pass near an airstrip, but could avoid potential impacts by using the Airstrip Alignment Modification			J2 Segment Option Variation would cross USFWS Interest Lands (28 acres), while the Proposed Orange Route would not. Crossing this land would require obtaining a provisional special use permit for construction from the USFWS.
Human settlement	Land use compatibility	Land ownership type data - total acres in ROW (acres of public and private land in the ROW)	Total: 797 (731--66)	Total: 1,116 (654--462)	C2 Segment Option Variation would cross more private land.	Total: 1,024 (945--79)	Total: 1,096 (867--229)	J2 Segment Option Variation would cross more private land.
Public health and safety	Electric and magnetic Fields	Proximity to residences	See section on Public Health and Safety in the C2 Segment Option Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Public Health in the J2 Segment Option Variation Area for details		There would be no differences in the impacts for the alternatives.
Public health and safety	Implantable medical devices	Proximity to residences	See section on Public Health and Safety in the C2 Segment Option Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Public Health in the J2 Segment Option Variation Area for details		There would be no differences in the impacts for the alternatives.
Public health and safety	Stray voltage	Proximity to residences	See section on Public Health and Safety in the C2 Segment Option Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Public Health in the J2 Segment Option Variation Area for details		There would be no differences in the impacts for the alternatives.
Public health and safety	Induced voltage	Proximity to residences	See section on Public Health and Safety in the C2 Segment Option Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Public Health in the J2 Segment Option Variation Area for details		There would be no differences in the impacts for the alternatives.
Public health and safety	Intentional destructive acts	Intentional destructive acts	See section on Public Health and Safety in the C2 Segment Option Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Public Health in the J2 Segment Option Variation Area for details		There would be no differences in the impacts for the alternatives.
Public health and safety	Environmental contamination	Registered sites of contamination	See section on Public Health and Safety in the C2 Segment Option Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Public Health in the J2 Segment Option Variation Area for details		There would be no differences in the impacts for the alternatives.
Public health and safety	Worker health and safety	Worker health and safety	See section on Public Health and Safety in the C2 Segment Option Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Public Health in the J2 Segment Option Variation Area for details		There would be no differences in the impacts for the alternatives.

Central Section [(1), (2)]			C2 Segment Option			J2 Segment Option		
Factor	**Element**	**Indicator**	Proposed Blue Route	C2 Segment Option Variation	NOTES	Proposed Orange Route	J2 Segment Option Variation	NOTES
Land based economies	**Agriculture**	Proximity to farmland - total acres in ROW (acres of prime farmland, farmland of statewide importance, and prime farmland if drained in ROW)	Total: 172 (2--78--92)	Total: 326 25--177--124	Both alternatives would cross farmland. C2 Segment Option Variation would parallel existing transmission line corridor for the majority of its length, while the Proposed Blue Route would not parallel any existing corridor.	Total: 494 (61--60--373)	Total: 700 (159--241--300)	Both alternatives would cross a relatively similar amount of farmland.
Land based economies	**Forestry**	Proximity to forest land (acres of state forest land in ROW)	797	274	Proposed Blue Route would cross more state forest land.	851	715	Both alternatives would cross a relatively similar amount of state forest land.
Land based economies	**Mining and mineral resources**	Proximity to state mining lease lands (active and/or expired/terminated; acres in ROW) and aggregate resources (count in ROW)	16--0	67--0	C2 Segment Option Variation would cross more expired/terminated mineral lease lands.	82--2	73--1	Both alternatives would cross a relatively similar amount of expired/terminated mineral lease lands. The Proposed Orange Route would pass by more aggregate resources.
Archaeological and historic architectural resources		Summary - proximity to archaeological and historic architectural resources			There are no known archaeological and historic architectural resources that would be affected by the alternatives.			J2 Segment Option Variation has more historic architectural sites within 1 mile than the Proposed Orange Route. There are no known archaeological sites that would be affected by the alternatives.
Archaeological and historic resources	Archaeological sites	Proximity to archaeological sites (count within 0-100 ft and 0-1,500 ft from the anticipated alignment)	0--0	0--0	There are no known archaeological sites that would be affected by the alternatives.	0--0	0--0	There are no known archaeological sites that would be affected by the alternatives.
Archaeological and historic resources	Historic architectural sites	Proximity to historic architectural sites (count within 0-100 ft, 0-1,500 ft, and 0-1 mile from the anticipated alignment)	0--0--0	0--0--0	There are no known historic architectural sites that would be affected by the alternatives.	0--0--2	0--2--7	J2 Segment Option Variation has more historic architectural sites within 1 mile than the Proposed Orange Route.

Central Section (1), (2)			**C2 Segment Option**			**J2 Segment Option**		
Factor	**Element**	**Indicator**	Proposed Blue Route	C2 Segment Option Variation	NOTES	Proposed Orange Route	J2 Segment Option Variation	NOTES
Natural environment	**Water resources**	Summary - proximity to watercourses, waterbodies, floodplains, and wetlands			Proposed Blue Route would cross the most watercourses/waterbodies; however, all crossings are expected to be spanned. Proposed Blue Route and the C2 Segment Option Variation cross FEMA-designated floodplain areas, C2 Segment Option Variation would cross the most floodplain. Both alternatives would cross relatively similar areas of wetlands that are too large to span and would result in relatively similar areas of shrub and forested wetland type conversion.			Both alternatives would cross relatively similar numbers of watercourses/waterbodies, all of which are expected to be spanned. Proposed Orange Route would cross FEMA-designated floodplains; however the areas are small and would be spanned. Both alternatives would cross relatively similar areas of wetlands that are too large to span and would result in relatively similar areas of shrub and forested wetland type conversion.
Natural environment	Water resources	Proximity to watercourses and waterbodies - Total number of crossings in ROW (number of PWI crossings, non-PWI crossings); - Trout stream (number of crossings)	Total: 17 (5--12) (0)	Total: 8 (3--5) (0)	Proposed Blue Route would cross the most watercourses/waterbodies; however, all crossings are expected to be spanned.	Total: 30 (6--24) (0)	Total: 39 (3--36) (0)	Both alternatives would cross relatively similar numbers of watercourses/waterbodies.
Natural environment	Water resources	Proximity to floodplains - total acres of floodplain in ROW (acres of Zone A, acres of Zone B)	Total: 8 (8--0)	Total: 28 (28--0)	Proposed Blue Route and the C2 Segment Option Variation cross FEMA-designated floodplain areas large enough that they cannot be spanned; C2 Segment Option Variation would cross the most floodplain.	Total: 3 (3--0)	Total: 0	Proposed Orange Route would cross FEMA-designated floodplains; however the areas are small and are expected to be spanned.
Natural environment	Water resources	Proximity to wetlands (acres of PSS wetlands in ROW resulting in wetland type conversion)	80	175	C2 Segment Option Variation would cross the most shrub wetland.	96	97	Both alternatives would cross relatively similar areas of shrub wetland.
Natural environment	Water resources	Proximity to wetlands (acres of PFO wetlands in ROW resulting in wetland type conversion)	633	585	Both alternatives would cross relatively similar areas of forested wetland.	388	215	Both alternatives would cross relatively similar areas of forested wetland.
Natural environment	Water resources	Proximity to wetlands (acres of total wetlands in ROW too large to span)	728	829	Both alternatives would cross relatively similar areas of total wetland that are too large to span.	509	353	Both alternatives would cross relatively similar areas of total wetland that are too large to span.

Central Section [(1), (2)]			C2 Segment Option			J2 Segment Option		
Factor	**Element**	**Indicator**	Proposed Blue Route	C2 Segment Option Variation	NOTES	Proposed Orange Route	J2 Segment Option Variation	NOTES
Natural environment	**Vegetation**	Cover type (acres of forested land cover in ROW)	789	1,080	Both alternatives would cross a relatively similar amount of forested land cover. C2 Segment Option Variation would parallel existing transmission line corridors for most of its length, while the Proposed Blue Route would not parallel any existing corridor.	1,007	1,063	Both alternatives would cross a relatively similar amount of forested land cover.
Natural environment	**Wildlife**	Proximity to wildlife resources - Wildlife Management Areas, Important Bird Areas (acres in ROW) Proximity to shallow lakes (count in ROW)	0--469--0	0--406--0	Both alternatives would cross a relatively similar amount of Important Bird Area. C2 Segment Option Variation would parallel existing transmission line corridors for most of its length, while the Proposed Blue Route would not parallel any existing corridor.	0--262--0	0--72--0	Proposed Orange Route would cross more Important Bird Area.
Rare and unique natural resources	**Federal and state listed species**	Summary - proximity of federal and state-listed species (based on the Natural Heritage Information System (NHIS) database)			There are no federally-listed species identified for these alternatives. Both alternatives would cross the same amount of critical habitat designated for gray wolf. Both alternatives have the same number of NHIS records within 1 mile; however, the C2 Segment Option Variation has a NHIS record for a state-threatened species.			There are no federally-listed species identified for these alternatives. Proposed Orange Route crosses more critical habitat designated for gray wolf. Proposed Orange Route has more NHIS records within 1 mile. Proposed Orange Route has 2 threatened NHIS records within 1 mile.
Rare and unique natural resources	Federally listed species	Federally-listed species (# of records within 1 mile), designated critical habitat (miles crossed)	0--32	0--32	There are no federally-listed species identified for these alternatives. The alternatives would cross a relatively similar amount of critical habitat designated for gray wolf.C2 Segment Option Variation would parallel an existing transmission line corridor for most of its length.	0--42	0--13	There are no federally-listed species identified for these alternatives. Proposed Orange Route crosses more critical habitat designated for gray wolf.
Rare and unique natural resources	State listed species	State-listed species (total # of NHIS records within 1 mile)	4	4	Both alternatives have the same number of NHIS records within 1 mile.	4	1	Proposed Orange Route has more NHIS records of rare species within 1 mile.
Rare and unique natural resources	State listed species	State-listed species (# of threatened and endangered NHIS records within 1 mile)	0	1	C2 Segment Option Variation has one threatened NHIS record within 1 mile.	2	0	Proposed Orange Route has 2 threatened NHIS records within 1 mile.

Central Section [(1), (2)]			C2 Segment Option			J2 Segment Option		
Factor	**Element**	**Indicator**	Proposed Blue Route	C2 Segment Option Variation	NOTES	Proposed Orange Route	J2 Segment Option Variation	NOTES
Rare and unique natural resources	**State rare communities**	Summary - proximity to Scientific and Natural Areas (SNAs), SNA Watershed Protection Area (WPA), MBS Sites of Biodiversity Significance, MBS native plant communities, High Conservation Value Forest, and Ecologically Important Lowland Conifer stands			C2 Segment Option Variation would have an SNA within 1,500 feet; however, it would not have an SNA within its ROW. The C2 Segment Option Variation also passes through a SNA WPA. Both alternatives would cross a relatively similar amount of MBS Sites of Biodiversity Significance and Ecologically Important Lowland Conifer Areas. C2 Segment Option Variation would parallel existing transmission line corridors for most of its length, while the Proposed Blue Route would not parallel any existing corridor.			Proposed Orange Route would cross more MBS Sites of Biodiversity Significance.
Rare and unique natural resources	State rare communities	Proximity to Scientific and Natural Areas (SNAs) (count within 1,500 feet) and SNA Watershed Protection Area (acres within ROW)	0--0	1--26	C2 Segment Option Variation has 150 acres of SNA within 1,500 feet, while no SNAs are within 1,500 feet of the Proposed Blue Route. The C2 Segment Option Variation would pass through a SNA WPA.	0--0	0--0	No SNAs would be located within 1,500 feet of any alternative; no alternative would cross an SNA WPA.
Rare and unique natural resources	State rare communities	Proximity to MBS Sites of Biodiversity Significance (total acres within ROW)	642	510	Both alternatives would cross a relatively similar amount of MBS Sites of Biodiversity Significance. C2 Segment Option Variation would parallel existing transmission line corridors for most of its length, while the Proposed Blue Route would not parallel any existing corridor.	489	185	Proposed Orange Route would cross more MBS Sites of Biodiversity Significance.
Rare and unique natural resources	State rare communities	Proximity to MnDNR High Conservation Value Forest, MnDNR Ecologically Important Lowland Conifer Areas (acres within ROW)	0--7	0--6	Both alternatives would cross a relatively similar amount of Ecologically Important Lowland Conifer Areas. C2 Segment Option Variation would parallel existing transmission line corridors for most of its length, while the Proposed Blue Route would not parallel any existing corridor.	0--0	0--0	There are no known Ecologically Important Lowland Conifer Areas that would be affected by the alternatives.
Rare and unique natural resources	State rare communities	Proximity to MBS native plant communities (total acres in ROW)	-	-	No MBS native plant community data are available for this area.	-	-	No MBS native plant community data are available for this area.

Central Section [1], [2]			C2 Segment Option			J2 Segment Option		
Factor	**Element**	**Indicator**	Proposed Blue Route	C2 Segment Option Variation	NOTES	Proposed Orange Route	J2 Segment Option Variation	NOTES
Use or paralleling of existing rights-of-way		Proximity to high voltage transmission lines, roadways, and trails (percent of total length)	0	81	C2 Segment Option Variation would parallel an existing transmission line, roadway, and/or trail corridor for most of its length. Proposed Blue Route would not parallel any existing transmission line, roadway, or trail corridor.	0	0	Neither alternative would parallel existing transmission line, roadways, or trails corridors.
Electrical system reliability		Proximity to two or more high voltage transmission lines (percent of total length)	-	-	There are no issues with electrical reliability since there would not be three transmission lines paralleling the same corridor.	-	-	There are no issues with electrical reliability since there would not be three transmission lines paralleling the same corridor.
Costs of constructing, operating, and maintaining the facility which are dependent on design and route		Total construction cost[3]	$35,769,239	$54,466,435	The cost of the alternative is more than 20% above the cost of the Proposed Blue Route.	$48,706,641	$52,128,879	The cost of the alternative is within 20% of the cost of the Proposed Orange Route.

(1) Colors represent least impacts (green), moderate impacts (yellow), greatest impacts (red), and no impacts or similar impacts (gray) relative to the specific factor.

(2) Red text indicates information in these rows are included within the DEIS.

(3) Using the Applicant's methodology (see comment in Appendix U), the Applicant-proposed route is green; if the maximum cost of the alternative is less than the Applicant-proposed route - it is green; if the maximum cost of the alternative is up to 20% more than the Applicant-proposed route - it is yellow; if the maximum cost of the alternative is more than 20% above the cost of the Applicant-proposed route - it is red.

Central Section [(1), (2)]			Northome			Cutfoot		
Factor	Element	Indicator	J2 Segment Option Variation	Northome Variation	NOTES	Proposed Orange Route	Cutfoot Variation	NOTES
Human settlement	Displacement	Proximity to residences	See section on Human Settlement in the Northome Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Cutfoot Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Noise	Proximity to noise receptors	See section on Human Settlement in the Northome Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Cutfoot Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Air quality	Air emissions (criteria pollutants and greenhouse gases)	See section on Human Settlement in the Northome Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Cutfoot Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Property values	Proximity to residences	See section on Human Settlement in the Northome Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Cutfoot Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Electronic interference	Proximity to communication towers	See section on Human Settlement in the Northome Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Cutfoot Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Transportation and public services	Proximity to roadways, railways	See section on Human Settlement in the Northome Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Cutfoot Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Transportation and public services	Proximity to airstrips	See section on Human Settlement in the Northome Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Cutfoot Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Environmental justice	Minority populations	See section on Human Settlement in the Northome Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Cutfoot Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Environmental justice	Low-income populations	See section on Human Settlement in the Northome Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Cutfoot Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Socioeconomics	Population	See section on Human Settlement in the Northome Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Cutfoot Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Socioeconomics	Employment	See section on Human Settlement in the Northome Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Cutfoot Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Socioeconomics	Taxes and revenue generated	See section on Human Settlement in the Northome Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Cutfoot Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Socioeconomics	Housing availability	See section on Human Settlement in the Northome Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Cutfoot Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Recreation and tourism	Proximity to recreational resources (county, state, and federal parks and forests, state Scientific and Natural Areas (SNAs), state trails, scenic byways, and snow and water trails)	See section on Human Settlement in the Northome Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Cutfoot Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Cultural values	Proximity to residences	See section on Human Settlement in the Northome Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Cutfoot Variation Area for details		There would be no differences in the impacts for the alternatives.

Central Section [(1), (2)]			Northome			Cutfoot		
Factor	**Element**	**Indicator**	J2 Segment Option Variation	Northome Variation	NOTES	Proposed Orange Route	Cutfoot Variation	NOTES
Human settlement	**Aesthetics**	Proximity to residences (count within 0-500, 0-1,000, & 0-1,500 ft from the anticipated alignment)	0--0--0	0--0--0	No residences are present within 1,500 feet of the anticipated alignment for either alternative.	0--0--0	0--0--0	No residences are present within 1,500 feet of the anticipated alignment for either alternative.
Human settlement	**Land use compatibility**	Summary - land use type data and land ownership data			J2 Segment Option Variation would cross USFWS Interest Lands (28 acres). Both alternatives would cross a relatively similar amount of private land.			The Cutfoot Variation would cross more private land.
Human settlement	Land use compatibility	Land use type data (crosses USFWS Interest Lands or other features, e.g. airstrips)			J2 Segment Option Variation would cross USFWS Interest Lands (28 acres), while the Northome Variation would not. Crossing this land would require obtaining a provisional special use permit for construction from the USFWS.			There are no land use compatibility issues identified for the alternatives.
Human settlement	Land use compatibility	Land ownership type data - total acres in ROW (acres of public and private land in the ROW)	Total: 91 (67--25)	Total: 99 (81--18)	Both alternatives would cross a relatively similar amount of private land.	Total: 103 (95--8)	Total: 116 (93--23)	The Cutfoot Variation would cross more private land.
Public health and safety	Electric and magnetic Fields	Proximity to residences	See section on Public Health and Safety in the Northome Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Public Health and Safety in the Cutfoot Variation Area for details		There would be no differences in the impacts for the alternatives.
Public health and safety	Implantable medical devices	Proximity to residences	See section on Public Health and Safety in the Northome Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Public Health and Safety in the Cutfoot Variation Area for details		There would be no differences in the impacts for the alternatives.
Public health and safety	Stray voltage	Proximity to residences	See section on Public Health and Safety in the Northome Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Public Health and Safety in the Cutfoot Variation Area for details		There would be no differences in the impacts for the alternatives.
Public health and safety	Induced voltage	Proximity to residences	See section on Public Health and Safety in the Northome Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Public Health and Safety in the Cutfoot Variation Area for details		There would be no differences in the impacts for the alternatives.
Public health and safety	Intentional destructive acts	Intentional destructive acts	See section on Public Health and Safety in the Northome Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Public Health and Safety in the Cutfoot Variation Area for details		There would be no differences in the impacts for the alternatives.
Public health and safety	Environmental contamination	Registered sites of contamination	See section on Public Health and Safety in the Northome Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Public Health and Safety in the Cutfoot Variation Area for details		There would be no differences in the impacts for the alternatives.
Public health and safety	Worker health and safety	Worker health and safety	See section on Public Health and Safety in the Northome Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Public Health and Safety in the Cutfoot Variation Area for details		There would be no differences in the impacts for the alternatives.

Central Section [(1), (2)]			Northome			Cutfoot		
Factor	**Element**	**Indicator**	J2 Segment Option Variation	Northome Variation	NOTES	Proposed Orange Route	Cutfoot Variation	NOTES
Land based economies	**Agriculture**	Proximity to farmland - total acres in ROW (acres of prime farmland, farmland of statewide importance, and prime farmland if drained in ROW)	Total: 61 (20--39--2)	Total: 71 (28--28--15)	Both alternatives cross a relatively similar amount of farmland.	Total: 55 (0--2--53)	Total: 36 (0--4--32)	Both alternatives would cross a relatively similar amount of farmland.
Land based economies	**Forestry**	Proximity to forest land (acres of state forest land in ROW)	<0.5	<0.5	Both alternatives would cross minimal state forest land.	103	116	Both alternatives would cross a relatively similar amount of state forest land.
Land based economies	**Mining and mineral resources**	Proximity to state mining lease lands (active and/or expired/terminated; acres in ROW) and aggregate resources (count in ROW)	0--0	0--0	No active or expired/terminated mineral lease lands or aggregate resources are present in the ROW of any alternative.	29--1	4--1	Proposed Orange Route would cross more expired/terminated mineral lease lands. Both alternatives have aggregate resources within the ROW.
Archaeological and historic architectural resources		Summary - proximity to archaeological and historic architectural resources			Northome Variation would cross a section identified with a known archaeological resource. There are no known historic architectural sites that would be affected by either alternative.			There are no known archaeological or historic architectural resources that would be affected by the alternatives.
Archaeological and historic resources	Archaeological sites	Proximity to archaeological sites (count within 0-100 ft and 0-1,500 ft from the anticipated alignment)	0--0	0--1	Northome Variation would cross a section identified as containing known archaeological sites.	0--0	0--0	There are no known archaeological sites that would be affected by the alternatives.
Archaeological and historic resources	Historic architectural sites	Proximity to historic architectural sites (count within 0-100 ft, 0-1,500 ft, and 0-1 mile from the anticipated alignment)	0--0--0	0--0--0	There are no known historic architectural sites that would be affected by either alternative.	0--0--0	0--0--0	There are no known historic architectural sites that would be affected by the alternatives.

Central Section [(1), (2)]			Northome			Cutfoot		
Factor	**Element**	**Indicator**	J2 Segment Option Variation	Northome Variation	NOTES	Proposed Orange Route	Cutfoot Variation	NOTES
Natural environment	**Water resources**	Summary - proximity to watercourses, waterbodies, floodplains, and wetlands			J2 Segment Option Variation would cross the most watercourses/waterbodies; however, all crossings are expected to be spanned. There would be no differences between the alternatives for crossing floodplains. J2 Segment Option Variation and Northome would cross relatively similar areas of wetlands that are too large to span and would result in relatively similar areas of forest wetland type conversion. J2 Segment Option Variation would have the most shrub wetland; therefore, would require the most shrub wetland type conversion.			Proposed Orange Route would cross the most watercourses/waterbodies; however, all crossings are expected to be spanned. There would be no differences between the alternatives for crossing floodplains. Both alternatives would cross relatively similar areas of wetlands that are too large to span and would result in relatively similar areas of shrub and forested wetland type conversion.
Natural environment	Water resources	Proximity to watercourses and waterbodies - Total number of crossings in ROW (number of PWI crossings, non-PWI crossings); - Trout stream (number of crossings)	Total: 6 (0--6) (0)	Total: 2 (1--1) (0)	J2 Segment Option Variation would cross the most watercourses/waterbodies; however, all crossings are expected to be spanned.	Total: 2 (0--2) (0)	Total: 0	Proposed Orange Route would cross the most watercourses/waterbodies; however, all crossings are expected to be spanned.
Natural environment	Water resources	Proximity to floodplains - total acres of floodplain in ROW (acres of Zone A, acres of Zone B)	Total: 0	Total: 0	There would be no differences between the alternatives.	Total: 0	Total: 0	There are no differences between the alternatives.
Natural environment	Water resources	Proximity to wetlands (acres of PSS wetlands in ROW resulting in wetland type conversion)	6	2	J2 Segment Option Variation would cross the most shrub wetland.	3	5	Both alternatives would cross relatively similar areas of shrub wetland.
Natural environment	Water resources	Proximity to wetlands (acres of PFO wetlands in ROW resulting in wetland type conversion)	8	6	Both alternatives would cross relatively similar areas of forested wetland.	49	59	Both alternatives would cross relatively similar areas of forested wetland.
Natural environment	Water resources	Proximity to wetlands (acres of total wetlands in ROW too large to span)	23	14	Both alternatives would cross relatively similar areas of total wetland that are too large to span.	57	67	Both alternatives would cross relatively similar areas of total wetland that are too large to span.

Central Section (1), (2)			Northome			Cutfoot		
Factor	**Element**	**Indicator**	J2 Segment Option Variation	Northome Variation	NOTES	Proposed Orange Route	Cutfoot Variation	NOTES
Natural environment	**Vegetation**	Cover type (acres of forested land cover in ROW)	89	96	Both alternatives would cross a relatively similar amount of forested land cover.	99	115	Both alternatives would cross a relatively similar amount of forested land cover.
Natural environment	**Wildlife**	Proximity to wildlife resources - Wildlife Management Areas, Important Bird Areas (acres in ROW) Proximity to shallow lakes (count in ROW)	0--0--0	0--0--1	Northome Variation would cross a shallow lake.	0--0--0	0--0--0	Neither alternative would cross designated wildlife resources.
Rare and unique natural resources	**Federal and state listed species**	Summary - proximity of federal and state-listed species (based on the Natural Heritage Information System (NHIS) database)			There are no federally-listed species identified for these alternatives. There are no documented NHIS records within 1 mile of these alternatives.			There are no federally-listed species identified for these alternatives. Both alternatives would cross minimal amounts of critical habitat designated for gray wolf. There are no NHIS records within 1 mile of these alternatives.
Rare and unique natural resources	Federally listed species	Federally-listed species (# of records within 1 mile), designated critical habitat (miles crossed)	0--0	0--0	There are no federally-listed species identified for these alternatives. Neither alternative would cross critical habitat designated for gray wolf.	0--4	0--5	There are no federally-listed species identified for these alternatives. Both alternatives would cross minimal amounts of critical habitat designated for gray wolf.
Rare and unique natural resources	State listed species	State-listed species (total # of NHIS records within 1 mile)	0	0	There are no NHIS records within 1 mile of these alternatives.	0	0	There are no NHIS records within 1 mile of these alternatives.
Rare and unique natural resources	State listed species	State-listed species (# of threatened and endangered NHIS records within 1 mile)	0	0	No threatened or endangered NHIS records have been documented within 1 mile of either alternative.	0	0	No threatened or endangered NHIS records have been documented within 1 mile of either alternative.

Central Section (1), (2)			Northome			Cutfoot		
Factor	**Element**	**Indicator**	J2 Segment Option Variation	Northome Variation	NOTES	Proposed Orange Route	Cutfoot Variation	NOTES
Rare and unique natural resources	**State rare communities**	Summary - proximity to Scientific and Natural Areas (SNAs), SNA Watershed Protection Area (WPA), MBS Sites of Biodiversity Significance, MBS native plant communities, High Conservation Value Forest, and Ecologically Important Lowland Conifer stands			No records of rare resources or communities have been documented in the ROW of either alternative.			Cutfoot Variation would cross more MBS Sites of Biodiversity Significance.
Rare and unique natural resources	State rare communities	Proximity to Scientific and Natural Areas (SNAs) (count within 1,500 feet) and SNA Watershed Protection Area (acres within ROW)	0--0	0--0	No SNAs would be located within 1,500 feet of any alternative; no alternative would cross an SNA Watershed Protection Area (WPA).	0--0	0--0	No SNAs would be located within 1,500 feet of any alternative; no alternative would cross an SNA Watershed Protection Areas (WPAs).
Rare and unique natural resources	State rare communities	Proximity to MBS Sites of Biodiversity Significance (total acres within ROW)	0	0	No MBS Sites of Biodiversity Significance are present within the ROW of either alternative.	43	60	Both alternatives would cross a relatively similar amount of MBS Sites of Biodiversity Significance.
Rare and unique natural resources	State rare communities	Proximity to MnDNR High Conservation Value Forest, MnDNR Ecologically Important Lowland Conifer Areas (acres within ROW)	0--0	0--0	There are no known Ecologically Important Lowland Conifer Areas that would be affected by the alternatives.	0--0	0--0	There are no known Ecologically Important Lowland Conifer Areas that would be affected by the alternatives.
Rare and unique natural resources	State rare communities	Proximity to MBS native plant communities (total acres in ROW)	-	-	No MBS native plant community data are available for this area.	-	-	No MBS native plant community data are available for this area.

Central Section [1], [2]			Northome			Cutfoot		
Factor	**Element**	**Indicator**	J2 Segment Option Variation	Northome Variation	NOTES	Proposed Orange Route	Cutfoot Variation	NOTES
Use or paralleling of existing rights-of-way		Proximity to high voltage transmission lines, roadways, and trails (percent of total length)	0	0	Neither alternative would parallel existing transmission line, roadways, or trails corridors.	0	0	Neither alternative would parallel existing transmission line, roadways, or trails corridors.
Electrical system reliability		Proximity to two or more high voltage transmission lines (percent of total length)	-	-	There are no issues with electrical reliability since there would not be three transmission lines paralleling the same corridor.	-	-	There are no issues with electrical reliability since there would not be three transmission lines paralleling the same corridor.
Costs of constructing, operating, and maintaining the facility which are dependent on design and route		Total construction cost[3]	$4,192,942	$6,385,615	The cost of the alternative is more than 20% above the cost of the Proposed Blue Route.	$5,640,538	$6,222,257	The cost of the alternative is within 20% of the cost of the Proposed Orange Route.

(1) Colors represent least impacts (green), moderate impacts (yellow), greatest impacts (red), and no impacts or similar impacts (gray) relative to the specific factor.

(2) Red text indicates information in these rows are included within the DEIS.

(3) Using the Applicant's methodology (see comment in Appendix U), the Applicant-proposed route is green; if the maximum cost of the alternative is less than the Applicant-proposed route - it is green; if the maximum cost of the alternative is up to 20% more than the Applicant-proposed route - it is yellow; if the maximum cost of the alternative is more than 20% above the cost of the Applicant-proposed route - it is red.

East Section (1), (2)			Effie			
Factor	Element	Indicator	Proposed Blue Route	Proposed Orange Route	Effie Variation	NOTES
Human settlement	Displacement	Proximity to residences	See section on Human Settlement in the Effie Variation Area for details			There would be no differences in the impacts for the alternatives.
Human settlement	Noise	Proximity to noise receptors	See section on Human Settlement in the Effie Variation Area for details			There would be no differences in the impacts for the alternatives.
Human settlement	Air quality	Air emissions (criteria pollutants and greenhouse gases)	See section on Human Settlement in the Effie Variation Area for details			There would be no differences in the impacts for the alternatives.
Human settlement	Property values	Proximity to residences	See section on Human Settlement in the Effie Variation Area for details			There would be no differences in the impacts for the alternatives.
Human settlement	Electronic interference	Proximity to communication towers	See section on Human Settlement in the Effie Variation Area for details			There would be no differences in the impacts for the alternatives.
Human settlement	Transportation and public services	Proximity to roadways and railways	See section on Human Settlement in the Effie Variation Area for details			There would be no differences in the impacts for the alternatives.
Human settlement	Transportation and public services	Proximity to airstrips	See section on Human Settlement in the Effie Variation Area for details			There would be no differences in the impacts for the alternatives.
Human settlement	Environmental justice	Minority populations	See section on Human Settlement in the Effie Variation Area for details			There would be no differences in the impacts for the alternatives.
Human settlement	Environmental justice	Low-income populations	See section on Human Settlement in the Effie Variation Area for details			There would be no differences in the impacts for the alternatives.
Human settlement	Socioeconomics	Population	See section on Human Settlement in the Effie Variation Area for details			There would be no differences in the impacts for the alternatives.
Human settlement	Socioeconomics	Employment	See section on Human Settlement in the Effie Variation Area for details			There would be no differences in the impacts for the alternatives.
Human settlement	Socioeconomics	Taxes and revenue generated	See section on Human Settlement in the Effie Variation Area for details			There would be no differences in the impacts for the alternatives.
Human settlement	Socioeconomics	Housing availability	See section on Human Settlement in the Effie Variation Area for details			There would be no differences in the impacts for the alternatives.

East Section (1), (2)			Effie			
Factor	**Element**	**Indicator**	Proposed Blue Route	Proposed Orange Route	Effie Variation	NOTES
Human settlement	Recreation and tourism	Proximity to recreational resources (county, state, and federal parks and forests, state Scientific and Natural Areas, state trails, scenic byways, and snow and water trails)	See section on Human Settlement in the Effie Variation Area for details			There would be no differences in the impacts for the alternatives.
Human settlement	Cultural values	Proximity to residences	See section on Human Settlement in the Effie Variation Area for details			There would be no differences in the impacts for the alternatives.
Human settlement	**Aesthetics**	Proximity to residences (Count within 0-500, 0-1,000, & 0-1,500 ft from the anticipated alignment)	0--1--4	1--2--5	2--12--16	Effie Variation would pass by the most residences within 1,500 feet of the anticipated alignment.
Human settlement	**Land use compatibility**	Summary - land use type data and land ownership data				There are no land use compatibility issues identified for the alternatives. All alternatives cross a relatively similar amount of private land.
Human settlement	Land use compatibility	Land use type data (crosses USFWS Interest Lands or other features, e.g. airstrips)				There are no land use compatibility issues identified for the alternatives.
Human settlement	Land use compatibility	Land ownership type data - total acres in ROW (acres of public and private land in the ROW)	Total: 997 (655--342)	Total: 1,081 (698--383)	Total: 1,209 (772--437)	All alternatives cross a relatively similar amount of private land.
Public health and safety	Electric and magnetic Fields	Proximity to residences	See section on Public Health and Safety in the Effie Variation Area for details			There would be no differences in the impacts for the alternatives.
Public health and safety	Implantable medical devices	Proximity to residences	See section on Public Health and Safety in the Effie Variation Area for details			There would be no differences in the impacts for the alternatives.
Public health and safety	Stray voltage	Proximity to residences	See section on Public Health and Safety in the Effie Variation Area for details			There would be no differences in the impacts for the alternatives.
Public health and safety	Induced voltage	Proximity to residences	See section on Public Health and Safety in the Effie Variation Area for details			There would be no differences in the impacts for the alternatives.
Public health and safety	Intentional destructive acts	Intentional destructive acts	See section on Public Health and Safety in the Effie Variation Area for details			There would be no differences in the impacts for the alternatives.

East Section (1), (2)			Effie			
Factor	**Element**	**Indicator**	Proposed Blue Route	Proposed Orange Route	Effie Variation	NOTES
Public health and safety	Environmental contamination	Registered sites of contamination	See section on Public Health and Safety in the Effie Variation Area for details			There would be no differences in the impacts for the alternatives.
Public health and safety	Worker health and safety	Worker health and safety	See section on Public Health and Safety in the Effie Variation Area for details			There would be no differences in the impacts for the alternatives.
Land based economies	**Agriculture**	Proximity to farmland - total acres in ROW (acres of prime farmland, farmland of statewide importance, and prime farmland if drained in ROW)	Total: 397 (118--121--158)	Total: 510 (223--123--164)	Total: 665 (195--159--311)	All alternatives would cross a relatively similar amount of farmland. Effie Variation parallels an existing transmission line corridor for 80% of its length. The other alternatives parallel minimal existing corridor.
Land based economies	**Forestry**	Proximity to forest land (acres of state forest land in ROW)	909	958	1086	All alternatives would cross a relatively similar amount of state forest land. Effie Variation parallels an existing transmission line corridor for 80% of its length. The other alternatives parallel minimal existing corridor.
Land based economies	**Mining and mineral resources**	Proximity to state mining lease lands (active and/or expired/terminated; acres in ROW) and aggregate resources (count in ROW)	647--0	819--0	824--0	All alternatives would cross a relatively similar amount of active and expired/terminated mineral lease lands.
Archaeological and historic architectural resources		Summary - proximity to archaeological and historic architectural resources				Effie Variation would cross sections identified as containing known archaeological sites, while the other alternatives would not. Effie Variation has more historic architectural sites within 1 mile than the Proposed Blue Route and Proposed Orange Route.
Archaeological and historic resources	Archaeological sites	Proximity to archaeological sites (count within 0-100 ft and 0-1,500 ft from the anticipated alignment)	0--0	0--0	1--2	Effie Variation would cross sections identified as containing known archaeological sites; the other alternatives would not cross any of these sections.
Archaeological and historic resources	Historic architectural sites	Proximity to historic architectural sites (count within 0-100 ft, 0-1,500 ft, and 0-1 mile from the anticipated alignment)	0--1--1	0--1--1	0--0--3	The Effie Variation has more historic architectural sites within 1 mile than the Proposed Blue Route and Proposed Orange Route.

East Section (1), (2)			Effie			
Factor	**Element**	**Indicator**	Proposed Blue Route	Proposed Orange Route	Effie Variation	NOTES
Natural environment	**Water resources**	Summary - proximity to watercourses, waterbodies, floodplains, and wetlands				Effie Variation would cross the most watercourses/waterbodies; including six trout streams. All crossings are expected to be spanned, although clearing vegetation adjacent to trout streams could result in increased water temperature, potentially resulting in less suitable trout habitat. Proposed Blue Route and the Proposed Orange Route would cross FEMA-designated floodplain; however the areas are small and would be spanned. All alternatives would cross relatively similar areas of wetlands that are too large to span and would result in relatively similar areas of shrub and forested wetland type conversion.
Natural environment	Water resources	Proximity to watercourses and waterbodies - Total number of crossings in ROW (number of PWI crossings, non-PWI crossings); - Trout stream (number of crossings)	Total: 19 (10--9) (0)	Total: 24 (13--11) (0)	Total: 28 (13--15) (6)	Effie Variation would cross the most watercourses/waterbodies; including six trout streams. All crossings are expected to be spanned, although clearing vegetation adjacent to trout streams could result in increased water temperature, potentially resulting in less suitable trout habitat.
Natural environment	Water resources	Proximity to floodplains - total acres of floodplain in ROW (acres of Zone A, acres of Zone B)	Total: 3 (3--0)	Total: 3 (3--0)	Total: 0	Proposed Blue Route and the Proposed Orange Route would cross FEMA-designated floodplains; however the areas are small and would be spanned.
Natural environment	Water resources	Proximity to wetlands (acres of PSS wetlands in ROW resulting in wetland type conversion)	164	155	104	All alternatives would cross relatively similar areas of shrub wetland.
Natural environment	Water resources	Proximity to wetlands (acres of PFO wetlands in ROW resulting in wetland type conversion)	255	217	273	All alternatives would cross relatively similar areas of forested wetland.
Natural environment	Water resources	Proximity to wetlands (acres of total wetlands in ROW too large to span)	443	391	413	All alternatives would cross relatively similar areas of total wetland that are too large to span.

East Section (1), (2)			Effie			
Factor	**Element**	**Indicator**	Proposed Blue Route	Proposed Orange Route	Effie Variation	NOTES
Natural environment	**Vegetation**	Cover type (acres of forested land cover in ROW)	978	1,047	1,164	All alternatives would cross a relatively similar amount of forested land cover. Effie Variation parallels an existing transmission line corridor for 80% of its length. The other alternatives parallel minimal existing corridor.
Natural environment	**Wildlife**	Proximity to wildlife resources - Important Bird Areas (acres in ROW)	69	69	0	Proposed Blue Route and Proposed Orange Route would cross Important Bird Area.
Rare and unique natural resources	**Federal and state listed species**	Summary - proximity of federal and state-listed species (based on the Natural Heritage Information System (NHIS) database)				The alternatives cross critical habitat designated for gray wolf. Proposed Orange Route has the most NHIS records within 1 mile. Proposed Blue Route has more NHIS records than the Effie Variation. Effie Variation would also minimize impacts by paralleling existing corridor.
Rare and unique natural resources	Federally listed species	Federally-listed species (# of records within 1 mile), designated critical habitat (miles crossed)	0--15	0--15	0--25	The alternatives cross a relatively similar amount of critical habitat designated for gray wolf. The Proposed Blue Route and Proposed Orange Route would cross along a new transmission line corridor, while the Effie Variation would parallel an existing transmission line corridor.
Rare and unique natural resources	State listed species	State-listed species (total # of NHIS records within 1 mile)	5	7	2	Proposed Orange Route and the Proposed Blue Route have the most NHIS records within 1 mile.
Rare and unique natural resources	State listed species	State-listed species (# of threatened and endangered NHIS records within 1 mile)	1	0	0	Proposed Orange Route has one threatened NHIS record within 1 mile.

East Section (1), (2)			Effie			
Factor	**Element**	**Indicator**	Proposed Blue Route	Proposed Orange Route	Effie Variation	NOTES
Rare and unique natural resources	**State rare communities**	Summary - proximity to Scientific and Natural Areas (SNAs), SNA Watershed Protection Areas, MBS Sites of Biodiversity Significance, MBS native plant communities, High Conservation Value Forest, and Ecologically Important Lowland Conifer stands				All alternatives would cross a relatively similar amount of MBS Sites of Biodiversity Significance.
Rare and unique natural resources	State rare communities	Proximity to Scientific and Natural Areas (SNAs) (Count within 1,500 feet) and SNA Watershed Protection Area (acres within ROW)	0--0	0--0	0--0	No SNAs would be located within 1,500 feet of any alternative; no alternative would cross an SNA WPA.
Rare and unique natural resources	State rare communities	Proximity to MBS Sites of Biodiversity Significance (total acres within ROW)	422	490	427	All alternatives would pass through a relatively similar amount of MBS Sites of Biodiversity Significance. Effie Variation parallels an existing transmission line corridor for 80% of its length. The other alternatives parallel minimal existing corridor.
Rare and unique natural resources	State rare communities	Proximity to MnDNR High Conservation Value Forest, MnDNR Ecologically Important Lowland Conifer Areas (acres within ROW)	0--0	0--0	0--0	There are no known High Conservation Value Forests, Ecologically Important Lowland Conifer Areas that would be affected by the alternatives.
Rare and unique natural resources	State rare communities	Proximity to MBS native plant communities (acres in ROW)	-	-	-	No MBS native plant community data are available for this area.

East Section [1], [2]			Effie			
Factor	**Element**	**Indicator**	Proposed Blue Route	Proposed Orange Route	Effie Variation	NOTES
Use or paralleling of existing rights-of-way		Proximity to high voltage transmission lines, roadways, and trails (percent of total length)	4	2	80	Effie Variation parallels an existing transmission line, roadway, and/or trail corridor for 80% of its length. The other alternatives parallel minimal existing corridor.
Electrical system reliability		Proximity to two or more high voltage transmission lines (percent of total length)	0	0	80	Effie Variation would parallel existing 500 kV and 230 kV transmission line corridors for the entire length.
Costs of constructing, operating, and maintain the facility which are dependent on design and route		Total construction cost[3]	$46,649,600	$49,488,323	$57,353,305	The cost for the Proposed Orange Route is within 20% of the cost of the Proposed Blue Route. The cost of the Effie Variation is more than 20% above the cost of the Proposed Blue Route.

(1) Colors represent least impacts (green), moderate impacts (yellow), greatest impacts (red), and no impacts or similar impacts (gray) relative to the specific factor.

(2) Red text indicates information in these rows are included within the DEIS.

(3) Using the Applicant's methodology (see comment in Appendix U), the Applicant-proposed route is green; if the maximum cost of the alternative is less than the Applicant-proposed route - it is green; if the maximum cost of the alternative is up to 20% more than the Applicant-proposed route - it is yellow; if the maximum cost of the alternative is more than 20% above the cost of the Applicant-proposed route - it is red.

East Section [(1), (2)]			East Bear Lake			Balsam			
Factor	Element	Indicator	Proposed Orange Route	East Bear Lake Variation	NOTES	Proposed Blue Route	Proposed Orange Route	Balsam Variation	NOTES
Human settlement	Displacement	Proximity to residences	See section on Human Settlement in the East Bear Lake Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Balsam Variation Area for details			There would be no differences in the impacts for the alternatives.
Human settlement	Noise	Proximity to noise receptors	See section on Human Settlement in the East Bear Lake Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Balsam Variation Area for details			There would be no differences in the impacts for the alternatives.
Human settlement	Air quality	Air emissions (criteria pollutants and greenhouse gases)	See section on Human Settlement in the East Bear Lake Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Balsam Variation Area for details			There would be no differences in the impacts for the alternatives.
Human settlement	Property values	Proximity to residences	See section on Human Settlement in the East Bear Lake Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Balsam Variation Area for details			There would be no differences in the impacts for the alternatives.
Human settlement	Electronic interference	Proximity to communication towers	See section on Human Settlement in the East Bear Lake Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Balsam Variation Area for details			There would be no differences in the impacts for the alternatives.
Human settlement	Transportation and public services	Proximity to roadways and railways	See section on Human Settlement in the East Bear Lake Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Balsam Variation Area for details			There would be no differences in the impacts for the alternatives.
Human settlement	Transportation and public services	Proximity to airstrips	See section on Human Settlement in the East Bear Lake Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Balsam Variation Area for details			There would be no differences in the impacts for the alternatives.
Human settlement	Environmental justice	Minority populations	See section on Human Settlement in the East Bear Lake Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Balsam Variation Area for details			There would be no differences in the impacts for the alternatives.
Human settlement	Environmental justice	Low-income populations	See section on Human Settlement in the East Bear Lake Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Balsam Variation Area for details			There would be no differences in the impacts for the alternatives.
Human settlement	Socioeconomics	Population	See section on Human Settlement in the East Bear Lake Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Balsam Variation Area for details			There would be no differences in the impacts for the alternatives.
Human settlement	Socioeconomics	Employment	See section on Human Settlement in the East Bear Lake Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Balsam Variation Area for details			There would be no differences in the impacts for the alternatives.
Human settlement	Socioeconomics	Taxes and revenue generated	See section on Human Settlement in the East Bear Lake Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Balsam Variation Area for details			There would be no differences in the impacts for the alternatives.
Human settlement	Socioeconomics	Housing availability	See section on Human Settlement in the East Bear Lake Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Balsam Variation Area for details			There would be no differences in the impacts for the alternatives.

East Section (1), (2)			East Bear Lake			Balsam			
Factor	**Element**	**Indicator**	Proposed Orange Route	East Bear Lake Variation	NOTES	Proposed Blue Route	Proposed Orange Route	Balsam Variation	NOTES
Human settlement	Recreation and tourism	Proximity to recreational resources (county, state, and federal parks and forests, state Scientific and Natural Areas, state trails, scenic byways, and snow and water trails)	See section on Human Settlement in the East Bear Lake Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Balsam Variation Area for details			There would be no differences in the impacts for the alternatives.
Human settlement	Cultural values	Proximity to residences	See section on Human Settlement in the East Bear Lake Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Balsam Variation Area for details			There would be no differences in the impacts for the alternatives.
Human settlement	**Aesthetics**	Proximity to residences (Count within 0-500, 0-1,000, & 0-1,500 ft from the anticipated alignment)	0--0--0	0--0--0	No residences are present within 1,500 feet of the anticipated alignment for either alternative.	0--3--7	2--10--21	2--6--12	Proposed Orange Route would pass by the most residences within 1,500 feet of the anticipated alignment.
Human settlement	**Land use compatibility**	Summary - land use type data and land ownership data			There are no land use compatibility issues identified for the alternatives. Neither alternative would cross private land.				There are no land use compatibility issues identified for the alternatives. All alternatives would cross a relatively similar amount of private land.
Human settlement	Land use compatibility	Land use type data (crosses USFWS Interest Lands or other features, e.g. airstrips)			There are no land use compatibility issues identified for the alternatives.				There are no land use compatibility issues identified for the alternatives.
Human settlement	Land use compatibility	Land ownership type data - total acres in ROW (acres of public and private land in the ROW)	Total: 217 (217--0)	Total: 256 (256--0)	Neither alternative would cross private land.	Total: 314 (55--260)	Total: 332 (38--294)	Total: 433 (107--326)	All alternatives would cross a relatively similar amount of private land.
Public health and safety	Electric and magnetic Fields	Proximity to residences	See section on Public Health and Safety in the East Bear Lake Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Public Health and Safety in the Balsam Variation Area for details			There would be no differences in the impacts for the alternatives.
Public health and safety	Implantable medical devices	Proximity to residences	See section on Public Health and Safety in the East Bear Lake Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Public Health and Safety in the Balsam Variation Area for details			There would be no differences in the impacts for the alternatives.
Public health and safety	Stray voltage	Proximity to residences	See section on Public Health and Safety in the East Bear Lake Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Public Health and Safety in the Balsam Variation Area for details			There would be no differences in the impacts for the alternatives.
Public health and safety	Induced voltage	Proximity to residences	See section on Public Health and Safety in the East Bear Lake Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Public Health and Safety in the Balsam Variation Area for details			There would be no differences in the impacts for the alternatives.
Public health and safety	Intentional destructive acts	Intentional destructive acts	See section on Public Health and Safety in the East Bear Lake Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Public Health and Safety in the Balsam Variation Area for details			There would be no differences in the impacts for the alternatives.

East Section (1), (2)			East Bear Lake			Balsam			
Factor	**Element**	**Indicator**	Proposed Orange Route	East Bear Lake Variation	NOTES	Proposed Blue Route	Proposed Orange Route	Balsam Variation	NOTES
Public health and safety	Environmental contamination	Registered sites of contamination	See section on Public Health and Safety in the East Bear Lake Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Public Health and Safety in the Balsam Variation Area for details			There would be no differences in the impacts for the alternatives.
Public health and safety	Worker health and safety	Worker health and safety	See section on Public Health and Safety in the East Bear Lake Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Public Health and Safety in the Balsam Variation Area for details			There would be no differences in the impacts for the alternatives.
Land based economies	**Agriculture**	Proximity to farmland - total acres in ROW (acres of prime farmland, farmland of statewide importance, and prime farmland if drained in ROW)	Total: 85 (84--0--1)	Total: 160 (124--0--36)	Both alternatives would cross a relatively similar amount of farmland. East Bear Lake Variation would parallel existing corridors for nearly half of its length.	Total: 206 (156--0--50)	Total: 217 (159--12--46)	Total: 203 (141--1--61)	All alternatives cross a relatively similar amount of farmland.
Land based economies	**Forestry**	Proximity to forest land (acres of state forest land in ROW)	217	256	Both alternatives would cross a relatively similar amount of state forest land. East Bear Lake Variation would parallel existing corridors for nearly half of its length.	0	0	0	None of the alternatives cross state forest land.
Land based economies	**Mining and mineral resources**	Proximity to state mining lease lands (active and/or expired/terminated; acres in ROW) and aggregate resources (count in ROW)	96--0	193--0	Both alternatives would cross a relatively similar amount of active and expired/terminated mineral lease lands. East Bear Lake Variation would parallel existing corridors for nearly half of its length.	0--0	0--0	89--0	Balsam Variation would cross active and expired/terminated mineral lease lands while the proposed routes would not cross any mineral lease lands.
Archaeological and historic architectural resources		Summary - proximity to archaeological and historic architectural resources			There are no known archaeological and historic architectural resources that would be affected by the alternatives.				Balsam Variation would cross a section identified as containing known archaeological sites, while the other alternatives would not. Balsam Variation has the most historic architectural sites within 1 mile.
Archaeological and historic resources	Archaeological sites	Proximity to archaeological sites (count within 0-100 ft and 0-1,500 ft from the anticipated alignment)	0--0	0--0	There are no known archaeological sites that would be affected by the alternatives.	0--0	0--0	0--1	Balsam, Variation would cross a section identified as containing known archaeological sites; the other alternatives would not cross any of these sections.
Archaeological and historic resources	Historic architectural sites	Proximity to historic architectural sites (count within 0-100 ft, 0-1,500 ft, and 0-1 mile from the anticipated alignment)	0--0--0	0--0--0	There are no known historic architectural sites that would be affected by the alternatives.	0--0--13	0--0--24	0--4--28	The Balsam Variation has the most historic architectural sites within 1 mile.

East Section (1), (2)			East Bear Lake			Balsam			
Factor	**Element**	**Indicator**	Proposed Orange Route	East Bear Lake Variation	NOTES	Proposed Blue Route	Proposed Orange Route	Balsam Variation	NOTES
Natural environment	**Water resources**	Summary - proximity to watercourses, waterbodies, floodplains, and wetlands			Both alternatives would cross relatively similar numbers of watercourses/waterbodies; however, all crossings are expected to be spanned. Neither alternative would cross FEMA-designated floodplain. Both alternatives would cross relatively similar areas of wetlands that are too large to span and would result in relatively similar areas of shrub and forested wetland type conversion.				All alternatives would cross relatively similar numbers of watercourses/waterbodies; however, all crossings are expected to be spanned. All alternatives would cross FEMA-designated floodplains; Proposed Orange Route would cross the most floodplain. All alternatives would cross relatively similar areas of wetlands that are too large to span and would result in relatively similar areas of shrub and forested wetland type conversion.
Natural environment	Water resources	Proximity to watercourses and waterbodies - Total number of crossings in ROW (number of PWI crossings, non-PWI crossings); - Trout stream (number of crossings)	Total: 4 (4--0) (0)	Total: 5 (2--3) (0)	Both alternatives would cross relatively similar numbers of watercourses/waterbodies; however, all crossings are expected to be spanned.	Total: 8 (7--1) (0)	Total: 9 (5--4) (0)	Total: 7 (4--3) (0)	All alternatives would cross relatively similar numbers of watercourses/waterbodies; however, all crossings are expected to be spanned.
Natural environment	Water resources	Proximity to floodplains - total acres of floodplain in ROW (acres of Zone A, acres of Zone B)	Total: 0	Total: 0	There are no differences between the alternatives.	Total: 0	Total: 26 (26--0)	Total: 22 (22--0)	All alternatives would cross FEMA-designated floodplain areas large enough that they cannot be spanned; Proposed Orange Route would cross the most floodplain.
Natural environment	Water resources	Proximity to wetlands (acres of PSS wetlands in ROW resulting in wetland type conversion)	64	40	Both alternatives would cross relatively similar areas of shrub wetland.	33	38	55	All alternatives would cross relatively similar areas of shrub wetland.
Natural environment	Water resources	Proximity to wetlands (acres of PFO wetlands in ROW resulting in wetland type conversion)	34	47	Both alternatives would cross relatively similar areas of forested wetland.	14	21	28	All alternatives would cross relatively similar areas of forested wetland.
Natural environment	Water resources	Proximity to wetlands (acres of total wetlands in ROW too large to span)	104	89	Both alternatives would cross relatively similar areas of total wetland that are too large to span.	54	69	96	All alternatives would cross relatively similar areas of total wetland that are too large to span.

East Section (1), (2)			East Bear Lake			Balsam			
Factor	**Element**	**Indicator**	Proposed Orange Route	East Bear Lake Variation	NOTES	Proposed Blue Route	Proposed Orange Route	Balsam Variation	NOTES
Natural environment	**Vegetation**	Cover type (acres of forested land cover in ROW)	216	251	Both alternatives would cross a relatively similar amount of forested land cover. East Bear Lake Variation would parallel existing corridors for nearly half of its length.	299	318	401	All alternatives would cross a relatively similar amount of forested land cover. Balsam Variation parallels existing transmission line, roadway, or field corridor for a greater proportion of its length than the proposed routes.
Natural environment	**Wildlife**	Proximity to wildlife resources - Important Bird Areas (acres in ROW)	0	0	Neither alternative would cross designated wildlife resources.	0	0	0	None of the alternatives would cross designated wildlife resources.
Rare and unique natural resources	**Federal and state listed species**	Summary - proximity of federal and state-listed species (based on the Natural Heritage Information System (NHIS) database)			There are no federally-listed species identified for these alternatives. All alternatives would have a relatively similar number of NHIS records within 1 mile. Neither alternative has threatened or endangered NHIS records within 1 mile.				There are no federally-listed species identified for these alternatives. The alternatives have the same number of NHIS records within 1 mile, none of which are threatened or endangered species.
Rare and unique natural resources	Federally listed species	Federally-listed species (# of records within 1 mile), designated critical habitat (miles crossed)	0--0	0--0	There are no federally-listed species identified for these alternatives. Neither alternative would cross critical habitat designated for gray wolf.	0--0	0--0	0--0	There are no federally-listed species identified for these alternatives. None of the alternatives would cross critical habitat designated for gray wolf.
Rare and unique natural resources	State listed species	State-listed species (total # of NHIS records within 1 mile)	3	2	Both alternatives have a relatively similar amount of NHIS records within 1 mile.	2	2	2	All alternatives have the same number of documented NHIS records within 1 mile.
Rare and unique natural resources	State listed species	State-listed species (# of threatened and endangered NHIS records within 1 mile)	0	0	Neither alternative has threatened or endangered NHIS records within 1 mile.	0	0	0	None of the alternatives have a threatened or endangered NHIS record within 1 mile.

East Section (1), (2)			East Bear Lake			Balsam			
Factor	**Element**	**Indicator**	Proposed Orange Route	East Bear Lake Variation	NOTES	Proposed Blue Route	Proposed Orange Route	Balsam Variation	NOTES
Rare and unique natural resources	**State rare communities**	Summary - proximity to Scientific and Natural Areas (SNAs), SNA Watershed Protection Areas, MBS Sites of Biodiversity Significance, MBS native plant communities, High Conservation Value Forest, and Ecologically Important Lowland Conifer stands			Both alternatives would cross a relatively similar amount of MBS Sites of Biodiversity Significance.				All alternatives would cross a relatively similar amount of MBS Sites of Biodiversity Significance.
Rare and unique natural resources	State rare communities	Proximity to Scientific and Natural Areas (SNAs) (Count within 1,500 feet) and SNA Watershed Protection Area (acres within ROW)	0--0	0--0	No SNAs would be located within 1,500 feet of any alternative; no alternative would cross an SNA Watershed Protection Areas (WPAs).	0--0	0--0	0--0	No SNAs would be located within 1,500 feet of any alternative; no alternative would cross an SNA WPA.
Rare and unique natural resources	State rare communities	Proximity to MBS Sites of Biodiversity Significance (total acres within ROW)	217	255	Both alternatives would pass through a relatively similar amount of MBS Sites of Biodiversity Significance.	78	105	95	All alternatives would cross a relatively similar amount of MBS Sites of Biodiversity Significance.
Rare and unique natural resources	State rare communities	Proximity to MnDNR High Conservation Value Forest, MnDNR Ecologically Important Lowland Conifer Areas (acres within ROW)	0--0	0--0	There are no known High Conservation Value Forests, Ecologically Important Lowland Conifer Areas that would be affected by the alternatives.	0--0	0--0	0--0	There are no known High Conservation Value Forests, Ecologically Important Lowland Conifer Areas that would be affected by the alternatives.
Rare and unique natural resources	State rare communities	Proximity to MBS native plant communities (acres in ROW)	-	-	No MBS native plant community data are available for this area.	-	-	-	No MBS native plant community data are available for this area.

East Section [1], [2]			East Bear Lake			Balsam			
Factor	Element	Indicator	Proposed Orange Route	East Bear Lake Variation	NOTES	Proposed Blue Route	Proposed Orange Route	Balsam Variation	NOTES
Use or paralleling of existing rights-of-way		Proximity to high voltage transmission lines, roadways, and trails (percent of total length)	0	42	East Bear Lake Variation would parallel existing transmission line, roadway, and/or trail corridor, while the Proposed Orange Route would not parallel these corridors.	21	17	36	All alternatives would parallel existing transmission line, roadway, and/or trail corridor. Balsam Variation would be located in an abandoned transmission line corridor for 66% of it's length.
Electrical system reliability		Proximity to two or more high voltage transmission lines (percent of total length)	0	42	East Bear Lake Variation would parallel existing 500 kV and 230 kV transmission line corridors for 42% of its length.	15	14	0	Proposed Blue Route and Proposed Orange Route would parallel two existing 115 kV transmission line corridors for 15% of their lengths.
Costs of constructing, operating, and maintain the facility which are dependent on design and route		Total construction cost[3]	$9,736,790	$13,279,079	The cost of the East Bear Lake Variation is more than 20% above the cost of the Proposed Orange Route.	$15,121,621	$16,018,490	$19,502,472	The cost for the Proposed Orange Route is within 20% of the cost of the Proposed Blue Route. The cost of the Balsam Variation is more than 20% above the cost of the Proposed Blue Route.

(1) Colors represent least impacts (green), moderate impacts (yellow), greatest impacts (red), and no impacts or similar impacts (gray) relative to the specific factor.

(2) Red text indicates information in these rows are included within the DEIS.

(3) Using the Applicant's methodology (see comment in Appendix U), the Applicant-proposed route is green; if the maximum cost of the alternative is less than the Applicant-proposed route - it is green; if the maximum cost of the alternative is up to 20% more than the Applicant-proposed route - it is yellow; if the maximum cost of the alternative is more than 20% above the cost of the Applicant-proposed route - it is red.

East Section (1), (2)			Dead Man's Pond			Blackberry		
Factor	Element	Indicator	Proposed Blue Route	Dead Man's Pond Variation	NOTES	Proposed Blue Route	Proposed Orange Route	NOTES
Human settlement	Displacement	Proximity to residences	See section on Human Settlement in the Dead Man's Pond Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Blackberry Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Noise	Proximity to noise receptors	See section on Human Settlement in the Dead Man's Pond Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Blackberry Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Air quality	Air emissions (criteria pollutants and greenhouse gases)	See section on Human Settlement in the Dead Man's Pond Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Blackberry Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Property values	Proximity to residences	See section on Human Settlement in the Dead Man's Pond Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Blackberry Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Electronic interference	Proximity to communication towers	See section on Human Settlement in the Dead Man's Pond Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Blackberry Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Transportation and public services	Proximity to roadways and railways	See section on Human Settlement in the Dead Man's Pond Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Blackberry Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Transportation and public services	Proximity to airstrips	See section on Human Settlement in the Dead Man's Pond Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Blackberry Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Environmental justice	Minority populations	See section on Human Settlement in the Dead Man's Pond Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Blackberry Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Environmental justice	Low-income populations	See section on Human Settlement in the Dead Man's Pond Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Blackberry Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Socioeconomics	Population	See section on Human Settlement in the Dead Man's Pond Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Blackberry Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Socioeconomics	Employment	See section on Human Settlement in the Dead Man's Pond Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Blackberry Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Socioeconomics	Taxes and revenue generated	See section on Human Settlement in the Dead Man's Pond Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Blackberry Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Socioeconomics	Housing availability	See section on Human Settlement in the Dead Man's Pond Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Blackberry Variation Area for details		There would be no differences in the impacts for the alternatives.

East Section (1), (2)			Dead Man's Pond			Blackberry		
Factor	**Element**	**Indicator**	Proposed Blue Route	Dead Man's Pond Variation	NOTES	Proposed Blue Route	Proposed Orange Route	NOTES
Human settlement	Recreation and tourism	Proximity to recreational resources (county, state, and federal parks and forests, state Scientific and Natural Areas, state trails, scenic byways, and snow and water trails)	See section on Human Settlement in the Dead Man's Pond Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Blackberry Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	Cultural values	Proximity to residences	See section on Human Settlement in the Dead Man's Pond Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Human Settlement in the Blackberry Variation Area for details		There would be no differences in the impacts for the alternatives.
Human settlement	**Aesthetics**	Proximity to residences (Count within 0-500, 0-1,000, & 0-1,500 ft from the anticipated alignment)	0--1--2	0--1--4	Dead Man's Pond Variation would pass by more residences within 1,500 feet of the anticipated alignment.	2--6--11	0--5--22	Proposed Orange Route would pass by more residences within 1,500 feet of the anticipated alignment.
Human settlement	**Land use compatibility**	Summary - land use type data and land ownership data			There are no land use compatibility issues identified for the alternatives. Both alternatives would cross a relatively similar amount of private land.			There are no land use compatibility issues identified for the alternatives. Both alternatives would cross a relatively similar amount of private land.
Human settlement	Land use compatibility	Land use type data (crosses USFWS Interest Lands or other features, e.g. airstrips)			There are no land use compatibility issues identified for the alternatives.			There are no land use compatibility issues identified for the alternatives.
Human settlement	Land use compatibility	Land ownership type data - total acres in ROW (acres of public and private land in the ROW)	Total: 54 (19--35)	Total: 56 (37--19)	Both alternatives would cross a relatively similar amount of private land.	Total: 133 (41--92)	Total: 147 (54--93)	Both alternatives would cross a relatively similar amount of private land.
Public health and safety	Electric and magnetic Fields	Proximity to residences	See section on Public Health and Safety in the Dead Man's Pond Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Public Health and Safety in the Blackberry Variation Area for details		There would be no differences in the impacts for the alternatives.
Public health and safety	Implantable medical devices	Proximity to residences	See section on Public Health and Safety in the Dead Man's Pond Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Public Health and Safety in the Blackberry Variation Area for details		There would be no differences in the impacts for the alternatives.
Public health and safety	Stray voltage	Proximity to residences	See section on Public Health and Safety in the Dead Man's Pond Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Public Health and Safety in the Blackberry Variation Area for details		There would be no differences in the impacts for the alternatives.
Public health and safety	Induced voltage	Proximity to residences	See section on Public Health and Safety in the Dead Man's Pond Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Public Health and Safety in the Blackberry Variation Area for details		There would be no differences in the impacts for the alternatives.
Public health and safety	Intentional destructive acts	Intentional destructive acts	See section on Public Health and Safety in the Dead Man's Pond Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Public Health and Safety in the Blackberry Variation Area for details		There would be no differences in the impacts for the alternatives.

East Section (1), (2)			Dead Man's Pond			Blackberry		
Factor	**Element**	**Indicator**	Proposed Blue Route	Dead Man's Pond Variation	NOTES	Proposed Blue Route	Proposed Orange Route	NOTES
Public health and safety	Environmental contamination	Registered sites of contamination	See section on Public Health and Safety in the Dead Man's Pond Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Public Health and Safety in the Blackberry Variation Area for details		There would be no differences in the impacts for the alternatives.
Public health and safety	Worker health and safety	Worker health and safety	See section on Public Health and Safety in the Dead Man's Pond Variation Area for details		There would be no differences in the impacts for the alternatives.	See section on Public Health and Safety in the Blackberry Variation Area for details		There would be no differences in the impacts for the alternatives.
Land based economies	**Agriculture**	Proximity to farmland - total acres in ROW (acres of prime farmland, farmland of statewide importance, and prime farmland if drained in ROW)	Total: 20 (11--0--9)	Total: 39 (38--0--1)	Both alternatives would cross a relatively similar amount of farmland.	Total: 82 (59--11--12)	Total: 90 (80--2--8)	Both alternatives would cross a relatively similar amount of farmland.
Land based economies	**Forestry**	Proximity to forest land (acres of state forest land in ROW)	0	0	Neither alternative would cross state forest land.	0	0	Neither alternative would cross state forest land.
Land based economies	**Mining and mineral resources**	Proximity to state mining lease lands (active and/or expired/terminated; acres in ROW) and aggregate resources (count in ROW)	0--0	0--0	No active or expired/terminated mineral lease lands or aggregate resources are present in the ROW of any alternative.	37--0	33--0	Proximity to expired/terminated mineral lease lands are relatively similar between the alternatives.
Archaeological and historic architectural resources		Summary - proximity to archaeological and historic architectural resources			There are no known archaeological sites that would be affected by the alternatives. Both alternatives have 1 historic architectural site within 1 mile.			There are no known archaeological resources that would be affected by the alternatives. Proposed Blue Route has more historic architectural sites within 1 mile.
Archaeological and historic resources	Archaeological sites	Proximity to archaeological sites (count within 0-100 ft and 0-1,500 ft from the anticipated alignment)	0--0	0--0	There are no known archaeological sites that would be affected by the alternatives.	0--0	0--0	There are no known archaeological sites that would be affected by the alternatives.
Archaeological and historic resources	Historic architectural sites	Proximity to historic architectural sites (count within 0-100 ft, 0-1,500 ft, and 0-1 mile from the anticipated alignment)	0--0--1	0--0--1	Both alternatives have a historic architectural resource within 1 mile.	0--0--6	0--0--1	Proposed Blue Route has more historic architectural sites within 1 mile.

East Section (1), (2)			Dead Man's Pond			Blackberry		
Factor	**Element**	**Indicator**	Proposed Blue Route	Dead Man's Pond Variation	NOTES	Proposed Blue Route	Proposed Orange Route	NOTES
Natural environment	**Water resources**	Summary - proximity to watercourses, waterbodies, floodplains, and wetlands			There would be no differences between the alternatives for crossing watercourses, waterbodies, and floodplains. Proposed Blue Route would cross wetlands that are too large to span, while Dead Man's Pond Variation would be able to span wetlands. Both alternatives would result in relatively similar areas of forested wetland type conversion. Proposed Blue Route would have the most shrub wetland; therefore, would require the most shrub wetland type conversion.			Proposed Orange Route would cross the most watercourses/waterbodies; however, all crossings are expected to be spanned. There would be no differences between the alternatives for crossing floodplains. Both alternatives would cross relatively similar areas of wetlands that are too large to span and would result in relatively similar areas of forested wetland type conversion. Proposed Blue Route would have the most shrub wetland; therefore, would require the most shrub wetland type conversion.
Natural environment	Water resources	Proximity to watercourses and waterbodies - Total number of crossings in ROW (number of PWI crossings, non-PWI crossings); - Trout stream (number of crossings)	Total: 0	Total: 0	There are no differences between the alternatives.	Total: 1 (1--0) (0)	Total: 3 (3--0) (0)	Proposed Orange Route would cross the most watercourses/waterbodies; however, all crossings are expected to be spanned.
Natural environment	Water resources	Proximity to floodplains - total acres of floodplain in ROW (acres of Zone A, acres of Zone B)	Total: 0	Total: 0	There are no differences between the alternatives.	Total: 0	Total: 0	There are no differences between the alternatives.
Natural environment	Water resources	Proximity to wetlands (acres of PSS wetlands in ROW resulting in wetland type conversion)	11	2	Proposed Blue Route would cross the most shrub wetland.	15	10	Proposed Blue Route would cross the most shrub wetland.
Natural environment	Water resources	Proximity to wetlands (acres of PFO wetlands in ROW resulting in wetland type conversion)	3	2	Both alternatives would cross relatively similar areas of forested wetland.	36	29	Both alternatives would cross relatively similar areas of forested wetland.
Natural environment	Water resources	Proximity to wetlands (acres of total wetlands in ROW too large to span)	14	4	Proposed Blue Route would cross wetlands that are too large to span, while Dean Man's Pond Variation would be able to span wetlands.	51	40	Both alternatives would cross relatively similar areas of total wetland that are too large to span.

East Section (1), (2)			Dead Man's Pond			Blackberry		
Factor	**Element**	**Indicator**	Proposed Blue Route	Dead Man's Pond Variation	NOTES	Proposed Blue Route	Proposed Orange Route	NOTES
Natural environment	**Vegetation**	Cover type (acres of forested land cover in ROW)	50	54	Both alternatives would cross a relatively similar amount of forested land cover.	129	130	Both alternatives would cross a relatively similar amount of forested land cover. Proposed Orange Route parallels more existing transmission line corridor.
Natural environment	**Wildlife**	Proximity to wildlife resources - Important Bird Areas (acres in ROW)	0	0	Neither alternative would cross designated wildlife resources.	0	0	Neither alternative would cross designated wildlife resources.
Rare and unique natural resources	**Federal and state listed species**	Summary - proximity of federal and state-listed species (based on the Natural Heritage Information System (NHIS) database)			There are no federally-listed species identified for these alternatives. There is 1 threatened NHIS record within 1 mile of the Dead Man's Pond Variation. However, this species is a fish and because it is anticipated that all waterbodies and watercourses would be spanned, impacts to this aquatic species are not expected.			There are no federally-listed species identified for these alternatives. Both alternatives have a relatively similar number of NHIS records, including threatened or endangered NHIS records, within 1 mile.
Rare and unique natural resources	Federally listed species	Federally-listed species (# of records within 1 mile), designated critical habitat (miles crossed)	0--0	0--0	There are no federally-listed species identified for these alternatives. Neither alternative would cross critical habitat designated for gray wolf.	0--0	0--0	There are no federally-listed species identified for these alternatives. Neither alternative would cross critical habitat designated for gray wolf.
Rare and unique natural resources	State listed species	State-listed species (total # of NHIS records within 1 mile)	0	1	There is 1 NHIS record within 1 mile of the Dead Man's Pond Variation. However, this species is a fish and because it is anticipated that all waterbodies and watercourses would be spanned, impacts to this aquatic species are not expected.	2	3	Both alternatives have a relatively similar number of NHIS records within 1 mile.
Rare and unique natural resources	State listed species	State-listed species (# of threatened and endangered NHIS records within 1 mile)	0	1	There is 1 threatened NHIS record within 1 mile of the Dead Man's Pond Variation. However, this species is a fish and because it is anticipated that all waterbodies and watercourses would be spanned, impacts to this aquatic species are not expected.	2	2	Both alternatives have a relatively similar number of threatened or endangered NHIS records within 1 mile.

East Section (1), (2)			Dead Man's Pond			Blackberry		
Factor	**Element**	**Indicator**	Proposed Blue Route	Dead Man's Pond Variation	NOTES	Proposed Blue Route	Proposed Orange Route	NOTES
Rare and unique natural resources	**State rare communities**	Summary - proximity to Scientific and Natural Areas (SNAs), SNA Watershed Protection Areas, MBS Sites of Biodiversity Significance, MBS native plant communities, High Conservation Value Forest, and Ecologically Important Lowland Conifer stands			No known rare and unique natural resources were identified for the alternatives.			Both alternatives would cross a relatively similar amount of MBS Sites of Biodiversity Significance.
Rare and unique natural resources	State rare communities	Proximity to Scientific and Natural Areas (SNAs) (Count within 1,500 feet) and SNA Watershed Protection Area (acres within ROW)	0--0	0--0	Neither alternative has a SNA within 1,500 feet or an SNA WPA within the ROW.	0--0	0--0	No SNAs would be located within 1,500 feet of any alternative; no alternative would cross an SNA WPA.
Rare and unique natural resources	State rare communities	Proximity to MBS Sites of Biodiversity Significance (total acres within ROW)	0--0	0--0	No known MBS Sites of Biodiversity Significance were identified for the alternatives.	57	79	Both alternatives would cross a relatively similar amount of MBS Sites of Biodiversity Significance.
Rare and unique natural resources	State rare communities	Proximity to MnDNR High Conservation Value Forest, MnDNR Ecologically Important Lowland Conifer Areas (acres within ROW)	0--0	0--0	There are no known High Conservation Value Forests, Ecologically Important Lowland Conifer Areas that would be affected by the alternatives.	0--0	0--0	There are no known High Conservation Value Forests, Ecologically Important Lowland Conifer Areas that would be affected by the alternatives.
Rare and unique natural resources	State rare communities	Proximity to MBS native plant communities (acres in ROW)	-	-	No MBS native plant community data are available for this area.	-	-	No MBS native plant community data are available for this area.

East Section [1], [2]			Dead Man's Pond			Blackberry		
Factor	**Element**	**Indicator**	Proposed Blue Route	Dead Man's Pond Variation	NOTES	Proposed Blue Route	Proposed Orange Route	NOTES
Use or paralleling of existing rights-of-way		Proximity to high voltage transmission lines, roadways, and trails (percent of total length)	17	0	Proposed Blue Route parallels some existing transmission line, roadway, and/or trail corridor, while the Dead Man's Pond Variation does not parallel any of these existing corridors.	22	37	Both alternatives would parallel a relatively similar amount of transmission line, roadway, and/or trail corridor.
Electrical system reliability		Proximity to two or more high voltage transmission lines (percent of total length)	-	-	There are no issues with electrical reliability since there would not be three transmission lines paralleling the same corridor.	20	37	Both alternatives would parallel 2 existing high voltage transmission lines for a relatively similar proportion of their length.
Costs of constructing, operating, and maintain the facility which are dependent on design and route		Total construction cost[3]	$2,873,223	$4,409,841	The cost of the Dead Man's Pond Variation is more than 20% above the cost of the Proposed Blue Route.	$8,380,680	$10,148,060	The cost of the Proposed Orange Route is more than 20% above the cost of the Proposed Blue Route.

(1) Colors represent least impacts (green), moderate impacts (yellow), greatest impacts (red), and no impacts or similar impacts (gray) relative to the specific factor.

(2) Red text indicates information in these rows are included within the DEIS.

(3) Using the Applicant's methodology (see comment in Appendix U), the Applicant-proposed route is green; if the maximum cost of the alternative is less than the Applicant-proposed route - it is green; if the maximum cost of the alternative is up to 20% more than the Applicant-proposed route - it is yellow; if the maximum cost of the alternative is more than 20% above the cost of the Applicant-proposed route - it is red.

Appendix Y

Comments and Responses

Appendix Y

Comment Response Document

Great Northern Transmission Line

Environmental Impact Statement

Prepared for
U.S. Department of Energy
Office of Electricity Delivery and Energy Reliability
Washington, DC 20585

Minnesota Department of Commerce
Energy Environmental Review and Analysis
85 7th Place East, Suite 500
Saint Paul, MN 55101

Cooperating Agencies:
U.S. Army Corps of Engineers
U.S. Environmental Protection Agency
U.S. Fish and Wildlife Service
Red Lake Band of Chippewa, Minnesota

October 2015

Appendix Y

Comment Response Document

Great Northern Transmission Line

Environmental Impact Statement

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85 7th Place East, Suite 500
Saint Paul, MN 55101

Cooperating Agencies:
U.S. Army Corps of Engineers
U.S. Environmental Protection Agency
U.S. Fish and Wildlife Service
Red Lake Band of Chippewa, Minnesota

October 2015

Appendix Y

Comment Response Document

October 2015

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Acronyms and Abbreviations

AC	Alternating Current
ALJ	Administrative Law Judge
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
DOC-EERA	Minnesota Department of Commerce–Energy Environmental Review and Analysis
DOE	U.S. Department of Energy
EIS	Environmental Impact Statement
EMF	electric and magnetic fields
EO	Executive Order
kV	kilovolt
MW	megawatt
MOU	Memorandum of Understanding
MnDOT	Minnesota Department of Transportation
MN PUC	Minnesota Public Utilities Commission
MPCA	Minnesota Pollution Control Agency
NEPA	National Environmental Policy Act
NERC	North American Electric Reliability Corporation
NOA	Notice of Availability
NOI	Notice of Intent
PPSA	Power Plant Siting Act
ROW	Right-of-way
SWPPP	Stormwater Pollution Prevention Plan
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
WMA	Wildlife Management Area

1.0 Introduction

1.1 Overview

On April 15, 2014, Minnesota Power, an operating division of ALLETE, Inc. (the Applicant), submitted an application to the U.S. Department of Energy (DOE) for a Presidential permit for the Great Northern Transmission Line Project (proposed Project). Following this initial submission, on October 29, 2014, the Applicant submitted an amendment to their Presidential permit and Route Permit applications to both DOE and the Minnesota Public Utilities Commission (MN PUC), respectively. The amended Presidential permit application changed the initial location of the proposed international border crossing under DOE's consideration to cross the U.S. / Canadian border at latitude 49 00 00.00 N and longitude 95 54 50.49 W, which is approximately 2.9 miles east of Highway 89 in Roseau County.

An application for a Presidential permit is evaluated in accordance with Executive Order (EO) 10485, as amended by EO 12038, and the regulations codified at 10 Code of Federal Regulations (CFR) 205.320 et seq. (2000), "Application for Presidential Permit Authorizing the Construction, Connection, Operation and Maintenance of Facilities for Transmission of Electric Energy at International Boundaries." The DOE's Office of Electricity Delivery and Energy Reliability, National Electricity Delivery Division (OE-20) is responsible for issuing Presidential permits. The Presidential permit for Minnesota Power (OE Docket Number PP-398) if issued, would authorize the Applicant to construct, operate maintain and connect the U.S. portion of the proposed Project.

Pursuant to the National Environmental Policy Act of 1969 (NEPA), when considering an application for a Presidential permit, the DOE must take into account possible environmental impacts of the proposed transmission line and associated facilities before making a final decision. DOE is using the NEPA process to involve federal, state, and local agencies; tribal governments; and the public in the environmental review of the proposed Project and alternatives. DOE has determined that the potential issuance of a Presidential permit for the proposed Project would constitute a major Federal action and that an Environmental Impact Statement (EIS) is the appropriate level of review under NEPA. DOE issued its Notice of Intent (NOI) to prepare an EIS and to conduct public scoping for the proposed Federal Action in June 2014 (79 FR 36493). This EIS is prepared in compliance with the Council on Environmental Quality (CEQ) regulations for implementing NEPA (40 CFR Parts 1500-1508) and DOE's NEPA regulations (10 CFR Part 1021), and other applicable federal laws.

In order to avoid duplication, DOE and the Minnesota Department of Commerce–Energy Environmental Review and Analysis (DOC–EERA) will prepare a single EIS to comply with environmental review requirements under NEPA and the Power Plant Siting Act (PPSA). DOE will act as federal joint lead agency with DOC–EERA acting as state joint lead agency per 40 CFR 1501.5(b). DOC–EERA prepares EISs for proposed high-voltage transmission lines pursuant to Minnesota Statute Section 216E.03, Subdivision 5.

The proposed Project would include construction, operation, and maintenance of an approximately 220-mile long, 500 kilovolt (kV) overhead, single-circuit, alternating current (AC) electric transmission line that would cross the international border from the Canadian Province of Manitoba into the United States in Roseau County, Minnesota. After crossing the border, the transmission line would connect into the proposed Iron Range 500 kV Substation that would be located adjacent to the existing Blackberry 230 kV/115 kV Substation near Grand Rapids, Minnesota. The presentation of the analysis in the EIS divided the proposed Project into three geographic sections: West Section, Central Section, and East Section.

The proposed Project would typically be located on all new 200-foot wide right-of-way (ROW) with a wider area required for certain spans at angle and corner structures, for guyed structures, or for areas where special design requirements are dictated by topography. The transmission towers would be steel lattice structures for the majority of the route, with the exact type of structure in any given location dependent on land type, land use, and potential effect on the surrounding landscape. Tower heights would range from approximately 100 feet to about 170 feet. In some instances, taller structures would be required. As part of the proposed Project, the Applicant to construct a new Iron Range 500 kV Substation, a new 500 kV series compensation station, regeneration stations, permanent access roads, temporary access roads, laydown areas, and fly-in sites.

Figure Y-1 of this Comment Response Document shows the three geographic sections, the proposed international border crossing, the two major route alternatives proposed by the Applicant, and other alternatives considered in this EIS. Responses to individual comments received on the Draft EIS may be found in Attachment D of this document.

This document constitutes the Comment Response Document on the *Great Northern Transmission Line Project Final Environmental Impact Statement*. All comment documents are available from the following websites:

- DOE/DOC project website at: http://www.greatnortherneis.org,
- MN PUC e-dockets website at: (https://www.edockets.state.mn.us/EFiling/edockets/searchDocuments.do?method=showeDocketsSearch&showEdocket=true), docket number E015/TL-14-21)
- DOC–EERA website at: (http://mn.gov/commerce/energyfacilities/#ui-tabs-3, docket number 14-21)
- The Applicant's website at: http://greatnortherntransmissionline.com

Figure Y-1 Proposed Project Alternatives Map

1.2 History of Public Outreach and Comment Process

On June 20, 2014, MN PUC issued a Notice of Public Information and EIS Scoping Meeting. The notice described the proposed Project and provided an overview of the MN PUC process and opportunities for public comment. The notification lists for the notice included individuals on the MN PUC's general service list and MN PUC's project contact list for the proposed GNTL Project (Minnesota Rules, part 7850.2100, subpart 1). Per Minnesota Rule 78520.2300 Subpart 2, notice of the public meeting was provided by the Applicant on MN PUC's behalf via advertisements in 11 local and regional newspapers along the proposed Project routes (Table Y-1). Issuance of the notice commenced the state public scoping period that ended on August 15, 2014. The Applicant also provided the notice to its landowner list of potentially affected landowners. On June 27, 2014, DOE published in the *Federal Register* its NOI to Prepare an EIS and to Conduct Public Scoping Meetings; Notice of Floodplains and Wetlands Involvement for the Great Northern Transmission Line (79 FR 36493). The NOI, provided in AttachmentAttachment A, explained that DOE would be assessing potential environmental impacts and issues associated with the proposed Project and the no-action alternative. The NOI was sent to interested parties including federal, state, and local officials; agency representatives; stakeholder organizations; local libraries, newspapers, and radio and TV stations; and private individuals in the vicinity of the proposed transmission line. Issuance of the NOI commenced a 45-day public scoping period that ended on August 11, 2014; however, DOE continued to accept scoping comments through August 15, 2014, in order to align the federal and state scoping period. (The state scoping period ended on August 15, 2014.) Late scoping comments were considered.

During the public scoping period, DOE and DOC-EERA conducted eight joint scoping meetings/hearings. A summary of the joint scoping process and associated public and agency comments are in the EIS Scoping Summary Report, the body of which is provided in Attachment D of the EIS. In short, five border crossing alternatives were suggested by the public and agencies for detailed study in the EIS during the public scoping period. Four of these border crossing alternatives were determined by DOE as potentially reasonable alternatives and are analyzed in the EIS.

In addition, the MN PUC requested the DOC-EERA to conduct a minimum of two citizen Workgroup meetings and consult directly with local government units within the project area. The purpose of the Workgroup was primarily to provide an additional opportunity for local government representatives to discuss their concerns, develop potential alternative route segments, review potential zoning conflicts, and ensure local input necessary for informed decision-making. The DOC-EERA held two four-hour Workgroup meetings in Grand Rapids, Minnesota, on September 30 and October 29, 2014. In addition to the two meetings, Workgroup members were provided a scoping questionnaire designed to assist Workgroup members in identifying ordinances, land use planning, or zoning issues. The major issues identified by the Workgroup included concern about impacts to human settlement and private property use (particularly agricultural), the Big Bog State Recreation Area, outstanding natural resources and SNAs, and mining resources. They also identified the benefits of following existing transmission corridors to minimize impacts and suggested minor adjustments to alternative route segments or alignment modifications proposed during the scoping period to minimize overall impacts to residents of the proposed Project area.

The MN PUC must determine whether there is a need for a transmission line, and establish the size, type, and required end points of the proposed Project. The Applicant filed its certificate of need application for the proposed Project with the MN PUC on October 22, 2013. Following a formal contested case hearing, the Administrative Law Judge (ALJ) issued her report on March 31, 2015, which concluded that the Applicant satisfied the certificate of need requirements and recommended the MN PUC grant a certificate of need to the Applicant for the construction of the proposed Project and associated facilities. On June 30, 2015, the MN PUC granted the certificate of need to the Applicant for the proposed Project.

A public comment period on the Draft EIS was initiated following publication of the U.S. Environmental Protection Agency's (USEPA's) NOA in the *Federal Register* on June 26, 2015 (Attachment A of this Comment Response Document). The DOC–EERA issued a NOA of Draft EIS, State Public Information Meetings, and Federal Public Hearings on June 19, 2015 (Attachment B of this Comment Response Document). DOE and DOC–EERA provided a 45-day review period starting June 26, 2015 and ending August 10, 2015. The NOA was sent to local newspapers and mailed to persons in the vicinity of the proposed Project. The NOA was published in 11 Minnesota newspapers (Table Y-1; Attachment C of this Comment Response Document). Copies of the Draft EIS were publicly available at public libraries located in the proposed Project area (Table Y-2).

Table Y-1 Newspaper Publication Dates and Area of Distribution for Draft EIS

Newspaper	Location	Publication Date(s)[1]
The American	Blackduck, MN – Beltrami County	July 3, 2015
Anishinaabeg Today	White Earth, MN – Becker County	Not available
The Bemidji Pioneer	Bemidji, MN – Beltrami County	July 3, 2015
Bois Forte News	Lilydale, MN – Dakota County	Not available
Grand Rapids Herald Review	Grand Rapids, MN – Itasca County	July 1, 2015
The Hibbing Daily Tribune	Hibbing, MN – St. Louis County	July 1, 2015
International Falls Journal	International Falls, MN – Koochiching County	June 27, 2015 July 1, 2015
The Littlefork Times	Littlefork, MN – Koochiching County	July 1, 2015
Northern Light Region	Baudette, MN – Lake of the Woods County	July 1, 2015
Northome Area News	Northome, MN – Koochiching County	July 2, 2015
Red Lake Nation News	Red Lake, MN – Red Lake County	Not available
Roseau Times-Region	Roseau, MN – Roseau County	July 4, 2015
Scenic Range News Forum	Bovey, MN – Itasca County	July 2, 2015
Warroad Pioneer	Warroad, MN – Roseau County	June 30, 2015
Western Itasca Review	Deer River, MN – Itasca County	July 2, 2015

[1] Publication dates for newspapers that did not provide an affidavit of publication are listed as "not available."

Table Y-2 Public Libraries where Draft EIS was Available during the Public Comment Period

Library Name	Location
Baudette Library	110 1st Street Southwest, Baudette, MN 56623
Blackduck Public Library	72 1st Street Southeast, Blackduck, MN 56630
Bovey Public Library	402 2nd Street, Bovey, MN 55709
Calumet Library	932 Gary Street, Calumet, MN 55716
Coleraine Public Library	203 Cole Street, Coleraine, MN 55722
Duluth Public Library	520 W Superior Street, Duluth, MN 55802
Grand Rapids Public Library	140 NE 2nd Street, Grand Rapids, MN 55744
Greenbush Branch Library	214 Main Street, Greenbush, MN 56726
International Falls Public Library	750 4th Street, International Falls, MN 56649
Marble Public Library	302 Alice Avenue, Marble, MN 55764
Northome Public Library	12064 Main Street, Northome, MN 56661
Roseau Public Library	121Center Street East, Suite 100, Roseau, MN 56751
Warroad Public Library	202 Main Avenue NE, Warroad, MN 56763

During the 45-day public comment period for the Draft EIS, DOE and DOC–EERA held nine federal public hearings/state information meetings on the Draft EIS, as shown in Table Y-3: in Red Lake, Minnesota on July 14, 2015; Roseau and Baudette, Minnesota on July 15, 2015; Littlefork and International Falls, Minnesota on July 16, 2015; Kelliher and Bigfork, Minnesota on July 21, 2015; and two meetings in Grand Rapids, Minnesota on July 22, 2015. Notice of these federal public hearings/state information meetings were published in local newspapers (Table Y-1; Attachment C of this Comment Response Document) and mailed to persons in the vicinity of the proposed Project. Notice of the federal public hearing/state information meeting held on Red Lake Reservation was provided by the Band to its community members.

In preparing this Final EIS, DOE and DOC–EERA considered comments received during the scoping period (June 27, 2014 through August 11, 2014) and public comment period on the Draft EIS (June 26, 2015 through August 10, 2015). DOE and DOC-EERA also considered comments and input from its cooperating agencies (See Section 1.3 of this Appendix) in the preparation of the Final EIS. Any comments on the Draft EIS that were received or postmarked after August 10, 2015 were considered to the extent practicable.

Table Y-3 Dates and Locations of Public Hearings/Information Meetings on the Draft EIS

Meeting Date	Location	Number of Attendees	Number of Commenters
July 13, 2015	Seven Clans Casino, Red Lake, MN	4	3
July 15, 2015	Roseau Civic Center, Roseau, MN	44	2
July 15, 2015	Lake of the Woods School, Baudette, MN	13	3
July 16, 2015	Littlefork Community Center, Littlefork, MN	12	1
July 16, 2015	AmericInn, International Falls, MN	9	5
July 21, 2015	Kelliher Old School Center, Kelliher, MN	15	4
July 21, 2015	Bigfork School, Bigfork, MN	25	5
July 22, 2015 Morning Session	Timber Lake Lodge, Grand Rapids, MN	24	6
July 22, 2015 Evening Session	Timber Lake Lodge, Grand Rapids, MN	11	2
Total		157	31

The federal public hearings/state information meetings provided the public with the opportunity to learn more about the project and to provide comments on potential environmental issues associated with the project. A total of 157 people attended the nine federal public hearings/state information meetings. A total of 31 people gave oral comments at the federal public hearings/state information meetings, and their comments were transcribed by a court stenographer.

DOE and DOC-EERA received comments on the Draft EIS in the form of 208 written letters, emails, or website submittals from private citizens, government agencies, and nongovernmental organizations. The comment letters received during the open comment period on the Draft EIS and written materials submitted for the record at the public hearings/information meetings are provided in Attachment D of this Comment Response Document.

1.3 Cooperating Agencies

DOE invited several federal agencies and tribes to participate as cooperating agencies in the preparation of the EIS to ensure that the EIS meets the NEPA and other regulatory requirements of those agencies and engage agencies' specialized expertise. The cooperating agencies include U.S. Army Corps of Engineers – St. Paul District (USACE), Region 5 of the U.S. Environmental Protection Agency (EPA), U.S. Fish and Wildlife Service (USFWS) – Twin Cities Ecological Field Office (USFWS), and the Red Lake Band of Chippewa Indians, Minnesota. The following outlines each agency's requirements and/or specialized expertise for this EIS:

USACE. USACE will use this EIS in their decision making for the permits that would be required under Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act. In accordance

with 33 CFR Part 325 Appendix B (8)(c), USACE will coordinate with DOE to ensure this EIS supports USACE's decision-making requirements on the Applicant's Section 10 and Section 404 permit application.

EPA. Under Section 309 of the Clean Air Act, the EPA is required to review and publicly comment on the environmental impacts of major federal actions. EPA also has responsibilities under the Clean Water Act. In addition, the EPA administers various statutes and regulations, including, but not limited to, the Safe Drinking Water Act; the Pollution Prevention Act; the Resource Conservation and Recovery Act; and the Comprehensive Environmental Response, Compensation, and Liability Act.

EPA involvement as a cooperating agency will include: 1) participation in relevant project meetings and calls and 2) review and comment on preliminary documents to the extent that staff resources allow. However, EPA will exercise its independent review and comment authorities on the Draft and Final EISs consistent with EPA responsibilities under NEPA and Section 309 of the Clean Air Act.

USFWS. USFWS's role includes evaluating general environmental impacts on fish and wildlife. They will also evaluate potential environmental impacts on federally-listed threatened and endangered species and designated critical habitat, and may issue a Biological Opinion based on a BA prepared for the proposed Project, as appropriate. USFWS may issue an incidental take statement (along with reasonable and prudent measures) if appropriate. USFWS also has responsibility for enforcing the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act .Coordination for any necessary eagle permits will be conducted with USFWS. USFWS will also coordinate any special use permit if ROW access is requested and granted on USFWS interest properties. USFWS provides a recommended route that avoids USFWS Interest Lands and is described in their August 10, 2015 comment letter in Appendix U of this EIS.

Red Lake Band of Chippewa Indians, Minnesota. The Red Lake Band of Chippewa Indians, Minnesota's role as a cooperator in the preparation of this EIS is to provide specialized expertise in the identification of resources of concern to the tribe and the evaluation of general environmental impacts on resources of concern to the tribe. The tribe's involvement as a cooperating agency includes: 1) participation in relevant project meetings and calls, 2) identification of resources of concern to the tribe that may be potentially impacted, including, but not necessarily limited to, natural resources (such as water resources), biological resources (such as wildlife, including game species, fish, and plants), cultural resources (such as archaeological sites, properties of traditional religious and cultural importance, and traditional cultural properties), and socioeconomic resources (such as environmental justice or game species such as walleye), and 3) review and comment on preliminary documents. Separately, the tribe is exercising its independent review and comment responsibilities as a consulting party to DOE's compliance process for Section 106 of the NHPA.

2.0 Agency and Public Comments on the Draft EIS

A variety of issues and concerns were raised during the public review comment period on the Draft EIS. DOE and DOC–EERA considered all comments, including late comments, in preparing the Final EIS. This section presents all these comments as well as transcripts of comments provided during the public hearings on the Draft EIS. The comments (whether written or oral) are presented in chronological order of receipt (Table Y-4). Table Y-5 provides an alphabetized index of individual comments based on the last name of the commenter in order to assist the reader. Each comment within a comment document is delineated (i.e., bracketed). Each discrete comment within a comment document is marked by a vertical bar in the margin and a unique comment number. For example, 200-01, is the first comment within comment document 200. Responses to the delineated individual comments are displayed in the margin to the right of the comment.

DOE and DOC–EERA responded to written and verbal comments from 208 comment documents. This included five comments from federal government officials or agencies, seven from federally recognized tribes, 12 from state government officials or agencies, 21 from local government officials, agencies, or planning boards, one from a non-governmental organization, 12 from commercial companies, four from the Applicant, one from a Manitoba Justice, and 145 from private citizens (Table Y-3). Comment numbers were assigned based on the order in which the comments were received. DOE and DOC–EERA responded to those comments that are within the scope of and relevant to the analysis in this EIS.

A list of examples of major representative issues submitted during the Draft EIS public comment period, cataloged by general resource type, are provided in Table Y-6. In addition, Table Y-7 provides the substantive revisions made from the Draft EIS to the Final EIS based on agency and public comments. All comments received during the Draft EIS public comment period, including late comments, along with DOE and DOC–EERA's responses are provided in Attachment D of this Comment Response Document.

Table Y-4 Draft EIS Commenters Presented Chronologically

Comment Number[1]	Commenter Name	Commenter Agency or Organization
1	James L. Johnson	Private Citizen
2	Linda Johnson	Private Citizen
3	Terry, Carol, Tim, and Jessica Kveen	Private Citizen
4	Gary Slater	Private Citizen
6	Lynn Lewis	Assistant Regional Director, USFWS
7	Andrew Brunner	Environmental Specialist, Federal Highway Administration, Office of Project Development and Environmental Review
9	Carol Overland	Legalectric, Inc.
10	Carol Overland	Legalectric, Inc.
11	Carol Overland	Legalectric, Inc.
12	Carol Overland	Legalectric, Inc.
13	Carol Overland	Legalectric, Inc.
14	Carol Overland	Legalectric, Inc.
15	Carol Avelsgaard	Private Citizen
16	Robert Burbie	Private Citizen
17	David Christenson	Private Citizen
18	Anne Marguerite Coyle	Private Citizen
19	William Gray	Private Citizen
20	Mike Handzus	Private Citizen
21	Mary Lou Hufnagle	Private Citizen
22	Mike Hughes	Private Citizen
23	John Kannas	Private Citizen
24	Kathy Krook	Private Citizen
25	Richard Libbey	Private Citizen
26	Ronald Lindner	Private Citizen
27	Todd Lund	Private Citizen
28	Alan Muller	Private Citizen
29	Alan Muller	Private Citizen
30	Alan Muller	Private Citizen
31	Marshall Nelson	Private Citizen
32	Charles Olson	Red Lake Band of Chippewa, Minnesota
33	Kade Ferris	Tribal Historic Preservation Officer, Red Lake Band of Chippewa, Minnesota
34	Kade Ferris	Tribal Historic Preservation Officer, Red Lake Band of Chippewa, Minnesota
35	Denny Pavek	Private Citizen

Comment Number[1]	Commenter Name	Commenter Agency or Organization
36	Joe Plumer	Red Lake Band of Chippewa, Minnesota
37	Daniel Sigfrid	Private Citizen
38	Rod Tuomi	Private Citizen
39	Chris Viere	Private Citizen
41	Carol Avelsgaard	Private Citizen
42	Lorris and Elsie Erickson	Private Citizen
43	Janet Foster	Private Citizen
44	Linda Johnson	Private Citizen
46	Susan Lisell	Private Citizen
47	Joanna and Susan Lisell	Private Citizen
48	John Lund	Private Citizen
49	Keeley Todd	Private Citizen
51	Shannon Johnson	Manitoba Hydro
52	Larry Sullivan	Private Citizen
53	Gale Olson	Private Citizen
54	Gerry Reed	Private Citizen
55	Norman and Allayn Kveen	Private Citizen
56	Richard W. Myers	Private Citizen
57	Richard Stacy	Private Citizen
58	Karen L. Stacy	Private Citizen
59	Gary and Ione Olson	Private Citizen
60	Marie Johnson	Private Citizen
61	Daryll Dahlquist	Private Citizen
62	Greg Grahn	Private Citizen
63	Gerry Grahn	Private Citizen
64	Michael Grahn	Private Citizen
65	Willard Comstock	Private Citizen
66	Blair Comstock	Private Citizen
67	Arthur Krahn	Private Citizen
68	John Gaukerud	Private Citizen
69	Gordon Hannon	General Counsel, Manitoba Justice
70	Shannon Johnson	Manitoba Hydro
71	Jeff Pelowski	Coordinator, Roseau County
72	Marlin Elton	Clerk of Dieter Township
73	Dan Fabian	Minnesota House of Representatives
74	Rod Skoe	Minnesota State Senator

Comment Number[1]	Commenter Name	Commenter Agency or Organization
75	Ann Rest	Minnesota State Senator
76	LeRoy Stumpf	Minnesota State Senator
77	Lorene Hanson	Auditor/Treasurer, Lake of the Woods County
78	Teresa Briggs	Board Clerk, Koochiching County Board
79	Jerry Adam	Private Citizen
80	Karen Adam	Private Citizen
81	Curtis and Carol Amundson	Private Citizen
82	Ben Bleess	Private Citizen
83	Ben Bleess	Private Citizen
85	Janet Delich	Private Citizen
86	Lorella Fulton	Private Citizen
87	Audrey Horne	Private Citizen
88	Bonnie Horne	Private Citizen
89	Duane Jaenicke	Private Citizen
90	Cavour Johnson	Private Citizen
91	Jon Johnson	Private Citizen
92	John E. Johnson	Private Citizen
93	Raymond Johnson	Private Citizen
94	John Kannas	Private Citizen
95	John Kannas	Private Citizen
96	Jon Keener	Sterling Lumber
97	Tony Kellin	Private Citizen
98	Thomas King	Private Citizen
99	Barb Kirk	Private Citizen
100	Scott Kofstad	Private Citizen
101	Arthur Krahn	Private Citizen
102	Arthur Krahn	Private Citizen
103	Mark Lofgren	Private Citizen
104	Mark Lofgren	Private Citizen
105	Mark Lofgren	Private Citizen
106	Mark Lofgren	Private Citizen
107	Karen Lucachick	Private Citizen
108	Annie and Tom Lund	Private Citizen
109	Tom Micheletti	Excelsior Energy Inc.
110	Dan Money	Two Rivers Watershed District, MN
111	Brian Moody	Private Citizen

Comment Number[1]	Commenter Name	Commenter Agency or Organization
112	Donna Muirhead	Private Citizen
113	Kari Olson	Private Citizen
115	Colin Pearson	Private Citizen
115	Jeff Pelowski	Coordinator, Roseau County
116	Bruce Sampson	Private Citizen
117	Brad Springer	Private Citizen
118	Rod Tuomi	Private Citizen
119	Rod Tuomi	Private Citizen
121	Rod Tuomi	Private Citizen
123	Frank Weber	Private Citizen
124	Roger Weber	Private Citizen
125	Robert Anderson	Mayor, City of International Falls, MN
126	David Dahlgren	Supervisor, Stafford Township
127	Justin Howell	Supervisor, Stokes Township
128	Scott Johnson	Chairman, Town of Falun
129	Jon Johnson	Supervisor, Ross Township
130	Steve Lee	Supervisor, Dieter Township
131	Tom Johnson	Private Citizen
132	Coleen Lofgren	Private Citizen
133	Gerald Krahn	Private Citizen
134	Mike Handzus	Private Citizen
135	Mark Cass	Private Citizen
136	Charles and Scott Habstritt	Private Citizen
137	Terry Kveen	Private Citizen
138	Jessica Kveen	Private Citizen
139	Gary Johnson	Private Citizen
140	John and Janile Hiatt	Private Citizen
141	John Wahlberg	Private Citizen
142	Karen Lucachick	Private Citizen
145	Patricia Kveen Beaumont	Private Citizen
149	David Lund	Private Citizen
152	Justin Howell	Supervisor, Stokes Township
159	Midwestern Governors	Midwestern Governors
160	Douglas Shaw	Assistant Chapter Director, The Nature Conservancy in Minnesota, North Dakota, and South Dakota
161	Carol Avelsgaard	Private Citizen
162	Erwin Berglund	Private Citizen

Comment Number[1]	Commenter Name	Commenter Agency or Organization
163	David Christenson	Private Citizen
165	Stephen Fahlman	Private Citizen
167	Kevin Peterson	Private Citizen
168	Kathy Krook	Private Citizen
169	Richard Libbey	Private Citizen
170	Mark Meester	Private Citizen
171	Norman Nystrom	Private Citizen
173	Cheryl Adams	Forest Resources Manager, Blandin Paper Company
174	Chris Viere	Private Citizen
175	R.D. Learmont	Coordinator, Western Mesabi Mine Planning Board
177	Richard Libbey	Private Citizen
178	Richard Libbey	Private Citizen
179	Richard Libbey	Private Citizen
180	Ron Berglund	Private Citizen
181	James and Patricia Schaffran	Private Citizen
182	Yufna Soldier Wolf	Director, Northern Arapaho Tribal Historic Preservation Office
183	Patrice Jensen	Planner Principal, Environmental Review Unit, Resource Management and Assistance Division, MPCA
184	Kenneth Westlake	Chief of NEPA Implementation, EPA
185	Laura Imax	Private Citizen
186	Carol Overland	Legalectric, Inc.
187	Stacy Kotch	Utility Transmission Route Coordinator, MnDOT
188	Lynn Lewis	Assistant Regional Director, USFWS
190	Minnesota Power	Applicant
191	Minnesota Power	Applicant
192	Minnesota Power	Applicant
193	Minnesota Power	Applicant
194	Lori Dowling-Hanson	Regional Director, MnDNR, Northeast Region
195	Kade Ferris	Tribal Historic Preservation Officer, Red Lake Band of Chippewa, Minnesota
198	Terry Kveen	Private Citizen
199	Mark Meester	Private Citizen
200	John Hoshal	Private Citizen
202	Kathy Krook	Private Citizen
203	Anne Marguerite Coyle	Private Citizen
204	Carol Kveen	Private Citizen
205	Tim Kveen	Private Citizen

Comment Number[1]	Commenter Name	Commenter Agency or Organization
206	Bill Latady	Bois Forte Band
207	Jason, Greg, and Maynard Braaten	Private Citizen
208	Carol Overland	Legalectric, Inc.

[1]Comment numbers are consecutive; however, some comment letters were submitted multiple times. Therefore, in the sequence, missing numbers represent duplicate comment letters.

Table Y-5 Draft EIS Commenters Presented Alphabetically

Commenter Name		Commenter Agency or Organization	Comment Number	Page Number in Attachment D
Last Name	First Name			
Adam	Jerry	Private Citizen	79	263
Adam	Karen	Private Citizen	80	264
Adams	Cheryl	Forest Resources Manager, Blandin Paper Company	173	405
Amundson	Curtis and Carol	Private Citizen	81	265
Anderson	Robert	Mayor, City of International Falls, MN	125	324
Avelsgaard	Carol	Private Citizen	15	61
Avelsgaard	Carol	Private Citizen	41	190
Avelsgaard	Carol	Private Citizen	161	392
Beaumont	Patricia Kveen	Private Citizen	145	374
Berglund	Erwin	Private Citizen	162	393
Berglund	Ron	Private Citizen	180	417
Bleess	Ben	Private Citizen	82	267
Bleess	Ben	Private Citizen	83	268
Braaten	Jason, Greg, and Maynard	Private Citizen	207	909
Briggs	Teresa	Board Clerk, Koochiching County Board	78	262
Brunner	Andrew	Environmental Specialist, Federal Highway Administration, Office of Project Development and Environmental Review	7	34
Burbie	Robert	Private Citizen	16	65
Cass	Mark	Private Citizen	135	363
Christenson	David	Private Citizen	17	68
Christenson	David	Private Citizen	163	395
Comstock	Willard	Private Citizen	65	232
Comstock	Blair	Private Citizen	66	234
Coyle	Anne Marguerite	Private Citizen	18	71
Coyle	Anne Marguerite	Private Citizen	203	833
Dahlgren	David	Supervisor, Stafford Township	126	325
Dahlquist	Daryll	Private Citizen	61	224
Delich	Janet	Private Citizen	85	269
Dowling-Hanson	Lori	Regional Director, MnDNR, Northeast Region	194	780
Elton	Marlin	Clerk of Dieter Township	72	254
Erickson	Lorris and Elsie	Private Citizen	42	192
Fabian	Dan	Minnesota House of Representatives	73	255

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Last Name	First Name			
Fahlman	Stephen	Private Citizen	165	397
Ferris	Kade	Tribal Historic Preservation Officer, Red Lake Band of Chippewa, Minnesota	33	154
Ferris	Kade	Tribal Historic Preservation Officer, Red Lake Band of Chippewa, Minnesota	34	164
Ferris	Kade	Tribal Historic Preservation Officer, Red Lake Band of Chippewa, Minnesota	195	820
Foster	Janet	Private Citizen	43	194
Fulton	Lorella	Private Citizen	86	270
Gaukerud	John	Private Citizen	68	238
Grahn	Greg	Private Citizen	62	226
Grahn	Gerry	Private Citizen	63	228
Grahn	Michael	Private Citizen	64	230
Gray	William	Private Citizen	19	76
Habstritt	Charles and Scott	Private Citizen	136	364
Handzus	Mike	Private Citizen	20	80
Handzus	Mike	Private Citizen	134	340
Hannon	Gordon	General Counsel, Manitoba Justice	69	239
Hanson	Lorene	Auditor/Treasurer, Lake of the Woods County	77	260
Hiatt	John and Janile	Private Citizen	140	368
Horne	Audrey	Private Citizen	87	272
Horne	Bonnie	Private Citizen	88	273
Hoshal	John	Private Citizen	200	828
Howell	Justin	Supervisor, Stokes Township	127	327
Hufnagle	Mary Lou	Private Citizen	21	84
Hughes	Mike	Private Citizen	22	87
Imax	Laura	Private Citizen	185	434
Jaenicke	Duane	Private Citizen	89	274
Jensen	Patrice	Planner Principal, Environmental Review Unit, Resource Management and Assistance Division, MPCA	183	422
Johnson	James L.	Private Citizen	1	1
Johnson	Linda	Private Citizen	2	3
Johnson	Linda	Private Citizen	44	195
Johnson	Shannon	Manitoba Hydro	51	203
Johnson	Marie	Private Citizen	60	223
Johnson	Shannon	Manitoba Hydro	70	249

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Last Name	First Name			
Johnson	Cavour	Private Citizen	90	275
Johnson	Jon	Private Citizen	91	277
Johnson	John E.	Private Citizen	92	278
Johnson	Raymond	Private Citizen	93	280
Johnson	Scott	Chairman, Town of Falun	128	330
Johnson	Jon	Supervisor, Ross Township	129	332
Johnson	Tom	Private Citizen	131	337
Johnson	Gary	Private Citizen	139	367
Kannas	John	Private Citizen	23	90
Kannas	John	Private Citizen	94	281
Kannas	John	Private Citizen	95	282
Keener	Jon	Sterling Lumber	96	284
Kellin	Tony	Private Citizen	97	285
King	Thomas	Private Citizen	98	287
Kirk	Barb	Private Citizen	99	289
Kofstad	Scott	Private Citizen	100	290
Kotch	Stacy	Utility Transmission Route Coordinator, MnDOT	187	509
Krahn	Arthur	Private Citizen	67	237
Krahn	Arthur	Private Citizen	101	293
Krahn	Arthur	Private Citizen	0102	294
Krahn	Gerald	Private Citizen	133	339
Krook	Kathy	Private Citizen	24	93
Krook	Kathy	Private Citizen	168	400
Krook	Kathy	Private Citizen	202	830
Kveen	Terry, Carol, Tim, and Jessica	Private Citizen	3	4
Kveen	Norman and Allayn	Private Citizen	55	213
Kveen	Terry	Private Citizen	137	365
Kveen	Jessica	Private Citizen	0138	366
Kveen	Terry	Private Citizen	198	825
Kveen	Carol	Private Citizen	204	835
Kveen	Tim	Private Citizen	205	836
Lacachick	Karen	Private Citizen	107	302
Latady	Bill	Bois Forte Band	206	837

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Learmont	R.D.	Coordinator, Western Mesabi Mine Planning Board	175	410
Lee	Steve	Supervisor, Dieter Township	130	334
Lewis	Lynn	Assistant Regional Director, USFWS	6	6
Lewis	Lynn	Assistant Regional Director, USFWS	188	521
Libbey	Richard	Private Citizen	25	96
Libbey	Richard	Private Citizen	169	402
Libbey	Richard	Private Citizen	177	412
Libbey	Richard	Private Citizen	178	413
Libbey	Richard	Private Citizen	179	414
Lindner	Ronald	Private Citizen	26	108
Lisell	Susan	Private Citizen	46	196
Lisell	Joanna and Susan	Private Citizen	47	198
Lofgren	Mark	Private Citizen	103	295
Lofgren	Mark	Private Citizen	104	296
Lofgren	Mark	Private Citizen	105	298
Lofgren	Mark	Private Citizen	106	300
Lofgren	Coleen	Private Citizen	132	338
Lucachick	Karen	Private Citizen	142	371
Lund	Todd	Private Citizen	27	114
Lund	John	Private Citizen	48	200
Lund	Annie and Tom	Private Citizen	108	303
Lund	David	Private Citizen	149	376
Meester	Mark	Private Citizen	170	403
Meester	Mark	Private Citizen	199	826
Micheletti	Tom	Excelsior Energy Inc.	109	304
Midwestern Governors	---	Midwestern Governors Association	379	380
Minnesota Power	---	Applicant	190	575
Minnesota Power	---	Applicant	191	666
Minnesota Power	---	Applicant	192	720
Minnesota Power	---	Applicant	193	774
Money	Dan	Two Rivers Watershed District, MN	110	305
Moody	Brian	Private Citizen	111	308
Muirhead	Donna	Private Citizen	112	309
Muller	Alan	Private Citizen	28	118

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Muller	Alan	Private Citizen	29	125
Muller	Alan	Private Citizen	30	131
Myers	Richard W.	Private Citizen	56	215
Nelson	Marshall	Private Citizen	31	138
Nystrom	Norman	Private Citizen	171	404
Olson	Charles	Red Lake Band of Chippewa, Minnesota	32	151
Olson	Gale	Private Citizen	53	207
Olson	Gary and Ione	Private Citizen	59	221
Olson	Kari	Private Citizen	113	311
Overland	Carol	Legalectric, Inc.	9	38
Overland	Carol	Legalectric, Inc.	10	45
Overland	Carol	Legalectric, Inc.	11	49
Overland	Carol	Legalectric, Inc.	12	51
Overland	Carol	Legalectric, Inc.	13	55
Overland	Carol	Legalectric, Inc.	14	58
Overland	Carol	Legalectric, Inc.	186	438
Overland	Carol	Private Citizen	208	915
Pavek	Denny	Private Citizen	35	170
Pearson	Colin	Private Citizen	115	313
Pelowski	Jeff	Coordinator, Roseau County	71	252
Pelowski	Jeff	Coordinator, Roseau County	115	314
Peterson	Kevin	Private Citizen	167	399
Plumer	Joe	Red Lake Band of Chippewa, Minnesota	36	173
Reed	Gerry	Private Citizen	54	209
Rest	Ann	Minnesota State Senator	75	257
Sampson	Bruce	Private Citizen	116	316
Schaffran	James and Patricia	Private Citizen	181	419
Shaw	Douglas	Assistant Chapter Director, The Nature Conservancy in Minnesota, North Dakota, and South Dakota	160	387
Sigfrid	Daniel	Private Citizen	37	177
Skoe	Rod	Minnesota State Senator	74	256
Slater	Gary	Private Citizen	4	5
Soldier Wolf	Yufna	Director, Northern Arapaho Tribal Historic Preservation Office	182	421
Springer	Brad	Private Citizen	117	317

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Last Name	First Name			
Stacy	Richard	Private Citizen	57	217
Stacy	Karen L.	Private Citizen	58	219
Stumpf	LeRoy	Minnesota State Senator	76	258
Sullivan	Larry	Private Citizen	52	205
Todd	Keeley	Private Citizen	49	201
Tuomi	Rod	Private Citizen	38	184
Tuomi	Rod	Private Citizen	118	318
Tuomi	Rod	Private Citizen	119	319
Tuomi	Rod	Private Citizen	121	320
Viere	Chris	Private Citizen	39	187
Viere	Chris	Private Citizen	174	406
Wahlberg	John	Private Citizen	141	370
Weber	Frank	Private Citizen	123	322
Weber	Roger	Private Citizen	124	323
Westlake	Kenneth	Chief of NEPA Implementation, EPA	184	424

Table Y-6 Summary of Agency and Public Comments on the Draft EIS

Subject Area	Comment Summary
EIS Summary	No comments were received on the EIS Summary.
Regulatory Process/Public Involvement	**Wind Generating Option.** Several comments suggested that the proposed Project may not have any influence on the development of North Dakota wind projects. **Record of Decision**. One comment noted that the record of decision needed to be coordinated between the federal and state processes. Another comment noted that the release date for the ROD is uncertain. **Buy the Farm Option**. Several comments noted that landowners affected by the proposed Project have the option to use the "Buy the Farm" law. **Route Selection Process**. Several comments expressed concern that the routing decision would more likely be influenced by the Applicant rather than an individual and questioned whether their opinions were considered. A comment expressed concern that it was difficult to be included in the Work Group during the Scoping process and therefore their comments were not taken into consideration in that process. **Notification of Landowners**. Several comments noted that some landowners did not receive any of the public notifications regarding the proposed Project and therefore questioned the notification process. **Certificate of Need**. One comment noted that the need for the proposed Project may change as a result depending on the economy and changes in fuel sources. **Canadian Environmental Review Process**. One comment noted that Canada's environmental review process only considers the Applicant's proposed border crossing so the proposed Project will not be built if an alternative border crossing is selected. One comment expressed concern that the proposed Project would have environmental impacts in Canada due to dams. **Presidential permit**. One comment expressed concern that it is not feasible to resubmit a Presidential permit at this stage in the environmental review if an alternative border crossing were selected, since the revised schedule would not allow for the proposed 2020 in-service date required by the power purchase agreement between Manitoba Hydro and the Applicant. One comment questioned the legal criteria for the issuance of a Presidential permit for a border crossing facility and the Applicant's legal burden to demonstrate that a permit should be issued. **Assessment of Potential Impacts**. One comment expressed concern that the discussion of corridor sharing, based on Minnesota Rules, did not account for the environmental benefits that different corridors may offer and did not feel that the Applicant considered corridor sharing when developing routes. **Relative Merits**. One comment expressed concern that the relative merit tables did not adequately present the information that the MN PUC would need to make a route decision, and therefore provided a version of the relative merit tables for each variation area. **Role of Cooperating Agencies**. One comment expressed concern that the description of the USFWS role in the proposed Project was too limited and should include coordination of a special use permit that would be required to cross USFWS Interest Lands.
Applicant's Objectives and Needs	**Alternatives**. One comment noted that the Roseau Lake WMA variations

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	violate the Applicant's purposes for the proposed Project because they would not have a positive impact on human settlement. **Determination of Need**. One comment expressed concern that need for the proposed Project should be addressed in the EIS because it should be part of the DOE environmental review. One comment noted that there has not been an EIS for the certificate of need. One comment noted that the need for 250 MW capacity has not been determined and expressed concern that no cost benefit analysis was provided. One comment expressed concern that it is not clear in the EIS that the expected power transfer capacity, power purchase agreement, and the actual capacity of the proposed Project meet the Applicant's stated purpose and need for the proposed Project. **System Reliability**. One comment expressed concern that system reliability benefits are not clearly stated and it is implied that the existing transmission grid is not reliable. **Statement of Purpose and Need**. One comment stated that the EIS should cite the Applicant's statement of need verbatim.
Project Description	**Electrical System Reliability.** One comment noted that the transmission grid has systems built into it that can compensate for loss of transmission lines, bringing in power from other systems, or the ability to isolate areas of the grid. The comment also requested that more information be provided regarding how to make the transmission lines more robust so that it could parallel two other transmission lines. **Long-range Planning**. One comment stated the need for long-term planning for renewable sources of power by utilities to minimize the need for additional transmission lines. One comment noted that the focus should be on smaller and local energy production such as solar panels on residential and business roof tops. **Construction and Maintenance**. One comment noted that the location of proposed Project access roads is an important consideration because adverse impacts in remote areas that were not previously accessible to the public could occur. One comment noted that herbicides are used to kill vegetation within the ROW and this could mean that their farm could not be certified as organic. **Construction Inspector**. One comment noted that a third party independent inspector or monitor should be used during construction of the proposed Project. **Capacity**. One comment noted that the capacity of the proposed Project as designed should be reported, the capacity of a triple-bundled 500 kV transmission line should be verified, the quantification of the planned use of capacity should be more clearly described, and the capacity of the proposed Project should be consistent with MISO and the Presidential permit. **Compensation Station**. One comment noted the EIS should identify whether the proposed location of the Series Compensation Station is on state or private land. One comment noted that selecting an alternative other than the Proposed Blue Route or Proposed Orange Route could require selection of a new location for the Series Compensation Station. **Transmission Line Separation Distance**. One comment noted that there is not a consistent 250-foot separation between the existing 230 kV or 500 kV transmission lines; therefore, the environmental analysis for human settlement is incorrect. **Existing Substations**. One comment noted that the location of the existing

Subject Area	Comment Summary
	high-voltage transmission line substations would render the Cedar Bend WMA Variation as infeasible. **Variation Areas**. One comment noted that since the alternatives within the variation areas do not always have a common start and end point, it is not possible to make comparisons with the Proposed Blue Route and Proposed Orange Route. **Construction Cost**. One comment provided updated construction cost estimates for the alternatives. One comment noted the cost of the proposed Project could increase depending on the alternatives that are selected and this will have an effect on taxpayers. **Construction Cost and Electrical System Reliability**. One comment provided figures and notes about the alternatives in each variation area regarding starting and ending points, required crossings of existing transmission lines, and construction costs.
Project Design	**USFWS Interest Lands**. One comment stated that the proposed Project should avoid all USFWS Interest Lands, which includes building structures on USFWS Interest Lands, transmission lines crossing USFWS Interest Lands, any changes to USFWS Interest Lands required to gain access to the proposed Project area, or any land use change that may affect USFWS Interest Lands. **Construction**. Several comments requested that the location of all proposed Project components (e.g., access roads) be identified and that all adverse impacts from those proposed Project components should be identified in the EIS. **Construction Schedule**. One comment recommended that surveys be conducted to avoid impacts to nesting birds and to avoid impacts to active nest sites of sensitive species. In addition requested that appropriate construction windows be identified to avoid impacts on species such as bald eagle, goshawk, migratory birds, and bats. **Interphase Spacers**. One comment noted that if interphase spacers will be used for the proposed Project, the timing of use and locations should be identified in the EIS.
Alternatives	**No Action Alternative.** Several comments expressed concern that the "No Action" alternative was not adequately discussed based on brevity of the chapter, minimal explanation, and flawed interpretation of Minnesota law. **Adequacy.** One comment expressed concern that the alternatives were inadequate because they did not present a completely new route, only alternatives to the Applicant's proposed routes. In addition, the comment noted that no alternatives were considered in the case that the Presidential permit was not granted and there were no system alternatives considered. **Cost Effective**. One comment noted the Balsam Variation is not cost effective compared to the Proposed Blue Route because it zig-zags rather than following a straight line. **Border Crossing**. One comment noted that the border crossing was selected in Canada after an analysis of routes and all potential border crossings using a process based on the EPRI-GTC Overhead Electric Transmission Line Siting Methodology. One comment noted that only the federal government has the authority to select the location of the border crossing so the proposed border crossing alternative should be the only one considered. Several comments noted that Manitoba Hydro completed a thorough environmental evaluation and determined only the proposed border crossing was feasible. Several comments supported the Applicant's proposed border crossing

Subject Area	Comment Summary
	location and opposed the Roseau Lake WMA variations due to potential impacts on agricultural land and human settlement. **Case Law**. One comment stated that the EIS is inadequate on the federal and state levels based on case law because it does not cover an adequate range of alternatives. **Other Alternatives**. One comment proposed a new alternative in Itasca County that was not evaluated in the EIS. Several comments expressed concern that the alternatives should have considered paralleling existing highways. **Alternatives.** One comment expressed concern that the alternatives proposed by state and federal agencies were not vetted by private landowners in Roseau County who are opposed to selection of these alternatives. One comment expressed concern that the Applicant's proposed routes avoided opposition and areas where there would be difficulty meeting the schedule if the proposed Project crossed agricultural lands and that the routing neglected to consider the trees and birds. **Aggregate Sources**. One comment expressed concern that the Northome Variation in Koochiching County will cross a private gravel pit.
General	**Public Hearings**. One comment noted that the public hearings were incorrectly called public meetings and requested clarity on the format of the public hearings. **NEPA Advisor**. One comment expressed concern that the NEPA advisor for the EIS was potentially biased. **Maintenance**. One comment questioned if the proposed Project would use Canadian or U.S. citizens to conduct maintenance. **Energy Demand**. One comment requested that more information be provided as to whether the industrial energy demand load is increasing in Minnesota. **Presidential permit**. One comment requested additional information on how many Presidential permits are processed by DOE, how many permits are granted, and how many permits are denied. **Peer Review**. One comment requested that the EIS be peer reviewed by parties who are involved in opposing transmission lines and advocating for alternatives. **Contested Case Hearings**. One comment noted that the contested case hearings would be the next step in the public process. **Construction Cost**. One comment expressed concern that the alternatives should only be compared on a total cost basis, not a cost-per-mile basis. **Wildfire Response Plan**. One comment requested that a wildfire response plan be prepared for the proposed Project.
Human Settlement	**Private Property:** Several comments expressed concern for displacement and impacts to private farmland and homes near proposed routes and variations. Several comments expressed a preference for the proposed Project to utilize public lands instead of private property. **Community Spaces:** Comments expressed concerns about the proximity of community spaces, such as fire departments, churches, and parks, to proposed routes and variations. **Residential Designations:** Several comments noted that some residences were incorrectly listed as non-residential structures in the EIS and on maps.
Noise and Vibration	**Noise.** Several comments expressed concern regarding audible noise from operation of the proposed Project, including noise from corona discharges.

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	Another comment requested that the predicted noise levels for the 500 kV Series Compensation Station be provided in the EIS along with a discussion of infrasound and explanation of whether additional modeling is necessary. One comment provided additional noise modeling for operation of the proposed Project.
Air Quality	**Air Quality.** A **c**omment requested that the EIS include an estimate of total emissions from construction, operation, maintenance, and emergency repair of the proposed Project and that the Applicant pursue more opportunities to use clean diesel equipment and other emission reduction strategies.
Greenhouse Gases	**Greenhouse Gases.** A comment requested clarification on the method and time frame for carbon sink calculations. Comments also requested that the EIS address mitigation of the loss of forest as a carbon sink and evaluate carbon sink changes resulting from the clearing of trees for the dam in Canada where the hydropower is generated, in addition to the clearing of trees for the ROW.
Land Transportation and Traffic	**Air Navigation.** Several comments expressed concern that transmission lines in close proximity to airstrips and public airports could pose potential hazards to take-off and landings. **State Transportation Network.** MnDOT expressed interest in continued cooperation with the Applicant to ensure that proposed Project would not negatively impact the safety or free flow of the state's transportation system. This includes following policies and procedures in the MnDOT Utility Accommodation and Coordination Manual, obtaining permits from MnDOT for any construction, or maintenance work in a trunk highway right of way, and coordinating vegetation trimming activities accessed from highway ROW. **Railroads.** One comment requested that the Applicant coordinate with rail companies to avoid negative impacts on railroads.
Public Services and Utilities	**Public Services and Utilities.** One comment provided information on the Protocol Among Midwestern Governors Regarding the Permitting and Siting of Interstate Electric Transmission Lines in the Midwestern United States and Manitoba, Canada.
Environmental Justice	No comments received on Environmental Justice.
Socioeconomics	**Property Taxes.** One comment requested information about the value of property taxes generated by the proposed Project during operation. **Project Cost-sharing.** Two comments requested information about cost-sharing between Manitoba Hydro and the Applicant. **Property Values.** Several comments expressed concern about the proposed Project's potential negative impacts on property values and requested more information. Two comments expressed concern about the validity of the property value impact analysis in the EIS. **Compensation and Condemnation.** One comment expressed concern that compensation of traversed properties would be inadequate and suggested the "Buy the Farm" provision would not lead to fair compensation to landowners. One comment requested that the EIS address compensation for condemned land and for the assumed decrease in value of properties near or adjacent to the proposed Project. **Cost-Benefit Analysis.** One comment expressed concern that the cost-benefit analysis was not sufficiently specific and that the benefits claimed in

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	the EIS were not truly benefits.
Recreation and Tourism	**Recreation and Tourism.** Several comments expressed concern that the proposed Project would negatively impact recreation and tourism activities such as hunting. One comment expressed concerns that if the Cedar Bend WMA Variation is selected, a recreational business could be affected.
Public Safety	**Public Safety.** One comment expressed concern that the EIS incorrectly assessed the potential for hunters to accidentally shoot the transmission line insulators or conductors. One comment expressed concern for the use of heavy construction equipment near public roadways. **Induced and Stray Voltage.** Several comments expressed concern regarding the impacts of induced voltage on workers and recreational hunting. One comment expressed concern that the effects of induced voltage were incorrectly reflected in the EIS. **Human Health.** Several comments expressed concern for high voltage transmission lines and the unknown potential effects on humans. A comment also expressed concern regarding the potential effect of the proposed Project on implantable medical devices. One comment expressed concern if the proposed Project is in proximity to gravel pits, that corona discharges could result in the Henshaw effect, affecting human health. Several comments expressed concern for health impacts due to EMF. One comment provided updated magnetic field calculations for the proposed Project. **Radio Interference.** A comment expressed concern for the proposed Project distorting radio waves and affecting communication devices.
Environmental Contamination	**Environmental Contamination.** One comment expressed concern for the use of herbicides for vegetation management within the ROW during construction and operation of the proposed Project. Another comment expressed concern for the potential of contamination to be unexpectedly discovered during construction of the proposed Project.
Aesthetics	**Aesthetics.** One comment requested viewshed maps be prepared and viewshed analyses be conducted for Bass Lake Park, Larson Lake Campground, Wolf Lake-Wasson Lake Bog, and established campgrounds and trails in these areas. A few comments expressed concern for the adequacy of using the 1,500-foot distance for the buffer for the ROI to assess aesthetic impacts. One comment requested analyses of visual impacts at each proposed crossing of a scenic byway, identification of any specific mitigation to reduce visual impacts, and investigation of any scenic easements in the vicinity of scenic byways.
Land Use and Ownership	**Private Land.** Comments expressed general concerns about the amount of private land impacted by the proposed Project routes and variations and the evaluation of those impacts. Other comments expressed concern about potential impacts on existing uses and potential future uses of private land. One comment expressed concern that the ROW and access roads would increase the availability of areas for recreational activities that would be a nuisance to property owners (e.g., snowmobiling, four-wheeling). **Sensitive Lands.** Several comments expressed preference for avoiding conservation lands and USFWS Interest Lands. One comment requested that all impacts to USFWS Interest Lands be avoided or minimized by selecting a route that does not impact USFWS Interest Lands, using other areas within the ROW to avoid USFWS Interest Lands, and alternative routes be investigated to avoid impacts to USFWS Interest Lands, and after a thorough

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	evaluation, if USFWS Interest Lands are impacted, unavoidable impacts to USFWS Interest Lands may require mitigation.
Agricultural Resources and Soil	**Farming.** Several comments expressed concern regarding potential impacts to agricultural land and farming operations including those outside the ROW. One comment requested that an Agricultural Impact Mitigation Plan (AIMP) be included as part of the EIS. **Aerial spraying.** Several comments expressed concern for potential proposed Project impacts to aerial spraying operations. **Precision farming.** One comment expressed concern that the EIS is contradictory in the conclusion regarding potential impacts to precision farming.
Mining Resources	**Mineral resources.** One comment expressed concern that the EIS overstates the risk of mineral resource/transmission line co-location in areas having little certainty of mineral occurrence and understates risk of mineral resource/transmission line co-location in areas containing known mineral occurrence. One comment requested several mineral resources terminology changes to be made in the EIS. One comment expressed concern that there are active mine permits in the Balsam Variation ROW, thereby making that alternative infeasible.
Cultural Resources	**Cultural Resources and Historic Properties.** Comments requested that cultural resources investigations are conducted for all disturbance areas for the proposed Project and that cultural resources and historic properties are evaluated with respect to effects from the proposed project. A copy of the executed Programmatic Agreement prepared for the proposed Project as part of the Section 106 compliance process was also requested to be provided in the EIS. **Federally Recognized Indian Tribes.** Comments requested that DOE considered the perspectives of federally recognized Indian tribes and included traditional cultural properties (TCPs) when conducting cultural resources investigations and involve federally recognized Indian tribes in the identification and evaluation efforts of TCPs, as well as consulting with federally recognized Indian tribes to ensure that visual impacts on visually sensitive lands owned by the tribes are mitigated adequately or measures are taken to reduce those visual impacts. A comment also notified DOE of a recent legal decision returning ceded lands in the vicinity of the proposed Project to a federally recognized Indian tribe, which may require further coordination.
Water Quality and Hydrology	**Surface hydrology.** A few comments expressed concern that the proposed Project could impact water resources. One comment requested that streams be avoided as well as the buffers that surround them. One comment expressed concern that the presence of flood control impoundments in the vicinity of the Project area could potentially affect the proposed Project. One comment expressed concern that the proposed Blue Route crosses a large amount of the watershed that drains to the chain of lakes. **Water quality.** A few comments noted the importance of wetlands to improve water quality and therefore expressed concern regarding the adverse effects from the proposed Project if wetlands are impacted.
Wetlands	**Wetlands.** Several comments requested that the proposed Project avoid wetland impacts and another comment suggest that the proposed Project span wetlands where possible. A few comments requested that the Applicant

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	develop a wetland mitigation plan. One comment noted the presence of a wetland easement on a portion of the proposed Project. One comment expressed concern as to whether a riparian buffer zone would be left around lakes and wetlands during clearing. One comment requested that the EIS identify how many acres of wetland will be directly affected by the discharge of fill material, as well as how many acres will be converted from one wetland type to another. One comment expressed concern that the proposed Project would require conversion of forested wetland into a less valuable type of wetland. One comment expressed concern that the EIS does not discuss access to wetlands using matting and low ground pressure equipment during frozen conditions. One comment noted that the East Bear Lake Variation was developed to avoid the Bear-Wolf Peatland, but expressed concern because the boundaries of the peatland have not been identified and therefore it is unknown if it is avoided.
Biological Resources	**Vegetation.** Several comments expressed concern that trees may be impacted on their property, including tree plantations and managed woodlands. One comment expressed concern for potential impacts on state or federal forestry programs. Several comments requested additional information on ROW clearing methodology or development of a vegetation management plan. Several comments expressed concern that the proposed Project could increase the spread of noxious weeds and invasive species. A few comments requested that the EIS discuss issues related to prevention of forest fires in the Project area. One comment requested that the Applicant offer voluntary forest compensation for forest impacts that do not require compensation under existing federal and/or state regulations. One comment expressed concern that the EIS double counts state forest impacts and that state forests are given too much emphasis in the EIS. One commented expressed concern that paralleling an existing corridor does not significantly reduce effects on forests. **Wildlife.** Several comments expressed concern that the proposed Project may impact wildlife, wildlife habitat, and/or wilderness, including specifically one comment noting that the wetland area between Dead Man's Pond and Crooked Lake provides habitat for wildlife and should be avoided. Several comments expressed concern that the proposed Project may impact birds and/or that the Applicant should develop an Avian Protection Plan. One comment expressed concern that the presence of high voltage transmission lines may stop certain wildlife species from moving naturally, citing studies conducted in Norway. One comment requested that discussion of avian electrocutions not be included in the EIS because text in Chapter 6 states that avian electrocutions are unlikely. One comment requested that the EIS have additional information on minimizing or mitigating impacts on fish and wildlife. One comment expressed concern for potential impacts to bees while another comment expressed concern that the proposed Project could result in the spread of earthworms. **Rare species.** Several comments expressed concern that the proposed Project has the potential to impact rare species (state or federally listed species), migratory birds, eagles, etc. One comment recommended that a Biological Assessment be included in the EIS. One comment requested that the EIS use updated information on presence of rare species if available. One comment requested that the Applicant should continue to work with the MnDNR Endangered Species Review Coordinator regarding surveys for

Subject Area	Comment Summary
	state-listed species. **Rare communities.** One comment requested that the proposed Project avoid Minnesota Biological Survey Sites of Biodiversity Significance ranked outstanding and high. One comment requested that the proposed Project avoid native plant communities. One comment expressed concern that the Applicant will need to conduct additional field work to determine potential impacts to native plant communities and to ensure compliance with the Wetland Conservation Act. Several comments expressed concern and requested that the selected alternatives avoid adverse and unnecessary impacts to critical habitats for plants, animals, and natural communities.
Electric System Reliability	**Weather**. One comment noted that there may be system mitigations that could be used to reduce the adverse effects of tornados, ice storms, or straight line winds such as robust towers, interrupters, and circuit breakers. In addition, spare parts could be stockpiled and ready for use if needed to get the system functional again. The comment also requested additional information on straight line winds and tornados in the proposed Project area and the likelihood of an outage from these types of adverse weather events and questioned if a climatic study had been completed for the proposed Project. One comment noted that no tornados have occurred in the Effie Variation area over the last 50 years based on the Minnesota Tornado History Project website. **NERC Standards**. One comment noted that an analysis for the proposed Project would be on a case-by-case basis based on the applicable NERC standards as well as the purpose and expected performance of the proposed Project and adjacent transmission line. **Other Transmission Lines**. One comment expressed concern that the adverse effects of paralleling different types of transmission lines was not adequately discussed in terms of electrical system reliability. One comment expressed concern that crossing the existing Manitoba-U.S. tie transmission lines will increase adverse effects on system reliability. One comment expressed concern that there is an increased risk of outages for the Effie Variation and East Bear Lake Variation which parallel three Manitoba tie transmission lines. One comment expressed concern that routes and variations that increase the parallel distance or number of crossings with the proposed Project and the existing 500 kV line could have a negative impact on electrical system reliability.
Mitigation	**Forest Compensation**. One comment requested that for forest impacts that do not require compensatory mitigation under existing federal and/or state regulations, the Applicant undertake voluntary forest compensation for permanent and temporary tree losses due to construction and operation of the proposed Project. **USFWS Interest Lands**. One comment requested that if there are unavoidable impacts to USFWS Interest Lands, there must be mitigation that is separate from mitigation for impacts to listed species, important wildlife resources, and migratory bird resources. The comment also noted that a final ROW permit will be granted after mitigation for impacts to USFWS Interest Lands has been completed and accepted by the USFWS. **Temporary Access Roads**. One comment expressed concern that temporary access roads need to be identified and plans need to be developed for restoration and possibly mitigation depending on anticipated impacts.
Cumulative Impacts	**Cumulative Effects.** One comment requested that the EIS not mention the

Subject Area	Comment Summary
	Mesaba Project because it is believed that project is not going to occur.
Project Opinion	**Project Opinion.** A few comments noted that they are in favor of the proposed Project. Several comments noted that they are not in favor of the proposed Project. One comment noted that people should submit comments since no interveners were present at the public meeting. Several comments noted that they preferred particular alternatives or were against particular alternatives. Several comments noted that they would like the proposed Project to avoid their property. One comment noted that the proposed Project could go over the location of a future home site. One comment noted that power lines going through the forest are a good thing.

Table Y-7 Summary of Substantive Changes to the Draft EIS

EIS Section	Revision(s) to Draft EIS
Front Matter	Update cover sheet and table of contents.
Summary	• Revise text for each variation area to identify if there are any active and/or expired/terminated mining leases. • Add text to indicate active state mineral leases for the Proposed Orange Route and the East Bear Lake Variation. • Add clarification that Balsam Variation would be located in an abandoned corridor, not paralleling an abandoned corridor. • Update text with information related to the Balsam Variation and mining. • Update name of substation to proposed Iron Range 500 kV Substation (instead of Blackberry Substation, which was used in the Draft EIS).
1. Introduction and Regulatory Framework	• Add information regarding Presidential permit expiration date. • Add discussion of Manitoba Hydro's concerns with alternate border crossings. • Add discussion of when MPCA staff needs to review the project SWPPP. • Add information regarding Minnesota Rule 7850.4700 (Delay in Route or Site Construction). • Add information regarding when MN PUC's Certificate of Need was granted. • Add text to explain purpose and requirements of state conservation easement agreements. • Revise text to indicate USFWS has identified its recommended route. • Update name of substation to proposed Iron Range 500 kV Substation.
2. Proposed Project	• Add information to provide additional discussion of public access. • Add date that the Applicant filed required sensitivity studies and other reliability-related reports to DOE. • Add information about refueling equipment and handling of other hazardous materials in wetlands. • Add information regarding MnDOT coordination for highway access. • Add statement clarifying relationship between location of the Series Compensation Station and Applicant-proposed routes. • Add text clarifying that the Applicant operates transmission and distribution systems. • Add text describing the additional power transfers a new 500 kV transmission line could facilitate. • Add text regarding electrical reliability impacts of establishing a parallel transmission corridor. • Add text stating that details of construction methods may change based on field surveys. • Add the Applicant's purpose for the proposed Project. • Add the date the Renewable Optimization Agreement was approved. • Amend discussion of anticipated construction start date. • Clarify text on the applicant's purchase option agreement for the preferred 500 kV Series Compensation Station site. • Clarify text on the applicant's purchase option agreements for other properties. • Incorporate updated construction cost information from the Applicant. • Revise discussion of the overall transmission line midpoint location. • Revise text to change the starting location of the proposed Project from the Riel Substation to the Dorsey Substation.

EIS Section	Revision(s) to Draft EIS
	• Revise text to refer to the series compensation station as "preferred" rather than "candidate." • Revise text to update total transfer capability amount. • Revise the description for the location of the Applicant's preferred series compensation station site and stated that if alternatives other than the Applicant's proposed routes were selected, a new site for the 500 kV Series Compensation Station may need to be identified. • Revise the text for total capacity for the proposed Project from 750 MW to 883 MW. • Update acreage permanently impacted by the 500 kV Series Compensation Station. • Update acreage that new 500kV substation would be expected to permanently impact. • Update information about the status of the MN PUC's Certificate of Need Process and related written order. • Update name of substation to proposed Iron Range 500 kV Substation.
3. No Action Alternative	Add the date the Renewable Optimization Agreement was approved.
4. Route and Alignment Alternatives Proposed During Scoping	• Revise cost estimates per new Applicant-provided information. • Revise text regarding avoiding USFWS land. • Revise text to use terminology "avoidance of non-ferrous mineral area." • Update name of substation to proposed Iron Range 500 kV Substation.
5. Affected Environmental and Potential Impacts	
General	• Revise text for each variation area to identify if there are any active and/or expired/terminated leases. • Revise Human Settlement Maps for each Section to identify if there are any active and/or expired/terminated leases." • Add clarification that Balsam Variation would be located in an abandoned corridor, not paralleling an abandoned corridor. • Change term "inactive" leases to "expired/terminated" mining leases. • Revise maps to include location of residence. • Revise maps with information from the MnDNR to show additional conservation easement parcels. • Revise text to clarify if there are active state mineral leases in the variation areas. • Update impact footprint of self-supporting suspension towers. • Modify text regarding substation perimeter wall. • Update name of substation to proposed Iron Range 500 kV Substation.
Human Settlement	No changes are made to this section.
Noise	• Update text with Applicant-provided information related to noise levels from operation of the proposed transmission line and Iron Range 500 kV Substation. • Update Table 5-4 with analysis provided by the Applicant. • Update values in Table 5-5 with analysis provided by the Applicant. • Modify discussion of predicted noise levels from the proposed Iron Range 500 kV Substation to nearest sensitive receptors (residences).
Air Quality, Greenhouse Gas Emissions, and Climate Change	Add estimates of construction criteria pollutant and CO2 emissions. Revised text to address total loss of carbon sink during construction.
Property Values	No changes are made to this section.

EIS Section	Revision(s) to Draft EIS
Electronic Interference	No changes are made to this section.
Transportation and Public Services	Update text to reflect airstrip located near Roseau Lake WMA Variation Area 1.

EIS Section	Revision(s) to Draft EIS
Environmental Justice	No changes are made to this section.
Socioeconomics	Update text to reflect the source of the labor pool for construction workers.
Recreation and Tourism	No changes are made to this section.
Electric and Magnetic Fields	• Revise Tables 5-21 and 5-22 per Applicant-provided information. • Revise text related to EMF modeling scenarios and results based on updated modeling results provided by the Applicant. • Modify text describing studies for childhood leukemia and EMF exposure.
Implantable Medical Devices	No changes are made to this section.
Stray Voltage	No changes are made to this section.
Induced Voltage	No changes are made to this section.
Intentional Destructive Acts	No changes are made to this section.
Environmental Contamination	No changes are made to this section.
Worker Health and Safety Considerations	No changes are made to this section.
Aesthetics	No changes are made to this section.
Land Use Compatibility	• Identify two North American Wetland Conservation Act federal aid parcels as part of the Roseau Lake WMA. • Identify two federal aid parcels as part of the Silver Creek WMA. • Include discussion of impacts resulting from increased public accessibility as a result of the construction of access roads.
Cultural Values	No changes are made to this section.
Agriculture	Revise footprint area for structures.
Forestry	• Remove text describing the potential for harvested forest products by increasing time between line maintenance in forested areas. • Update impact footprint of self-supporting suspension towers.
Mining and Mineral Resources	• Update text to provide information regarding geophysical detection of mineral resources. • Change term "inactive" leases to "expired/terminated" leases.
Cultural Resources	• Add discussion of natural and cultural resources as provided by Bois Forte (Nett Lake) Band of Minnesota Chippewa Tribe.
Water Resources	• Add discussion of when MPCA staff needs to review the project SWPPP. • Add discussion of Section 401 Water Quality Certification.
Vegetation	No changes are made to this section.
Wildlife	Add text regarding Executive Order 13186 and the MOU between USFWS and DOE.
Rare and Unique Natural Resources	• Update tables and text with revised (2015) MnDNR Natural Heritage Information System database. • Revise date for MnDNR Natural Heritage Information System database. • Revise footprint area for structures.
Corridor Sharing	No changes are made to this section.
Electrical System Reliability	• Add discussion regarding relationship between crossing spans and outages. • Changed text regarding offsets between parallel transmission lines. Revise

EIS Section	Revision(s) to Draft EIS
	text to identify that the applicable Category D contingencies are in NERC standard TPL-044. • Update text describing unexpected outage contingency.
Costs of Constructing, Operating, and Maintaining the Facility which are Dependent on Design and Route	No changes are made to this section.
6. Comparative Environmental Consequences	
General	• Update impact footprint of self-supporting suspension towers. • Update text to include information from traditional properties surveys conducted by the Bois Forte Band. • Revise maps with information from the MnDNR to show additional conservation easement parcels. • Add clarification that Balsam Variation would be located in an abandoned corridor, not paralleling an abandoned corridor. • Add discussion of impact minimization to the Nature Conservancy's Black River portfolio site in the C2 Segment Option Variation. • Update name of substation to proposed Iron Range 500 kV Substation.
Aesthetics	Update text and tables to reflect additional residences identified
Land Use Compatibility	• Update tables in Land Use Compatibility Sections with total acres of land in the ROW, along with acres of public and private land in the ROW for each alternative. • Add location of gravel pit to Map 6-46. • Revise Map 6-61 to identify structure as residence.
Agriculture	No changes are made to this section.
Forestry	No changes are made to this section.
Mining and Mineral Resources	• Change term "inactive" leases to "expired/terminated" leases. • Update tables to reference State Mineral Leases (active and/or expired/terminated). • Revise text for each variation area to identify if there are any active and/or expired/terminated leases. • Remove reference to expired/terminated leases being "held" by companies. • Add text to indicate active state mineral leases for the Proposed Orange Route and the East Bear Lake Variation. • Add text to address the reduction of geophysical resource detection risk. • Update text with information related to the Balsam Variation and mining.
Archaeology and Historic Architectural Resources	No changes are made to this section.
Water Resources	No changes are made to this section.
Vegetation	No changes are made to this section.
Wildlife	No changes are made to this section.
Rare and Unique Natural Resources	• Update tables and text with revised (2015) MnDNR Natural Heritage Information System database. • Revise date for MnDNR Natural Heritage Information System database.

EIS Section	Revision(s) to Draft EIS
Corridor Sharing	Revise text in tables and footnotes in figures to provide clarity.
Costs of Constructing, Operating, and Maintaining the Facility which are Dependent on Design and Route	• Revise cost estimates per new Applicant-provided information. • Update cost discussions to clarify these are average costs per mile.
Relative Merits Summary	• Update text describing methodology used for developing relative merits tables. • Updated relative merits tables utilizing methodology described in text. • Add explanation of cost differences in relative merits tables.
Alignment Modifications	No changes are made to this section.
Hops	Update acreage that new 500kV substation would be expected to permanently impact.
Associated Facilities	No changes are made to this section.
7. Cumulative and Other Resources	Update text with information related to the Balsam Variation and mining.
8. List of Preparers	Update title of Table 8-1.
9. Reference	Add references for noise, magnetic field, and air quality. Revise date for MnDNR Natural Heritage Information System database.
10. Acronyms	No changes are made to this section.
11. Index	Update index to reflect Final EIS.
Appendix A. Tribal Consultations	No changes are made to this section.
Appendix B. Route Permit Generic Template and Example	No changes are made to this section.
Appendix C. Narrative of the Scoping Summary Report	No changes are made to this section.
Appendix D. DOC-ERRA Scoping Decision	No changes are made to this section.
Appendix E. Route Analysis Data Tables	Add total acres of mineral lease lands within the ROW and route width for each alternative.
Appendix F. Rare Species Data Tables	Update tables with revised (2015) MnDNR Natural Heritage Information System database.
Appendix G. Rare Communities Data Tables	No changes are made to this section.
Appendix H. Noise Supplement	Update with analysis provided by the Applicant.
Appendix I. Applicant's Audible Noise and EMF Calculations	Update with analysis provided by the Applicant.
Appendix J. Property Values Supplement	No changes are made to this section.
Appendix K. EMF Supplement	No changes are made to this section.
Appendix L. Stray Voltage Supplement	No changes are made to this section.
Appendix M. MPCA What's in	No changes are made to this section.

EIS Section	Revision(s) to Draft EIS
My Neighborhood Sites	
Appendix N. Photo Simulations	No changes are made to this section.
Appendix O. Agricultural Impact Mitigation Plan (AIMP) Example	No changes are made to this section.
Appendix P. Cultural Resources Report	No changes are made to this section.
Appendix Q. USFWS and DOE Section 7 Consultation	Add the DOE letter that initiated formal consultation with the USFWS.
Appendix R. Biological Assessment	Add the Biological Assessment to Appendix R of the Final EIS.
Appendix S. Detailed Map Books	Revise Maps S-30 and S-100 to identify structures as residences.
Appendix T. NEPA Disclosure	No changes are made to this section.
Appendix U. USFWS Information	Add to document the USFWS agency-preferred alternative to Appendix U for the Final EIS.
Appendix V. Draft Programmatic Agreement (PA)	Add the Draft Programmatic Agreement to Appendix V for the Final EIS.
Appendix W. Air Emissions Technical Memorandum	Add construction emission calculations to Appendix W of the Final EIS.
Appendix X. Relative Merits Tables	Add information to introduce relative merits tables. Provided data in Appendix X used to compile summary relative merits tables used in the Final EIS.
Appendix Y. Comments and Responses	Add Appendix Y for Final EIS.
Appendix Z. EIS Distribution List	Add Appendix Z for Final EIS.

Attachment A

GNTL EIS NOA Published in the Federal Register

approved application and budget; and, if the Secretary has established performance measurement requirements, the performance targets in the grantee's approved application. In making a continuation grant, the Secretary also considers whether the grantee is operating in compliance with the assurances in its approved application, including those applicable to Federal civil rights laws that prohibit discrimination in programs or activities receiving Federal financial assistance from the Department (34 CFR 100.4, 104.5, 106.4, 108.8, and 110.23).

VII. Agency Contact

FOR FURTHER INFORMATION CONTACT: Shedita Alston, U.S. Department of Education, Model Comprehensive and Transition Programs for Students with Intellectual Disabilities, 1990 K Street NW., Room 6131, Washington, DC 20006–8524. Telephone: (202) 502–7808, or by email: *shedita.alston@ed.gov.*

If you use a TDD or a TTY, call the FRS, toll free, at 1–800–877–8339.

VIII. Other Information

Accessible Format: Individuals with disabilities can obtain this document and a copy of the application package in an accessible format (*e.g.,* braille, large print, audiotape, or compact disc) on request to the program contact person listed under **FOR FURTHER INFORMATION CONTACT** in section VII of this notice.

Electronic Access to This Document: The official version of this document is the document published in the **Federal Register**. Free Internet access to the official edition of the **Federal Register** and the Code of Federal Regulations is available via the Federal Digital System at: *www.gpo.gov/fdsys.* At this site you can view this document, as well as all other documents of this Department published in the **Federal Register**, in text or Adobe Portable Document Format (PDF). To use PDF, you must have Adobe Acrobat Reader, which is available free at the site. You may also access documents of the Department published in the **Federal Register** by using the article search feature at: *www.federalregister.gov.* Specifically, through the advanced search feature at this site, you can limit your search to documents published by the Department.

Delegation of Authority: The Secretary of Education has delegated authority to Jamienne S. Studley, Deputy Under Secretary, to perform the functions and duties of the Assistant Secretary for Postsecondary Education.

Dated: June 23, 2015.

Jamienne S. Studley,

Deputy Under Secretary.

[FR Doc. 2015–15784 Filed 6–25–15; 8:45 am]

BILLING CODE 4000–01–P

DEPARTMENT OF ENERGY

[OE Docket No. PP–398]

Notice of Availability (NOA) for the Draft Environmental Impact Statement (EIS) and Announcement of Public Hearings for the Proposed Great Northern Transmission Line (GNTL) Project

AGENCY: U.S. Department of Energy.

ACTION: Notice of availability and public hearings.

SUMMARY: The U.S. Department of Energy (DOE) announces the availability of the ''*Great Northern Transmission Line Project Draft Environmental Impact Statement*'' (DOE/EIS–0499) for public review and comment. DOE is also announcing eight public hearings to receive comments on the Draft EIS. The Draft EIS evaluates the environmental impacts of DOE's proposed Federal action of issuing a Presidential permit to the Applicant: Minnesota Power, a regulated utility division of ALLETE, Inc., to construct, operate, maintain, and connect a new electric transmission line across the U.S./Canada border in northern Minnesota. It also addresses the potential human and environmental impacts of the project, and possible mitigation measures, including route, alignment, and site alternatives required for a transmission line route permit from the Minnesota Public Utilities Commission under the Minnesota Power Plant Siting Act.

The EIS was jointly prepared by DOE with the Minnesota Department of Commerce—Environmental Energy Review and Analysis (MN DOC–EERA) acting as state co-lead in order to avoid duplication, and to comply with the environmental review requirements under both federal and state regulations. Region 5 of the U.S. Environmental Protection Agency (USEPA), the St. Paul District Office of the U.S. Army Corps of Engineers (USACE), and the Twin Cities Ecology Field Office of the U.S. Fish and Wildlife Service (USFWS) are cooperating agencies in preparing the GNTL Project EIS.

DATES: DOE invites interested Members of Congress, state and local governments, other Federal agencies, American Indian tribal governments, organizations, and members of the public to provide comments on the Draft EIS during the 45-day public comment period. The public comment period starts on June 26, 2015, with the publication in the **Federal Register** by the U.S. Environmental Protection Agency of its Notice of Availability of the Draft EIS, and will continue until August 10, 2015. Written and oral comments will be given equal weight and all comments received or postmarked by that date will be considered by DOE in preparing the Final EIS. Comments received or postmarked after that date will be considered to the extent practicable.

Locations, dates, and start time for the public hearings are listed in the **SUPPLEMENTARY INFORMATION** section of this NOA.

ADDRESSES: Requests to provide oral comments at the public hearings may be made at the time of the hearing(s).

Written comments on the Draft EIS may be provided on the GNTL EIS Web site at *http://www.greatnortherneis.org/* (preferred) or addressed to Dr. Julie A. Smith, Office of Electricity Delivery and Energy Reliability (OE–20), U.S. Department of Energy, 1000 Independence Avenue SW., Washington, DC 20585; by electronic mail to *Juliea.Smith@hq.doe.gov;* or by facsimile to 202–318–7761.

FOR FURTHER INFORMATION CONTACT: Dr. Julie A. Smith at the addresses above, or at 202–586–7668.

SUPPLEMENTARY INFORMATION: Joint federal-state public hearings and information meetings will consist of the formal taking of comments with transcription by a court reporter. The hearings will provide interested parties the opportunity to make comments for consideration by DOE and MN DOC–EERA in the preparation of the Final EIS.

The locations, dates, and starting times of the public hearings are listed in the table below:

Location	Date and time	Address
Roseau Civic Center	July 15, 2015, 11:00 a.m.–3:00 p.m.	121 Center Street E., Roseau, MN.
Lake of the Woods School	July 15, 2015, 6:00 p.m.–10:00 p.m.	236 15th Ave. SW., Baudette, MN.
Littlefork Community Center	July 16, 2015, 11:00 a.m.–3:00 p.m.	220 Main Street, Littlefork, MN.

Location	Date and time	Address
AmericInn	July 16, 2015, 6:00 p.m.–10:00 p.m.	1500 Hwy. 71, International Falls, MN.
Kelliher Old School Center	July 21, 2015, 11:00 a.m.–3:00 p.m.	243 Clark Ave. N. (Hwy 72), Kelliher, MN.
Bigfork School	July 21, 2015, 6:00 p.m.–10:00 p.m.	100 Huskie Blvd., Bigfork, MN.
Timber Lake Lodge	July 22, 2015, 11:00 a.m.–3:00 p.m.	144 SE. 17th Street, Grand Rapids, MN.
Timber Lake Lodge	July 22, 2015, 6:00 p.m.–10:00 p.m.	144 SE. 17th Street, Grand Rapids, MN.

Availability of the Draft EIS Copies of the Draft EIS have been distributed to appropriate members of Congress, state and local government officials, American Indian tribal governments, and other Federal agencies, groups, and interested parties. Printed copies of the document may be obtained by contacting Dr. Smith at the above address. Copies of the Draft EIS and supporting documents are also available for inspection at the following locations:

- Baudette Library, 110 1st Street SW., Baudette, MN
- Blackduck Public Library, 72 1st Street SE., Blackduck, MN
- Bovey Public Library, 402 2nd Street, Bovey, MN
- Calumet Library, 932 Gary Street, Calumet, MN
- Coleraine Public Library, 203 Cole Street, Coleraine
- Duluth Public Library, 520 W Superior Street, Duluth, MN
- Grand Rapids Public Library, 140 NE 2nd Street, Grand Rapids, MN
- Greenbush Public Library, P.O. Box 9, Greenbush, MN
- International Falls Public Library, 750 4th Street, International Falls, MN
- Marble Public Library, 302 Alice Avenue, Marble, MN
- Northome Public Library, 12064 Main Street, Northome, MN
- Roseau Public Library, 121 Center Street E., Suite 100, Roseau, MN
- Warroad Public Library, 202 Main Avenue NE., Warroad, MN
- Williams Public Library, 350 Main Street, Williams, MN

The Draft EIS is also available on the EIS Web site at *http://www.greatnortherneis.org/* and on the DOE NEPA Web site at *http://nepa.energy.gov/*.

Issued in Washington, DC on June 18, 2015.

Eli Massey,

Acting Deputy Assistant Secretary, National Electricity Delivery Division, Office of Electricity Delivery and Energy Reliability.

[FR Doc. 2015–15625 Filed 6–25–15; 8:45 am]

BILLING CODE 6450–01–P

DEPARTMENT OF ENERGY

Federal Energy Regulatory Commission

Combined Notice of Filings #1

Take notice that the Commission received the following electric rate filings:

Docket Numbers: ER10–1852–008; ER11–4462–009; ER10–1971–016.
Applicants: Florida Power & Light Company, NextEra Energy Power Marketing, LLC, NEPM II, LLC.
Description: Amendment to June 30, 2014 NextEra Companies' Triennial Market Power Update for the Southeast Region.
Filed Date: 6/18/15.
Accession Number: 20150618–5173.
Comments Due: 5 p.m. ET 7/9/15.

Docket Numbers: ER14–2866–002.
Applicants: Louisville Gas and Electric Company.
Description: Compliance filing: Errata to Compliance Filing Attach O Rate Formula Protocols to be effective 1/1/2015.
Filed Date: 6/18/15.
Accession Number: 20150618–5126.
Comments Due: 5 p.m. ET 7/9/15.

Docket Numbers: ER15–1668–001.
Applicants: Phoenix Energy Group, LLC.
Description: Tariff Amendment: Amended MBR Filing to be effective 6/5/2015.
Filed Date: 6/18/15.
Accession Number: 20150618–5081.
Comments Due: 5 p.m. ET 7/9/15.

Docket Numbers: ER15–1943–000.
Applicants: Southwest Power Pool, Inc.
Description: Section 205(d) Rate Filing: Missouri River Energy Services Formula Rate to be effective 10/1/2015.
Filed Date: 6/18/15.
Accession Number: 20150618–5036.
Comments Due: 5 p.m. ET 7/9/15.

Docket Numbers: ER15–1944–000.
Applicants: ISO New England Inc.
Description: ISO New England Inc. Resource Termination—Enerwise Global Technologies, Inc.
Filed Date: 6/18/15.
Accession Number: 20150618–5058.
Comments Due: 5 p.m. ET 7/9/15.

Docket Numbers: ER15–1945–000.
Applicants: PacifiCorp.
Description: Tariff Cancellation: Termination of West Valley A&R EIM Participation Construction Agmt Rev 1 to be effective 9/10/2015.
Filed Date: 6/18/15.
Accession Number: 20150618–5078.
Comments Due: 5 p.m. ET 7/9/15.

Docket Numbers: ER15–1946–000.
Applicants: Public Service Company of New Mexico.
Description: Section 205(d) Rate Filing: Certificate of Concurrence to APS Rate Schedule No. 279 to be effective 5/21/2015.
Filed Date: 6/18/15.
Accession Number: 20150618–5084.
Comments Due: 5 p.m. ET 7/9/15.

Docket Numbers: ER15–1947–000.
Applicants: Deseret Generation & Transmission Co-operative, Inc.
Description: Initial rate filing: WestConnect Regional PTP Tariff Filing to be effective 7/1/2015.
Filed Date: 6/18/15.
Accession Number: 20150618–5085.
Comments Due: 5 p.m. ET 7/9/15.

Docket Numbers: ER15–1948–000.
Applicants: Midcontinent Independent System Operator, Inc.
Description: Section 205(d) Rate Filing: 2015–06–18_SA 2809 ITC Transmission-Deerfield Wind Energy GIA (J327) to be effective 6/19/2015.
Filed Date: 6/18/15.
Accession Number: 20150618–5140.
Comments Due: 5 p.m. ET 7/9/15.

Docket Numbers: ER15–1949–000.
Applicants: Midcontinent Independent System Operator, Inc., Ameren Illinois Company.
Description: Section 205(d) Rate Filing: 2015–06–18_SA 2685 Attachment A Project Specs (Ameren-SIPC UCA) to be effective 5/18/2015.
Filed Date: 6/18/15.
Accession Number: 20150618–5170.
Comments Due: 5 p.m. ET 7/9/15.

Docket Numbers: ER15–1950–000.
Applicants: Southern Power Company.
Description: Section 205(d) Rate Filing: Pawpaw PPA Filing to be effective 8/18/2015.
Filed Date: 6/18/15.
Accession Number: 20150618–5172.
Comments Due: 5 p.m. ET 7/9/15.

Docket Numbers: ER15–1951–000.
Applicants: New York Power Authority.

Attachment B

GNTL EIS NOA Posted on PUC Docket No. ET015/TL-14-21

Issued: June 19, 2015

NOTICE OF AVAILABILITY OF DRAFT ENVIRONMENTAL IMPACT STATEMENT, STATE PUBLIC INFORMATION MEETINGS AND FEDERAL PUBLIC HEARINGS

In the Matter of the Route Permit and Presidential Permit Applications by Minnesota Power for the Great Northern Transmission Line Project and Associated Facilities in Beltrami, Itasca, Koochiching, Lake of the Woods, and Roseau Counties

PUC Docket Nos. ET015/TL-14-21
DOE/EIS 0499

PLEASE TAKE NOTICE that the Minnesota Department of Commerce (Department) and the U.S. Department of Energy (DOE) have released the draft environmental impact statement (DEIS) for the proposed Great Northern Transmission Line (GNTL) project in the counties of Beltrami, Itasca, Koochiching, Lake of the Woods, and Roseau counties. The Department and DOE will conduct joint public information meetings at the following locations and times to provide opportunities for public comment on the DEIS:

COUNTY	CITY	MEETING LOCATION	DATE AND TIME
Roseau	Roseau	Roseau Civic Center 121 Center Street E	Wednesday, July 15, 2015 11:00 am – 3:00 pm
Lake of the Woods	Baudette	Lake of the Woods School 236 15th Ave SW	Wednesday, July 15, 2015 6:00 pm – 10:00 pm
Koochiching	Littlefork	Littlefork Community Center 220 Main St	Thursday, July 16, 2015 11:00 am – 3:00 pm
Koochiching	International Falls	AmericInn 1500 Hwy 71	Thursday, July 16, 2015 6:00 pm – 10:00 pm
Beltrami	Kelliher	Kelliher Old School Center 243 Clark Avenue N (Highway 72)	Tuesday, July 21, 2015 11:00 am – 3:00 pm
Itasca	Bigfork	Bigfork School 100 Huskie Blvd	Tuesday, July 21, 2015 6:00 pm – 10:00 pm
Itasca	Grand Rapids	Timber Lake Lodge 144 SE 17th Street	Wednesday, July 22, 2015 11:00 am – 3:00 pm
Itasca	Grand Rapids	Timber Lake Lodge 144 SE 17th Street	Wednesday, July 22, 2015 6:00 pm – 10:00 pm

Department and DOE staff will make a brief introductory statement at each meeting. Following this, members of the public will have an opportunity to provide comments to the Department and DOE on the DEIS. Each meeting will offer the same information and opportunity to comment.

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St. Paul, Minnesota, 55101
Fax: 651-539-0109 | bill.storm@state.mn.us

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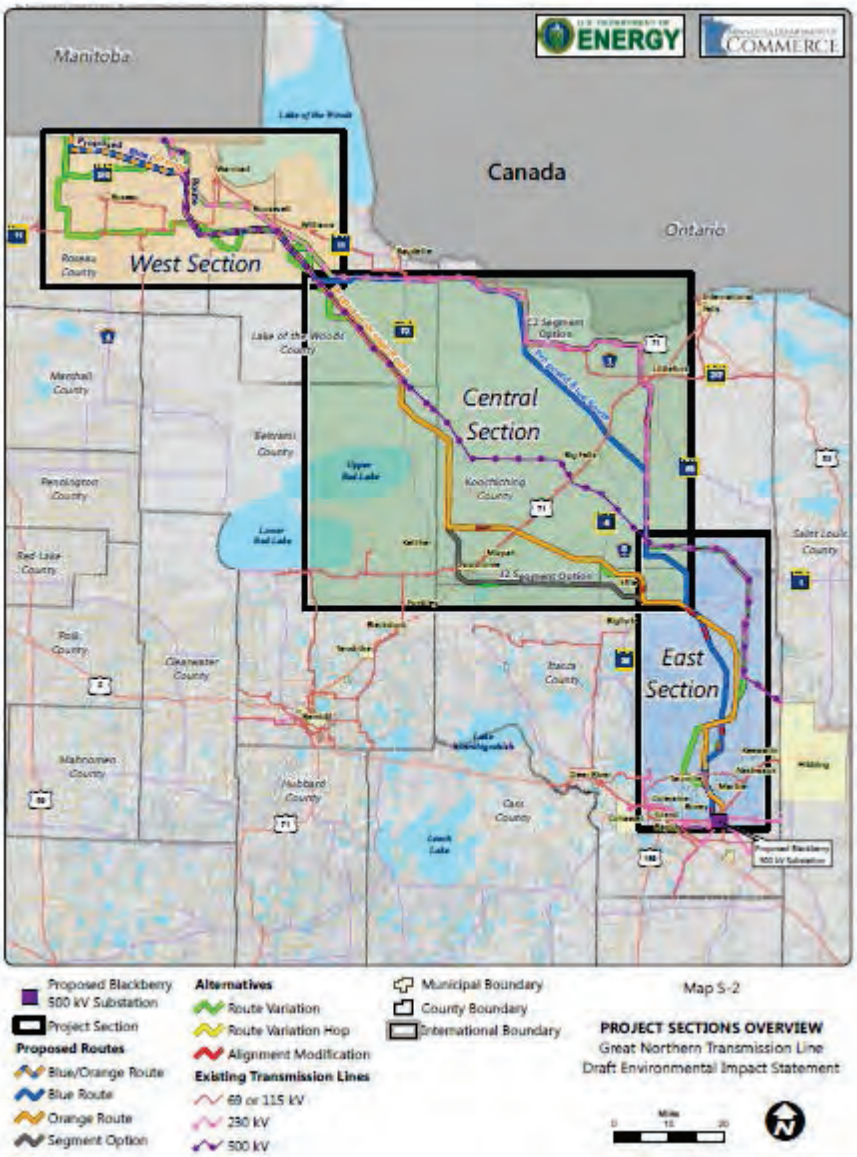
Manitoba
Canada
Ontario
West Section
Central Section
East Section
Roseau County
Marshall County
Lake of the Woods County
Koochiching County
Pennington County
Red Lake County
Polk County
Clearwater County
Mahnomen County
Hubbard County
Itasca County
Cass County
Saint Louis County
Proposed Blackberry 500 kV Substation
Project Section
Proposed Routes
Blue/Orange Route
Blue Route
Orange Route
Segment Option
Alternatives
Route Variation
Route Variation Hop
Alignment Modification
Existing Transmission Lines
69 or 115 kV
230 kV
500 kV
Municipal Boundary
County Boundary
International Boundary
Map S-2
PROJECT SECTIONS OVERVIEW
Great Northern Transmission Line
Draft Environmental Impact Statement

Attachment C

Example Newspaper NOA

Ex 78

Issued: June 19, 2015

NOTICE OF AVAILABILITY OF DRAFT ENVIRONMENTAL IMPACT STATEMENT, STATE PUBLIC INFORMATION MEETINGS AND FEDERAL PUBLIC HEARINGS

In the Matter of the Route Permit and Presidential Permit Applications by Minnesota Power for the Great Northern Transmission Line Project and Associated Facilities in Beltrami, Itasca, Koochiching, Lake of the Woods, and Roseau Counties

PUC Docket Nos. ET015/TL-14-21
DOE/EIS 0499

PLEASE TAKE NOTICE that the Minnesota Department of Commerce (Department) and the U.S. Department of Energy (DOE) have released the draft environmental impact statement (DEIS) for the proposed Great Northern Transmission Line (GNTL) project in the counties of Beltrami, Itasca, Koochiching, Lake of the Woods, and Roseau counties. The Department and DOE will conduct joint public information meetings at the following locations and times to provide opportunities for public comment on the DEIS:

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EXHIBIT
78

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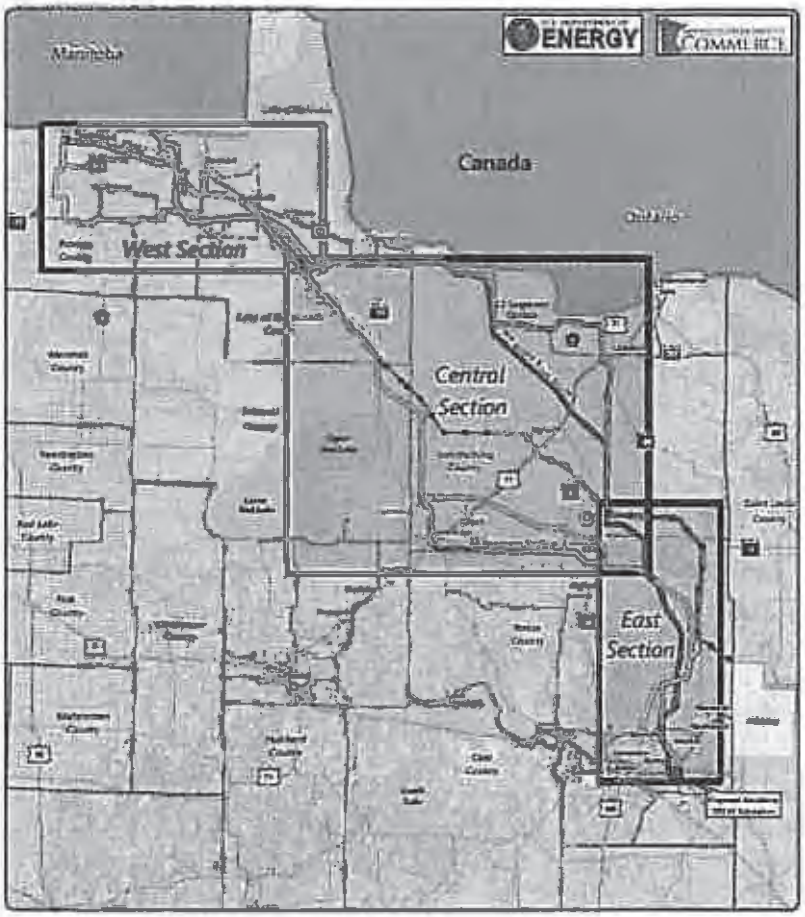
GREAT NORTHERN TRANSMISSION LINE



Proposed Blackberry 500 kV Substation
Project Section
Proposed Routes
Blue/Orange Route
Blue Route
Orange Route
Segment Option
Alternatives
Route Variation
Route Variation Map
Alignment Modification
Existing Transmission Lines
69 or 115 kV
230 kV
500 kV
Municipal Boundary
County Boundary
International Boundary

Map 5-2

PROJECT SECTIONS OVERVIEW
Great Northern Transmission Line
Draft Environmental Impact Statement

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GREAT NORTHERN TRANSMISSION LINE

STATE OF MINNESOTA)
) ss AFFIDAVIT OF MAILING
COUNTY OF ST. LOUIS)

RE: Notice of Availability of Draft Environmental Impact Statement,
State Public Information Meetings and Federal Public Hearings
for the Great Northern Transmission Line

MPUC Docket No. E-015/TL-14-21

Danny Cosgrove, being first duly sworn, disposes and says: "I am a United States Citizen, over 21 years of age, employed by ALLETE and am the Supervisor, Office Services and provided printing services for the Great Northern Transmission Line Project"

In compliance with Minnesota Stat.§ 216E.03, subdivision 4 and Minnesota Rules 7850.2100, subdivision 2.C, ALLETE mailed by United States Postal Service on June 24, 2015, a letter to Landowners regarding the Notice of Availability of Draft Environmental Impact Statement, State Public Information Meetings and Federal Public Hearings for the Great Northern Transmission Line.

Danny Cosgrove, Supervisor

Subscribed and sworn before me
this 7th day of July, 2015.

Susan Romans, Notary Public

My Commission Expires: 1/31/2020

SUSAN ROMANS
NOTARY PUBLIC - MINNESOTA
My Commission Expires Jan. 31, 2020

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GREAT NORTHERN TRANSMISSION LINE

Draft DEIS Meetings

Legal Notice

Outlet	Location	Submission Deadline	Run Date
Grand Rapids Herald-Review	Grand Rapids, MN Itasca County	Monday, June 29th - 3pm	Wednesday, July 1st
International Falls Journal	International Falls, MN Koochiching County	Wednesday, June 24th - 4:30pm	Saturday, June 27th & Wednesday, July 1st
Roseau Times-Region	Roseau, MN Roseau County	Wednesday, June 24th - 4:30pm	Anticipated: Friday, June 26th Actual: Saturday, July 4th
Scenic Range News Forum	Bovey, MN Itasca County	Monday, June 29th - 4pm	Thursday July 2nd
The American	Blackduck, MN Beltrami County	Wednesday, June 24th - 4:30pm	Anticipated: Friday, June 26th Actual: Friday, July 3rd
The Hibbing Daily Tribune	Hibbing, MN St Louis County	Monday, June 29th - 11am	Wednesday, July 1st
The Littlefork Times	Littlefork, MN Koochiching County	Tuesday, June 30th - 2pm	Wednesday, July 1st
Northome Area News	Northome, MN Koochiching County	Monday, June 29th - 12pm	Anticipated: Thursday July 2nd Actual: N/A
Northern Light Region	Baudette, MN Lake of the Woods County	Monday, June 29th - 12pm	Wednesday, July 1st
Warroad Pioneer	Warroad, MN Roseau County	Thursday, June 25th - 12pm	Tuesday, June 30
Western Itasca Review	Deer River, MN Itasca County	Monday, June 29th - 12pm	Thursday, July 2nd
Red Lake Nation News (Tribal)	Red Lake, MN Red Lake County	Wednesday, June 24th	Anticipated: Tuesday, June 30th Actual: N/A
Bois Forte News (Tribal)	Lilydale, MN Dakota County	Monday, June 15th	Anticipated: Monthly – July Issue Actual: N/A
Anishinaabeg Today - White Earth (Tribal)	White Earth, MN Becker County	Wednesday, June 24th	Anticipated: Wednesday, July 1st Actual: N/A
The Bemidji Pioneer	Beltrami County	Wednesday, June 24th - 4:30pm	Anticipated: Wednesday, July 1st Actual: Friday, July 3rd

Please note these are subject to change a day or two since this is a holiday week.

Legal Notice

Publication: Warroad Pioneer

Location: Warroad, MN, Roseau County

Actual: Tuesday June 30, 2015

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GREAT NORTHERN TRANSMISSION LINE

AFFIDAVIT OF PUBLICATION

State of Minnesota

County of Roseau

Shelley Galle, being duly sworn, on oath says that she is an authorized agent and employee of the publisher of the newspaper known as **THE WARROAD PIONEER** and has full knowledge of the facts which are stated below:

A) The newspaper has complied with all the requirements constituting qualification as a qualified newspaper, as provided by Minnesota Statute 331A.02, 331A.07 and other applicable laws, as amended.

B) The advertisement, which is either attached as cut from the columns of said newspaper or emailed from the online version of said newspaper, and was printed and published once each week, for 1 successive week(s); it was first published on Tuesday, the 30th day of June, 2015, and was thereafter printed and published on every Tuesday to and including Tuesday, the _____ day of N/A, 2015; and printed below is a copy of the lower case alphabet from A to Z, both inclusive, which is hereby acknowledged as being the size and kind of type used in the composition and publication of the notice:

abcdefghijklmnopqrstuvwxyz

Shelley Galle

Shelley Galle, Office Manager

Subscribed and sworn before me on this 30th day of June, 2015.

Rebecca A. Colden

Notary Public

Article Title: Notice of avail of env. impact

Client: HDR Engineering

Copy is: _____ attached ✓ emailed

Bill #26321

REBECCA ANN COLDEN
NOTARY PUBLIC - MINNESOTA
My Commission Expires Jan. 31, 2018

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GREAT NORTHERN TRANSMISSION LINE

NOTICE OF AVAILABILITY OF DRAFT ENVIRONMENTAL IMPACT STATEMENT, STATE PUBLIC INFORMATION MEETINGS AND FEDERAL PUBLIC HEARINGS

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GREAT NORTHERN TRANSMISSION LINE

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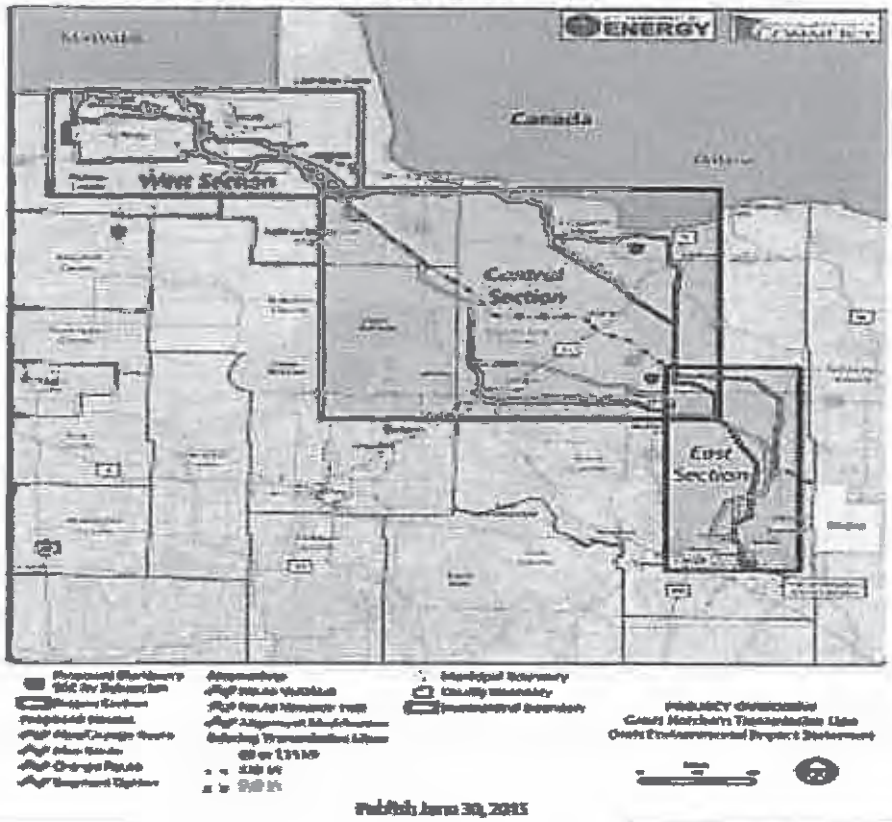
State Project Contacts. If you **have** questions or would like more information, contact environmental review manager Bill Storm (651-539-**1864 or** 1-800-657-3794, bill.storm@state.mn.us) or **public advisor Tracy Smetana** (651-**296-0406 or** 1-800-657-3782, **consumer.puc@state.mn.us).**

Federal Project Contact. If you have questions or would like more information about the federal NEPA process and the DOE's Presidential permit program, contact federal document manager, Julie A. Smith, PhD (202-586-7668; julie.smith@hq.doe.gov).

This document can be made available in alternative formats (i.e., large print or audio) by calling 651-539-1530.



Publish June 30, 2015

minnesota power
AN ALLETE COMPANY

GREAT NORTHERN TRANSMISSION LINE

Legal Notice

Publication: Scenic Range News Forum

Location: Bovey, MN Itasca County

Actual: Thursday, July 2, 2015

minnesota power
AN ALLETE COMPANY

GREAT NORTHERN TRANSMISSION LINE

Scenic Range NewsForum

314 2nd Street, Bovey, MN 55709
Mailing Address: P.O. Box 70, Bovey, MN 55709
Phone: 218-245-1422 • Fax: 218-245-1698
E-Mail: Copy@ScenicRangeNewsForum.com

AFFIDAVIT OF PUBLICATION

STATE OF MINNESOTA }
COUNTY OF ITASCA } ss.

Mary Beth Bily or Ronald A. Brochu, being first duly sworn, on oath states as follows:

1. I am the publisher of the Scenic Range NewsForum, or the publisher's designated agent. I have personal knowledge of the facts stated in this Affidavit, which is made pursuant to Minnesota Statutes §331A.07.

2. The newspaper has complied with all of the requirements to constitute a qualified newspaper under Minnesota law, including those requirements found in Minnesota Statutes §331A.02.

3. The dates of the month and the year and day of the week upon which the public notice attached/copied was published in the newspaper are as follows:

   Thursday, July 2, 2015

4. The publisher's lowest classified rate paid by commercial users for comparable space, as determined pursuant to § 331A.06, is as follows: $10.00 per column inch.

5. Mortgage Foreclosure Notices. Pursuant to Minnesota Statutes §580.033 relating to the publication of mortgage foreclosure notices: The newspaper's known office of issue is located in Itasca County. The newspaper complies with the conditions described in §580.033, subd. 1, clause (1) or (2). If the newspaper's known office of issue is located in a county adjoining the county where the mortgaged premises or some part of the mortgaged premises described in the notice are located, a substantial portion of the newspaper's circulation is in the latter county.

Mary Beth Bily, Publisher or
Ronald A. Brochu, Business Manager

Subscribed and sworn to before me on this
2nd Day of July, 2015.

(Notary Public)

CYNTHIA L. TRBOYEVICH
NOTARY PUBLIC
MINNESOTA
My Comm Exp Jan 31 2018

minnesota power
AN ALLETE COMPANY

GREAT NORTHERN TRANSMISSION LINE

LEGAL NOTICES

ACCEPTING QUOTES

Quotes are being taken by the City of Nashwauk
To buy the property located at the "Bozich Addition"
Located ½ mile north of the city
on the right side of Hwy. 65.
Sealed bids must be submitted to the Clerk's office
at 301 Central Ave in Nashwauk
by July 10th at 2:00 p.m.
Proof of liability insurance is required.

NOTICE
NASHWAUK CITY RESIDENTS MEETING TIME CHANGE

The Nashwauk City Council will meet the second and fourth Tuesdays of each Month at 5:30 p.m. at the Nashwauk City Hall.

Pam LaBine, City Clerk
City of Nashwauk

Trout Lake Community Center

— Open —
Tuesday • 4-7
Wednesday • 3-6
Thursday • 3-6
For reservation information please call 245-1100.

COMMERCE

Issued: June 19, 2015

NOTICE OF AVAILABILITY OF DRAFT ENVIRONMENTAL IMPACT STATEMENT, STATE PUBLIC INFORMATION MEETINGS AND FEDERAL PUBLIC HEARINGS

In the Matter of the Route Permit and Presidential Permit Applications by Minnesota Power for the Great Northern Transmission Line Project and Associated Facilities in Beltrami, Itasca, Koochiching, Lake of the Woods, and Roseau Counties

PUC Docket Nos. ET015/TL-14-21
DOE/EIS 0499

PLEASE TAKE NOTICE that the Minnesota Department of Commerce (Department) and the U.S. Department of Energy (DOE) have released the draft environmental impact statement (DEIS) for the proposed Great Northern Transmission Line (GNTL) project in the counties of Beltrami, Itasca, Koochiching, Lake of the Woods, and Roseau counties. The Department and DOE will conduct joint public information meetings at the following locations and times to provide opportunities for public comment on the DEIS.

COUNTY	CITY	MEETING LOCATION	DATE AND TIME
Roseau	Roseau	Roseau Civic Center, 121 Center Street E	Wednesday, July 15, 2015, 11:00 am – 3:00 pm
Lake of the Woods	Baudette	Lake of the Woods School, 236 15th Ave SW	Wednesday, July 15, 2015, 6:00 pm – 10:00 pm
Koochiching	Littlefork	Littlefork Community Center, 220 Main St	Thursday, July 16, 2015, 11:00 am – 3:00 pm
Koochiching	International Falls	Americinn, 1500 Hwy 71	Thursday, July 16, 2015, 6:00 pm – 10:00 pm
Beltrami	Kelliher	Kelliher Old School Center, 243 Clark Avenue N (Highway 72)	Tuesday, July 21, 2015, 11:00 am – 3:00 pm
Itasca	Bigfork	Bigfork School, 100 Huskie Blvd	Tuesday, July 21, 2015, 6:00 pm – 10:00 pm
Itasca	Grand Rapids	Timber Lake Lodge, 144 SE 17th Street	Wednesday, July 22, 2015, 11:00 am – 3:00 pm
Itasca	Grand Rapids	Timber Lake Lodge, 144 SE 17th Street	Wednesday, July 22, 2015, 6:00 pm – 10:00 pm

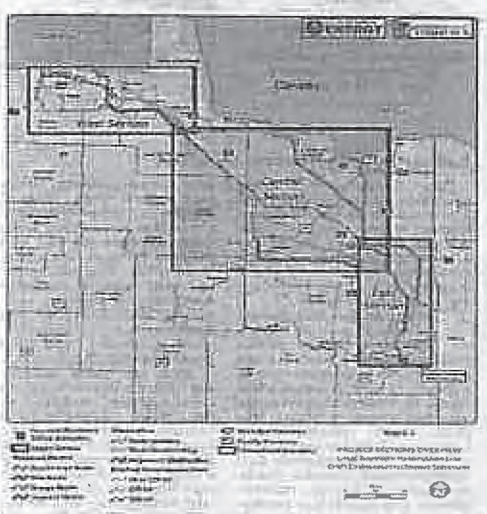
Department and DOE staff will make a brief introductory statement at each meeting. Following this, members of the public will have an opportunity to provide comments to the Department and DOE on the DEIS. Each meeting will offer the same information and opportunity to comment.

Comments are sought on information that needs to be clarified in the DEIS to ensure that the final EIS is complete and accurate. Comments received on the DEIS will be used by the Department and DOE to prepare a final EIS for the project.

The Department and DOE will accept written comments on the DEIS through Monday, August 10, 2015. Please include the PUC docket number TL-14-21 and the DOE number EIS-0499 on all correspondence.

Comments on the DEIS should be mailed, emailed or faxed to:

William Cole Storm,
Environmental Review Manager
Minnesota Department of Commerce
85 7th Place East, Suite 500
St. Paul, Minnesota 55101
Fax: 651-539-0109
bill.storm@state.mn.us



Comments on the DEIS and the DOE Presidential permit decision should be mailed, emailed or faxed to:

Julie Ann Smith, PhD.
Federal Document Manager
DOE Office of Electricity Delivery and Energy Reliability
1000 Independence Avenue SW
Washington, DC 20585
Fax: 202-586-1472
julie.smith@hq.doe.gov

[illegible]

Street E, Suite 100, Roseau
– Warroad Public Library, 202 Main Ave NE, Warroad
– Williams Public Library, 130 Main Street, Williams

[illegible]

through public comment.

[illegible]

www.exploreminnesota.com

minnesota power
AN ALLETE COMPANY

GREAT NORTHERN TRANSMISSION LINE

Legal Notice

Publication: The Bemidji Pioneer

Location: Beltrami County

Actual: Anticipated: Wednesday, July 1, 2015 Actual: Friday, July 3, 2015

minnesota power

AN ALLETE COMPANY

GREAT NORTHERN TRANSMISSION LINE

AFFIDAVIT OF PUBLICATION

[*FORM Rev. 6/15*]

STATE OF MINNESOTA
COUNTY OF BELTRAMI } *SS*

DENNIS DOEDEN, being duly sworn, on oath states as follows:

1. I am the publisher of THE BEMIDJI PIONEER or the publisher's designated agent. I have personal knowledge of the facts stated in this Affidavit, which is made pursuant to Minnesota Statutes §331A.07.

2. The newspaper has complied with all of the requirements to constitute a qualified newspaper under Minnesota law, including those requirements found in Minnesota Statutes §331A.02.

3. The dates of the month and the year and day of the week upon which the attached HDR, Inc/Notice of Availability

was published in the newspaper are as follows:

7/3

4. The publisher's lowest classified rate paid by commercial users for comparable space, as determined pursuant to §331A.06, is as follows: $10.65. The rate actually charged in this matter: $8.00

5. Mortgage Foreclosure Notices. Pursuant to Minnesota Statutes §580.033 relating to the publication of mortgage foreclosure notices: The newspaper's known office of issue is located in BELTRAMI County. The newspaper complies with the conditions described in §580.033, subd. 1, clause (1) or (2). If the newspaper's known office of issue is located in a county adjoining the county where the mortgaged premises or some part of the mortgaged premises described in the notice are located, a substantial portion of the newspaper's circulation is in the latter county.

FURTHER YOUR AFFIANT SAITH NOT.

Den Doeden

[*Signature*]

Subscribed and sworn to before me on
This 6th day of July, 2015.

Larisa Severson

Notary Public

LARISA LYNN SEVERSON
Notary Public-Minnesota
My Commission Expires Jan 31, 2019

minnesota power

AN ALLETE COMPANY

GREAT NORTHERN TRANSMISSION LINE

LEGALS

MINNESOTA DEPARTMENT OF COMMERCE

-LEGAL ADVERTISEMENT-
Issued: June 19, 2015
NOTICE OF AVAILABILITY OF DRAFT
ENVIRONMENTAL IMPACT STATEMENT, STATE PUBLIC INFORMATION MEETINGS
AND FEDERAL PUBLIC HEARINGS
n the Matter of the Route Permit and Presidential Permit Applications by Minnesota
ower for the Great Northern Transmission Line Project and Associated Facilities in
Beltrami, Itasca, Koochiching, Lake of the Woods, and Roseau Counties
PUC Docket Nos. ET015/TL-14-21
DOE/EIS 0499

LEASE TAKE NOTICE that the Minnesota Department of Commerce (Department) and the . Department of Energy (DOE) have released the draft environmental impact statement EIS) for the proposed Great Northern Transmission Line (GNTL) project in the counties of ltrami, Itasca, Koochiching, Lake of the Woods, and Roseau counties. The Department d DOE will conduct joint public information meetings at the following locations and times to vide opportunities for public comment on the DEIS:

COUNTY	CITY	MEETING LOCATION	DATE AND TIME
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Koochiching	International Falls	American 1500 Hwy 71	Thursday, July 16, 2015 6:00 pm – 10:00 pm
Beltrami	Kelliher	Kelliher Old School Center 243 Clark Avenue N (Highway 72)	Tuesday, July 21, 2015 11:00 am – 3:00 pm
Itasca	Bigfork	Bigfork School 100 Huskie Blvd	Tuesday, July 21, 2015 6:00 pm – 10:00 pm
Itasca	Grand Rapids	Timber Lake Lodge 144 SE 17th Street	Wednesday, July 22, 2015 11:00 am – 3:00 pm
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he Department and DOE will accept written comments on the DEIS through Monday, gust 10, 2015. Please include the PUC docket number TL-14-21 and the DOE number 5-0499 on all comments.

omments on the DEIS should be mailed, emailed or faxed to:
illiam Cole Storm, Environmental Review Manager
linnesota Department of Commerce
5 7th Place East, Suite 500
t. Paul, Minnesota, 55101
ax: 651-539-0109 | bill.storm@state.mn.us

omments on the DEIS and the DOE Presidential permit decision should be mailed, emailed faxed to:
ulie Ann Smith, PhD, Federal Document Manager
OE Office of Electricity Delivery and Energy Reliability
000 Independence Avenue SW
/ashington, DC, 20585
ax: 202-586-1472 | julea.smith@hq.doe.gov

omments can also be submitted electronically at: http://mn.gov/commerce/energyfacilities d/or http://www.greatnorthernels.org.

he Department and DOE are sharing all comments received on the DEIS by the ans delineated above, so comments only need to be submitted once to either the state vironmental review manager or the DOE federal document manager via fax, phone, mail, ail or submitted on either website provided above.

he DEIS can be viewed on the Department's energy facility permitting website: http:// .gov/commerce/energyfacilities/Docket.html?id=34161, as well as on the DOE EIS website p://greatnorthernels.org.

he DEIS can also be viewed through the Minnesota Public Utilities Commission's website: w.puc.state.mn.us, select "Search eDockets," enter the year ("14") and the docket number 1), and select "Search."

he DEIS will be available for viewing at the following public libraries:

- Baudette Library, 110 1st Street SW, Baudette
- Blackduck Public Library, 72 1st Street SE, Blackduck
- Bovey Public Library, 402 2nd Street, Bovey
- Calumet Library, 932 Gary Street, Calumet
- Coleraine Public Library, 203 Cole Street, Coleraine
- Duluth Public Library, 520 W Superior Street, Duluth
- Grand Rapids Public Library, 140 NE 2nd Street, Grand Rapids
- Greenbush Public Library, PO Box 9, Greenbush
- International Falls Public Library, 750 4th Street, International Falls
- Marble Public Library, 302 Alice Avenue, Marble

BUSINESS

Duluth forges ahead with Cirrus facility

City to pay for drawings, even as work on development agreement continues

PETER PASSI
Forum News Service

DULUTH — The city of Duluth is rushing ahead with plans to build a new facility for Cirrus Aircraft in order to meet the needs of the fast-growing company and cash in on its pledge to bring at least another 150 jobs to town on top of the 600-or-so people it already employs locally.

So eager are city officials to land those jobs that they have agreed to open Duluth's wallet even before a development agreement for the project has been inked.

To develop drawings, Duluth has hired the architectural and engineering firm of Burns & McDonnell at a cost not to exceed $456,500.

Bill King, Cirrus' vice president of business administration, said Cirrus is eager to expand into the proposed 60,000-square-foot facility as the company prepares to launch production of its first jet, the Vision SF50.

Chris Eng, Duluth's director of business and economic development, said he hopes construction of the building will begin by October. He expects the structure, made of precast concrete panels, will go up quickly and be ready for occupancy by April or May.

MECHANICS OF THE DEAL

All told, the city expects out the new plant.

The building would be owned by the city, but Cirrus is expected to sign a long-term lease that would be used to pay off tax-increment financing bonds issued to finance the project.

Assuming Cirrus gets its new facility, it won't be the first time it has received help growing operations in Duluth. In 2002, it moved into a 63,000-square-foot "aviation incubator" building constructed with the help of $3.5 million from the federal Economic Development Administration, $3.1 million from the city of Duluth and $2 million from the Duluth Economic Development Authority.

LONG-TERM COMMITMENT

Cirrus is now owned by an entity called China Aviation Industry General Aircraft, and 4th District City Councilor Howie Hanson asked whether there was a danger of the company moving production to its owner's home nation in time.

King said such fears are unfounded.

"They did not buy us to move us. If they were going to do that, they would have 3½ to 4 years ago before they invested over $100 million in additional new funds to bring a jet to market in the U.S.," he said. "This is the single biggest

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AN ALLETE COMPANY

GREAT NORTHERN TRANSMISSION LINE

ng, 500 kilovolt (kV) transmission line that would cross the international border in County, and depending on final route, would cut across Beltrami, Koochiching and the Woods counties and terminate at the Blackberry Substation near Grand Rapids a County.

roject also includes a substation upgrade and other associated facilities.

al Review Process. Transmission lines that cross an international border require a ntial permit from the DOE. DOE's National Electricity Delivery Division, in the Office of ity Delivery and Energy Reliability (OE), is responsible for issuing Presidential permits tric transmission facilities.

of Minnesota Review Process. In order to construct the proposed transmission ject, Minnesota Power must obtain from the Minnesota Public Utilities Commission ission) HVTL a Route Permit.

onmental Review. Department Energy Environmental Review and Analysis (EERA) responsible for conducting environmental review for route permit applications submitted Commission. Because the potential issuance of a Presidential permit for the GNTL constitutes a major Federal Action, DOE must consider the potential environmental of the proposed project, and a range of reasonable alternatives to the project, pursuant National Environmental Policy Act (NEPA).

er to avoid duplication, DOC EERA and the DOE have prepared a single DEIS to comply environmental review requirements under both the State and Federal regulations.

IS evaluates the potential human and environmental impacts of Minnesota Power's ed project and possible mitigation measures, including route alternatives. The EIS s and compares potential impacts and mitigation measures such that citizens, local ments, agencies, and the Commission can work from a common set of facts. The EIS d in draft form so that it can be improved through public comment.

Route Permit Public Hearings. The Minnesota Office of Administrative Hearings will conduct Public Hearings on Minnesota Power's route permit application. These s are anticipated to be held in the project area the weeks of August 3rd and 10th, 2015, be presided over by Administrative Law Judge Ann C. O'Reilly from the OAH. Notice hearings will be published in local newspapers and mailed to persons on the project list. Interested persons will have an opportunity at the hearings to ask questions, comments, submit evidence, and advocate for the route(s) that they believe are most riate for the project.

O'Reilly will submit a report to the Commission that includes findings of fact, conclusions and recommendations on Minnesota Power's application. The Commission will use the in deciding whether to grant a route permit, and to select the appropriate route for the

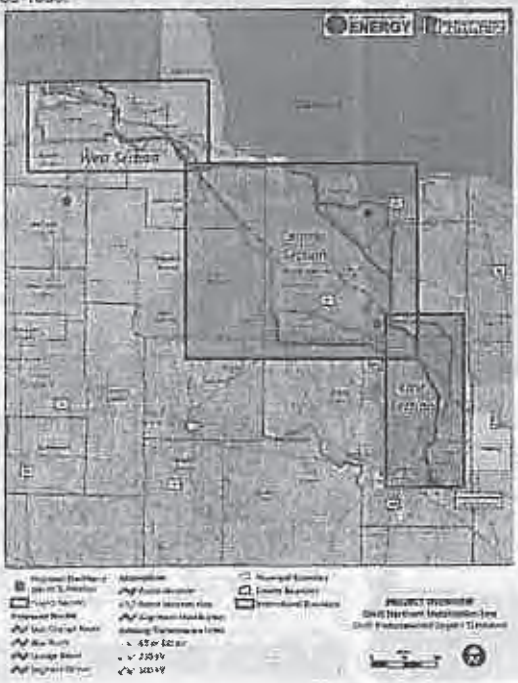
ct Mailing List. To sign up for the project mailing list, contact the state or federal mental review or document manager or state public advisor (see below).

cribe to the Docket. In addition to the project mailing list, interested persons can email notification every time new documents are filed in the route permit docket for this by signing up at: www.puc.state.mn.us, select "Subscribe to a Docket," and follow the s. Note – subscribing may result in a large number of emails.

Project Contacts. If you have questions or would like more information, contact mental review manager Bill Storm (651-539-1844 or 1-800-657-3794, bill.storm@ m.us) or public advisor Tracy Smetana (651-296-0406 or 1-800-657-3782, consumer. state.mn.us).

al Project Contact. If you have questions or would like more information about the NEPA process and the DOE's Presidential permit program, contact federal document er, Julie A Smith, PhD (202-586-7666; julie.smith@hq.doe.gov).

document can be made available in alternative formats (i.e., large print or audio) by 651-539-1530.



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The city's match of $4 million will come from tax-increment financing — a form of subsidy that uses new taxes generated by a project to cover certain development costs.

For its part, Cirrus expects to invest more than $2.5 million to equip and fit day opening Chinese manufacturing operations.

"We don't doubt we'll produce airplanes in China someday. I hope we do," King said. "But the air space isn't open there, and there's no one to sell them to if there's no air space open."

Convicted murderer Daniel Hood indicted in N.M. prison killing

SUSAN LUNNEBORG
Forum News Service

LAS CRUCES, N.M. — Convicted as a teenager in Minnesota's Kandiyohi County of murdering two people, Daniel Thomas Hood, 34, has been indicted in the killing of another inmate in a New Mexico correctional facility.

Hood is charged with first-degree murder and possession of a deadly weapon or explosive by a prisoner, according to New Mexico court records.

The New Mexico State Police Investigations Bureau conducted the investigation into the murder of Frank Pauline, who was found April 27 in a very remote section of the recreation yard at the Southern New Mexico Correctional Facility in Las Cruces, a news release from the New Mexico Department of Public Safety said.

Hood confessed to the murder and said it was because he thought Pauline was a snitch and walked around like he owned the place, the news release states.

Pauline died on his 42nd birthday, according to several media reports.

Hood was 17 years old when he was sentenced in 1998 in Kandiyohi County District Court to life plus 25 years for first-degree premeditated murder and second-degree murder for the Oct. 27, 1996, shooting deaths of Bruce Johnson, 51, and Grace Christiansen, 81, neighbors from New London.

Hood, formerly of Spicer, was 15 when he was arrested and jailed. Hood had been on the run from house arrest ordered after he stole his grandmother's car when he spotted Johnson and Christiansen, working in a field at Christiansen's home, according to a archived story in the West Central Tribune of Willmar. He asked them for a ride to Willmar. They agreed to take him to New London. At some point, Johnson realized Hood was a runaway, and Hood pulled a gun that he had stolen.

Hood forced the two to drive on back roads until arriving at a cornfield south of Willmar, where Hood told them to walk into the field. Johnson turned and tackled Hood, and Hood fired several shots and killed him. Christiansen knelt on the ground, "praying and begging for mercy," and Hood shot her twice and killed her, the archived story states.

The Minnesota Department of Corrections says only that Hood is currently incarcerated and is housed at a non-DOC facility. The Albuquerque Journal quoted New Mexico Department of Corrections spokeswoman Alex Tomlin saying that Hood has been in the New Mexico prison system under an interstate compact since 2002.

Pauline also was transferred to the New Mexico prison under an interstate compact in December 2012 to serve out his 180-year sentence, Tomlin told the Albuquerque Journal.

Pauline was one of three men convicted in the 1991 Christmas Eve kidnapping, rape and murder of a woman in Hawaii, according to a story in the Hawaii Tribune-Herald.

minnesota power
AN ALLETE COMPANY

GREAT NORTHERN TRANSMISSION LINE

Legal Notice

Publication: International Falls Journal

Location: International Falls, MN Koochiching County

Actual: Saturday, June 27 and Wednesday, July 1, 2015

minnesota power
AN ALLETE COMPANY

GREAT NORTHERN TRANSMISSION LINE

AFFIDAVIT OF PUBLICATION

STATE OF MINNESOTA)
) ss.
COUNTY OF KOOCHICHING)

Robert Davenport, being duly sworn, on oath says that he/she is the publisher or authorized agent and employee of the publisher of the newspaper known as The Journal, and has full knowledge of the facts which are stated below:

(A) The newspaper has complied with all of the requirements constituting qualification as a qualified newspaper, as provided by Minnesota Statute 331A.02, 331A.07, and other applicable laws, as amended.

(B) The printed Public Notice ~ Minnesota Department of COMMERCE

which is attached was cut from the columns of said newspaper, and was printed and published once each week, for Two consecutive times; it was first published on Wednesday, the 24th day of June, 20 15, and was thereafter printed and published on Saturday, the 27th day of June, 20 15; and printed below is a copy of the lower case alphabet from A to Z, both inclusive, which is hereby acknowledged as being the size and kind of type used in the composition and publication of the notice:

abcdefghijklmnopqrstuvwxyz

BY: [signature]

TITLE: Publisher

Subscribed and sworn to before me on

this 29th day of June, 20 16.

[signature]
Notary Public

KAMI KOSTIUK
Notary Public-Minnesota
My Commission Expires Jan 31, 2020

RATE INFORMATION

(1) Lowest classified rate paid by commercial users for comparable space — $ _____ (Line, word, or inch rate)

(2) Maximum rate allowed by law for the above matter — $ _____ (Line, word, or inch rate)

(3) Rate actually charged for the above Matter — $ _____ (Line, word, or inch rate)

minnesota power
AN ALLETE COMPANY

GREAT NORTHERN TRANSMISSION LINE

Public Notice

MINNESOTA DEPARTMENT OF COMMERCE

Issued: June 19, 2015

NOTICE OF AVAILABILITY OF DRAFT ENVIRONMENTAL IMPACT STATEMENT, STATE PUBLIC INFORMATION MEETINGS AND FEDERAL PUBLIC HEARINGS

In the Matter of the Route Permit and Presidential Permit Applications by Minnesota Power for the Great Northern Transmission Line Project and Associated Facilities in Beltrami, Itasca, Koochiching, Lake of the Woods, and Roseau Counties

PUC Docket Nos. ET015/TL-14-21

DOE/EIS 0499

PLEASE TAKE NOTICE that the Minnesota Department of Commerce (Department) and the U.S. Department of Energy (DOE) have released the draft environmental impact statement (DEIS) for the proposed Great Northern Transmission Line (GNTL) project in the counties of Beltrami, Itasca, Koochiching, Lake of the Woods, and Roseau counties. The Department and DOE will conduct joint public information meetings at the following locations and times to provide opportunities for public comment on the DEIS:

[illegible]	[illegible]	[illegible]	[illegible]
Roseau	Roseau	Roseau Civic Center 121 Center Street E	Wednesday, July 15, 2015 11:00 am – 3:00 pm
Lake of the Woods	Baudette	Lake of the Woods School 236 15th Ave SW	Wednesday, July 15, 2015 6:00 pm – 10:00 pm
Koochiching	Littlefork	Littlefork Community Center 220 Main St	Thursday, July 16, 2015 11:00 am – 3:00 pm
Koochiching	International Falls	American 1500 Hwy 71	Thursday, July 16, 2015 6:00 pm – 10:00 pm
Beltrami	Kelliher	Kelliher Old School Center 243 Clark Avenue N (Highway 72)	Tuesday, July 21, 2015 11:00 am – 3:00 pm
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Department and DOE staff will make a brief introductory statement at each meeting. Following this, members of the public will have an opportunity to provide comments to the Department and DOE on the DEIS. Each meeting will offer the same information and opportunity to comment. Comments are sought on information that needs to be clarified in the DEIS to ensure that the final EIS is complete and accurate. Comments received on the DEIS will be used by the Department and DOE to prepare a final EIS for the project.

The Department and DOE will accept written comments on the DEIS through Monday, August 10, 2015. Please include the PUC docket number TL-14-21 and the DOE number EIS-0499 on all comments.

Comments on the DEIS should be mailed, emailed or faxed to:

William Cole Storm, Environmental Review Manager
Minnesota Department of Commerce
85 7th Place East, Suite 500
St. Paul, Minnesota, 55101
Fax: 651-539-0109 | bill.storm@state.mn.us

Comments on the DEIS and the DOE Presidential permit decision should be mailed, emailed or faxed to:

Julie Ann Smith, PhD, Federal Document Manager
DOE Office of Electricity Delivery and Energy Reliability
1000 Independence Avenue SW
Washington, DC, 20585
Fax: 202-586-1472 | julie.smith@hq.doe.gov

Comments can also be submitted electronically at: http://mn.gov/commerce/energyfacilities and/or http://www.greatnorthernmn.org

The Department and DOE are sharing all comments received on the DEIS by the means submitted above, so comments only need to be submitted once to either the state environmental review manager or the DOE federal document manager via fax, phone, mail, email or submitted on either website provided above.

The DEIS can be viewed on the Department's energy facility permitting website: http://mn.gov/commerce/energyfacilities/Docket.html?Id=54181, as well as on the DOE EIS website http://greatnorthernmn.org.

The DEIS can also be viewed through the Minnesota Public Utilities Commission's website: www.puc.state.mn.us, select "Search eDockets," enter the year ("14") and the docket number ("21), and select "Search."

The DEIS will be available for viewing at the following public libraries:

- Baudette Library, 110 1st Street SW, Baudette

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GREAT NORTHERN TRANSMISSION LINE

- Makin Public Library, 302 Alice Avenue, Makin
- Northome Public Library, 12064 Main Street, Northome
- Roseau Public Library, 121 Center Street E, Suite 100, Roseau
- Warroad Public Library, 202 Main Avenue NE, Warroad
- Williams Public Library, 300 Main Street, Williams

Review copies of the DEIS, as well as a limited number of electronic copies (on CD), will be available at the public information meetings.

Project Description. Minnesota Power has proposed to construct an approximately 220 mile long, 500 kilovolt (kV) transmission line that would cross the international border in Koochiching County, and depending on final route, would cut across Beltrami, Koochiching and Lake of the Woods counties and terminate at the Blackberry Substation near Grand Rapids in Itasca County.

The project also includes a substation upgrade and other associated facilities.

Federal Review Process. Transmission lines that cross an international border require a Presidential permit from the DOE. DOE's National Electricity Delivery Division, in the Office of Electricity Delivery and Energy Reliability (OE), is responsible for issuing Presidential permits for electric transmission facilities.

State of Minnesota Review Process. In order to construct the proposed transmission line project, Minnesota Power must obtain from the Minnesota Public Utilities Commission (Commission) (MPUC) a Route Permit.

Environmental Review. Department Energy Environmental Review and Analysis (EERA) staff is responsible for conducting environmental review for route permit applications submitted to the Commission. Because the potential issuance of a Presidential permit for the GNTL project constitutes a major Federal Action, DOE must consider the potential environmental effects of the proposed project, and a range of reasonable alternatives to the project, pursuant to the National Environmental Policy Act (NEPA).

In order to avoid duplication, DOE/ EERA and the DOE have prepared a single DEIS to comply with the environmental review requirements under both the State and Federal regulations.

The EIS evaluates the potential human and environmental impacts of Minnesota Power's proposed project and possible mitigation measures, including route alternatives. The EIS analyzes and compares potential impacts and mitigation measures such that citizens, local governments, agencies, and the Commission can work from a common set of facts. The EIS is issued in draft form so that it can be improved through public comment.

State Route Permit Public Hearings. The Minnesota Office of Administrative Hearings (OAH) will conduct Public Hearings on Minnesota Power's route permit application. These hearings are anticipated to be held in the project area the weeks of August 3rd and 10th, 2015, and will be presided over by Administrative Law Judge Ann C. O'Reilly from the OAH. Notice of the hearings will be published in local newspapers and mailed to persons on the project mailing list. Interested persons will have an opportunity at the hearings to ask questions, provide comments, submit evidence, and advocate for the route(s) that they believe are most appropriate for the project.

Judge O'Reilly will submit a report to the Commission that includes findings of fact, conclusions of law, and recommendations on Minnesota Power's application. The Commission will use the report in deciding whether to grant a route permit, and to select the appropriate route for the project.

Project Mailing List. To sign up for the project mailing list, contact the state or federal environmental review or document manager or state public advisor (see below).

Subscribe to the Docket. In addition to the project mailing list, interested persons can receive email notification every time new documents are filed in the route permit docket for this project by signing up at: www.puc.state.mn.us, select "Subscribe to a Docket," and follow the prompts. Note – subscribing may result in a large number of emails.

State Project Contacts. If you have questions or would like more information, contact environmental review manager Bill Storm (651-539-1844 or 1-800-657-3794, bill.storm@state.mn.us) or public advisor Tracy Smetana (651-296-0406 or 1-800-657-3782, consumer.puc@state.mn.us).

Federal Project Contact. If you have questions or would like more information about the federal NEPA process and the DOE's Presidential permit program, contact federal document manager Julie A Smith, PhD (202-586-7890; julie.smith@hq.doe.gov).

This document can be made available in alternative formats (i.e., large print or audio) by calling 651-539-1530.

minnesota power
AN ALLETE COMPANY

GREAT NORTHERN TRANSMISSION LINE

Legal Notice

Publication: The American

Location: Blackduck, MN Beltrami County

Actual: Anticipated: Friday, June 26, 2015 Actual: Friday, July 3, 2015

minnesota power
AN ALLETE COMPANY

GREAT NORTHERN TRANSMISSION LINE

AFFIDAVIT OF PUBLICATION

[*FORM Rev. 6/15*]

STATE OF MINNESOTA
COUNTY OF BELTRAMI } *SS*

DENNIS DOEDEN, being duly sworn, on oath states as follows:

1. I am the publisher of THE BLACKDUCK AMERICAN or the publisher's designated agent. I have personal knowledge of the facts stated in this Affidavit, which is made pursuant to Minnesota Statutes §331A.07.

2. The newspaper has complied with all of the requirements to constitute a qualified newspaper under Minnesota law, including those requirements found in Minnesota Statutes §331A.02.

3. The dates of the month and the year and day of the week upon which the attached HDR, Inc/Notice of Availability

was published in the newspaper are as follows:

7/3

4. The publisher's lowest classified rate paid by commercial users for comparable space, as determined pursuant to §331A.06, is as follows: $10.65. The rate actually charged in this matter: $8.00

5. Mortgage Foreclosure Notices. Pursuant to Minnesota Statutes §580.033 relating to the publication of mortgage foreclosure notices: The newspaper's known office of issue is located in BELTRAMI County. The newspaper complies with the conditions described in §580.033, subd. 1, clause (1) or (2). If the newspaper's known office of issue is located in a county adjoining the county where the mortgaged premises or some part of the mortgaged premises described in the notice are located, a substantial portion of the newspaper's circulation is in the latter county.

FURTHER YOUR AFFIANT SAITH NOT.

[*Signature*]

Subscribed and sworn to before me on
This 6th day of July, 2015.

Larisa Severson

Notary Public

LARISA LYNN SEVERSON
Notary Public-Minnesota
My Commission Expires Jan 31, 2019

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GREAT NORTHERN TRANSMISSION LINE

HELP WANTED TECHNOLOGY

HELP WANTED TECHNOLOGY

Paul Bunyan COMMUNICATIONS

Telecommunications Technician
Grand Rapids, MN Office

Your primary tasks will include:
- Installation and maintenance of residential/business voice, video and internet services
- Responsible for entering On-Call duties
- Must be able to work Saturday's and overtime as needed

Our ideal candidate will possess:
- 2 year Telecommunications, Broadband, Computer, Electrical or related degree
- Permit Limited Telephone Equipt.
- Knowledge of IP Net and PON systems
- Knowledge of fiber optic and copper outside plant

Paul Bunyan Communications offers a competitive salary and benefits package, while working for a stable, reliable employer. To apply, send a written resume, including e-mail address, salary requirements by July 10th to:
Human Resources/
Paul Bunyan Communications
1831 Anna St. NW - Suite 100
Bemidji, MN 56601
or email a PDF of your resume to
employment@paulbunyan.net with
the subject line "IN TECH"

PBC is an equal opportunity employer

www.paulbunyan.net

GIGAZONE

Paul Bunyan COMMUNICATIONS

Tier II Data Services Representative
Bemidji MN office
On-site full time position located in the heart of Minnesota's woods and lake country

Responsibilities will vary depending upon the qualifications of person hired, but may include:
- Providing end user advanced level support to internal and external customers
- Installation, configuration, and administration of a variety of servers and networks
- Technical sales, design, and engineering

Qualifications include:
High school diploma plus successful completion of post-secondary education or advanced military training. A valid driver' license with an acceptable driving history is also required.
In addition, any of the following skills/traits are desirable:
- Passion for learning new technology
- Strong work ethic
- Outstanding communication skills with the ability to interact positively with technical and non-technical people
- Customer support experience
- Technical sales skills
- Basic knowledge of PC and/or server hardware

LEGALS

-LEGAL ADVERTISEMENT-
Issued: June 19, 2015

NOTICE OF AVAILABILITY OF DRAFT ENVIRONMENTAL IMPACT STATEMENT, STATE PUBLIC INFORMATION MEETINGS AND FEDERAL PUBLIC HEARINGS

In the Matter of the Route Permit and Presidential Permit Applications by Minnesota Power for the Great Northern Transmission Line Project and Associated Facilities in Beltrami, Itasca, Koochiching, Lake of the Woods, and Roseau Counties
PUC Docket Nos. ET015/TL-14-21
DOE/EIS 0499

PLEASE TAKE NOTICE that the Minnesota Department of Commerce (Department) and the U.S. Department of Energy (DOE) have released the draft environmental impact statement (DEIS) for the proposed Great Northern Transmission Line (GNTL) project in the counties of Beltrami, Itasca, Koochiching, Lake of the Woods, and Roseau counties. The Department and DOE will conduct joint public information meetings at the following locations and times to provide opportunities for public comment on the DEIS:

COUNTY	CITY	MEETING LOCATION	DATE AND TIME
Roseau	Roseau	Roseau Civic Center 110 Center Street E	Wednesday, July 15, 2015 11:00 am – 3:00 pm
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Koochiching	International Falls	Americinn 1503 Hwy 71	Thursday, July 16, 2015 6:00 pm – 10:00 pm
Beltrami	Bemidji	Bemidji Old School Center 303 Park Avenue N (Highway 71)	Tuesday, July 21, 2015 11:00 am – 3:00 pm
Itasca	Bigfork	Bigfork School 320 Hulton Blvd	Tuesday, July 21, 2015 6:00 pm – 10:00 pm
Itasca	Grand Rapids	Timber Lake Lodge 144 SE 37th Street	Wednesday, July 22, 2015 11:00 am – 3:00 pm
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Department and DOE staff will make a brief introductory statement at each meeting. Following this, members of the public will have an opportunity to provide comments to the Department and DOE on the DEIS. Each meeting will offer the same information and opportunity to comment.

Comments are sought on information that needs to be clarified in the DEIS to ensure that the final EIS is complete and accurate. Comments received on the DEIS will be used by the Department and DOE to prepare a final EIS for the project.

The Department and DOE will accept written comments on the DEIS through Monday, August 10, 2015. Please include the PUC docket number TL-14-21 and the DOE number EIS-0499 on all comments.

Comments on the DEIS should be mailed, emailed or faxed to:
William Cole Storm, Environmental Review Manager
Minnesota Department of Commerce
85 7th Place East, Suite 500
St. Paul, Minnesota, 55101
Fax: 651-539-0109 | bill.storm@state.mn.us

Comments on the DEIS and the DOE Presidential permit decision should be mailed, emailed or faxed to:
Julie Ann Smith, PhD, Federal Document Manager
DOE Office of Electricity Delivery and Energy Reliability
1000 Independence Avenue SW
Washington, DC, 20585
Fax: 202-586-1472 | julie.smith@hq.doe.gov

Comments can also be submitted electronically at http://mn.gov/commerce/energyfacilities and/or http://www.greatnorthernmn.org

The Department and DOE are sharing all comments received on the DEIS by the means delineated above, so comments only need to be submitted once to either the state environmental review manager or the DOE federal document manager via fax, phone, mail, email or submitted on either website provided above.

The DEIS can be viewed on the Department's energy facility permitting website: http://mn.gov/commerce/energyfacilities/Docket.html?Id=34151, as well as on the DOE EIS website http://greatnorthernmn.org

The DEIS can also be viewed through the Minnesota Public Utilities Commission's website: www.puc.state.mn.us, select "Search eDockets" enter the year ("14") and the docket number ("21"), and select "Search."

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- Blackduck Public Library, 72 1st Street SE, Blackduck
- Bemidji Public Library, 402 2nd Street, Bemidji
- Calumet Library, 928 Gary Street, Calumet
- Coleraine Public Library, 205 Cole Street, Coleraine
- Duluth Public Library, 520 W Superior Street, Duluth
- Grand Rapids Public Library, 140 NE 2nd Street, Grand Rapids
- Greenbush Public Library, PO Box 9, Greenbush
- International Falls Public Library, 750 4th Street, International Falls
- Marble Public Library, 302 Alice Avenue, Marble
- Northome Public Library, 12004 Main Street, Northome
- Roseau Public Library, 181 Center Street E, Suite 100, Roseau
- Warroad Public Library, 202 Main Avenue NE, Warroad
- Williams Public Library, 510 Main Street, Williams

Wine tasting event held at Blackduck Golf Course

Wine, golf and food. A successful and fun night was enjoyed by all Tuesday at the Women's Wine Tasting Scramble at the Blackduck Golf Course.

New golfers, advanced golfers and all levels in between came from as far away as Hong Kong and ranged in age from 24 to 75.

Watch for another event coming soon.

Participants gather for the meal at Tuesday's Women's Wine Tasting Scramble.

Sampling wine was a popular part of Tuesday's Women's Wine Tasting Scramble.

minnesota power

AN ALLETE COMPANY

GREAT NORTHERN TRANSMISSION LINE

- Pay / Benefits Package
- Ability to work independently and as a team member

Paul Bunyan Communications offers a competitive salary and an outstanding benefits package, while working for a stable, remote employer. The workday will be primarily business hours but a paid "on call" position for holidays, weekends or evenings may be required.

Please send a written resume, including e-mail address and salary requirements by July 15th, to attention of HR-0310-2, Paul Bunyan Communications, 1831 Anne St. NW / Suite 100, Bemidji, MN 56601.

PBC is an equal opportunity employer.
www.paulbunyan.net

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LEGALS

-LEGAL ADVERTISEMENT-
NOTICE OF DISSOLUTION

Foot Valve, LLC, a Minnesota limited liability company (the "Company") commenced the process of dissolving and is in the process of winding up its affairs. The Company filed a Notice of Dissolution with the Minnesota Secretary of State on June 9, 2015. The address to submit written claims against the Company is 1171 Paul Bunyan Drive NW, Bemidji, Minnesota 56601, Attn: Jeff Lunken. A written claim must include (a) the name, address and telephone number of the claimant, (b) the amount of the claim, (c) description of basis of the claim, and (d) any written documentation supporting the claim. All claims against the company must be received on or before September 17, 2015. Claims received after this date will be barred.

4 pb; 6/19, 26, 7/3, 10

CALL THE CLASSIFIEDS TODAY!
218-333-9200

mile long, 500 kilovolt (kV) transmission line that would cross the international border in Roseau County, and depending on final route, would cut across Beltrami, Koochiching and Lake of the Woods counties and terminate at the Blackberry Substation near Grand Rapids in Itasca County.

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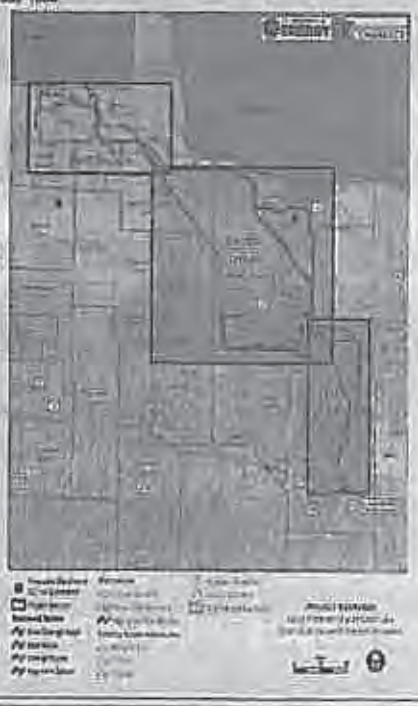
This document can be made available in alternative formats (e.g., large print or audio) by calling 651-539-1530.



1 pb; 7/3

Golfers are set to hit the course at Tuesday's Women's Wine Tasting Scramble.

Applications accepted for special deer hunt

Matthew Liedke
The American

Minnesota's deer archery season doesn't start until September, however, Bemidji city staff wants potential hunters to send in applications this summer to be part of a hunt that manages deer population around town.

The Bemidji Special Archery Deer Hunt, which began in 2005, has become an annual form of wildlife population control after the city received numerous complaints from residents.

"People in Ward 5, near the northeast part of Lake Bemidji had a lot of complaints about the deer," said Teresa Hanson, Bemidji deputy city clerk. "The herd was large, there was a lot of people complaining about deer eating shrubs and there were a lot of hits on the roadway."

In response, a study was done by the city with the aid of the Minnesota Department of Natural Resources to determine the amount of deer in the local region. Soon after, a deer management committee was formed that included a council member, a DNR representative and citizens.

The city has since created a special permit program that allows archery hunters to shoot deer inside the city limits on both private and public land.

Some of the public land in the hunt is owned by the city and other sections are owned by the state. For the private sections, Hanson said the owners have the option to apply for a permit themselves, have friends or family apply or the city can assign hunters in their location.

In all, there are about seven sites and the public areas are assigned to two hunters. The amount of people able to get permits is limited for public sites, though. Hanson said the number of applicants often exceeds the amount of permits available and therefore, a lottery drawing is done.

The hunt will follow the regular Minnesota deer archery season, which starts Sept. 19 and ends Dec. 31. The state allows a total of five deer to be harvested with a limit of one buck per hunter. Additionally, all existing hunting and trespassing laws as well as city ordinances will still apply during the Bemidji hunt.

To apply, participants will need to acquire the appropriate state hunting licenses, must be 18 years old as well as pass a criminal background check. They also will need to successfully complete an archery proficiency test.

If a participant has already passed a proficiency test in the past three years, one won't be required, however, an application must be done every year.

To schedule an archery proficiency test, potential hunters can call

- Gander Mountain, (218) 785-6150
- John's Bow Shop, (218) 444-2045
- Bemidji Bow Shop, (218) 203-4251

Applications must be received at Bemidji City Hall by 4 p.m. Aug. 14. A $5 fee is required when submitting the application. Those who are selected as participants will also have to register all deer harvested with both the city and the state.

Applications can be picked up at Bemidji City Hall, 317 Fourth St. NW.

minnesota power
AN ALLETE COMPANY

GREAT NORTHERN TRANSMISSION LINE

Legal Notice

Publication: Roseau Times Region

Location: Roseau, MN Roseau County

Actual: Anticipated: Friday, June 26, 2015 Actual: Saturday, July 4, 2015

minnesota power

AN ALLETE COMPANY

GREAT NORTHERN TRANSMISSION LINE

AFFIDAVIT OF PUBLICATION

State of Minnesota)
)§
Country of Roseau

Terrie Johnson being duly sworn, on oath says that he/she is the publisher of authorized agent and employee of the publisher of the newspaper known as the Roseau Times-Region and has full knowledge of the facts which are stated below.

A)The newspaper has complied with all the requirements constituting qualification as a qualified newspaper, as provided by Minnesota Statute 331A.02, 331A.07 and other applicable laws, as amended.

B) The printed Notice of Availability of Draft Environmental Impact Statement which is attached as cut from the columns of said newspaper and was printed and published once each week, for one successive weeks; it was first published on Saturday, the 11 day of July 2015, and was thereafter printed and published on every — to and including —, the — day of — 20—; and printed below is a copy of the lower case alphabet from A to Z, both inclusive, which is hereby acknowledged as being the size and kind of type used in the composition and publication of the notice:

abcdefghijklmnopqrstuvwxyz

BY Terrie Johnson

TITLE Ad Sales

Subscribed and sworn to before me on this 11th day of July, 2015

SHELLY J. MELBY
Notary Public-Minnesota
My Commission Expires Jan. 31, 2020

Shelly J. Melby
Notary Public

minnesota power

AN ALLETE COMPANY

GREAT NORTHERN TRANSMISSION LINE

NOTICE OF AVAILABILITY OF DRAFT ENVIRONMENT IMPACT STATEMENT, STATE PUBLIC INFORMATION MEETINGS AND FEDERAL PUBLIC HEARINGS

In the Matter of the Route Permit and Presidential Permit Application by Minnesota Power for the Great Northern Transmission Line Project and Associated Facilities in Beltrami, Itasca, Koochiching, Lake of the Woods, and Roseau Counties.

PUC Docket Nos. ET015/TL-14-12
DOE/EIS 0499

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William Cole Storm, Environmental Review Manager
Minnesota Department of Commerce
85 7th Place East, Suite 500
St. Paul, Minnesota, 55101
Fax: 651-539-0109 | bill.storm@state.mn.us

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DOE Office of Electricity Delivery and Energy Reliability
1000 Independence Avenue SW
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July 4, 2015

minnesota power
AN ALLETE COMPANY

GREAT NORTHERN TRANSMISSION LINE

Legal Notice

Publication: Hibbing Daily Tribune

Location: Hibbing, MN St. Louis County

Actual: Wednesday, July 1, 2015

minnesota power
AN ALLETE COMPANY

GREAT NORTHERN TRANSMISSION LINE

HIBBING DAILY TRIBUNE

AFFIDAVIT OF PUBLICATION

[FORM Rev. 6/15]

State of Minnesota

County of St. Louis

Susan LaBrosse being first duly sworn, on oath states as follows:

1. I am the publisher of The Hibbing Daily Tribune, or the publisher's designated agent. I have personal knowledge of the facts stated in this Affidavit, which is made pursuant to Minnesota Statutes §331A.07.

2. The newspaper has complied with all of the requirements to constitute a qualified newspaper under Minnesota law, including those requirements found in Minnesota Statutes §331A.02.

3. The dates of the month and the year and day of the week upon which the public notice attached/copied below was published in the newspaper are as follows:

Wednesday, July 1, 2015

4. The publisher's lowest classified rate paid by commercial users for comparable space, as determined pursuant to § 331A.06, is as follows: $ 9.85 pci.

5. **[NEW]** Mortgage Foreclosure Notices *[Effective 7/1/15]*. Pursuant to Minnesota Statutes §580.033 relating to the publication of mortgage foreclosure notices: The newspaper's known office of issue is located in St. Louis County. The newspaper complies with the conditions described in §580.033, subd. 1, clause (1) or (2). If the newspaper's known office of issue is located in a county adjoining the county where the mortgaged premises or some part of the mortgaged premises described in the notice are located, a substantial portion of the newspaper's circulation is in the latter county.

FURTHER YOUR AFFIANT SAITH NOT.

Susan LaBrosse

MARY J. FERRIS
NOTARY PUBLIC - MINNESOTA
My Comm. Exp. Jan. 31, 2017

Subscribed and sworn to before me

on this 8th day of July.

Mary J. Ferris

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GREAT NORTHERN TRANSMISSION LINE

MINNESOTA DEPARTMENT OF COMMERCE

Issued: June 19, 2015

NOTICE OF AVAILABILITY OF DRAFT ENVIRONMENTAL IMPACT STATEMENT, STATE PUBLIC INFORMATION MEETINGS AND FEDERAL PUBLIC HEARINGS

In the Matter of the State Permit and Presidential Permit Applications by Minnesota Power for the Great Northern Transmission Line Project and Associated Facilities in Beltrami, Itasca, Koochiching, Lake of the Woods, and Roseau Counties

PUC Docket Nos. ET015/TL-14-21
DOE/EIS 0489

PLEASE TAKE NOTICE that the Minnesota Department of Commerce (Department) and the U.S. Department of Energy (DOE) have released the draft environmental impact statement (DEIS) for the proposed Great Northern Transmission Line (GNTL) project in the counties of Beltrami, Itasca, Koochiching, Lake of the Woods, and Roseau counties. The Department and DOE will conduct joint public information meetings at the following locations and times to provide opportunities for public comment on the DEIS:

COUNTY	CITY	MEETING LOCATION	DATE AND TIME
Roseau	Roseau	Roseau Civic Center 121 Center Street E	Wednesday, July 15, 2015 11:00 am – 3:00 pm
Lake of the Woods	Baudette	Lake of the Woods School 236 15th Ave SW	Wednesday, July 15, 2015 6:00 pm – 10:00 pm
Koochiching	Littlefork	Littlefork Community Center 220 Main St	Thursday, July 16, 2015 11:00 am – 3:00 pm
Koochiching	International Falls	American 1500 Hwy 71	Thursday, July 16, 2015 6:00 pm – 10:00 pm
Beltrami	Kelliher	Kelliher Old School Center 249 Clark Avenue N (Highway 72)	Tuesday, July 21, 2015 11:00 am – 3:00 pm
Itasca	Bigfork	Bigfork School 100 Huskie Blvd	Tuesday, July 21, 2015 6:00 pm – 10:00 pm
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Department and DOE staff will make a brief introductory statement at each meeting. Following this, members of the public will have an opportunity to provide comments to the Department and DOE on the DEIS. Each meeting will offer the same information and opportunity to comment.

Comments are sought on information that needs to be clarified in the DEIS to ensure that the final EIS is complete and accurate. Comments received on the DEIS will be used by the Department and DOE to prepare a final EIS for the project.

The Department and DOE will accept written comments on the DEIS through Monday, August 10, 2015. Please include the PUC docket number TL-14-21 and the DOE number EIS-0489 on all comments.

Comments on the DEIS should be mailed, emailed or faxed to:

William Cole Storm, Environmental Review Manager
Minnesota Department of Commerce
85 7th Place East, Suite 500
St. Paul, Minnesota, 55101
Fax: 651-539-2109 | bill.storm@state.mn.us

Comments on the DEIS and the DOE Presidential permit decision should be mailed, emailed or faxed to:

Julie Ann Smith, PhD, Federal Document Manager
DOE Office of Electricity Delivery and Energy Reliability
1000 Independence Avenue SW
Washington, DC, 20585
Fax: 202-586-1472 | julie.smith@hq.doe.gov

Comments can also be submitted electronically at http://mn.gov/commerce/energyfacilities and/or http://www.greatnorthernmn.org.

The Department and DOE are sharing all comments received on the DEIS by the means delineated above, so comments only need to be submitted once to either the state environmental review manager or the DOE federal documents manager via fax, phone, mail, email or submitted on either website provided above.

The DEIS can be viewed on the Department's energy facility permitting website http://mn.gov/commerce/energyfacilities/Docket.html?Id=34161, as well as on the DOE EIS website http://greatnorthernmn.org.

The DEIS can also be viewed through the Minnesota Public Utilities Commission's website: www.puc.state.mn.us, select "Search eDockets," enter the year ("14") and the docket number ("21), and select "Search."

The DEIS will be available for viewing at the following public libraries:

- Baudette Library, 110 1st Street SW, Baudette
- Blackduck Public Library, 72 1st Street SE, Blackduck
- Bovey Public Library, 402 2nd Street, Bovey
- Calumet Library, 931 Gory Street, Calumet
- Coleraine Public Library, 203 Cole Street, Coleraine
- Duluth Public Library, 520 W Superior Street, Duluth
- Grand Rapids Public Library, 140 NE 2nd Street, Grand Rapids
- Greenbush Public Library, PO Box 9, Greenbush
- International Falls Public Library, 750 4th Street, International Falls
- Marble Public Library, 303 Alice Avenue, Marble
- Northome Public Library, 12084 Main Street, Northome
- Roseau Public Library, 121 Center Street E, Suite 100, Roseau
- Warroad Public Library, 202 Main Avenue NE, Warroad

Minnesota Power

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GREAT NORTHERN TRANSMISSION LINE

Federal Permit Process. Transmission lines that cross an international border require a Presidential permit from the DOE. Energy Delivery and Electricity Delivery Division, in the Office of Electricity Delivery and Energy Reliability (OE), is responsible for issuing Presidential permits for electric transmission facilities.

State of Minnesota Review Process. In order to construct the proposed transmission line project, Minnesota Power must obtain from the Minnesota Public Utilities Commission (Commission) HVTL a Route Permit.

Environmental Review. Department Energy Environmental Review and Analysis (EERA) staff is responsible for conducting environmental review for route permit applications submitted to the Commission. Because the potential issuance of a Presidential permit for the GNTL project constitutes a major Federal Action, DOE must consider the potential environmental effects of the proposed project, with a range of reasonable alternatives to the project, pursuant to the National Environmental Policy Act (NEPA). In order to avoid duplication, DOC EERA and the DOE have prepared a single DEIS to comply with the environmental review requirements under both the State and Federal regulations.

The EIS evaluates the potential human and environmental impacts of Minnesota Power's proposed project and possible mitigation measures, including route alternatives. The EIS analyzes and compares potential impacts and mitigation measures such that citizens, local governments, agencies, and the Commission can work from a common set of facts. The EIS is sound in draft form so that it can be improved through public comment.

State Route Permit Public Hearings. The Minnesota Office of Administrative Hearings (OAH) will conduct Public Hearings on Minnesota Power's route permit application. These hearings are anticipated to be held in the project area the week of August 3rd and 10th, 2009, and will be presided over by Administrative Law Judge Ann C. O'Reilly from the OAH. Notice of the hearings will be published in local newspapers and mailed to persons on the project mailing list. Interested persons will have an opportunity at the hearings to ask questions, provide comments, submit evidence, and advocate for the route(s) that they believe are most appropriate for the project.

Judge O'Reilly will submit a report to the Commission that includes findings of fact, conclusions of law and recommendations on Minnesota Power's application. The Commission will use the report in deciding whether to grant a route permit, and to select the appropriate low route for the project.

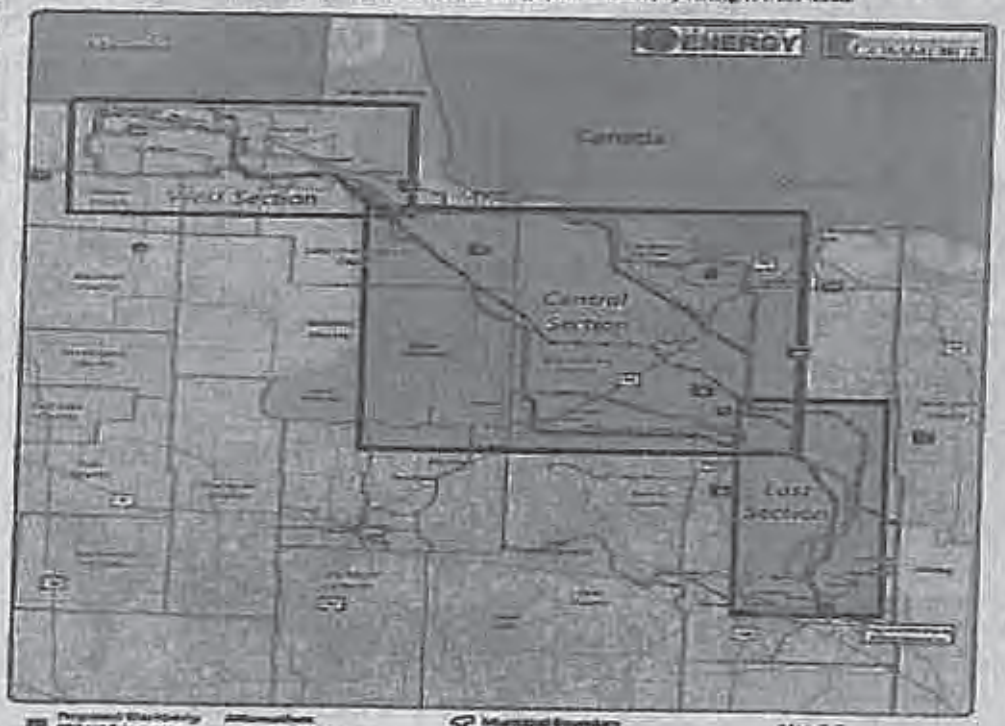
Project Mailing List. To sign up for the project mailing list, contact the state or federal environmental review or document manager or state public advisor (see below).

Subscribe to the Docket. In addition to the project mailing list, interested persons can receive email notifications every time new documents are filed in the state permit docket for this project by signing up at: [illegible] where "Subscribe to a Docket" and follow the prompts. Note – subscribing may result in a large number of emails.

State Project Questions. If you have questions or would like more information, contact environmental review manager Jim Bruno (651-[illegible]) or 1-800-657-3794, jim.bruno@state.mn.us or public advisor Tracy Ascenzo (651-296-[illegible]) or 1-800-657-3794, [illegible]@state.mn.us).

Federal Project Contact. If you have questions or would like more information about the federal NEPA process and the DOE's Presidential permit program, contact federal document manager, Julie A Smith, PhD (202-586-7666, julie.smith@hq.doe.gov).

This document can be made available in alternative formats (i.e., large print or audio) by calling 651-539-1500.



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GREAT NORTHERN TRANSMISSION LINE

Legal Notice

Publication: Western Itasca Review

Location: Deer River, MN Itasca County

Actual: Thursday, July 2, 2015

minnesota power
AN ALLETE COMPANY

GREAT NORTHERN TRANSMISSION LINE

Affidavit of Publication

State of Minnesota)
)ss. **HDR Engineering, Inc.**
County of Itasca)

Robin Pederson, duly sworn, on oath says that she is the publisher or authorized agent and employee of the publisher of the newspaper known as Western Itasca Review, Deer River, Minnesota, and has full knowledge of the facts which are stated below:

A) The newspaper has complied with all of the requirements constituting as a qualified newspaper, as provided by Minnesota statute 331A.02, 331A.07, and other applicable laws,

B) The printed advertisement:

Notice of Availability of Draft Environmental Impact Statement
State Public Information Meetings and Federal Public Hearings
In the Matter of the Route Permit and Presidential Permit Applications by Minnesota Power for the Great Northern Transmission Line Project

which is attached was cut from the columns of said newspaper, and was printed and published once on Thursday, the 2nd day of July, 2015

BY: Robin Pederson
Robin Pederson
TITLE: Office Manager

Subscribed and sworn to before me on the 9th day of July, 2015.

Notary Public
Itasca, Minnesota

PAULA JEAN SHAW
NOTARY PUBLIC
MINNESOTA
My Comm. Exp. Jan. 31, 2019

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GREAT NORTHERN TRANSMISSION LINE

Issued June 19, 2015

Notice of Availability of Draft Environmental Impact Statement, State Public Information Meetings and Federal Public Hearings

In the Matter of the Route Permit and Presidential Permit Applications by Minnesota Power for the Great Northern Transmission Line Project and Associated Facilities in Beltrami, Itasca, Koochiching, Lake of the Woods, and Roseau Counties

PUC Docket Nos. ET015/TL-14-21

DOE/EIS 0499

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Koochiching	International Falls	American 1503 Hwy 71	Thursday, July 16, 2015 6:00 pm – 10:00 pm
Beltrami	Bemidji	Bemidji Old School Center 209 Chippewa Avenue NW (Highway 71)	Tuesday, July 21, 2015 11:00 am – 3:00 pm
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William Cole Storm, Environmental Review Manager
Minnesota Department of Commerce
85 7th Place East, Suite 500
St. Paul, Minnesota, 55101
Fax: 651-539-0109 | bill.storm@state.mn.us

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The DEIS [illegible]

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GREAT NORTHERN TRANSMISSION LINE

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- Coleraine Public Library, 508 Cole Street, Coleraine
- Duluth Public Library, 520 W Superior Street, Duluth
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- Northome Public Library, 12094 Main Street, Northome
- Roseau Public Library, 121 Center Street E, Suite 100, Roseau
- Warroad Public Library, 202 Main Avenue NE, Warroad
- Williams Public Library, 360 Main Street, Williams

Review copies of the DEIS, as well as a limited number of electronic copies (on CD), will be available at the public information meetings.

Project Description. Minnesota Power has proposed to construct an approximately 220 mile long, 500 kilovolt (kV) transmission line that would cross the International border in Roseau County, and depending on final route, would cut across Beltrami, Koochiching and Lake of the Woods counties and terminate at the Blackberry Substation near Grand Rapids in Itasca County.

The project also includes a substation upgrade and other associated facilities.

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State Project Contacts. If you have questions or would like more information, contact environmental review manager Bill Storm (651-539-1844 or 1-800-657-3794, bill.storm@state.mn.us) or public advisor Tracy Smetana (651-296-0406, or 1-800-657-3782, tracy.smetana@state.mn.us).

Federal Project Contact. If you have questions or would like more information about the federal NEPA process and the DOE's Presidential permit program, contact federal document manager, Julie A Smith, (202-586-7504, julie.smith@hq.doe.gov).

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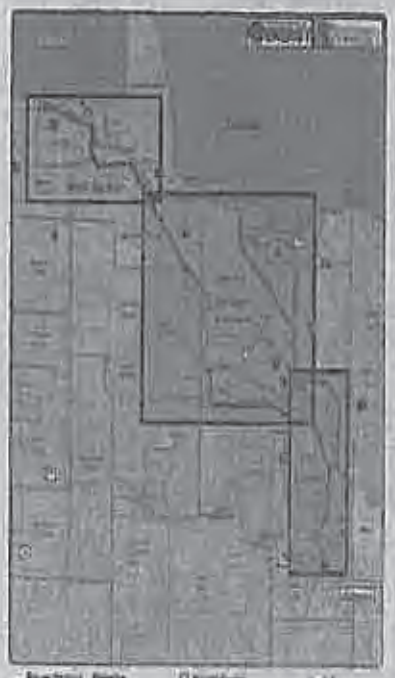

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GREAT NORTHERN TRANSMISSION LINE

Legal Notice

Publication: The Littlefork Times

Location: Littlefork, MN Koochiching County

Actual: Wednesday, July 1, 2015

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GREAT NORTHERN TRANSMISSION LINE

MINNESOTA DEPARTMENT OF COMMERCE

PAID LEGAL ADVERTISEMENT

Issued: June 19, 2015

NOTICE OF AVAILABILITY OF DRAFT ENVIRONMENTAL IMPACT STATEMENT, STATE PUBLIC INFORMATION MEETINGS AND FEDERAL PUBLIC HEARINGS

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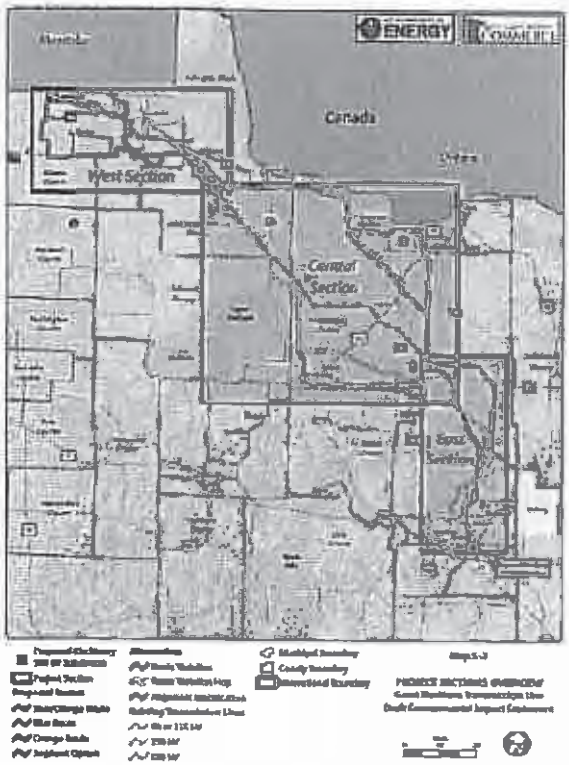

minnesota power
AN ALLETE COMPANY

GREAT NORTHERN TRANSMISSION LINE

Legal Notice

Publication: Northome Area News

Location: Northome, MN Koochiching County

Actual: Thursday, July 2, 2015

From:	Rahm, Laura
Sent:	Monday, June 29, 2015 8:40 AM
To:	nanews@paulbunyan.net
Subject:	FW: Minnesota Power - LEGAL NOTICE for Next Publication: Notice of Availability of Draft Environmental Impact Statement
Attachments:	Notice of DEIS Meetings FINAL DOC-DOE Approved (V-2).docx; GNTL Project Overview Map.pdf

Melissa,

I wanted to follow up on this request to see if you had received it? We are hoping to run it this week, July 2nd, if you still run it on Thursdays. I have enclosed a map that will hopefully be more clear for print if need be.

Let me know if you need anything further to process the request.

Thanks.

Laura Rahm, Project Coordinator
D 763.591.5410

hdrinc.com/follow-us

From: Rahm, Laura
Sent: Monday, June 22, 2015 7:49 AM
To: today@whiteearth.com; mroberts@grhr.net; mickie@ifallsjournal.com; laurel@ifallsjournal.com; norlight@wiktel.com; nanews@paulbunyan.net; mbarrett@redlakenationnews.com; info@redlakenationnews.com; rtr@mncable.net; cindyt@scenicrangenewsforum.com; erongstad@bemidjipioneer.com; mferris@hibbingdailytribune.net; littleforktimes@frontiernet.net; advantage007@centurytel.net; drpub@paulbunyan.net
Cc: Terri Bagwell (ALLETE); Rahm, Laura
Subject: Minnesota Power - LEGAL NOTICE for Next Publication: Notice of Availability of Draft Environmental Impact Statement

Hello,

Minnesota Power would like to place a Legal Notice in your next publication indicating the NOTICE OF AVAILABILITY OF DRAFT ENVIRONMENTAL IMPACT STATEMENT, STATE PUBLIC INFORMATION MEETINGS AND FEDERAL PUBLIC HEARINGS. The legal notice is attached and the text is below.

Please send confirmation and publication date upon receipt of this submittal. We request that invoice and tear sheet be sent to me at the address below. Thank you for your time!

Laura Rahm
701 Xenia Ave South, Suite 600
Minneapolis, MN 55416

Laura Rahm
Project Coordinator

HDR
701 Xenia Avenue South, Suite 600
Minneapolis, MN 55416-3636
D 763.591.5410
laura.rahm@hdrinc.com

minnesota power
AN ALLETE COMPANY

GREAT NORTHERN TRANSMISSION LINE

Legal Notice

Publication: Northern Light Region

Location: Baudette, MN Lake of the Woods County

Actual: Wednesday, July 1, 2015

minnesota power

AN ALLETE COMPANY

GREAT NORTHERN TRANSMISSION LINE

LAURA RAHM
HDR ENGINEER
701 XENIA AVE. S 600
MINNEAPOLIS, MN 55416
MN POWER NOTICE

STATE OF MINNESOTA
County of Lake of the Woods

Affidavit of Publication

1) Doris Knutson, being duly sworn on oath says that she is the Managing Editor of the newspaper known as the NORTHERN LIGHT REGION, and has full knowledge of the facts stated in this Affidavit, which is made pursuant to Minnesota Statutes §331A.07.

2) The newspaper has complied with all of the requirements to constitute a qualified newspaper under Minnesota law, including those requirements found in Minnesota Statutes §331A.02.

3) The dates of the month and the year and day of the week upon which the public notice attached/copied to this document was published in the newspaper are as follows: July 1, 22, 2015

4) The publisher's lowest classified rate paid by commercial users for comparable space, as determined pursuant to § 331A.06, is as follows:
$10.60/column inch

5) Pursuant to Minnesota Statutes §580.033 relating to the publication of mortgage foreclosure notices: The newspaper's known office of issue is located in Lake of the Woods County. The newspaper complies with the conditions described in §580.033, subd. 1, clause (1) or (2). If the newspaper's known office of issue is located in a county adjoining the county where the mortgaged premises or some part of the mortgaged premises described in the notice are located, a substantial portion of the newspaper's circulation is in the latter county.

FURTHER YOUR AFFIANT SAITH NOT.

BY: Doris Knutson
Doris Knutson

TITLE: Managing Editor

Subscribed and sworn to me this 30th day of July 2015.

Notary Public:

Lorie Fuller

LORIE A. FULLER
NOTARY PUBLIC—MINNESOTA
My Commission Expires JAN. 31, 2019

minnesota power

AN ALLETE COMPANY

GREAT NORTHERN TRANSMISSION LINE

PUBLIC NOTICES

Notice of Availability of Draft Environmental Impact Statement, State Public Information Meetings and Federal Public Hearings

In the Matter of the Route Permit and Presidential Permit Applications by Minnesota Power for the Great Northern Transmission Line Project and Associated Facilities in Beltrami, Itasca, Koochiching, Lake of the Woods, and Roseau Counties

PLEASE TAKE NOTICE that the Minnesota Department of Commerce (Department) and the U.S. Department of Energy (DOE) have released the draft environmental impact statement (DEIS) for the proposed Great Northern Transmission Line (GNTL) project in the counties of Beltrami, Itasca, Koochiching, Lake of the Woods, and Roseau counties. The Department and DOE will conduct joint public information meetings at the following locations and times to provide opportunities for public comment on the DEIS:

COUNTY	CITY	MEETING LOCATION	DATE AND TIME
Roseau	Roseau	Roseau Civic Center 121 Center Street E	Wednesday, July 15, 2015 11:00 am – 3:00 pm
Lake of the Woods	Baudette	Lake of the Woods School 236 15th Ave SW	Wednesday, July 15, 2015 6:00 pm – 10:00 pm
Koochiching	Littlefork	Littlefork Community Center 220 Main St	Thursday, July 16, 2015 11:00 am – 3:00 pm
Koochiching	International Falls	AmericInn 1500 Hwy 71	Thursday, July 16, 2015 6:00 pm – 10:00 pm
Beltrami	Kelliher	Kelliher Old School Center 243 Clark Avenue N (Highway 72)	Tuesday, July 21, 2015 11:00 am – 3:00 pm
Itasca	Bigfork	Bigfork School 100 Huskie Blvd	Tuesday, July 21, 2015 6:00 pm – 10:00 pm
Itasca	Grand Rapids	Timber Lake Lodge 144 SE 17th Street	Wednesday, July 22, 2015 11:00 am – 3:00 pm
Itasca	Grand Rapids	Timber Lake Lodge 144 SE 17th Street	Wednesday, July 22, 2015 6:00 pm – 10:00 pm

Department and DOE staff will make a brief introductory statement at each meeting. Following this, members of the public will have an opportunity to provide comments to the Department and DOE on the DEIS. Each meeting will offer the same information and opportunity to comment.

Comments are sought on information that needs to be clarified in the DEIS to ensure that the final EIS is complete and accurate. Comments received on the DEIS will be used by the Department and DOE to prepare a final EIS for the project.

The Department and DOE will accept written comments on the DEIS through Monday, August 10, 2015. Please include the PUC docket number TL-14-21 and the DOE number EIS-0499 on all comments.

Comments on the DEIS should be mailed, emailed or faxed to:
William Cole Storm, Environmental Review Manager
Minnesota Department of Commerce
85 7th Place East, Suite 500
St. Paul, Minnesota, 55101
Fax: 651-539-0109 | bill.storm@state.mn.us

Comments on the DEIS and the DOE Presidential permit decision should be mailed, emailed or faxed to:
Julie Ann Smith, PhD, Federal Document Manager
DOE Office of Electricity Delivery and Energy Reliability
1000 Independence Avenue SW
Washington, DC, 20585
Fax: 202-586-14721 julie.smith@hq.doe.gov

Comments can also be submitted electronically at: http://mn.gov/commerce/energy/facilities and/or http://www.greatnorthernels.org.

The Department and DOE are sharing all comments received on the DEIS by the means delineated above, so comments only need to be submitted once to either the state environmental review manager or the DOE federal document manager via fax, phone, mail, email or submitted on either website provided above.

The DEIS can be viewed on the Department's energy facility permitting website: http://mn.gov/commerce/energy/facilities/docket.html?Id=34161, as well as on the DOE EIS website http://greatnorthernels.org.

The DEIS can also be viewed through the Minnesota Public Utilities Commission's website: www.puc.state.mn.us, select "Search eDockets," enter the year ("14") and the docket number ("21), and select "Search."

The DEIS will be available for viewing at the following public libraries:

- Baudette Library, 110 1st Street SW, Baudette
- Blackduck Public Library, 72 1st Street SE, Blackduck
- Bovey Public Library, 402 2nd Street, Bovey
- Calumet Library, 932 Gary Street, Calumet
- Coleraine Public Library, 203 Cole Street, Coleraine
- Duluth Public Library, 520 W Superior Street, Duluth
- Grand Rapids Public Library, 140 NE 2nd Street, Grand Rapids
- Greenbush Public Library, PO Box 9, Greenbush
- International Falls Public Library, 750 4th Street, International Falls
- Marble Public Library, 302 Alice Avenue, Marble
- Northome Public Library, 12064 Main Street, Northome
- Roseau Public Library, 121 Center Street E, Suite 100, Roseau
- Warroad Public Library, 202 Main Avenue NE, Warroad
- Williams Public Library, 350 Main Street, Williams

Review copies of the DEIS, as well as a limited number of electronic copies (on CD), will be available at the public information meetings.

Project Description. Minnesota Power has proposed to construct an approximately 220 mile long, 500 kilovolt (kV) transmission line that would cross the international border in Roseau County, and depending on final route, would cut across Beltrami, Koochiching and Lake of the Woods counties and terminate at the Blackberry Substation near Grand Rapids in Itasca County.

The project also includes a substation upgrade and other associated facilities.

minnesota power

AN ALLETE COMPANY

GREAT NORTHERN TRANSMISSION LINE

Review copies of the DEIS, as well as a limited number of electronic copies (on CD), will be available at the public information meetings.

Project Description. Minnesota Power has proposed to construct an approximately 220 mile-long, 500 kilovolt (kV) transmission line that would cross the international border in Roseau County, and depending on final route, would cut across Beltrami, Koochiching and Lake of the Woods counties and terminate at the Blackberry Substation near Grand Rapids in Itasca County.

The project also includes a substation upgrade and other associated facilities.

Federal Review Process. Transmission lines that cross an international border require a Presidential permit from the DOE. DOE's National Electricity Delivery Division, in the Office of Electricity Delivery and Energy Reliability (OE), is responsible for issuing Presidential permits for electric transmission facilities.

State of Minnesota Review Process. In order to construct the proposed transmission line project, Minnesota Power must obtain from the Minnesota Public Utilities Commission (Commission) HVTL a Route Permit.

Environmental Review. Department Energy Environmental Review and Analysis (EERA) staff is responsible for conducting environmental review for route permit applications submitted to the Commission. Because the potential issuance of a Presidential permit for the GNTL project constitutes a major Federal Action, DOE must consider the potential environmental effects of the proposed project, and a range of reasonable alternatives to the project, pursuant to the National Environmental Policy Act (NEPA).

In order to avoid duplication, DOC EERA and the DOE have prepared a single DEIS to comply with the environmental review requirements under both the State and Federal regulations.

The EIS evaluates the potential human and environmental impacts of Minnesota Power's proposed project and possible mitigation measures, including route alternatives. The EIS analyzes and compares potential impacts and mitigation measures such that citizens, local governments, agencies, and the Commission can work from a common set of facts. The EIS is issued in draft form so that it can be improved through public comment.

State Route Permit Public Hearings. The Minnesota Office of Administrative Hearings (OAH) will conduct Public Hearings on Minnesota Power's route permit application. These hearings are anticipated to be held in the project area the weeks of August 3rd and 10th, 2015, and will be presided over by Administrative Law Judge Ann C. O'Reilly from the OAH. Notice of the hearings will be published in local newspapers and mailed to persons on the project mailing list. Interested persons will have an opportunity at the hearings to ask questions, provide comments, submit evidence, and advocate for the route(s) that they believe are most appropriate for the project.

Judge O'Reilly will submit a report to the Commission that includes findings of fact, conclusions of law, and recommendations on Minnesota Power's application. The Commission will use the report in deciding whether to grant a route permit, and to select the appropriate route for the project.

Project Mailing List. To sign up for the project mailing list, contact the state or federal environmental review or document manager or state public advisor (see below).

Subscribe to the Docket. In addition to the project mailing list, interested persons can receive email notification every time new documents are filed in the route permit docket for this project by signing up at: www.puc.state.mn.us, select "Subscribe to a Docket," and follow the prompts. Note – subscribing may result in a large number of emails.

State Project Contacts. If you have questions or would like more information, contact environmental review manager Bill Storm (651-539-1844 or 1-800-657-3794, bill.storm@state.mn.us) or public advisor Tracy Smetana (651-296-0406 or 1-800-657-3782, consumer.puc@state.mn.us).

Federal Project Contact. If you have questions or would like more information about the federal NEPA process and the DOE's Presidential permit program, contact federal document manager, Julie A Smith, PhD (202-586-7868; julie.smith@hq.doe.gov).

This document can be made available in alternative formats (i.e., large print or audio) by calling 651-539-1530.

minnesota power
AN ALLETE COMPANY

GREAT NORTHERN TRANSMISSION LINE

Legal Notice

Publication: Grand Rapids Herald Review

Location: Grand Rapids, MN Itasca County

Actual: Wednesday, July 1, 2015

minnesota power
AN ALLETE COMPANY

GREAT NORTHERN TRANSMISSION LINE

AFFIDAVIT OF PUBLICATION

STATE OF MINNESOTA)
) ss.
COUNTY OF ITASCA)

Mark Roy, being first duly sworn, on oath states as follows:

1. I am the publisher of the **Grand Rapids Herald Review**, or the publisher's designated agent. I have personal knowledge of the facts stated in this Affidavit, which is made pursuant to Minnesota Statutes §331A.07.

2. The newspaper has complied with all of the requirements to constitute a qualified newspaper under Minnesota law, including those requirements found in Minnesota Statutes §331A.02.

3. The dates of the month and the year and day of the week upon which the public notice attached/copied below was published in the newspaper are as follows:
Wednesday, July 1, 2015

4. The publisher's lowest classified rate paid by commercial users for comparable space, as determined pursuant to § 331A.06, is as follows: $2.00 per 1-col line.

5. Mortgage Foreclosure Notices. Pursuant to Minnesota Statutes §580.033 relating to the publication of mortgage foreclosure notices: The newspaper's known office of issue is located in Itasca County. The newspaper complies with the conditions described in §580.033, subd. 1, clause (1) or (2). If the newspaper's known office of issue is located in a county adjoining the county where the mortgaged premises or some part of the mortgaged premises described in the notice are located, a substantial portion of the newspaper's circulation is in the latter county.

FURTHER YOUR AFFIANT SAITH NOT.

[*Signature*]

Subscribed and sworn to before me on this 22nd day of July 2015.

THERESA M. ANICK
NOTARY PUBLIC-MINNESOTA
My Comm. Exp. Jan. 31, 2018

Theresa M Anick
Notary Public

minnesota power

AN ALLETE COMPANY

GREAT NORTHERN TRANSMISSION LINE

MINNESOTA DEPARTMENT OF COMMERCE

NOTICE OF AVAILABILITY OF DRAFT ENVIRONMENTAL IMPACT STATEMENT, STATE PUBLIC INFORMATION MEETINGS AND FEDERAL PUBLIC HEARINGS

In the Matter of the Route Permit and Presidential Permit Applications by Minnesota Power for the Great Northern Transmission Line Project and Associated Facilities in Beltrami, Itasca, Koochiching, Lake of the Woods, and Roseau Counties

PUC Docket Nos. ET015/TL-14-21
DOE/EIS 0499

PLEASE TAKE NOTICE that the Minnesota Department of Commerce (Department) and the U.S. Department of Energy (DOE) have released the draft environmental impact statement (DEIS) for the proposed Great Northern Transmission Line (GNTL) project in the counties of Beltrami, Itasca, Koochiching, Lake of the Woods, and Roseau counties. The Department and DOE will conduct joint public information meetings at the following locations and times to provide opportunities for public comment on the DEIS.

COUNTY	CITY	MEETING LOCATION	DATE AND TIME
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Department and DOE staff will make a brief introductory statement at each meeting. Following this, members of the public will have an opportunity to provide comments to the Department and DOE on the DEIS. Each meeting will offer the same information and opportunity to comment.

Comments are sought on information that needs to be clarified in the DEIS to ensure that the final EIS is complete and accurate. Comments received on the DEIS will be used by the Department and DOE to prepare a final EIS for the project.

The Department and DOE will accept written comments on the DEIS through Monday, August 10, 2015. Please include the PUC docket number TL-14-21 and the DOE number EIS-0499 on all comments.

Comments on the DEIS should be mailed, emailed or faxed to:

William Cole Storm, Environmental Review Manager
Minnesota Department of Commerce
85 7th Place East, Suite 500
St. Paul, Minnesota, 55101
Fax: 651-539-0109 | bill.storm@state.mn.us

Comments on the DEIS and the DOE Presidential permit decision should be mailed, emailed or faxed to:

Julie Ann Smith, PhD, Federal Document Manager
DOE Office of Electricity Delivery and Energy Reliability
1000 Independence Avenue SW
Washington, DC, 20585
Fax: 202-586-1472 | julie.smith@hq.doe.gov

Comments can also be submitted electronically at: http://mn.gov/commerce/energyfacilities and/or http://www.greatnorthernteis.org

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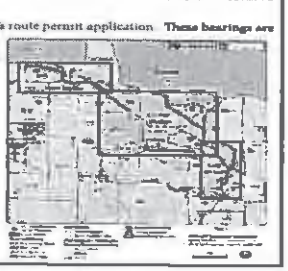

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Project Mailing List. To sign up for the project mailing list, contact the state or federal environmental review or document manager or state public advisor (see below).

Subscribe to the Docket. In addition to the project mailing list, interested persons can receive email notification every time new documents are filed in the route permit docket for this project by signing up at: www.puc.state.mn.us, select "Subscribe to a Docket," and follow the prompts. Note: subscribing may result in a large number of emails.

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Federal Project Contact. If you have questions or would like more information about the federal NEPA process and the DOE's Presidential permit program, contact federal document manager, Julie A. Smith, PhD (202-586-7668, julie.smith@hq.doe.gov).

This document can be made available in alternative formats (i.e., large print or audio) by calling 651-539-1530.

minnesota power
AN ALLETE COMPANY

GREAT NORTHERN TRANSMISSION LINE

Legal Notice

Publication: Red Lake Nation News (Tribal)

Location: Red Lake, Red Lake County

Actual: Anticipated: Tuesday, June 30, 2015 Actual: N/A

AN ALLETE COMPANY

From:	Rahm, Laura
Sent:	Tuesday, June 23, 2015 1:56 PM
To:	mbarrett@redlakenationnews.com; info@redlakenationnews.com
Subject:	FW: Minnesota Power - LEGAL NOTICE for Next Publication: Notice of Availability of Draft Environmental Impact Statement
Attachments:	Notice of DEIS Meetings FINAL DOC-DOE Approved (V-2).docx; GNTL Project Overview Map.pdf

Hello,

I wanted to follow up on this request to see if you had received it? We are hoping to run it next week, not this week so June 30th would be great, if you still run it on Tuesdays. I have enclosed a map that will hopefully be more clear for print if need be.

Let me know if you need anything further to process the request.

Thanks.

Laura Rahm, Project Coordinator
D 763.591.5410

hdrinc.com/follow-us

From: Rahm, Laura
Sent: Monday, June 22, 2015 7:49 AM
To: today@whiteearth.com; mroberts@grhr.net; mickie@ifallsjournal.com; laurel@ifallsjournal.com; norlight@wiktel.com; nanews@paulbunyan.net; mbarrett@redlakenationnews.com; info@redlakenationnews.com; rtr@mncable.net; cindyt@scenicrangenewsforum.com; erongstad@bemidjipioneer.com; mferris@hibbingdailytribune.net; littleforktimes@frontiernet.net; advantage007@centurytel.net; drpub@paulbunyan.net
Cc: Terri Bagwell (ALLETE); Rahm, Laura
Subject: Minnesota Power - LEGAL NOTICE for Next Publication: Notice of Availability of Draft Environmental Impact Statement

Hello,

Minnesota Power would like to place a Legal Notice in your next publication indicating the NOTICE OF AVAILABILITY OF DRAFT ENVIRONMENTAL IMPACT STATEMENT, STATE PUBLIC INFORMATION MEETINGS AND FEDERAL PUBLIC HEARINGS. The legal notice is attached and the text is below.

Please send confirmation and publication date upon receipt of this submittal. We request that invoice and tear sheet be sent to me at the address below. Thank you for your time!

Laura Rahm
701 Xenia Ave South, Suite 600
Minneapolis, MN 55416

Laura Rahm
Project Coordinator

HDR
701 Xenia Avenue South, Suite 600
Minneapolis, MN 55416-3636
D 763.591.5410
laura.rahm@hdrinc.com

minnesota power
AN ALLETE COMPANY

GREAT NORTHERN TRANSMISSION LINE

Legal Notice

Publication: Anishinaabeg Today – White Earth (Tribal)

Location: White Earth, MN Becker County

Actual: Anticipated: Wednesday, July 1, 2015 Actual: N/A

minnesota power
AN ALLETE COMPANY

GREAT NORTHERN TRANSMISSION LINE

From:	Rahm, Laura
Sent:	Tuesday, June 23, 2015 1:32 PM
To:	Gary Padrta
Subject:	FW: Minnesota Power - LEGAL NOTICE for Next Publication: Notice of Availability of Draft Environmental Impact Statement
Attachments:	Notice of DEIS Meetings FINAL DOC-DOE Approved (V-2).docx

Gary,

I wanted to follow up on this request to see if you had received it? We are hoping to run it next week, not this week so July 1st would be great, if you still run it on Wednesdays.

Let me know if you need anything further to process the request.

Thanks.

Laura Rahm, Project Coordinator
D 763.591.5410

hdrinc.com/follow-us

From: Rahm, Laura
Sent: Monday, June 22, 2015 7:49 AM
To: today@whiteearth.com; mroberts@grhr.net; mickie@ifallsjournal.com; laurel@ifallsjournal.com; norlight@wiktel.com; nanews@paulbunyan.net; mbarrett@redlakenationnews.com; info@redlakenationnews.com; rtr@mncable.net; cindyt@scenicrangenewsforum.com; erongstad@bemidjipioneer.com; mferris@hibbingdailytribune.net; littleforktimes@frontiernet.net; advantage007@centurytel.net; drpub@paulbunyan.net
Cc: Terri Bagwell (ALLETE); Rahm, Laura
Subject: Minnesota Power - LEGAL NOTICE for Next Publication: Notice of Availability of Draft Environmental Impact Statement

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Please send confirmation and publication date upon receipt of this submittal. We request that invoice and tear sheet be sent to me at the address below. Thank you for your time!

Laura Rahm
701 Xenia Ave South, Suite 600
Minneapolis, MN 55416

Laura Rahm
Project Coordinator

HDR
701 Xenia Avenue South, Suite 600
Minneapolis, MN 55416-3638
D 763.591.5410
laura.rahm@hdrinc.com

hdrinc.com/follow-us

minnesota power
AN ALLETE COMPANY

GREAT NORTHERN TRANSMISSION LINE

Legal Notice

Publication: Bois Forte News (Tribal)

Location: Lilydale, MN Becker County

Actual: Anticipated: July 2015 Issue - Monthly Actual: N/A

minnesota power
AN ALLETE COMPANY

GREAT NORTHERN TRANSMISSION LINE

From: Rahm, Laura
Sent: Monday, June 22, 2015 7:56 AM
To: Helen Wilkie
Subject: RE: Minnesota Power - LEGAL NOTICE for Next Publication: Notice of Availability of Draft Environmental Impact Statement

Helen,

I wanted to follow up and confirm you received the notice and if you will be able to run it?

Thanks so much.

Laura Rahm, Project Coordinator
D 763.591.5410

hdrinc.com/follow-us

From: Rahm, Laura
Sent: Wednesday, June 17, 2015 7:40 AM
To: 'Helen Wilkie'
Cc: Terri Bagwell (ALLETE)
Subject: Minnesota Power - LEGAL NOTICE for Next Publication: Notice of Availability of Draft Environmental Impact Statement

Helen,

Minnesota Power would like to place a Legal Notice in your next publication indicating the NOTICE OF AVAILABILITY OF DRAFT ENVIRONMENTAL IMPACT STATEMENT, STATE PUBLIC INFORMATION MEETINGS AND FEDERAL PUBLIC HEARINGS. The legal notice is attached and the text is below.

Please send confirmation and publication date upon receipt of this submittal. We request that invoice and tear sheet be sent to me at the address below. Thank you for your time!

Laura Rahm
701 Xenia Ave South, Suite 600
Minneapolis, MN 55416

Laura Rahm
Project Coordinator

HDR
701 Xenia Avenue South, Suite 600
Minneapolis, MN 55416-3636
D 763.591.5410
laura.rahm@hdrinc.com

hdrinc.com/follow-us

Attachment D

Response to All Comments on the Draft EIS

29054 680th Ave.
Roosevelt, MN 56673
7/6/15

Julie Ann Smith
Federal Document Manager
U.S. Dept. of Energy
1000 Independence Ave. SW
Washington, DC 20585

Docket Number: TL-14-21

Dear Ms. Smith:

This letter is regarding the proposed route of the Great Northern Transmission Line running east/west and south of Roosevelt, MN of which I strongly oppose. I live in the rural Roosevelt area, and there are already two other manmade/synthetic structures (transmission/power lines) running east/west and south of Roosevelt within three miles of each other through beautiful wilderness including the Beltrami Island State Forest. In addition, I own 160 acres of land in the Beltrami Island State Forest in addition to my residence (homestead) in close proximity of this area. However, I have a couple suggestions/requests and "reasons why" regarding the proposed power line, and they are as follows:

- One suggestion/request is to run the proposed power line north of our 160 acres paralleling the existing power line running east/west, and it would not run through our private property, which is surrounded by state land. Therefore, the proposed power line would run through state land 100%, and the state of MN would get the money for the easement of our property's width of ½ mile. My brother, Jeff Johnson, and I have planted 100s of jack pine, white pine, and white cedar trees on the north side of our property that would be destroyed by the power line going to the south of the existing power line. In addition, permanent deer stands would be affected by the power line going to the south of the existing power line.
- Another suggestion/request if the power line goes to the south of the existing power line running east/west is to do a "land trade" with the state of MN. My request would be to acquire the width of the easement of the new power line on the south side of our 160 acres of perhaps 200-300 feet by ½ mile or whatever land would be affected by the new power line being installed. This option would give the state of MN the easement money and keep our 160 acres of private property intact as it is historical regarding the fact that it is an "original homestead" of 160 acres in Beltrami Island State Forest, which there are few today that are still intact and without a manmade/synthetic structure running through it.

The legal description of the 160 acres and my residence in this area are as follows, respectively:

0001-1

0001-2

0001-1
The scoping process provided the opportunity to recommend alternatives to be analyzed in the EIS. The EIS analyzes potential impacts to residences and land use for each alternative.

The EIS provides an analysis of residences within the ROW as well as within the route for all alternatives. Also, as discussed in Section 1.3.1.4 of the EIS, once a route is selected and a permit is issued, the Applicant would contact landowners to gather information about their property and their concerns and discuss how the ROW would best proceed across the property.

No changes are made to the EIS in response to this comment.

0001-2
DOE and DOC-EERA determined that the DEIS covered a range of reasonable alternatives and none of the alternatives presented warranted expanding that range. Non-transmission alternatives were considered but eliminated from detailed analysis because they are outside the scope of the purpose of and need for DOE's federal action, which is to decide whether to issue a Presidential permit. Non-transmission alternatives that are out of scope for this EIS were handled under the state's certificate of need process.

The EIS provides an analysis of residences within the ROW as well as within the route for all alternatives. Also, as discussed in Section 1.3.1.4 of the EIS, once a route is selected and a permit is issued, the Applicant would contact landowners to gather information about their property and their concerns and discuss how the ROW would best proceed across the property.

No changes are made to the EIS in response to this comment.

- 160 Acres – Roosevelt, MN **(Jeffrey N. Johnson and James L. Johnson)**

The Northwest Quarter (NW¼) of Section Fifteen (15) in Township One Hundred Sixty-one (161) North, Range Thirty-five (35) West of the Fifth Principal Meridian in Minnesota, according to the United States Government Survey thereof.

- 29054 680th Ave., Roosevelt, MN **(James L. Johnson)**

All that part of the Southwest Quarter of the Southwest Quarter (SW¼ SW¼) of Section Twenty-six (26), Township One Hundred Sixty-two (162) North, Range Thirty-five (35) West of the Fifth Principal Meridian in Minnesota, according to the United States Government Survey thereof, LYING AND BEING South of the South right-of-way line of Minnesota Trunk Highway NO. 11, as now located and established.

Thank you for taking the time to read my letter and my suggestions/requests to the proposed route of the Great Northern Transmission Line running east/west and south of Roosevelt, MN. Please call me at (218) 242-2462 or e-mail at jimjohnson767@gmail.com if you have any questions.

Sincerely,

James L. Johnson

From: Linda Johnson [linda.johnson888@gmail.com]
Sent: Sunday, July 12, 2015 8:25 PM
To: Storm, Bill (COMM)
Subject: TL-14-21 The Great Northern Transmission Line

Dear Mr. Storm:
I am Linda Johnson, a property owner on Napoleon Lake in Itasca County. It is located in the heart of your proposed and favored transmission line route - referred to as the "Blue Route".
Public opposition to lines tends to focus on their visual and environmental impacts. In 1993 Priestly and Craik conducted a survey regarding public concerns with overhead powerlines (median percentage of respondents perceiving impacts) and here are those findings:

54%	aesthetics
50%	property values
45%	health
24%	safety
15%	noise
8%	TV radio reception

Objectives and benefits of using new transmission technologies that are available today:
* Increase power-carrying capacity within existing (constrained) ROWs.
* Reduce/minimize impacts of transmission lines: environmental, visual, footprint, etc.

I am opposed to the Blue Route. The Blue Route would create an undesirable footprint in a heavily hunted / hiked / ATV accessible wilderness area. It would displace wildlife. The men in my family hunt that area; we have hiked and picked berries and enjoyed the wildlife native to that area. The Blue Route will change that dramatically and forever. 0002-1

I oppose the Orange Route for the same reasons as the Blue route. Why create another negative footprint?

Using the Red Route would make sense as you would piggyback on land that currently has overhead powerlines. The footprint would be much smaller. It would conserve the wilderness that all of us who live in and recreate in have come to appreciate and enjoy.

This is curious to me: I learned that the new lines would serve corporations / industry and you don't even have committed customers for this approved project.

I urge you to consider the overall environmental impact to this area and choose the Orange Route.

Sincerely,
Linda Johnson
8614 Brant St NE
Circle Pines, MN 55014

Message scanned by the Symantec Email Security service. If you suspect that this email is actually spam, please send it as an ATTACHMENT to spamsample@messagelabs.com

0002-1
Potential impacts to wildlife are discussed in Chapters 5 and 6 of the EIS.

No changes are made to the EIS in response to this comment.

From: Timothy Kveen [mailto:timothykveen@gmail.com]
Sent: Thursday, July 09, 2015 12:18 PM
To: Smith, Julie A (OE)
Subject: TL-14-21

Terry & Carol Kveen
N69 W20473 Orchard Ct
Menomonee Falls, WI 53051

262-255-3599

Tim & Jessica Kveen
1920 Sunkist Ave
Waukesha, WI 53188

262-751-0320

Dear Julie Ann Smith,
We are landowners located inside of the West Section, Scoping decision route running west to east between highway 89 near Dieter township and 310 in Roseau. The property we own is near CR-123 and 28 including farmland, homes, drying and storage warehouses and an active use quonset. The current proposed route would affect several of our farming properties including the other structers I have just mentioned and future planned building sites. Please remove this route from consideration as this would greatly effect the operations of our farming including the lives of the people living in the homes at CR-123 and 28. 0003-1

Thank you,
Terry Kveen
Carol Kveen
Tim Kveen
Jessica Kveen

Message scanned by the Symantec Email Security service. If you suspect that this email is actually spam, please send it as an ATTACHMENT to spamsample@messagelabs.com

0003-1
Potential impacts to human settlement and agriculture are discussed in Chapters 5 and 6 of the EIS.

The EIS provides an analysis of residences within the ROW as well as within the route for all alternatives. Also, as discussed in Section 1.3.1.4 of the EIS, once a route is selected and a permit is issued, the Applicant would contact landowners to gather information about their property and their concerns and discuss how the ROW would best proceed across the property.

No changes are made to the EIS in response to this comment.

July 19, 2015

Bill Storm
Environmental Review Manager
MN Department of Commerce
85 7th Place East, Suite 500
St. Paul, MN 55101

RE: Beltrami WMA Route Alternative Scoping Decision Route

Mr. Storm;

I have expressed my request to remove land I own and rent in Spruce Valley Township, Sections 19, 20, 21, 22, 23, 27, 28 and 29 from the Beltrami WMA Route.

My livelihood is Slater Spraying Service Inc. in Roseau and I aerial spray all of the land mentioned above AND all of the land in these sections that I do not own or rent. This powerline will prevent me from aerial spraying this land and will basically shut down a major part of my business, both as a farmer and spray operator. 0004-1

As you are probably aware, peat ground must be burned and must be sprayed by air.

The negative impact for landowners in the above sections is monumental and therefore I request that an alternate route be strongly considered.

For minimal impact I would ask that using DNR land and not privately owned land be considered for this powerline.

Sincerely,
Gary Slater
P.O. Box 245
Roseau, MN 56751
218.469.2533

0004-1
Impacts to to agriculture and aerial spraying are discussed in Chapter 5 of the EIS. As discussed in Section 1.3.1.4 of the EIS, once a route is selected and a permit is issued, the Applicant would contact landowners to gather information about their property and their concerns and discuss how the ROW would best proceed across the property, including minimizing any impacts to aerial spraying and agricultural operations.

No changes are made to the EIS in response to this comment.

United States Department of the Interior

FISH AND WILDLIFE SERVICE

5600 American Boulevard West, Suite 990
Bloomington, Minnesota 55437-1458

IN REPLY REFER TO

JUL 22 2015

FWS/ES/ER- 14-0396

Dr. Julie Ann Smith, Environmental Protection Specialist
Office of Electricity Delivery and Energy Reliability (OE–20)
U.S. Department of Energy
1000 Independence Avenue S.W.
Washington, D.C. 20585

Dear Dr. Smith,

These comments address the Great Northern Transmission Line Project and Presidential Permit MN (ER14-0396). The U.S. Fish and Wildlife Service (Service) prepared comments on that project and submitted them to the Department of Interior (Department) for distribution on August 11, 2014, but those comments were never forwarded. We apologize for the error, and submit the comments below. We have also attached a cover memo from the Service that accompanied the original comments to the Department. The comments below this paragraph are unchanged, and do not reflect the draft Environmental Impact Statement (DEIS) currently available for comment. Comments on the DEIS will be forthcoming. Due to the advanced progress of the project, we strongly suggest that Minnesota Power contact the Service to discuss avoidance, minimization, and mitigation of impacts to Service interest lands, listed species, and migratory birds.

The Department of the Interior (Department) has received the Notice of Intent (NOI) to prepare an Environmental Impact Statement (EIS) by the Department of Energy (DOE) for the Great Northern Transmission Line Project and Presidential Permit MN (ER14-0396). The Department offers the following comments and recommendations to be used in consideration of the development of the EIS.

General Comments from the Fish and Wildlife Service:

The U.S. Fish and Wildlife Service (Service) provides the following comments for the environmental review process for the Great Northern Transmission Line (GNTL) project, as well as recommendations for environmental impacts to be assessed as part of the Environmental Impact Statement.

The Service has participated in multiple meetings with Minnesota Power and has provided two letters, dated March 14, 2014, and July 1, 2014. Copies of these two letters are enclosed. The Service has also engaged in a follow-up meeting to discuss route and right-of-way (ROW) impacts on Service interest lands and route alternatives.

The GNTL (both construction and long-term use) has the potential to impact Service interest lands, threatened, endangered, or species of concern, migratory birds, bald and golden eagles, wetlands, and wildlife habitat. The Service recommends the EIS examine the impact of the GNTL to these aforementioned resources, and examine ways avoid, minimize, and mitigate for potential impacts. The Service makes these recommendations pursuant to the National Wildlife Refuge Administration Act (NWRA), Endangered Species Act (ESA), Migratory Bird Treaty Act (MBTA), Executive Order (E.O.) 13186, Department of Energy's Migratory Bird Program Partnership Agreement, Bald and Golden Eagle Protection Act, Pittman-Robertson Wildlife Restoration Act, Dingell-Johnson Sport Fish Restoration Act, and Fish and Wildlife Act of 1956.

While outlined in detail in the attached two letters, the Service wishes to summarize the following main concerns:

Service Interest Lands:

The Service administers numerous tracts within the proposed GNTL routing options as part of the National Wildlife Refuge System (NWRS). Service administered and managed lands are acquired for the preservation of wildlife and their habitats, and represent one of the Service's highest conservation priorities. The Service requests that the construction and long-term use of the GNTL project avoid all Service interest lands. This includes building GNTL structures on Service lands, wires spanning above Service lands, and any land changes (habitat or hydrology alteration, etc.) implemented to gain access to GNTL operations, or any land use changes (which may occur off Service interest lands) that may impact Service lands. The Service recommends consideration of the following alternatives to avoid and/or minimize impacts to Service interest lands:

- In areas where multiple route alternatives exist, the Service recommends alternative with no Service-area land impacts be chosen.
- In areas where the proposed right-of-way (ROW) corridor does not completely bisect refuge lands, the Service recommends the EIS explore the possibility and impacts of utilizing other areas within the proposed ROW to avoid Service lands.
- Where no proposed alternative routes are provided to avoid refuge interest lands, the Service requests that alternative routes be investigated to avoid impacting Service interest lands.
- Finally, the EIS should examine the impact of all proposed routes on Service lands should a route and ROW be chosen that may impact Service lands. Unavoidable impacts to Service lands may require mitigation, which should be reflected in the EIS and the overall project timeline.

In accordance with the NWRA, ROW requests on Service lands will need to be analyzed to determine if such requests are compatible with the mission and purpose of the NWRS. Before the Service considers the possibility of impacts of the GNTL to refuge lands, an application request will

0006-1

0006-2

0006-1
Chapters 2, 5, and 6 of the EIS discuss potential impacts and avoidance, minimization, or mitigation measures to USFWS interest lands, rare species, wildlife, and wetlands. In addition, the Biological Assessment in Appendix R assesses potential impacts to federally listed species and designated critical habitat. DOE and DOC-EERA continue to work with USFWS as a cooperating agency in the development of this EIS.

0006-2
The Applicant is currently working with USFWS to avoid and/or minimize impacts to USFWS interest lands, including those lands in the National Wildlife Refuge System that are governed by the National Wildlife System Administration Act. The MnDNR has reviewed their land records for all parcels along the alternatives to identify federal aid parcels. Four federal aid parcels are identified for the proposed Project. Section 5.3.1.2 of the EIS is updated to identify the two North American Wetland Conservation Act federal aid parcels as part of the Roseau Lake WMA to Section 5.3.1.2. The two federal aid parcels that are part of the Silver Creek WMA are identified in Section 5.4.1.2.

need to include the final route determination and the exact location of the proposed ROW. The Service recommends this process be reflected in the EIS.

The Service letter dated July 1, 2014 detailed specific areas of concern where the proposed GNTL line bisects Service interest lands. The Service will provide additional recommendations to DOE and Minnesota Power regarding specific route alternative suggestions so that refuge interests may be avoided. These recommendations will be provided under a separate letter and will be sent before the end of the comment period so that they may be considered in the scoping for the EIS.

The Service has similar concerns for any Minnesota Department of Natural Resources (MN DNR) wildlife areas with Federal Assistance interests that may be impacted by this project. A comprehensive review should be conducted to determine if any MN DNR wildlife areas will be potentially impacted and, if so, if they have Federal Assistance interests. These lands should also be avoided as discussed above for NWRS lands. Impacts for either group must be fully analyzed within the EIS to the Service's satisfaction or a subsequent NEPA document will be needed by the Service which will increase costs and delay reviews.

Threatened and Endangered Species:

The Service is tasked with the protection and recovery of species listed under the ESA. The following are listed, proposed, or candidate species occurring in one or more counties where the GNTL is proposed:

> Canada lynx *(Lynx canadensis)*, Piping plover *(Charadrius melodus)*, Western prairie fringed orchid *(Platanthera praeclara)*, Poweshiek skipperling ***(Oarisma poweshiek)***, Dakota skipper *(Hesperia dacotae)*, Northern long-eared bat (*Myotis septentrionalis)*, and Sprague's pipit (*Anthus spragueii*). Because the decision to list the Northern long-eared bat will be decided by April 2, 2015, the Service recommends incorporating conferencing and/or early consultation into the EIS timeline in order to avoid delays.

The Service recommends the degree of impact to each species be evaluated in the EIS, including impact of construction, long-term project operation, habitat loss, disturbance, indirect impacts, and impacts of all route options. The EIS should also explore all potential avoidance and minimization measures to reduce impact to these species. Pending the determination of consequences to each listed species, the Service may request compensatory mitigation to offset impacts.

Migratory Birds and Eagles:

The Migratory Treaty Act prohibits taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when specifically authorized by the Department of the Interior. Bald and golden eagles are afforded additional legal protection under the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d). The Service recommends the EIS examine the impacts to eagles (bald and golden) and all migratory birds. These impacts may include, but are not limited to: habitat alternation and destruction, take and disturbance, indirect impacts and collisions and electrocution. The EIS should examine appropriate avoidance and minimization measures, and examine the degree of impacts each route decision may cause. Additionally, (and not addressed in

0006-2 cont'd

0006-2 Continued

0006-3
Chapters 5 and 6 of the EIS and the Biological Assessment in Appendix R discuss potential impacts to federally-listed species and designated critical habitat.

0006-4
Chapters 5 and 6 of the EIS discusses potential impacts to migratory birds and eagles. As discussed in Section 2.11.1 of the EIS, the Applicant would incorporate industry best practices, which are consistent with the Avian Powerline Interaction Committee (APLIC's) 2012 guidelines. In addition, MN PUC Route Permit could require that the Applicant develop and implement an Avian Protection Plan. The Applicant would coordinate with the MnDNR and other appropriate agencies in the development of an Avian Protection Plan.

0006-3 No changes are made to the EIS in response to this comment.

0006-4

the attached letters) pursuant to Executive Order 13186, Responsibilities of Federal Agencies to Protect Migratory Birds, 2001,the Service may request compensatory mitigation to offset impacts to migratory bird habitat as a result of construction and/or long-term use of the GNTL. Early consultation with the Service can help to avoid and minimize impacts to migratory bird habitat, reduce the amount of compensatory mitigation sought, and speed the overall review process. The degree of mitigation depends upon the type, age, and quality of habitat impacted. Permits are available for disturbance and nest removal of bald eagles; however, bald eagle nest removal may require mitigation. No permits are currently available for take of golden eagles east of the 100th meridian, however, the EIS should still examine the impacts to both species of eagles and address the need for development of an eagle management plan.

Wetland Resources:

The Service recommends the EIS examine the impact of all route alternatives wetland resources. In refining and selecting project alternatives, efforts should be made to select an alternative that does not adversely impact wetlands. If no other alternative is feasible and it is clearly demonstrated that project construction resulting in wetland disturbance or loss cannot be avoided, a wetland mitigation plan should be developed that identifies measures proposed to minimize adverse impacts and replace lost wetland habitat values and other wetland functions.

We thank you for this opportunity to provide feedback on the scope of the EIS for the Great Northern Transmission Line. For issues concerning Service comments, we ask that you contact Lisa Mandell, Deputy Field Supervisor, Twin Cities Field Office, 4101 American Boulevard East, Bloomington, Minnesota, 55425; telephone, 612-725-3548, extension 2201; email *lisa_mandell@fws.gov*.

Sincerely,

Lynn Lewis
Assistant Regional Director
Ecological Services
Midwest Region

Enclosures (3): Memo: Comments provided for Notice of Intent (August 11, 2014)
TCFO Comment Letter (March 14, 2014)
TCFO Comment Letter (July 1, 2014)

0006-4 cont'd

0006-4 Continued

0006-5
Once a project alignment is selected, detailed project design will begin. Wetland impacts will be quantified and an associated mitigation plan will be developed for permitting based on the project design. At this time, specific quantities of wetland impact for all alternatives cannot be calculated as there is no associated detailed project design. A mitigation plan for unavoidable wetland impacts is not available at this time. Once DOE and MN PUC issue permits for the Project, a wetland mitigation plan will be developed by the Applicant in coordination with USACE, BWSR, and appropriate local units of government as part of the environmental permitting process.

0006-5

No changes are made to the EIS in response to this comment.

cc: Stephanie Nash, FWS-BCPA: stephanie_nash@fws.gov
Jeff Gosse, FWS-RO: jeff_gosse@fws.gov
Elizabeth Rigby, FWS-RO: elizabeth_rigby@fws.gov
Lisa Mandell, FWS-TCFO: lisa_mandell@fws.gov
Margaret Rheude, FWS-TCFO: margaret_rheude@fws.gov
Rick Speer, FWS-Refuges: richard_speer@fws.gov
Neil Powers, FWS-Refuges: neil_powers@fws.gov
Craig Mowry, FWS-Refuges: craig_mowry@fws.gov
Jim Leach, FWS-Refuges: jim_leach@fws.gov
Bill Storm, MN Department of Commerce: bill.storm@state.mn.us
Brian Mills, DOE: Brian.Mills@hq.doe.gov
David Moeller, Minnesota Power: dmoeller@allete.com
Cheryl Feigum, Barr Engineering: CFeigum@barr.com
Lydia Nelson, HDR: lydia.nelson@hdrinc.com
Michelle Bissonnette, HDR: Michelle.Bissonnette@hdrinc.com
Jim Atkinson, Allete Inc.: jbatkinson@allete.com

United States Department of the Interior
FISH AND WILDLIFE SERVICE
Ecological Services
Twin Cities Field Office
4101 American Boulevard East
Bloomington, Minnesota 55425-1665
Phone: (612) 725-3548 Fax: (612) 725-3609

August 11, 2014

FWS/R3/TCFO

ER- 14-0396

Memorandum

To: Director, Office of Environmental Policy and Compliance
Attention: Lisa Chetnik Treichel

From: Deputy Field Supervisor, Ecological Services, Twin Cities Field Office, MN
For Lisa Mandell

Subject: Comments provided for Notice of Intent (NOI) to prepare an Environmental Impact Statement (EIS) by the Department of Energy (DOE), for the Great Northern Transmission Line Project and Presidential Permit, MN (ER14-0396).

Lisa Chetnik Treichel's electric memorandum of June 27, 2014, requested the U.S. Fish-and Wildlife Service to review and prepare Department of Interior comments on the Notice of Intent (NOI) to prepare an Environmental Impact Statement (EIS) by the Department of Energy (DOE), for the Great Northern Transmission Line Project and Presidential Permit, MN (ER14-0396). Accordingly, a letter to Julie Smith (Department of Energy) is attached for your signature.

No comments were received from any other Department of the Interior offices with regard to comments on preparation of the EIS. Copies of previous letters the Fish and Wildlife Service has prepared are enclosed as attachments.

If you have questions concerning these comments, please contact Mags Rheude of my staff at (612)725-3548 extension 2202.

Attachments

cc: FWS-BCPA (Nash)
FWS/R3/RO (Jeff Gosse and David Larson)
(via e-mailed electronic file)

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Twin Cities Field Office
4101 American Blvd E.
Bloomington, Minnesota 55425-1665

March 14, 2014

Mr. Bill Storm
Environmental Review Manager
Minnesota Department of Commerce
85 7th Place East, Suite 500
St. Paul Minnesota 55101

Re: Great Northern Transmission Line Project
Kittson, Roseau, Lake of the Woods, Koochiching,
Beltrami, and Itasca Counties, Minnesota
PUC Docket 12-1163
FWS Tails # 03E19000-2013-CPA-0045

Dear Mr. Storm:

Thank you for the opportunity to comment on the scoping process of the Great Northern High Voltage Transmission Line Project (GNTL). The U.S. Fish and Wildlife Service (Service) would like to provide early comments on the alignment of this route in areas that it may affect Service interest lands, threatened, endangered, or species of concern, migratory birds, and bald eagles. The following comments are being provided pursuant to the National Wildlife Refuge Administration Act, Endangered Species Act (ESA), Migratory Bird Treaty Act, Bald and Golden Eagle Protection Act, and Fish and Wildlife Act of 1956.

Fish and Wildlife Service Interest Lands
The Service administers numerous tracts within the proposed routing options as part of the National Wildlife Refuge System. These tracts are comprised of Farmers Home Administration (FmHA) conservation easements and fee-title parcels of the Beltrami Wildlife Management Area associated with the Beltrami Island Land Utilization Project. A listing of tracts by county, along with associated descriptions, is enclosed.

Service-administered and managed lands are acquired for the preservation of important wildlife and their habitats, and represent one of the Service's highest conservation priorities. The Service requests that the construction and long-term use of the GNTL project avoid all Service interest lands. This includes building GNTL structures on Service lands, wires spanning Service lands, any land changes (e.g., habitat or hydrology alteration) implemented to gain access to GNTL operations, or any land use changes that may impact Service lands. The Service has provided shape files of these areas to project developers to assist in avoiding these sensitive areas, and will continue to work with project developers.

0006-6

0006-6
The Applicant will work with USFWS to determine if permits can be obtained to cross USFWS interest lands. The need for these permit will be determined once the final route is selected by the MN PUC.

No changes are made to the EIS in response to this comment.

Wetland Resources

The Service recommends that impacts to streams and wetlands be avoided, and buffers surrounding these systems be preserved. Streams and wetlands provide valuable habitat for fish and wildlife, and the filtering capacity of wetlands helps to improve water quality. Naturally-vegetated buffers surrounding these systems are also important in preserving their wildlife habitat and water quality-enhancement properties. Furthermore, forested riparian systems provide important stopover habitat for birds migrating through the region. In refining and selecting project alternatives, efforts should be made to select an alternative that does not adversely impact wetlands. If no other alternative is feasible, and it is clearly demonstrated that project construction resulting in wetland disturbance or loss cannot be avoided, a wetland mitigation plan should be developed that identifies measures proposed to minimize adverse impacts and replace lost wetland habitat values and other wetland functions. The Service will continue to work with GNTL to help identify and minimize impacts to wetland resources.

Threatened and Endangered Species/Species of Concern

The proposed GNTL project spans Kittson, Roseau, Lake of the Woods, Koochiching, Beltrami, and Itasca Counties. The enclosed table shows listed, proposed or candidate species occurring in one or more of the listed counties.

Information on all of the species listed in the table, including Service recommendations for avoiding impact to these species, can be found at the above listed links. Additionally, records of the following species have been confirmed either within the proposed route or within a 1-mile buffer: Poweshiek skipperling, Sprague's pipit, colonial nesting water bird sites, native plant communities (prairie), and bald eagle nests. The Service recommends on-going coordination with the project proponent to determine if further surveys are needed to assess presence of these species of concern, as well as avoidance and minimization measures to avoid impacting these species.

Northern Long-Eared Bat

The entire state of Minnesota is within the range of the Northern long-eared bat (NLEB), and it is likely this bat will be on site during some parts of the year. NLEB experienced significant population declines recently primarily due to the fungal bat disease, white-nose syndrome. In part due to this dramatic decline, the NLEB was proposed for listing under the Endangered Species Act (ESA) (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*) on October 2, 2013. No critical habitat has been proposed at this time. Species proposed for listing are not afforded protection under the ESA. However as soon as a listing becomes effective, the prohibition against jeopardizing its continued existence and "take" applies **regardless of an action's stage of completion.**[1]

A final decision will be made within 12 months of the date that the proposal to list was published. Activities in the development of this project that could impact NLEB may include tree clearing, which would remove summer roosting, maternity, and foraging habitat. The Service recommends that these activities be conducted outside of the summer maternity season,

[1] "Take" is defined in Section 3 of the ESA as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.

0006-7

0006-7
Specific wetland impacts will be quantified upon selection of a project alignment and project design. A mitigation plan for unavoidable wetland impacts is not available at this time. Once DOE and MN PUC issue permits for the Project, a wetland mitigation plan will be developed by the Applicant in coordination with USACE, BWSR, and appropriate local units of government as part of the environmental permitting process.

No changes are made to the EIS in response to this comment.

0006-8

0006-8
Chapters 5 and 6 of the EIS and the Biological Assessment in Appendix R discuss potential impacts to federally-listed species and designated critical habitat. Chapters 5 and 6 of the EIS also discusses potential impacts to migratory birds. As discussed in Section 2.11.1 of the EIS, the Applicant would incorporate industry best practices, which are consistent with the Avian Powerline Interaction Committee (APLIC's) 2012 guidelines. In addition, the MN PUC Route Permit could require that the Applicant develop and implement an Avian Protection Plan. The Applicant would coordinate with the MnDNR and other appropriate agencies in the development of an Avian Protection Plan.

0006-8
Continued

which runs April 1 – September 30. Guidance and recommendations from the Service on this listing are on-going. Therefore, we recommend continued coordination with our office on this issue.

Migratory Bird Trust Resources
The Migratory Bird Treaty Act (16 U.S.C. 703-712; MBTA) implements four treaties that provide for international protection of migratory birds. The MBTA prohibits taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when specifically authorized by the Department of the Interior. Bald and golden eagles are afforded additional legal protection under the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d).

Unlike the Endangered Species Act, neither the MBTA nor its implementing regulations at 50 CFR Part 21, provide for permitting of "incidental take" of migratory birds. The GNTL project may impact migratory birds in several ways: by removal of active nests and by posing as a collision and electrocution risk. In order to avoid taking active nests of migratory birds, the Service recommends that tree clearing be conducted outside of the migratory bird breeding season. This season is generally April –August, but may be earlier for some species (including raptors). Eagles may begin nesting as early as February. However, eagle nests may not be removed without a permit regardless of whether the nest is inactive. The Service also recommends adherence to APLIC guidelines (Avian Powerline Interaction Committee)[2,3] to minimize impact to migratory bird species. This may include avoiding sensitive areas (such as known migration routes and colonial bird nesting areas) and the use of bird flight diverters where lines cross areas of frequent bird use.

The Service recommends continued coordination to identify these areas and implement appropriate avoidance and minimization measures. The Service also recommends designing lines in as few places as possible (to reduce collision risk) and to use transmission structures designed to reduce for electrocution risk and nesting opportunities. Additional information on bald eagles can be found below.

Bald Eagle
Although bald and golden eagles were delisted from the Endangered Species Act on August 8, 2007, they are protected under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act (Eagle Act). The Eagle Act (1940) defines "disturb" as, "to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior." The Service

[2] Avian Power Line Interaction Committee (APLIC). 2006. Suggested practices for raptor protection on power lines – the state of the art in 1996. Edison Electric Institute and Raptor Research Foundation, Washington DC, USA.

[3] Avian Power Line Interaction Committee (APLIC). 2012. *Reducing Avian Collisions with Power Lines: The State of the Art in 2012*. Edison Electric Institute and APLIC. Washington, D.C

0006-8 cont'd

developed the National Bald Eagle Management Guidelines (USFWS 2007), which are intended to help landowners minimize disturbance to bald eagles.

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Continued

Records indicate at least seven bald eagle nests may be located either within the proposed project corridor or within a mile buffer. Data of known bald eagle nests in Minnesota is not current; however, new nests may have been built and old nests may no longer be present. Once a route is selected, the Service recommends eagle nest surveys within 660 feet of the proposed line corridor. If eagle nests are found within the proposed right-of-way, or within areas proposed for clearing, the Service recommends the transmission line be altered to avoid these nests. Bald eagle nests may not be removed without a permit, and the applicant must first demonstrate avoidance and minimization to the fullest extent practicable. If eagle nests are found within 660 feet of the right-of-way (even if the trees are not slated for removal) an eagle disturbance permit may be recommended if disturbance to nesting eagles is anticipated.

In addition, the bald eagle is a trust resource to Native American communities and early coordination with tribal interests regarding impacts to eagles may be warranted. Due to the abundance of eagle nests within the northern portion of Minnesota, it is likely that all route alternatives will have similar impacts to bald eagles. Bald eagles may be susceptible to both collision and electrocution by transmission lines. In order to minimize these risks, the Service recommends GNTL adhere to recommendations outlined by the APLIC guidance. The Service will continue to work with GNTL project proponents to help identify risks to eagles, establish protocol for surveying eagle resource areas (nests, roosts, and foraging areas), determine appropriate avoidance and minimization measures, and to determine if eagle take permits are recommended.

Thank you for this opportunity to comment on this early stage of development of the Great Northern Transmission Line Project. The Service anticipates providing more detailed recommendations to the developer as the project proceeds regarding the above matters of concern. If you have any questions, please contact Ms. Mags Rheude at 612-725-3548, extension 2202. You may also email her at *margaret_rheude@fws.gov*.

Sincerely,

Lisa Mandell

Lisa Mandell
Acting Field Supervisor

Enclosure

cc: Neil Powers, FWS Tamarac NWR
Craig Mowry, FWS Agassiz NWR
Richard Speer, FWS Assistant Refuge Supervisor, Regional Office

Species	Status	Habitat	Guidance Documents
Canada lynx *(Lynx canadensis)*	Threatened	Northern forest	http://www.fws.gov/midwest/endangered/mammals/lynx/index.html
Canada lynx *(Lynx canadensis)*	Critical Habitat	Map of lynx critical habitat in Minnesota	http://www.fws.gov/midwest/endangered/mammals/lynx/lynxMNmapCh.html
Piping plover *(Charadrius melodus)* Northern Great Plains Breeding Population	Threatened; and Critical Habitat	Sandy beaches, islands	http://www.fws.gov/mountain-prairie/species/birds/pipingplover/
Western prairie fringed orchid *(Platanthera praeclara)*	Threatened	Wet prairies and sedge meadows	http://www.fws.gov/midwest/endangered/plants/index.html#westorchid
Poweshiek skipperling *(Oarisma poweshiek)*	Proposed as Endangered and Proposed Critical Habitat	Native prairie habitat	http://www.fws.gov/midwest/endangered/insects/posk/index.html
Dakota skipper *(Hesperia dacotae)*	Proposed as Threatened Proposed Critical Habitat - Maps	Native prairie habitat	http://www.fws.gov/midwest/endangered/insects/dask/index.html
Northern long-eared bat *Myotis septentrionalis*	Proposed as Endangered	Hibernates in caves and mines - swarming in surrounding wooded areas in autumn. Roosts and forages in upland forests during spring and summer.	http://www.fws.gov/midwest/endangered/mammals/nlba/index.html
Sprague's pipit *(Anthus spragueii)*	Candidate	Large (>350 acre) patches of grassland - prefer native grassland, but also use non-native planted grasslands.	http://www.fws.gov/midwest/endangered/lists/candidat.html#Spragues

U.S. Fish and Wildlife Service Interests within the Proposed Great Northern Transmission Line Corridor (All tracts are associated with the Beltrami Island Land Utilization Project unless otherwise noted).

County	Township/ Range	Section	Description	FWS Wildlife Refuge Oversight
Lake of the Woods	159/33	2	W1/2, SE1/4,S1/2NE	Agassiz
		3	E1/2E1/2,W1/2NW1/4	Agassiz
		4	E1/2NE1/4	Agassiz
		23	SE1/4	Agassiz
		24	NW1/4	Agassiz
	160/30	22	~277ac/DNR owned/FmHA easement administered by FWS	Agassiz
		27	~160ac/DNR owned/FmHA easement administered by FWS	Agassiz
	160/34	1	N1/2SW1/4	Agassiz
		2	N1/2SE1/4	Agassiz
		3	W1/2	Agassiz
		4	NW1/4,N1/2SW1/4	Agassiz
		11	SE1/4	Agassiz
		12	NE1/4,NE1/4SE1/4,S1/2S1/2	Agassiz
		13	E1/2E1/2,W1/2NW1/4	Agassiz
		14	S1/2,NW1/4NW1/4	Agassiz
		24	SW1/4,S1/2SE1/4	Agassiz
	161/34	34	SW1/4SE1/4,SE1/4SW1/4	Agassiz
Roseau	161/36	19	SE1/4SE1/4SE1/4	Agassiz
		20	NE1/4,SE1/4	Agassiz
		21	NW1/4,SE1/4	Agassiz
		13	SE1/4,SW1/4NW1/4,NW1/4SW1/4	Agassiz
		14	SE1/4NE1/4,NE1/4SE1/4,W1/2NE1/4,E1/2NW1/4	Agassiz
		17	N1/2,N1/2SW1/4	Agassiz
		18	NE1/4,N1/2SE1/4	Agassiz
		19	NE1/4SE1/4	Agassiz
		20	E1/2SW1/4,NW1/4SW1/4	Agassiz
		22	N1/2NE1/4	Agassiz
		23	NW1/4NW1/4	Agassiz
		24	SW1/4	Agassiz
		29	S1/2SW1/4,E1/2NE1/4,SE1/4NE1/4,NE1/4NW1/4	Agassiz
Koochiching	151/28	26	W1/2 and SE1/4 (portion) FmHA	Tamarac
		27	SE1/4 and E1/2NE1/4 (portion) FmHA	Tamarac
		34	N1/2N1/2 (portion) FmHA	Tamarac
		35	N1/2N1/2 (portion) FmHA	Tamarac

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Twin Cities Field Office
4101 American Blvd E.
Bloomington, Minnesota 55425-1665
July 1, 2014

Mr. David Moeller
Minnesota Power
30 West Superior Street
Duluth, Minnesota 55802

Re: Great Northern Transmission Line Project
Roseau, Lake of the Woods, Koochiching, Beltrami, and Itasca Counties, Minnesota
PUC Docket 12-1163
FWS Tails # 03E19000-2013-CPA-0045

Dear Mr. Moeller:

The U.S. Fish and Wildlife Service (Service) wishes to comment on the most recent route alternatives that have been provided for the Great Northern High Voltage Transmission Line Project (GNTL). The GNTL is proposed to span Roseau, Lake of the Woods, Koochiching, Beltrami, and Itasca Counties in Minnesota. The Service previously provided comments to the Minnesota Department of Commerce (March 14, 2014) on the alignment of these route alternatives with regard to Service-interest lands, migratory birds, bald eagles, and threatened, endangered, or species of concern. That letter recommended the GNTL be designed, constructed, and maintained in such a manner as to avoid and minimize impacts to migratory bird species, such as collision and electrocution.

The Service recommended that impacts to wetland resources be avoided and minimized, and mitigated where necessary. The Service also provided information on species of concern, including (but not limited to) the Northern Long-eared bat and Poweshiek skipperling (proposed for listing) as well as the bald eagle (protected under the Bald and Golden Eagle Protection Act). These species may be impacted by the construction and/or long-term use of this project. Avoidance and minimization measures can be implemented to reduce impact to these species. Therefore, we recommend early coordination with the Service. A complete description of listed and proposed species (by county) that may be impacted by the GNTL was included in the March 14 letter.

In our previous letter, the Service requested that construction and long-term use of the GNTL project avoid all Service-interest lands. A legal description of these Service-interest lands was included in that letter. We would like to provide additional recommendations regarding these land interests and work cooperatively with you to identify alternatives that avoid service land interests. Right-of-way (ROW) requests on Service lands will need to be analyzed to determine if such requests are compatible with the mission and purpose of Service-area lands. An application request will need to include the final route determination and the exact location of the intended ROW before an application will be considered.

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0006-9
Chapters 2, 5, and 6 of the EIS discuss potential impacts to wetland resources, along with avoidance and minimization measures.

No changes are made to the EIS in response to this comment.

0006-10
Chapters 5 and 6 of the EIS and the Biological Assessment in Appendix R discuss potential impacts to federally-listed species and designated critical habitat. Chapters 5 and 6 of the EIS also discusses potential impacts to migratory birds. As discussed in Section 2.11.1 of the EIS, the Applicant would incorporate industry best practices, which are consistent with the Avian Powerline Interaction Committee (APLIC's) 2012 guidelines. In addition, the MN PUC Route Permit could require that the Applicant develop and implement an Avian Protection Plan. The Applicant would coordinate with the MnDNR and other appropriate agencies in the development of an Avian Protection Plan.

In reviewing the recently submitted route alternatives, multiple Service interest lands would still be impacted, including Agassiz and Tamarac National Wildlife Refuge, managed Farmer's Home Administration (FmHA) conservation easements, and multiple parcels of the Beltrami Wildlife Management Area (WMA). A legal description of these parcels and an overview map are included with this letter.

Some of these parcels are located in the northwestern portion of the proposed line, where no proposed alternatives exist. Service-administered and managed lands are acquired for the preservation of important wildlife and their habitats, and represent one of the Service's highest conservation priorities. The Service wishes to reiterate its position that all Service land interests should be avoided.

The Service requests the following actions be implemented as the planning of this project goes forward.

1. In areas where multiple route alternatives exist, the alternative with no Service-area land impacts should be chosen.

2. In areas where the proposed right-of-way corridor does not completely bisect refuge lands, the project proponent should utilize other areas of the ROW to avoid Service lands. Minnesota Power has indicated to the Service that the proposed ROW is a approximately 3,000-foot wide corridor, whereas the final ROW will be approximately 300 feet wide. This should provide sufficient area to avoid FWS lands. A Service/FmHA easement located in T160, R30, S27 is currently bisected by an existing ROW, but there is room for avoidance within the proposed ROW.

3. The proposed plan includes several parcels of the Beltrami Wildlife Management Area in Lake of the Woods and Roseau Counties that are completely bisected by the proposed ROW. No other proposed alternatives were given for this area (T160, R34, S12 and 13), and it does not appear possible to avoid these parcels while staying within the proposed ROW. Therefore, the Service requests that alternative routes be considered/investigated for these areas to avoid impacting these lands.

The Service recognizes that considerable work has been completed in developing these route alternatives, but believes the early nature of this project will allow for flexibility to revise the proposed ROW.

Thank you for considering these concerns and recommendations by the Service. We are willing to meet and discuss our concerns with the proposed ROW routes and the potential impacts to Service interest lands, as well as provide recommendations for ROW alternatives. Also, we have included an excerpt from Title 50, Code of Federal Regulations (CFR), Parts 29.21 and 29.22, which includes the description of the application process for ROW requests on Service lands.

0006-11

0006-11
Alternatives that avoid impacts to USFWS Interest Lands are analyzed in this EIS. The MN PUC will consider the analysis of these alternatives in this EIS as they select the route and issue the Route Permit to the Applicant. In addition, the Applicant is currently working with USFWS to avoid and/or minimize impacts to USFWS interest lands.

The Silver Creek Alignment Modification was proposed during the Scoping Process, which would avoid impacts to the Service/FmHA easement located in T160, R30, S27. This alignment modification is discussed in Sections S.10.2.9, 4.3.2.1, 6.3.9.1, and 6.5.2.1 of this EIS.

There were 4 alternatives proposed in the Beltrami North Central Variation Area during the Scoping Process, which would avoid impacts to the Service lands in T160, R34, Sections 12 and 13. These alternatives are discussed in Chapters 4, 5, and 6 of this EIS.

No changes are made to the EIS in response to this comment.

Please contact Margaret Rheude at the Twin Cities Field Office (*margaret_rheude@fws.gov* or 612-725-3548, extension 2202) for additional information or to coordinate discussions concerning the proposed ROW.

Sincerely,

Peter J. Fasbender
Field Supervisor

Encl. Service-interest Area Map
Legal Description of Service-interest Parcels
50 CFR 29.21-22

cc: Julie A Smith, U.S. Department of Energy
Brian Mills, U.S. Department of Energy
Rick Speer, U.S. Fish and Wildlife Service
Neil Powers, U.S. Fish and Wildlife Service
Craig Mowry, U.S. Fish and Wildlife Service

GNTL Proposed Line and FWS Interest Property Intersect

=FWS Interest Property =Proposed GNTL Route

July 1, 2014

Legal Description of Service Interest Lands – GNTL/FWS Intersection

County	Land Type	Township / Range	SEC	Description	FWS Refuge Oversight	Bisected by ROW?
Koochiching	FmHA Easement	151/28	26	W1/2 and SE1/4 (portion) FmHA	Tamarac	Alternative ROW available
	FmHA Easement		27	SE1/4 and E1/2NE1/4 (portion) FmHA	Tamarac	Alternative ROW available
	FmHA Easement		34	N1/2N1/2 (portion) FmHA	Tamarac	Alternative ROW available
	FmHA Easement		35	N1/2N1/2 (portion) FmHA	Tamarac	Alternative ROW available
Lake of the Woods	Beltrami WMA	159/33	2	w1/2, se1/4,s1/2ne	Agassiz	Avoidance possible
	Beltrami WMA		3	e1/2e1/2,w1/2nw1/4	Agassiz	Bisects (several parcels), but alternative ROW available
	Beltrami WMA		4	E1/2ne1/4	Agassiz	Bisects, but alternative ROW available
	Beltrami WMA		23	se1/4	Agassiz	Avoidance possible
	Beltrami WMA		24	nw1/4	Agassiz	Avoidance possible
	FmHA Easement	160/30	22	~277ac/DNR owned/FmHA easement adm	Agassiz	Avoidance possible
	FmHA Easement		27	~160ac/DNR owned/FmHA easement administered by FWS	Agassiz	Bisected by existing ROW, but room for avoidance available within proposed ROW
	Beltrami WMA	160/34	1	N1/2sw1/4	Agassiz	Avoidance possible
	Beltrami WMA		2	N1/2se1/4	Agassiz	Avoidance
	Beltrami WMA		3	W1/2	Agassiz	Avoidance possible
	Beltrami WMA		11	Se1/4	Agassiz	Avoidance possible

County	Land Type	Township / Range	SEC	Description	FWS Refuge Oversight	Bisected by ROW?
	Beltrami WMA	160/34	12	Ne1/4,ne1/4se1/4,s1/2s1/2	Agassiz	Bisects, alternative ROW needed
Lake of the Woods	Beltrami WMA		13	E1/2e1/2,w1/2nw1/4	Agassiz	Bisects, alternative ROW needed
Roseau	Beltrami WMA	161/36	20	Ne1/4,se1/4	Agassiz	Avoidance possible
	Beltrami WMA		21	nw1/4,se1/4	Agassiz	Avoidance possible
	Beltrami WMA	161/37	13	Se1/4,sw1/4nw1/4,nw1/4sw1/4	Agassiz	Avoidance possible
	Beltrami WMA		14	Se1/4ne1/4,ne1/4se1/4,w1/2ne1/4,e1/2nw1/4	Agassiz	Avoidance possible
	Beltrami WMA		22	N1/2ne1/4	Agassiz	Avoidance possible
	Beltrami WMA		23	Nw1/4nw1/4	Agassiz	Avoidance possible
	Beltrami WMA		24	Sw1/4	Agassiz	Avoidance possible

ELECTRONIC CODE OF FEDERAL REGULATIONS
e-CFR Data is current as of June 27, 2014

Title 50: Wildlife and Fisheries
PART 29—LAND USE MANAGEMENT

Subpart B—Rights-of-Way General Regulations

Contents

§29.21 What do these terms mean?
§29.21-1 Purpose and scope.
§29.21-2 Application procedures.
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§29.21-6 Disposal, transfer or termination of interest.
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§29.22 Hearing and appeals procedures.

§29.21 What do these terms mean?

Compatible use means a proposed or existing wildlife-dependent recreational use or any other use of a national wildlife refuge that, based on sound professional judgment, will not materially interfere with or detract from the fulfillment of the National Wildlife Refuge System mission or the purposes of the national wildlife refuge. The term "inconsistent" in section 28(b)(1) of the Mineral Leasing Act of 1920 (30 U.S.C. 185) means a use that is not compatible.

Department means U.S. Department of the Interior unless otherwise specified.

National Wildlife Refuge System land means lands and waters, or interests therein, administered by the Secretary as wildlife refuges, areas for the protection and conservation of fish and wildlife that are threatened with extinction, wildlife ranges, game ranges, wildlife management areas, or waterfowl production areas.

Other lands means all other lands, or interests therein, and waters administered by the Secretary through the U.S. Fish and Wildlife Service which are not included in National Wildlife Refuge System lands, e.g., administrative sites, research stations, fish hatcheries, and fishery research stations.

Project Manager means the officer in charge of the land under administration by the U.S. Fish and Wildlife Service.

[34 FR 19907, Dec. 19, 1969, as amended at 39 FR 5490, Feb. 13, 1974; 42 FR 43917, Aug. 31, 1977; 44 FR 42976, July 23, 1979; 48 FR 31655, July 11, 1983; 51 FR 7575, Mar. 5, 1986; 65 FR 62483, Oct. 18, 2000]

§29.21-1 Purpose and scope.

The regulations in this subpart prescribe the procedures for filing applications and the terms and conditions under which rights-of-way over and across the lands administered by the U.S. Fish and Wildlife Service may be granted.

(a) *National Wildlife Refuge System lands.* Applications for all forms of rights-of-way on or over such lands shall be submitted under authority of Pub. L. 89-669, (80 Stat. 926; 16 U.S.C. 668dd) as amended, or for oil and gas pipelines under section 28 of the Mineral Leasing Act of 1920 (41 Stat. 449; 30 U.S.C. 185) as amended by Pub. L. 93-153, following application procedures set out in §29.21-2. No right-of-way will be approved unless it is determined by the Regional Director to be compatible. See §29.21-8 for additional requirements applicable to rights-of-way for electric power transmission lines and §29.21-9 for additional requirements applicable to rights-of-way for pipelines for the transportation of oil, natural gas, synthetic liquid or gaseous fuels, or any refined product produced therefrom.

(b) *National Wildlife Refuge System lands—easement interest.* Applications for all forms of rights-of-way across lands in which the United States owns only an easement interest may be submitted to the Regional Director in letter form. No map exhibit is required, however, the affected land should be described in the letter or shown on a map sketch. If the requested right-of-way will not adversely affect the United States' interest, the Regional Director may issue a letter stating that the interest of the United States to the right-of-way easement would not be affected provided there would be no objection to a right-of-way by the fee owner. If the interest of the United States will be affected, application for the right-of-way must be submitted in accordance with procedures set out in §29.21-2.

(c) *Other lands outside the National Wildlife Refuge System.* Rights-of-way on or over other lands will be granted in accordance with controlling authorities cited in 43 CFR part 2800, or for oil and gas pipelines under section 28 of the Mineral Leasing Act of 1920 (41 Stat. 449; 30 U.S.C. 185) as amended by Pub. L. 93-153. See §29.21-8 for additional requirements applicable to rights-of-way for electric power transmission lines and §29.21-9 for additional requirements applicable to rights-of-way for pipelines for the transportation of oil, natural gas, synthetic liquid or gaseous fuels, or any other refined product produced therefrom. Applications will be submitted in accordance with procedures set out in §29.21-2.

[34 FR 19907, Dec. 19, 1969, as amended at 36 FR 2402, Feb. 4, 1971; 39 FR 5490, Feb. 13, 1974; 42 FR 43917, Aug. 31, 1977; 44 FR 42976, July 23, 1979; 48 FR 31655, July 11, 1983]

§29.21-2 Application procedures.

(a) *Application.* (1) No special form of application is required. The application should state the purpose for which the right-of-way is being requested together with the length, width on each side of the centerline, and the estimated acreage. Applications, including exhibits, must be filed in triplicate with the Regional Director for the region in which the State is located. A list of States in each region and the addresses of the regional offices are provided at 50 CFR 2.2.

(2)(i) All applications filed pursuant to this subpart in the name of individuals, corporations, or associations must be accompanied by a nonreturnable application fee. No application fee will be required of (A) State of local governments or agencies or instrumentalities thereof except as to rights-of-way, easements or permits under section 28 of the Mineral Leasing Act of 1920, as amended by Pub. L. 93-153, or (B) Federal Government agencies.

(ii) Application fees will be in accordance with the following schedule:

(A) For linear facilities (e.g., powerlines, pipelines, roads, etc.).

Length	Payment
Less than 5 miles	$50 per mile or fraction thereof.
5 to 20 miles	$500.
20 miles and over	$500 for each 20 miles or fraction thereof.

(B) For nonlinear facilities, $250 for each 40 acres or fraction thereof.

(C) Where an application includes both linear and nonlinear facilities, payment will be the aggregate of amounts under paragraphs (a)(2)(ii)(A) and (B) of this section.

(D) When an application is received, the Regional Director will estimate the costs expected to be incurred in processing the application. If the estimated costs exceed the payments under paragraph (a)(2)(ii) (A), (B), or (C) of this section by an amount greater than the cost of maintaining actual cost records, the Regional Director shall require the applicant to make periodic payments in advance of the incurrence of such costs by the United States except for the last payment which will reflect final reimbursement for actual costs of the United States in processing the application. Overpayments may be refunded or adjusted by the Regional Director as appropriate.

(E) The Regional Director shall, on request by an applicant or prospective applicant, give an estimate based on the best available cost information, of the costs which would be incurred by the United States in processing an application. However, reimbursement will not be limited to the estimate of the Regional Director if the actual costs exceed the estimate. Prospective applicants are encouraged to consult with the Regional Director in advance of filing an application in regard to probable costs and other requirements.

(3)(i) By accepting an easement or permit under this subpart, the holder agrees to reimburse the United States for reasonable costs incurred by the Fish and Wildlife Service in monitoring the construction, operation, maintenance, and termination of facillities within or adjacent to the easement or permit area. No reimbursement of monitoring costs will be required of (A) State or local governments or agencies or instrumentalities thereof except as to right-of-way, easements, or permits granted under section 28 of the Mineral Leasing Act of 1920 as amended by Pub. L. 93-153, or (B) Federal Government agencies.

(ii) Within 60 days of the issuance of an easement or permit the holder must submit a nonreturnable payment in accordance with the following:

(A) For linear facilities e.g., powerlines, pipelines, roads, etc.).

Length	Payment
Less than 5 miles	$20 per mile or fraction thereof.
5 to 20 miles	$200.
20 miles and over	$200 for each 20 miles or fraction thereof.

(B) For nonlinear facilities, $100 for each 40 acres or fraction thereof.

(C) Where an easement or permit includes both linear and nonlinear facilities, payment will be the aggregate amounts under paragraph (a)(3)(2)(ii) (A) and (B) of this section.

(D) When an easement or permit is granted the Regional Director shall estimate the costs, based on the best available cost information, expected to be incurred by the United States in monitoring holder activity. If the estimated costs exceed the payments under paragraph (a)(3)(2) (ii), (A), (B), or (C) of this section by an amount which is greater than the cost of maintaining actual cost records for the monitoring process, the Regional Director shall require the holder to make periodic payments of the estimated reimbursable costs prior to the incurrence of such costs by the United States. Overpayments may be refunded or adjusted by the Regional Director as appropriate.

(E) Following the termination of an easement or permit, the former holder will be required to pay additional amounts to the extent the actual costs to the United States have exceeded the payments required by paragraphs (a)(3)(ii)(A), (B), and (C) of this section.

(4) All applications filed pursuant to this subpart must include a detailed environmental analysis which shall include information concerning the impact of the proposed use of the environment including the impact on air and water quality; scenic and esthetic features; historic, architectural, archeological, and cultural features; wildlife, fish and marine life, etc. The analysis shall include sufficient data so as to enable the Service to prepare an environmental assessment and/or impact statement in accordance with section 102(2)(C) of the National Environmental Policy Act of 1969 (42 U.S.C. 4321 *et seq.*) and comply with the requirements of the National Historic Preservation Act of 1966 (16 U.S.C. 470 *et seq.*), the Archeological and Historic Preservation Act of 1974 (16 U.S.C. 469 *et seq.*), Executive Order 11593 "Protection and Enhancement of the Cultural Environment" of May 13, 1971 (36 FR 8921), and "Procedures for the Protection of Historic and Cultural Properties" (36 CFR, part 800). Concerning the National Environmental Policy Act, the Regional Director may, at his discretion, rely on an environmental assessment or impact statement prepared by a "lead agency."

(b) *Maps.* A map or plat must accompany each copy of the application and must show the right-of-way in such detail that the right-of-way can be accurately located on the ground. Ties to Service land boundary corner monuments or some prominent cultural features which can be readily recognized and recovered should be shown where the right-of-way enters and leaves Service project land together with courses and distances of the centerline. The width of the right-of-way on each side of the centerline together with the acreage included within the right-of-way or site must also be shown. If the right-of-way or site is located wholly within Service project land, a tie to a Government corner or prominent cultural feature which can be readily recognized and recovered should be shown.

[31 FR 16026, Dec. 15, 1966, as amended at 42 FR 43917, Aug. 31, 1977; 44 FR 42976, July 23, 1979; 48 FR 31655, July 11, 1983; 77 FR 5715, Feb. 6, 2012; 78 FR 35152, June 12, 2013]

§29.21-3 Nature of interest granted.

(a) Where the land administered by the Secretary is owned in fee by the United States and the right-of-way is compatible with the objectives of the area, permit or easement may be approved and granted by the Regional Director. Generally an easement or permit will be issued for a term of 50 years or so long as it is used for the purpose granted, or for a lesser term when considered appropriate. For rights-of-way granted under authority of section 28 of the Mineral Leasing Act of 1920, as amended, for pipelines for the transportation of oil, natural gas, synthetic liquid or gaseous fuels, or any refined product produced therefrom, the grant may be for a term not to exceed 30 years and the right-of-way may not exceed 50 feet, plus the area occupied by the pipeline and its related facilities unless the Regional Director finds, and records the reasons for his finding, that, in his judgment, a wider right-of-way is necessary for operation and maintenance after construction, or to protect the environment or public safety. Related facilities include but are not limited to valves, pump stations, supporting structures, bridges, monitoring and communication devices, surge and storage tanks, terminals, etc. However, a temporary permit supplementing a right-of-way may be granted for additional land needed during construction, operation, maintenance, or termination of the pipeline, or to protect the natural environment or public safety.

(b) Unless otherwise provided, no interest granted shall give the grantee any right whatever to remove any material, earth, or stone for construction or other purpose, except that stone or earth necessarily removed from the right-of-way in the construction of a project may be used elsewhere along the same right-of-way in the construction of the same project.

[31 FR 16026, Dec. 15, 1966, as amended at 42 FR 43918, Aug. 31, 1977]

§29.21-4 Terms and conditions.

(a) Any right-of-way easement or permit granted will be subject to outstanding rights, if any, in third parties.

(b) An applicant, by accepting an easement or permit agrees to such terms and conditions as may be prescribed by the Regional Director in the granting document. Such terms and conditions shall include the following, unless waived in part by the Regional Director, and may include additional special stipulations at his discretion. See §29.21-8 for special requirements for electric powerlines and §29.21-9 for special requirements for oil and gas pipelines.

(1) To comply with State and Federal laws applicable to the project within which the easement or permit is granted, and to the lands which are included in the right-of-way, and lawful existing regulations thereunder.

(2) To clear and keep clear the lands within the easement or permit area to the extent and in the manner directed by the project manager in charge; and to dispose of all vegetative and other material cut, uprooted, or otherwise accumulated during the construction and maintenance of the project in such a manner as to decrease the fire hazard and also in accordance with such instructions as the project manager may specify.

(3) To prevent the disturbance or removal of any public land survey monument or project boundary monument unless and until the applicant has requested and received from the Regional Director approval of measures the applicant will take to perpetuate the location of aforesaid monument.

(4) To take such soil and resource conservation and protection measures, including weed control on the land covered by the easement or permit as the project manager in charge may request.

(5) To do everything reasonably within his power, both independently and on request of any duly authorized representative of the United States, to prevent and suppress fires on or near, lands to be occupied under the easement or permit area, including making available such construction and maintenance forces as may be reasonably obtainable for the suppression of such fires.

(6) To rebuild and repair such roads, fences, structures, and trails as may be destroyed or injured by construction work and upon request by the Regional Director, to build and maintain necessary and suitable crossings for all roads and trails that intersect the works constructed, maintained, or operated under the right-of-way.

(7) To pay the United States the full value for all damages to the lands or other property of the United States caused by him or by his employees, contractors, or employees of the contractors, and to indemnify the United States against any liability for damages to life, person or property arising from the occupancy or use of the lands under the easement or permit, except where the easement or permit is granted hereunder to a State or other governmental agency which has no legal power to assume such a liability with respect to damages caused by it to lands or property, such agency in lieu thereof agrees to repair all such damages. Where the easement of permit involves lands which are under the exclusive jurisdiction of the United States, the holder or his employees, contractors, or agents of the contractors, shall be liable to third parties for injuries incurred in connection with the easement or permit area. Grants of easements or permits involving special hazards will impose liability without fault for injury and damage to the land and property of the United States up to a specified maximum limit commensurate with the foreseeable risks or hazards presented. The amount of no-fault liability for each occurrence is hereby limited to no more than $1,000,000.

(8) To notify promptly the project manager in charge of the amount of merchantable timber, if any, which will be cut, removed, or destroyed in the construction and maintenance of the project, and to pay the United States in advance of construction such sum of money as the project manager may determine to be the full stumpage value of the timber to be so cut, removed, or destroyed.

(9) That all or any part of the easement or permit granted may be terminated by the Regional Director, for failure to comply with any or all of the terms or conditions of the grant, or for abandonment. A rebuttable presumption of abandonment is raised by deliberate failure of the holder to use for any continuous 2-year period the easement or permit for the purpose for which it was granted or renewed. In the event of noncompliance of abandonment, the Regional Director will notify in writing the holder of the easement or permit of his intention to suspend or terminate such grant 60 days from the date of the notice, stating the reasons therefor, unless prior to that time the holder completes such corrective actions as are specified in the notice. The Regional Director may grant an extension of time within which to complete corrective actions when, in his judgment, extenuating circumstances not within the holder's control such as adverse weather conditions, disturbance to wildlife during breeding periods or periods of peak concentration, or other compelling reasons warrant. Should the holder of a right-of-way issued under authority of the Mineral Leasing Act, as amended, fail to take corrective action within the 60-day period, the Regional Director will provide for an administrative proceeding pursuant to 5 U.S.C. 554, prior to a final Departmental decision to suspend or terminate the easement or permit. In the case of all other right-of-way holders, failure to take corrective action within the 60-day period will result in a determination by the Regional Director to suspend or terminate the easement or permit. No administrative proceeding shall be required where the easement or permit terminates under its terms.

(10) To restore the land to its original condition to the satisfaction of the Regional Director so far as it is reasonably possible to do so upon revocation and/or termination of the easement or permit, unless this requirement is waived in writing by the Regional Director. Termination also includes permits or easements that terminate under the terms of the grant.

(11) To keep the project manager informed at all times of his address, and, in case of corporations, of the address of its principal place of business and the names and addresses of its principal officers.

(12) That in the construction, operation, and maintenance of the project, he shall not discriminate against any employee or applicant for employment because of race, creed, color, or national origin and shall require an identical provision to be included in all subcontracts.

(13) That the grant of the easement or permit shall be subject to the express condition that the exercise thereof will not unduly interfere with the management, administration, or disposal by the United States of the land affected thereby. The applicant agrees and consents to the occupancy and use by the United States, its grantees, permittees, or lessees of any part of the easement of permit area not actually occupied for the purpose of the granted rights to the extent that it does not interfere with the full and safe utilization thereof by the holder. The holder of an easement or permit also agrees that authorized representatives of the United States shall have the right of access to the easement or permit area for the purpose of making inspections and monitoring the construction, operation and maintenance of facilities.

(14) That the easement or permit herein granted shall be subject to the express covenant that any facility constructed thereon will be modified or adapted, if such is found by the Regional Director to be necessary, without liability or expense to the United States, so that such facility will not conflict with the use and occupancy of the land for any authorized works which may hereafter be constructed thereon under the authority of the United States. Any such modification will be planned and scheduled so as not to interfere unduly with or to have minimal effect upon continuity of energy and delivery requirements.

(15) That the easement or permit herein granted shall be for the specific use described and may not be construed to include the further right to authorize any other use within the easement or permit area unless approved in writing by the Regional Director.

[31 FR 16026, Dec. 15, 1966, as amended at 42 FR 43918, Aug. 31, 1977]

§29.21-5 Construction.

(a) If construction is not commenced within two (2) years after date of right-of-way grant, the right-of-way may be canceled by the Director of the U.S. Fish and Wildlife Service at his discretion.

(b) Proof of construction: Upon completion of construction, the applicant shall file a certification of completion with the Regional Director.

[42 FR 43919, Aug. 31, 1977]

§29.21-6 Disposal, transfer or termination of interest.

(a) *Change in jurisdiction over and disposal of lands.* The final disposal by the United States of any tract of land traversed by a right-of-way shall not be construed to be a revocation of the right-of-way in whole or in part, but such final disposition shall be deemed and taken to be subject to such right-of-way unless it has been specifically canceled.

(b) *Transfer of easement or permit.* Any proposed transfer, by assignment, lease, operating agreement or otherwise, of an easement or permit must be filed in triplicate with the Regional Director and must be supported by a stipulation that the transferee agrees to comply with and be bound by the terms and conditions of the original grant. A $25 nonreturnable service fee must accompany the proposal. No transfer will be recognized unless and until approved in writing by the Regional Director.

(c) *Disposal of property on termination of right-of-way.* In the absence of any agreement to the contrary, the holder of the right-of-way will be allowed 6 months after termination to remove all property or improvements other than a road and useable improvements to a road, placed thereon by him; otherwise, all such property and improvements shall become the property of the United States. Extensions of time may be granted at the discretion of the Regional Director.

[31 FR 16026, Dec. 15, 1966, as amended at 42 FR 43919, Aug. 31, 1977]

§29.21-7 What payment do we require for use and occupancy of national wildlife refuge lands?

(a) Payment for use and occupancy of lands under the regulations of this subpart will be required and will be for fair market value as determined by appraisal by the Regional Director. At the discretion of the Regional Director, the payment may be a lump sum payment or an annual fair market rental payment, to be made in advance. If any Federal, State or local agency is exempted from such payment by and any other provision of Federal law, such agency shall otherwise compensate the Service by any other means agreeable to the Regional Director, including, but not limited to, making other land available or the loan of equipment or personnel, except that any such compensation shall relate to, and be consistent with the objectives of the National Wildlife Refuge System. The Regional Director may waive such requirement for compensation if he finds such requirement impracticable or unnecessary.

(b) When annual rental payments are used, such rates shall be reviewed by the Regional Director at any time not less than 5 years after the grant of the permit, right-of-way, or easement or the last revision of charges thereunder, The Regional Director will furnish a notice in writing to the holder of an easement or permit of intent to impose new charges to reflect fair market value commencing with the ensuing charge year. The revised charges will be effective unless the holder files an appeal in accordance with §29.22.

[42 FR 43919, Aug. 31, 1977, as amended at 65 FR 62483, Oct. 18, 2000]

§29.21-8 Electric power transmission line rights-of-way.

By accepting a right-of-way for a power transmission line, the applicant thereby agrees and consents to comply with and be bound by the following terms and conditions, except those which the Secretary may waive in a particular case, in addition to those specified in §29.21-4(b).

(a) To protect in a workmanlike manner, at crossings and at places in proximity to his transmission lines on the right-of-way authorized, in accordance with the rules prescribed in the National Electric Safety Code, all Government and other telephone, telegraph and power transmission lines from contact and all highways and railroads from obstruction and to maintain his transmission lines in such manner as not to menace life or property.

(b) Neither the privilege nor the right to occupy or use the lands for the purpose authorized shall relieve him of any legal liability for causing inductive or conductive interference between any project transmission line or other project works constructed, operated, or maintained by him on the servient lands, and any radio installation, telephone line, or other communication facilities now or hereafter constructed and operated by the United States or any agency thereof.

[42 FR 43919, Aug. 31, 1977, as amended at 48 FR 31655, July 11, 1983]

§29.21-9 Rights-of-way for pipelines for the transportation of oil, natural gas, synthetic liquid or gaseous fuels, or any refined product produced therefrom.

(a) *Application procedure.* Applications for pipelines and related facilities under this section are to be filed in accordance with §29.21-2 of these regulations with the following exception:

When the right-of-way or proposed facility will occupy Federal land under the control of more than one Federal Agency and/or more than one bureau or office of the Department of the Interior, a single application shall be filed with the appropriate State Director of the Bureau of Land Management in accordance with regulations in 43 CFR part 2800.

Any portion of the facility occupying land of the National Wildlife Refuge System will be subject to the provisions of these regulations.

(b) *Right-of-way grants* under this section will be subject to the special requirements of section 28 of the Mineral Leasing Act of 1920 (30 U.S.C. 185), as amended, as set forth below. Gathering lines and associated structures used solely in the production of oil and gas under valid leases on the lands administered by the Fish and Wildlife Service are excepted from the provisions of this section.

(1) *Pipeline safety.* Rights-of-way or permits granted under this section will include requirements that will protect the safety of workers and protect the public from sudden ruptures and slow degradation of the pipeline. An applicant must agree to design, construct, and operate all proposed facilities in accordance with the provisions of parts 192 and/or 195 of title 49 of the CFR and in accordance with the Occupational Safety and Health Act of 1970, Pub. L. 91-596, including any amendments thereto.

(2) *Environmental protection.* An application for a right-of-way must contain environmental information required by §29.21-2(a)(4) of this subpart. If the Regional Director determines that a proposed project will have a significant affect on the environment, there must also be furnished a plan of construction, operations, and rehabilitation of the proposed facilities. In addition to terms and conditions imposed under §29.21-4, the Regional director will impose such stipulations as may be required to assure: (i) Restoration, revegetation and curtailment of erosion of the surface; (ii) that activities in connection with the right-of-way or permit will not violate applicable air and water quality standards in related facilities siting standards established by law; (iii) control or prevention of damage to the environment including damage to fish and wildlife habitat, public or private property, and public health and safety; and (iv) protection of the interests of individuals living in the general area of the right-of-way or permit who rely on the fish, wildlife, and biotic resources of the area for subsistence purposes.

(c) *Disclosure.* If the applicant is a partnership, corporation, association, or other business entity it must disclose the identity of the participants in the entity. Such disclosure shall include where applicable (1) the name and address of each partner, (2) the name and address of each shareholder owning 3 percentum or more of the shares, together with the number and percentage of any class of voting shares of the entity which such shareholder is authorized to vote, and (3) the name and address of each affiliate of the entity together with, in the case of an affiliate controlled by the entity, the number of shares and the percentage of any class of voting stock of that affiliate owned, directly or indirectly, by that entity, and in the case of an affiliate which controls that entity, the number of shares and the percentage of any class of voting stock of that entity owned, directly or indirectly, by the affiliate.

(d) *Technical and financial capability.* The Regional Director may grant or renew a right-of-way or permit under this section only when he is satisfied that the applicant has the technical and financial capability to construct, operate, maintain and terminate the facility. At the discretion of the Regional Director, a financial statement may be required.

(e) *Reimbursement of costs.* In accordance with §29.21-2(a)(3) of this subpart, the holder of a right-of-way or permit must reimburse the Service for the cost incurred in monitoring the construction, operation, maintenance, and termination of any pipeline or related facilities as determined by the Regional Director.

(f) *Public hearing.* The Regional Director shall give notice to Federal, State, and local government agencies, and the public, and afford them the opportunity to comment on right-of-way applications under this section. A notice will be published in the FEDERAL REGISTER and a public hearing may be held where appropriate.

(g) *Bonding.* Where appropriate the Regional Director may require the holder of a right-of-way or permit to furnish a bond, or other security satisfactory to him, to secure all or any of the obligations imposed by the terms and conditions of the right-of-way or permit or by any rule or regulation, not to exceed the period of construction plus one year or a longer period if necessary for the pipeline to stabilize.

(h) *Suspension of right-of-way.* If the Project Manager determines that an immediate temporary suspension of activities within a right-of-way or permit area is necessary to protect public health and safety or the environment, he may issue an emergency suspension order to abate such activities prior to an administrative proceeding. The Regional Director must make a determination and notify the holder in writing within 15 days from the date of suspension as to whether the suspension should continue and list actions needed to terminate the suspension. Such suspension shall remain in effect for only so long as an emergency condition continues.

(i) *Joint use of rights-of-way.* Each right-of-way or permit shall reserve to the Regional Director the right to grant additional rights-of-way or permits for compatible uses on or adjacent to rights-of-way or permit areas granted under this section after giving notice to the holder and an opportunity to comment.

(j) *Common carriers.* (1) Pipelines and related facilities used for the transportation of oil, natural gas, synthetic liquid or gaseous fuels, or any refined product produced therefrom shall be constructed, operated, and maintained as common carriers.

(2)(i) The owners or operators of pipelines subject to this subpart shall accept, convey, transport, or purchase without discrimination all oil or gas delivered to the pipeline without regard to whether such oil or gas was produced on Federal or non-Federal lands.

(ii) In the case of oil or gas produced from Federal lands or from the resources on the Federal lands in the vicinity of the pipelines, the Secretary may, after a full hearing with due notice thereof to the

interested parties and a proper finding of facts, determine the proportionate amounts to be accepted, conveyed, transported or purchased.

(3)(i) The common carrier provisions of this section shall not apply to any natural gas pipeline operated by any person subject to regulation under the Natural Gas Act or by any public utility subject to regulation by a State or municipal regulatory agency having jurisdiction to regulate the rates and charges for the sale of natural gas to consumers within the State or municipality.

(ii) Where natural gas not subject to state regulatory or conservation laws governing its purchase by pipelines is offered for sale, each such pipeline shall purchase, without discrimination, any such natural gas produced in the vicinity of the pipeline.

(4) The Regional Director shall require, prior to granting or renewing a right-of-way, that the applicant submit and disclose all plans, contracts, agreements, or other information or material which he deems necessary to determine whether a right-of-way shall be granted or renewed and the terms and conditions which should be included in the right-of-way. Such information may include, but is not limited to: (i) Conditions for, and agreements among owners or operators, regarding the addition of pumping facilities, looping, or otherwise increasing the pipeline or terminal's throughput capacity in response to actual or anticipated increases in demand; (ii) conditions for adding or abandoning intake, offtake, or storage points or facilities; and (iii) minimum shipment or purchase tenders.

(k) *Limitations on export.* Any domestically produced crude oil transported by pipeline over rights-of-way granted pursuant to section 28 of the Mineral Leasing Act of 1920, except such crude oil which is either exchanged in similar quantity for convenience or increased efficiency of transportation with persons or the government of an adjacent foreign state, or which is temporarily exported for convenience or increased efficiency of transportation across parts of an adjacent foreign state and reenters the United States, shall be subject to all of the limitation and licensing requirements of the Export Administration Act of 1969.

(l) *State standards.* The Regional Director shall take into consideration, and to the extent practical comply with, applicable State standards for right-of-way construction, operation, and maintenance.

(m) *Congressional notification.* The Secretary shall promptly notify the Committee on Natural Resources of the United States House of Representatives and the Committee on Energy and Natural Resources of the United States Senate upon receipt of an application for a right-of-way for pipeline 24 inches or more in diameter, and no right-of-way for such a pipeline shall be granted until 60 days (not including days on which the House or Senate has adjourned for more than three days) after a notice of intention to grant the right-of-way, together with the Secretary's detailed findings as to the terms and conditions he proposes to impose, has been submitted to such committees.

[42 FR 43921, Aug. 31, 1977, as amended at 77 FR 5716, Feb. 6, 2012]

§29.22 Hearing and appeals procedures.

An appeal may be taken from any final disposition of the Regional Director to the Director, U.S. Fish and Wildlife Service, and, except in the case of a denial of a right-of-way application, from the latter's decision to the Secretary of the Interior. Appeals to the Secretary shall be taken pursuant to 43 CFR part 4, subpart G.

[44 FR 42976, July 23, 1979]

Cheryl D. Feigum

From: Andrew.Brunner@dot.gov
Sent: Thursday, June 25, 2015 6:37 AM
To: Cheryl D. Feigum
Cc: Gerald.Solomon@dot.gov
Subject: Great Northern Transmission Line Project Draft EIS released for public review and comment

Thank you Dr. Cheryl D. Feigum,

Under normal circumstances the Department of Energy would be the Federal Agency requesting comments on one of its Environmental Impact Statements where the leadership there thought that the Department of Transportation and, specifically, the Federal Highway Administration was an affected stakeholder. However, you provided the document as a private citizen. We have nonetheless reviewed the document to see if the federal transportation interests are impacted by the proposed action and if we had any comments to provide to the DOE. We have concluded, as expected, that the Federal Highway Administration has no comments on the document or the documentation it contains.

Thank you for sharing the information.

Andrew M. Brunner
Federal Highway Administration
Environmental Specialist
FHWA Office of Project Development and Environmental Review
1200 New Jersey Ave SE
Washington DC 20590
(202)-366-4651
Andrew.Brunner@dot.gov

Please consider the environment before printing this email

From: Cheryl D. Feigum [mailto:CFeigum@barr.com]
Sent: Friday, June 19, 2015 3:01 PM
To: 'westlake.kenneth@epa.gov'; 'rhonda.solomon@faa.gov'; 'jcarbone/wo@fs.fed.us'; 'andree.duvarney@wdc.usda.gov'; 'mark.plank@wdc.usda.gov'; 'john.c.furry@usace.army.mil'; 'willie_taylor@ios.doi.gov'; 'larry_bright@fws.gov'; 'margaret_rheude@fws.gov'; 'hassellmd@state.gov'; Solomon, Gerald (OST); Mittelholtz, Camille (OST); 'jeff.wright@ferc.gov'; 'will.seuffert@state.mn.us'; 'info.dnr@state.mn.us'; 'dterry@naseo.org'; 'bambi@nathpo.org'; 'hein@ncshpo.org'; 'dschroeder@abcbirds.org'; 'brown@electricity.ca'; 'ksiegel@biologicaldiversity.org'; 'sball@eei.org'; 'btyran@epri.com'; 'mncwa@cleanwater.org'; 'ien@igc.org'; 'dglenn@mnproject.org'; 'khall@audubon.org'; 'rae.cronmiller@nreca.org'; 'dgoldstein@nrdc.org'; 'lyon@nwf.org'; 'minnesota@tnc.org'; 'mnico@northstar.sierraclub.org'; 'tbarkley@prairierivers.org'; 'kschrader@ducks.org'; 'rountree.marthea@epa.gov'; 'smoyer@tu.org'; 'jditto@publicpower.org'; 'jloichinger@achp.gov'; 'sarah.beimers@mnhs.org'; 'mnshpo@mnhs.org'
Cc: 'Smith, Julie A (OE)'
Subject: Great Northern Transmission Line Project Draft EIS released for public review and comment

0007-1
Thank you for your review.

0007-1

Dear Interested Stakeholder,

The purpose of this email is to make you aware that the Department of Energy (DOE) has issued the Draft Environmental Impact Statement (EIS) for the proposed Great Northern Transmission Line Project (GNTL Project). You are invited to comment on the Draft EIS for the GNTL Project for a 45-day public comment period ending Monday, August 10, 2015. You have been identified as a potentially interested stakeholder in this action by the Department of Energy (DOE) and are therefore being notified of the draft EIS availability at the DOE GNTL Project EIS website at http://www.greatnortherneis.org.

As you may recall, the proposed GNTL Project consists of an approximately 220-mile, overhead, single-circuit 500 kV AC transmission line between the Minnesota-Manitoba border crossing northwest of Roseau, Minnesota, and the existing Blackberry 230/115 kV Substation near Grand Rapids, Minnesota. Minnesota Power's proposal also includes associated substation facilities and transmission system modifications at the Blackberry Substation site, and construction of a new 500 kV Series Compensation Station (a structure which will house the 500 kV series capacitor banks necessary for reliable operation and performance of the proposed transmission line). A new Blackberry 500 kV Substation would be required for the proposed Project and would be constructed adjacent to and east of the existing Blackberry 230/115 kV Substation.

Minnesota Power, a regulated utility division of ALLETE, Inc. applied to the U.S. Department of Energy (DOE) for a Presidential permit on April 15, 2014. The DOE's Office of Electricity Delivery and Energy Reliability is responsible for reviewing Presidential permit applications and determining whether to grant a permit for electrical transmission facilities that cross the United States' international border. The DOE determines whether issuing a Presidential permit would be consistent with the public interest and assesses the environmental effects of the proposed project, the effect of the proposed project on electric reliability, and other factors that the DOE considers relevant to the public interest. The DOE determined that issuance of a Presidential permit would constitute a major federal action and that an Environmental Impact Statement (EIS) is the appropriate level of environmental review under the National Environmental Policy Act (NEPA) of 1969.

Under the state's Power Plant Siting Act (PPSA), the Minnesota Public Utilities Commission (MN PUC) must also determine the route for the proposed line and any conditions it will require for the construction, operation, and maintenance of the proposed GNTL Project through its Route Permit process. Minnesota Power filed its Route Permit application for the proposed GNTL Project concurrently with the DOE Presidential permit application on April 15, 2014. As part of the MN PUC Route Permit decision-making process, an environmental impact statement must be prepared. In order to avoid duplication with state environmental review procedures, DOE and the Minnesota Department of Commerce – Energy Environmental Review and Analysis (DOC-EERA) are acting as co-lead agencies and have prepared a single EIS to comply with environmental review requirements under NEPA and the PPSA.

The United States (US) Army Corps of Engineers – St. Paul District, US Fish and Wildlife Service – Twin Cities Ecological Field Office, and US Environmental Protection Agency – Region 5 (Chicago) are all cooperating agencies in the preparation of the draft GNTL Project EIS.

DOE has posted the Draft EIS on the http://www.greatnortherneis.org in a format that can be downloaded to a personal computer. In addition, DOE and DOC-EERA are placing a hard copy and a CD-Rom copy of the Draft EIS at the following public libraries along the proposed GNTL Project route:

- Baudette Library, 110 1st Street SW, Baudette
- Blackduck Public Library, 72 1st Street SE, Blackduck
- Bovey Public Library, 402 2nd Street, Bovey
- Calumet Library, 932 Gary Street, Calumet
- Coleraine Public Library, 203 Cole Street, Coleraine
- Duluth Public Library, 520 W Superior Street, Duluth
- Grand Rapids Public Library, 140 NE 2nd Street, Grand Rapids
- Greenbush Public Library, PO Box 9, Greenbush
- International Falls Public Library, 750 4th Street, International Falls

- Marble Public Library, 302 Alice Avenue, Marble
- Northome Public Library, 12064 Main Street, Northome
- Roseau Public Library, 121 Center Street E, Suite 100, Roseau
- Warroad Public Library, 202 Main Avenue NE, Warroad
- Williams Public Library, 350 Main Street, Williams

If you would like to request a hardcopy or an electronic copy on a CD of the Draft EIS, please respond to this email and indicate what format you would like, along with your full name and physical address. If you plan to download the document from the project website, you do not need to respond to this email.

DOE and DOC-EERA will also conduct public hearings commencing at the times identified below to receive comments on the Draft EIS at the following locations:

COUNTY	CITY	MEETING LOCATION	DATE AND TIME
Roseau	Roseau	Roseau Civic Center 121 Center Street E	Wednesday, July 15, 2015 11:00 am – 3:00 pm
Lake of the Woods	Baudette	Lake of the Woods School 236 15th Ave SW	Wednesday, July 15, 2015 6:00 pm – 10:00 pm
Koochiching	Littlefork	Littlefork Community Center 220 Main St	Thursday, July 16, 2015 11:00 am – 3:00 pm
Koochiching	International Falls	AmericInn 1500 Hwy 71	Thursday, July 16, 2015 6:00 pm – 10:00 pm
Beltrami	Kelliher	Kelliher Old School Center 243 Clark Avenue N (Highway 72)	Tuesday, July 21, 2015 11:00 am – 3:00 pm
Itasca	Bigfork	Bigfork School 100 Huskie Blvd	Tuesday, July 21, 2015 6:00 pm – 10:00 pm
Itasca	Grand Rapids	Timber Lake Lodge 144 SE 17th Street	Wednesday, July 22, 2015 11:00 am – 3:00 pm
Itasca	Grand Rapids	Timber Lake Lodge 144 SE 17th Street	Wednesday, July 22, 2015 6:00 pm – 10:00 pm

Comments on the Draft EIS can be submitted verbally during public hearings or in writing to Dr. Julie A. Smith at: Office of Electricity Delivery and Energy Reliability (OE-20), U.S. Department of Energy, 1000 Independence Avenue, SW, Washington, DC 20585; via e-mail to Juliea.Smith@hq.doe.gov; by facsimile to (202) 586-8008; or through the project website at http://www.greatnortherneis.org. Please mark envelopes and electronic mail subject lines as "GNTL Draft EIS Comments." Written comments must be received by August 11, 2015. Comments submitted after that date will be considered to the extent practicable.

Cheryl D. Feigum, PhD

Vice President
Senior Environmental Scientist
Minneapolis office: 952.832.2680
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cfeigum@barr.com
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resourceful. naturally. BARR

DOC - 14-21 - DEIS PUBLIC MEETING

DOE - EIS-0499 - DEIS PUBLIC HEARING

JULY 15, 2015 - 6:00 P.M. - BAUDETTE

MINNESOTA DEPARTMENT OF COMMERCE

AND

U.S. DEPARTMENT OF ENERGY

In the Matter of the Route Permit and Presidential Permit Applications by Minnesota Power for the Great Northern High-Voltage Transmission Line Project and Associated Facilities in Beltrami, Itasca, Koochiching, Lake of the Woods, and Roseau Counties

PUC DOCKET NO. E-015/TL-14-21
DOE DOCKET NO. EIS-0499

Lake of the Woods School
236 15th Avenue SW
Baudette, Minnesota

July 15, 2015

COURT REPORTER: Janet Shaddix Elling, RPR

be, whatever route you may want. But I won't stop you from saying anything like that tonight, but I'm encouraging you to focus on the draft environmental impact statement if you can.

And written comments, as I said, you've got until August 10th. You can send them to either me or Jules. You can use my form, you can snail mail me, e-mail me, fax me your comments. Same thing with Jules. You don't need to copy us both, but you can if you want, we are going to share the comments. And you can also comment electronically if our website is working. So you have our website and you have the Fed's website that you can go to and you can put a comment in electronically. I think that's it.

Okay. So that's the state process, Jules did the federal process. No one gave me a card so I'll just go by a show of hands. If somebody wants to speak, I know, Carol, you would like to speak, if you wouldn't mind coming up front to the mic and stating and spelling your name.

MS. CAROL OVERLAND: First, where is the application? I mean, the EIS.

MR. BILL STORM: It's right there where the mic is.

UNIDENTIFIED: I've got part of it here.

MS. CAROL OVERLAND: I wonder if I could use it.

MR. BILL STORM: There's a second copy over on that table over there. Mike's got it for you. You're all right. You're all right.

MS. CAROL OVERLAND: Thank you. There we go.

Carol Overland, 1110 West Avenue, Red Wing, Minnesota.

And you can also get more information at the Not-So-Great-Northern-Transmission-Line, at www.Not-So-Great-Northern-Transmission-Line.org.

I started waking up because I started to read this. So it was useful.

First, let's see. Looking at page 45, also the no action alternative, which is addressed on page S-6 and then also on page 45. I wanted to encourage a correction in the flip notes, and maybe, you know, in the text, too, because it talks about, first of all, the last paragraph on page 45, where it talks about under the Power Plant Siting Act, need is not to be evaluated in the environmental impact statement, and that's not correct. Under 216E.02, subdivision 2, there it talks about

0009-1

0009-1
Thank you for your comment. No changes are made to the EIS in response to this comment.

questions of need, including size, type, and timing, alternative system configuration and voltage must not be included in the scope of environmental review conducted under this Chapter. That would be, then, the Power Plant Siting Act environmental review, but that doesn't address the DOE environmental review here. So I think maybe quoting that part instead of just putting the citation there would be useful.

And then further down it says -- let's see. Oh, it also quotes from 216E.03, subdivision 5, which there it says the Commissioner shall not consider whether or not the project is needed. And that addresses the commissioner of Commerce, I would imagine, which we're changing the rulemaking, I thank the Public Utilities Commission, but that's technical. But that's, again, not related to the DOE. And in this proceeding there has not been an environmental impact statement for the certificate of need, this is the first environmental impact statement, and so I think, you know, for NEPA compliance that should talk about need. And so it's something you should address.

What really got my dander up, though, I was reading through this and I saw some references to the Mesaba Project. And the one that was most

0009-1 cont'd

0009-1 Continued

0009-2

The purpose and need for DOE's action and decision is described in Section 1.2.2 and the MN PUC certificate of need process is discussed in Section 1.3.2 of the EIS. The MN PUC determined that the proposed Project is needed by the Applicant in eDocket #12-1163 (Certificate of Need).

No changes are made to the EIS in response to this comment.

0009-2

0009-3

The Mesaba Project has not been formally withdrawn and it has an existing permit.

No changes are made to the EIS in response to this comment.

0009-3

0009-3 cont'd

0009-3
Continued

concerning to me, I mean, it's mentioned 22 times, if you do a search on Mesaba you come up with 22 times where it talks about the Mesaba Energy Project. And on page 663 -- I'll check for sure, just a minute. The Mesaba Project, I've been dealing with that since 2001 when they first proposed it before the legislature and it just won't go away, but it's not being built. On page 663 it says, flip note 88, the Mesaba Energy Project is now expected to be a combined-cycle natural gas plant. No. And so I think the credibility of the EIS is really harmed by any reference to the Mesaba Project, which is not happening. They were issued a permit, but it's not happening.

And I believe that the interconnection agreement has been at MISO, has been revoked or cancelled or withdrawn. So check that out, because the Mesaba Project is not happening. Julie Jorgensen is now on to some solar in my community of Red Wing with our illustrative mayor who was the lobbyist for Sand Company. Anyway, there's questionable parts of them all doing something else now. So I think any reference to the Mesaba Project really should be reconsidered, it doesn't have any relevance to this.

Another issue is, looking at that no action alternative, page 45, which is a short version on S-6, I'm back there again. First, it talks about not taking delivery of the 250 to 133 megawatts, that would be an impact, and there's no substantiation of that and so I'd like to know, you know, where that comes from. And also cost benefit. And, granted, Michigan versus EPA was about rulemaking, it's not -- this is not rulemaking. But the importance of specifying cost benefits is really important here. And I see a lot of conclusory statements, but I don't see real statements of what the benefits are.

The second paragraph there, that it would not be available during a contingency on the existing 500 kV transmission line to reduce loading and improve performance. So system reliability would be adversely impacted. The electrical system has to be able to function if something goes out. And we can presume that the system is reliable right now and that it can function if something goes out. So that needs substantiation, because that would imply that the system isn't reliable as it is, but it is. So a cite to the electrical studies, put links in there, if there's something that does

0009-4

0009-4
The MN PUC determined that the proposed Project and its 250 MW capacity is needed by the Applicant in eDocket #12-1163 (Certificate of Need).

No changes are made to the EIS in response to this comment.

0009-5

0009-5
The reliability benefits of the proposed Project were studied extensively as part of the Applicant's certificate of need process. The MN PUC concluded that the line would improve reliability for the transmission grid in the area.

No changes are made to the EIS in response to this comment.

relate to this, but I just don't think that's an accurate description.

Fourth -- or third, the future North Dakota wind generating option would be adversely impacted. How does this project affect the impact -- what impact does North Dakota wind generation have on this project, what impact does this project have on North Dakota wind? It's not connected to North Dakota. Is it related to the line that Minnesota Power bought and will be bringing over and using for wind, you know, dedicating that to wind? Or, you know, what's the connection here because I don't see it. And benefits should be really clearly laid out.

I think that would be it for now, and I'll have some more later, but not all that much. I mean, in writing. Or next time.

Thank you.

DR. JULIE ANN SMITH: Thank you, Carol.

MR. BILL STORM: Thanks, Carol.

Okay. A show of hands, since nobody filled out my card. Alan, do you want -- okay. If you would please move over to the mic or have the mic -- just bring the mic over to yourself, whatever way you want to do it.

0009-5 cont'd

0009-5 Continued

0009-6

Section 2.2.3 discusses the North Dakota Wind Energy Renewable Optimization Strategy.

0009-6

No changes are made to the EIS in response to this comment.

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DOE - EIS-0499 - DEIS PUBLIC HEARING

JULY 15, 2015 - 6:00 P.M. - BAUDETTE

MINNESOTA DEPARTMENT OF COMMERCE

AND

U.S. DEPARTMENT OF ENERGY

In the Matter of the Route Permit and Presidential Permit Applications by Minnesota Power for the Great Northern High-Voltage Transmission Line Project and Associated Facilities in Beltrami, Itasca, Koochiching, Lake of the Woods, and Roseau Counties

PUC DOCKET NO. E-015/TL-14-21
DOE DOCKET NO. EIS-0499

Lake of the Woods School
236 15th Avenue SW
Baudette, Minnesota

July 15, 2015

COURT REPORTER: Janet Shaddix Elling, RPR

farmers journal or from an academic study, from a Canada university or a United States university somewhere, some kind of documentation that shows me some more of that, that may cause us to beef that section up if we need to.

Okay. Are you fine? You can make some more comments, if you'd like.

MR. MARSHALL NELSON: No, I don't have time to do that, but I will send something.

MR. BILL STORM: And did I give you a CD copy?

MR. MARSHALL NELSON: I don't need a CD copy, I can get it online.

MR. BILL STORM: Oh, you can get it online? Some people, depending on what kind of online system you have, it's a big document to pull it all down.

Okay. Anybody else want to speak on the record?

MS. CAROL OVERLAND: I have a procedural question.

MR. BILL STORM: Okay. Carol, go ahead.

MS. CAROL OVERLAND: This is fairly quick. Given that there's a federal aspect of this, do you do the -- like record of decision process in

0010-1

0010-1
The response to the comment is provided in the transcript following this comment.

No changes are made to the EIS in response to this comment.

0010-1 cont'd

0010-1
Continued

this as far as the federal part of it, how does that get into the state?

DR. JULIE ANN SMITH: Okay. Well, it's a separate decision from the state decision. And as I said in my opening remarks, that we would issue the final EIS and we would have to wait a minimum of 30 days before we issue the record of decision. That does not mean that on day 31 DOE will issue it, it just means that's a cooling off period that's required.

Right after you do the environmental review, you get it out in the public, and then the agency sort of sits back and takes some time to deliberate and think, right. Then we may issue a record of decision. The timing of the record of decision issuance is based on a couple of different factors. Yes, the final EIS, as well as making sure that we have fully complied with our consultation responsibilities under Section 106, the National Historic Preservation Act, that was mentioned, as well as Section 7 of the Endangered Species Act. So there are other things that need to happen. We typically get those things done before we issue our record of decision and we talk about those consultations in the record as well as the decision.

So there will be a record of decision, it's required as part of the process, as you know, but the exact timing of that, you know, it depends, right, as this process moves forward, but it would not be sooner than 30 days after the final is issued.

MS. CAROL OVERLAND: And then for you, Mr. Storm, then, how does that fit with the state's process and the ALJ's recommendation going to the PUC? Will there be an ALJ recommendation and/or a PUC determination prior to the record of decision by the feds?

MR. BILL STORM: The way the process is working is the state and fed joint efforts are only surrounding the environmental review. Once the environmental review is completed, the processes are again separated.

DR. JULIE ANN SMITH: Once that final is issued, the final EIS.

MS. CAROL OVERLAND: The final EIS?

DR. JULIE ANN SMITH: Yes. Right.

MS. CAROL OVERLAND: Okay.

MR. BILL STORM: Are you okay, Carol?

MS. CAROL OVERLAND: Well, yes. That's clear, yes.

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JULY 15, 2015 - 11:00 A.M. - ROSEAU

MINNESOTA DEPARTMENT OF COMMERCE

AND

U.S. DEPARTMENT OF ENERGY

In the Matter of the Route Permit and Presidential Permit Applications by Minnesota Power for the Great Northern High-Voltage Transmission Line Project and Associated Facilities in Beltrami, Itasca, Koochiching, Lake of the Woods, and Roseau Counties

PUC DOCKET NO. E-015/TL-14-21
DOE DOCKET NO. EIS-0499

Roseau Civic Center
121 Center Street East
Roseau, Minnesota

July 15, 2015

COURT REPORTER: Janet Shaddix Elling, RPR

that failed. So what I'll do is if anybody wants to speak tonight, please raise your hands if you want to speak.

Okay. We'll start out with Carol. Carol Overland, please state and spell your name. Turn your mic on.

MS. CAROL OVERLAND: Thank you.

Carol Overland, I'm an attorney, and my address is 1110 West Avenue, Red Wing, Minnesota.

And I'm not representing anyone at this point in the certificate of need process. I want to make sure that everyone knows that the buy the farm option is an option here. That if they do want to take your land, they can take -- you can require that they take the entire parcel, not just a small piece of it. And I'll have more comments later on if I have a chance to look at the EIS.

Thank you.

MR. BILL STORM: Thank you, Carol.

Anyone else want to speak on the record tonight -- today, this morning?

MR. TODD LUND: I would.

MR. BILL STORM: Okay. Please step up to the mic and state and spell your name, please.

MR. TODD LUND: My name is Todd H. Lund,

0011-1

0011-1
Thank you for your comment. No changes are made to the EIS in response to this comment.

DOC - 14-21 - DEIS PUBLIC MEETING

DOE - EIS-0499 - DEIS PUBLIC HEARING

JULY 16, 2015 - 6:00 P.M. - INTERNATIONAL FALLS

MINNESOTA DEPARTMENT OF COMMERCE

AND

U.S. DEPARTMENT OF ENERGY

In the Matter of the Route Permit and Presidential Permit Applications by Minnesota Power for the Great Northern High-Voltage Transmission Line Project and Associated Facilities in Beltrami, Itasca, Koochiching, Lake of the Woods, and Roseau Counties

PUC DOCKET NO. E-015/TL-14-21
DOE DOCKET NO. EIS-0499

AmericInn
1500 Highway 71
International Falls, Minnesota

July 16, 2015

COURT REPORTER: Janet Shaddix Elling, RPR

has passed, is there anybody who would like to speak tonight on the record about the draft environmental impact statement?

Carol, we will go to you first then, and then when Carol is done we will call for another show of hands.

MS. CAROL OVERLAND: Thank you.

Carol Overland, 1110 West Avenue, Red Wing. You can also check out the Not-So-Great-Northern-Transmission-Line. Just Google that and information will appear there and the EIS is also available there.

On the way over, something I noticed, and I did a search of the EIS and I couldn't find anything about it. There are bees everywhere. Everywhere you go up here, I'm shocked, I've never seen so many. We have a lot of honey places down near Red Wing, but all along 11, beehives everywhere, up and down 72, up and down 46. So I don't see anything in here on the impact of transmission on bees, and I think that that should be in here. That's the easy part. 0012-1

Oh, and also on Mesaba, it's mentioned 22 times, there's a 23rd mention of Mesaba but that's not related to the Mesaba Energy Project. And as I 0012-2

0012-1
As discussed in Section 1.3.1.4 of the EIS, once a route is selected and a permit is issued, the Applicant would contact landowners to gather information about their property and their concerns and discuss how the ROW would best proceed across the property. Where it is not possible or reasonable to re-route the proposed transmission line to avoid existing bee colonies, the hives would have to be relocated.

No changes are made to the EIS in response to this comment.

0012-2
The Mesaba Project has not been formally withdrawn and it has an existing permit.

No changes are made to the EIS in response to this comment.

understand it, thanks to David Moeller, he just mentioned that the generation interconnection agreement, or the MISO queue position is gone. It's gone, history. That's an indication there's nothing happening there. And for those of us who have been involved with it for the last 10 years, 12 years, 13 and 14 years, it was 2001 for me, no, nothing is happening on the Mesaba Project. So any reference to that should be taken out to increase the credibility of the EIS.

The other thing that really struck me was I saw that Lauren Azar is listed as the NEPA advisor. My first dealings with her were in 1999, 2000, on the Arrowhead project, where she was representing American Transmission Company, which came into being during the Arrowhead project while we were at the Wisconsin PUC about it.

My next dealing with her was at the Wisconsin PSC when she was a PSC commissioner. Then the next dealing after that, she was appointed by Obama to be one of the co-chairs of the RRTT, I think it was called, the Rapid Response Transmission Team, I think it was, to help promote transmission and make sure transmission projects that are applied for get approved. And I see her listed here as one

0012-2 cont'd

0012-2 Continued

0012-3

In accordance with 40 CFR §1506.5(c), a disclosure statement to avoid conflict of interest was executed by Ms. Azar and is available in Appendix T of the EIS. No changes have been made to the EIS in response to this comment.

0012-3

0012-3 cont'd

0012-3
Continued

of the people working on this. It's in section 8.

It says she has 21 years of experience, but as I understand it, it's 21 years of transmission promotion. And so I don't think that she would pass a conflict of interest scrutiny. I think that's something that should be looked at. I wonder, here it is, page 674, it was her as the NEPA advisor. And I know she's had experience in promoting transmission, but as far as NEPA experience, I'm not so sure. And I've had three projects that she's been involved in. So I think that that's something that's a problem. She's not unbiassed in any sense, she's had a career of promotion of transmission.

So that is it for today. And, again, I urge people to check out Not-So-Great-Northern-Transmission-Line. Google that, and you'll find out more information on this project.

Thank you.

DR. JULIE ANN SMITH: Thank you, Carol.

MR. BILL STORM: Thank you, Carol.

Okay. Anyone else want to speak on the record?

Okay. Ma'am, would you please come forward and state and spell your name for the court

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MINNESOTA DEPARTMENT OF COMMERCE

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In the Matter of the Route Permit and Presidential Permit Applications by Minnesota Power for the Great Northern High-Voltage Transmission Line Project and Associated Facilities in Beltrami, Itasca, Koochiching, Lake of the Woods, and Roseau Counties

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AmericInn
1500 Highway 71
International Falls, Minnesota

July 16, 2015

COURT REPORTER: Janet Shaddix Elling, RPR

help facilitate your search.

MS. CAROL OVERLAND: Could I address something about the gravel pit?

MR. BILL STORM: Come forward, Carol, and have another go at it.

Please state and spell your name. I'm just making you do that because --

MS. CAROL OVERLAND: Carol Overland. I do believe our court reporter knows it too well.

Gravel pits, it's important that the DEIS, and I haven't done a search of it for this, the Henshaw effect has an impact on gravel pits where you have dust and then you have the corona from the transmission lines, and then the corona means that it attaches to the dust, and the dust, when you breathe it in, attaches to your lungs, and it is carcinogenic and then you can end up very easily with lung cancer. It's a very serious problem. It's called the Henshaw effect, it's been known for -- well, since, like, the Arrowhead project 20 years ago. It's long-standing, a lot of information about that, and it should be covered in here. A transmission line shouldn't be going through gravel pits or areas where there's a lot of dust. Mining of any sort can be a problem around a

0013-1

0013-1

In 2004, the National Radiological Protection Board of the UK published an independent review on particle deposition in the vicinity of power lines and their potential effects on health (http://webarchive.nationalarchives.gov.uk/20140629102627/http://www.hpa.org.uk/webc/HPAwebFile/HPAweb_C/1194947415038). This review concluded that although most the physical processes of ionization of air do happen, "it seems unlikely that corona ions would have more than a small effect on the long-term health risks associated with particulate air pollutants, even in the individuals who are most affected. In public health terms, the proportionate impact will be even lower because only a small fraction of the general population live or work close to sources of corona ions."

Further, the World Health Organization published in 2007 a similar statement in Monograph No 238 on Extremely Low Frequency Fields (http://www.who.int/peh-emf/publications/elf_ehc/en/), indicating that high-voltage power lines "produce clouds of electrically charged ions as a consequence of corona discharge. It is suggested that they could increase the deposition of airborne pollutants on the skin and on airways inside the body, possibly adversely affecting health. However, it seems unlikely that corona ions will have more than a small effect, if any, on long-term health risks, even in the individuals who are most exposed."

Section 7.2.2.4 of the EIS identifies the presence of currently active areas of so-called "scram" mining located approximately four to six miles west of the proposed routes and variations. The anticipated alignment for all other proposed routes and variations are located more than 2,000 feet from existing or proposed scram mining facilities in the area. Although corona ions can be dispersed by wind and some can transfer charge to aerosols and air pollutants, only those individuals living or working in the immediate vicinity of sources of corona ions have the potential to be exposed to particulate air pollutants.

No changes are made to the EIS in response to this comment.

transmission line, or transmission can be a problem near a mine of any sort.

Thank you.

MR. BILL STORM: Thank you, Carol.

Okay. Coming back to the general room. Does anyone want to make a comment?

Would you please come forward, ma'am?

MS. ANNE MARGUERITE COYLE: Could I ask a question?

MR. BILL STORM: You can ask a question, but it may not be answered tonight, it will be in the final.

MS. ANNE MARGUERITE COYLE: It's a question of whether I can find information in here, so it might be a comment relative to the accessibility of information. Would that be acceptable?

MR. BILL STORM: Sure. Just state and spell your name and go for it.

MS. ANNE MARGUERITE COYLE: My name is Anne Marguerite Coyle, professor of biology is my presence today. A-N-N-E, M-A-R-G-U-E-R-I-T-E, C-O-Y-L-E.

And my question is in reference to -- I will be honest, I have not read the entire thing at

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DOE - EIS-0499 - DEIS PUBLIC HEARING

JULY 22, 2015 - 11:00 A.M. - GRAND RAPIDS

MINNESOTA DEPARTMENT OF COMMERCE

AND

U.S. DEPARTMENT OF ENERGY

In the Matter of the Route Permit and Presidential Permit Applications by Minnesota Power for the Great Northern High-Voltage Transmission Line Project and Associated Facilities in Beltrami, Itasca, Koochiching, Lake of the Woods, and Roseau Counties

PUC DOCKET NO. E-015/TL-14-21
DOE DOCKET NO. EIS-0499

Timberlake Lodge
144 SE 17th Street
Grand Rapids, Minnesota

July 22, 2015

COURT REPORTER: Janet Shaddix Elling, RPR

MS. CAROL OVERLAND: Good morning. Carol Overland, 1110 West Avenue, Red Wing.

And you can also find more information at Not-So-Great-Northern-Transmission-Line. Google that and things will show up.

That last comment was interesting because, yes, people can have an impact. I don't think there are any intervenors in this, are there?

MR. BILL STORM: There are no intervenors on this other than Minnesota Power. Not intervenors, the only party is Minnesota Power.

MS. CAROL OVERLAND: Okay. So there's no intervenors, and that's the main way that people can have an impact, is to intervene in a proceeding. And so all that's left, because there are no intervenors, is making comments now. So it is really important to do that and to be as specific as you possibly can. And to have your neighbors write comments in, put letters in the paper to get it in the news, that would help too.

But, you know, it does concern me that there are no intervenors here, so really the contested case isn't really contested. Also, during the contested case, which is that the week of August 5th, was it like the 5th and the 6th?

0014-1

0014-1
Thank you for your comment. No changes are made to the EIS in response to this comment.

MR. BILL STORM: It begins the week of August 5th and goes on to the next week, the August 12th week.

MS. CAROL OVERLAND: And is that public, is the notice out?

MR. BILL STORM: Mike's indicating that, yes, they released a notice.

MS. CAROL OVERLAND: Okay. And I will look that up and I will publish that on the Not-So-Great-Northern-Transmission-Line. At that you have the option of questioning the utility witnesses, so it's important to do that if you're interested. And to do that you need to, you know, look at the application, look at these materials, see what's going on and question them very specifically. But you do have that right and so if you do want to do that, you're welcome to do it, it's very important.

Thank you.

MR. BILL STORM: Thank you, Carol.

Okay. Anyone else want to make a comment?

Richard, do you want to make a comment? Richard, please step to the mic, state and spell your name.

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JULY 16, 2015 - 6:00 P.M. - INTERNATIONAL FALLS

MINNESOTA DEPARTMENT OF COMMERCE

AND

U.S. DEPARTMENT OF ENERGY

In the Matter of the Route Permit and Presidential Permit Applications by Minnesota Power for the Great Northern High-Voltage Transmission Line Project and Associated Facilities in Beltrami, Itasca, Koochiching, Lake of the Woods, and Roseau Counties

PUC DOCKET NO. E-015/TL-14-21
DOE DOCKET NO. EIS-0499

AmericInn
1500 Highway 71
International Falls, Minnesota

July 16, 2015

COURT REPORTER: Janet Shaddix Elling, RPR

reporter and make your comment?

MS. CAROL AVELSGAARD: My name is Carol Avelsgaard, A-V-E-L-S-G-A-A-R-D. And I am from Northome, I own the lumber gravel pit, which is smack dab in the middle of one of the proposed routes.

I mean, do I have to wait until the August comments, or can I say now that I am concerned about this?

MR. BILL STORM: You can say now what you feel like saying, Carol. What we're here for tonight is to collect information on the draft environmental impact statement. If you feel a need to go above and beyond that charge and make a statement, that's fine with me.

What I would encourage you to do, though, is recognize that that statement is probably not so relative to the document itself, so I would encourage you to then again come to the contested case hearings, speak to the judge, and provide the judge with the information of how personally, professionally, this project affects you.

MS. CAROL AVELSGAARD: I assume I can do that by providing written comments? Because I do not live here.

0015-1
Potential impacts to aggregate resources are discussed in Chapters 5 and 6 of the EIS.

0015-1 No changes are made to the EIS in response to this comment.

0015-1 cont'd

MR. BILL STORM: You can certainly do that by written comment. Did you get notice of this meeting in the mail?

MS. CAROL AVELSGAARD: Yes.

MR. BILL STORM: Okay. Then that means you're on our list.

MS. CAROL AVELSGAARD: I own the property. I operate the gravel pit.

MR. BILL STORM: You will then get notice of the hearing. That notice should be coming out any day, right, Mike?

MR. MIKE KALUZNIAK: Yes.

MR. BILL STORM: So you'll get notice of the contested case hearing for August and in that will be how to submit written comments. So just follow those instructions and your comments will be accepted and will carry as much weight as if you were at the hearing yourself.

MS. CAROL AVELSGAARD: Yes. In your experience, are other people impacted by having a line go through their place of business?

0015-1 Continued

MR. BILL STORM: Again, this is not a session for us to go back and forth. But if you want to finish your comment, you're more than welcome to.

0015-1 cont'd

0015-1
Continued

MS. CAROL AVELSGAARD: That's all I can say.

MR. BILL STORM: Okay, Carol. What I recommend you do is, for sure, if you don't think the draft environmental impact statement identifies your property --

MS. CAROL AVELSGAARD: Let me look.

MR. BILL STORM: You don't have to do it tonight, you've got until August 10th.

MS. CAROL AVELSGAARD: I'd like to know.

MR. BILL STORM: I'll give you a CD copy before you leave, make sure you check with me, and look at the section of that document that talks about where your property is and whatever the variation is that goes across your property --

MS. CAROL AVELSGAARD: I'm going to.

MR. BILL STORM: -- and if you don't think this adequately describes it, please submit that in writing to us so that we can correct that in the final.

DR. JULIE ANN SMITH: Also, ma'am, the gentleman back at the maps, his name is Mike, he knows this document very well, as well as the maps, and can help you identify where your property is at and the location in the document and so that will

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JULY 22, 2015 - 6:00 P.M. - GRAND RAPIDS

MINNESOTA DEPARTMENT OF COMMERCE

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In the Matter of the Route Permit and Presidential Permit Applications by Minnesota Power for the Great Northern High-Voltage Transmission Line Project and Associated Facilities in Beltrami, Itasca, Koochiching, Lake of the Woods, and Roseau Counties

PUC DOCKET NO. E-015/TL-14-21
DOE DOCKET NO. EIS-0499

Timberlake Lodge
144 SE 17th Street
Grand Rapids, Minnesota

July 22, 2015

COURT REPORTER: Janet Shaddix Elling, RPR

You want to speak.

MR. ROBERT BURBIE: I have a question.

MR. BILL STORM: Sir, please come to the mic, state and spell your name for the court reporter.

MR. ROBERT BURBIE: Robert Burbie, B-U-R-B-I-E.

My question is the permits haven't been issued yet, right? That comes after your hearing, right? On all of this proposed environmental stuff?

MR. BILL STORM: If you're referring to the downstream permits from the other agencies, MnDOT, DNR --

MR. ROBERT BURBIE: I mean the big permits from the states, from the state, the main one you're trying to get on what you do on the routing and all that. And crossing the state line, into Canada from the United States, is there a permit for that?

DR. JULIE ANN SMITH: The Presidential permit has not been issued.

MR. ROBERT BURBIE: Now, once it's issued, how long is that good for?

DR. JULIE ANN SMITH: How long is it good for?

MR. ROBERT BURBIE: Once you get the permit, you got so long before you get the line in, right?

DR. JULIE ANN SMITH: We can address that in the document, yeah.

MR. BILL STORM: We'll answer that in the final.

MR. ROBERT BURBIE: Okay. I was kind of curious because I know they put deadlines on these permits. If they run out you got to go through this whole system again, don't you?

MR. BILL STORM: We'll discuss that issue in the final, we'll answer that question in the final.

MR. ROBERT BURBIE: Okay. I was kind of wondering about that.

DR. JULIE ANN SMITH: Okay.

MR. BILL STORM: Yeah. We don't want to give you inaccurate information tonight so let us look at it and then we'll answer in the final.

MR. ROBERT BURBIE: Yeah, and I don't want you to give me the wrong answer.

MR. BILL STORM: I understand. Thank you.

Anyone else want to speak?

0016-1

0016-1
Information is added to Section 1.3.1.3 regarding Minnesota Rule 7850.4700 (Delay In Route or Site Construction) states: If construction and improvement of a route or site have not commenced four years after the permit has been issued by the commission, the commission shall suspend the permit. If at that time, or at a time subsequent, the permittee decides to construct the proposed large electric power generating facility or high voltage transmission line, the permittee shall certify to the commission that there have been no significant changes in any material aspects of the conditions or circumstances existing when the permit was issued.

Information is added to Section 1.2.2 regarding the Presidential permit, which does not have an expiration date.

DOC - 14-21 - DEIS PUBLIC MEETING

DOE - EIS-0499 - DEIS PUBLIC HEARING

JULY 21, 2015 - 6:00 P.M. - BIGFORK

MINNESOTA DEPARTMENT OF COMMERCE

AND

U.S. DEPARTMENT OF ENERGY

In the Matter of the Route Permit and Presidential Permit Applications by Minnesota Power for the Great Northern High-Voltage Transmission Line Project and Associated Facilities in Beltrami, Itasca, Koochiching, Lake of the Woods, and Roseau Counties

PUC DOCKET NO. E-015/TL-14-21
DOE DOCKET NO. EIS-0499

Bigfork School
100 Huskie Boulevard
Bigfork, Minnesota

July 21, 2015

COURT REPORTER: Janet Shaddix Elling, RPR

MR. BILL STORM: Okay, sir, please.

MR. DAVID CHRISTENSON: My name is David Christenson, C-H-R-I-S-T-E-N-S-O-N.

I live over on Deer Lake year round, have for 20 years. And I don't know if there's any other Deer Lake folks here, so I might be the unauthorized spokesperson for the Deer Lake Association. I have discussed this line since it was proposed a couple of years ago with several of my neighbors, and a lot of them are part-time out-of-staters. And I can overwhelmingly say that very few are for the blue proposed route because it goes right along our Deer Lake western border, within roughly a mile through pristine land and habitat and crosses the Deer Creek that feeds our watershed. The watershed is about 25,000 acres.

And I haven't read the EIS report yet, but I'm going to. I have commented before at other meetings about my disapproval of the proposed blue route through that area around Deer Lake. And I do see that there was what they call a variation that was done in the last year. Is that right? That that was done in last year, Bill?

MR. BILL STORM: It came through scoping. The scoping decision was released on January 8th of

0017-1

0017-1
The EIS discusses major watersheds for each project section. Deer Creek is a sub-part of the East Section major watersheds described in Section 5.5.4.1. General impacts to surface waters in the East Section are described in Section 5.5.4.1.4.

No changes are made to the EIS in response to this comment.

this year.

MR. DAVID CHRISTENSON: Okay. So I guess my comment is from the EIS standpoint is the blue proposed route to me makes a huge impact on our environment, especially in that watershed, which there's three main lakes and hundreds of smaller lakes around that area. And it crosses a lot of different water area shed, and including, like I said, our lead watershed area that feeds the chain of lakes around there.

The Effie variation, to me anyway, and several of my neighbors, is a lot better route. Because if you look at the maps, it doesn't really come close to a lot of major waterways or watersheds, to my knowledge.

So that would be my comment. And I guess I'll just say that, you know, I appreciate this forum, and being able to speak in the United States still, and for our opinions, but wherever you put the line, I'm sure you're going to upset some folks. And from an environmental standpoint, the proposed route, at least in that section in that Deer Lake watershed is, in my view, going to be a disaster.

Thank you very much.

MR. BILL STORM: Thank you very much for

0017-2

0017-2
The EIS discussed impacts to surface waters, including lakes, in Section 5 and 6. Impacts to Deer Lake specifically are discussed in Section 6.4.1.4.1.

No changes are made to the EIS in response to this comment.

DOC - 14-21 - DEIS PUBLIC MEETING

DOE - EIS-0499 - DEIS PUBLIC HEARING

JULY 16, 2015 - 6:00 P.M. - INTERNATIONAL FALLS

MINNESOTA DEPARTMENT OF COMMERCE

AND

U.S. DEPARTMENT OF ENERGY

In the Matter of the Route Permit and Presidential Permit Applications by Minnesota Power for the Great Northern High-Voltage Transmission Line Project and Associated Facilities in Beltrami, Itasca, Koochiching, Lake of the Woods, and Roseau Counties

PUC DOCKET NO. E-015/TL-14-21
DOE DOCKET NO. EIS-0499

AmericInn
1500 Highway 71
International Falls, Minnesota

July 16, 2015

COURT REPORTER: Janet Shaddix Elling, RPR

transmission line, or transmission can be a problem near a mine of any sort.

Thank you.

MR. BILL STORM: Thank you, Carol.

Okay. Coming back to the general room. Does anyone want to make a comment?

Would you please come forward, ma'am?

MS. ANNE MARGUERITE COYLE: Could I ask a question?

MR. BILL STORM: You can ask a question, but it may not be answered tonight, it will be in the final.

MS. ANNE MARGUERITE COYLE: It's a question of whether I can find information in here, so it might be a comment relative to the accessibility of information. Would that be acceptable?

MR. BILL STORM: Sure. Just state and spell your name and go for it.

MS. ANNE MARGUERITE COYLE: My name is Anne Marguerite Coyle, professor of biology is my presence today. A-N-N-E, M-A-R-G-U-E-R-I-T-E, C-O-Y-L-E.

And my question is in reference to -- I will be honest, I have not read the entire thing at

all, in fact, I just looked at it tonight, I'm new to this whole issue and I'm new to Minnesota, in fact, so I'm familiar with issues in North Dakota.

But one of my concerns is that at a quick glance I'm having difficulty finding information concerning a number of wildlife issues that are of great concern to Minnesota, one of which are cedar areas that are critical habitat to deer, deer populations across the state. So those locations of known cedar areas, as well as their relevance to the gray wolf population and other animals that feed on deer. So that would be something of concern that I would ask.

Also, with respect to the Northern Goshawk, I don't see that specifically listed, and it could be because I couldn't find it in all the details. I did see the Great Owl mentioned, but the Northern Goshawk is obviously a Minnesota species of concern. In addition to that, just the general raptors of concern, the Bald and Golden Eagle Act, which is definitely something to be taken into consideration, and raptors in general with the raptor friendly development and construction of these lines, has that been considered and addressed in your EIS, and to what extent. And I just

0018-1

0018-2

0018-1
Chapters 5 and 6 of the EIS discusses potential impacts to wildlife and rare species. In addition, the Biological Assessment in Appendix R discusses potential impacts to federally listed species, including the gray wolf and designated critical habitat.

No changes are made to the EIS in response to this comment.

0018-2
Potential impacts to rare species are discussed in Chapters 5 and 6 of the EIS. In addition, these chapters of the EIS generally discuss potential impacts to migratory birds (such as the northern goshawk) and eagles. As discussed in Section 2.11.1 of the EIS, the Applicant would incorporate industry best practices, which are consistent with the Avian Powerline Interaction Committee (APLIC's) 2012 guidelines. In addition, the MN PUC Route Permit could require that the Applicant develop and implement an Avian Protection Plan. The Applicant would coordinate with the MnDNR and other appropriate agencies in the development of an Avian Protection Plan.

No changes are made to the EIS in response to this comment.

0018-2 cont'd

0018-2 Continued

couldn't find it and I would like to be able to see that more readily accessible, those issues.

That's what I have just at a glance, and I think those should be accessible within the 30 minutes that I had to access them and so I guess I'll make the rest of the comments in written form.

Thank you.

MR. BILL STORM: Thank you.

DR. JULIE ANN SMITH: And I'll address just one thing with that. That's okay, and they are geographically, since some of the resources --

MS. ANNE MARGUERITE COYLE: That's typical. I would also think from a briefing on environmental issues, to have that consolidated so those issues you wouldn't have to piece through every section.

DR. JULIE ANN SMITH: Maybe what helps is up front there is a summary, and that kind of helps. But just so you know, in terms of process, and I mentioned this in my opening comments, we are undergoing consultation under section 7 of the EIS with the U.S. Fish and Wildlife Service. And they are a cooperating agency and so they had review and input into this and so those issues are ongoing and the proper addressing of those issues is ongoing as

well.

MS. ANNE MARGUERITE COYLE: Right. Thank you.

MR. BILL STORM: Thank you for your comment. I encourage you -- I did give you a CD, correct?

MS. ANNE MARGUERITE COYLE: Yes.

MR. BILL STORM: I encourage you to go through the CD. You have until August 10th to formulate it. And is the document searchable? Yeah, the document is searchable on the CD, yes, it is.

Okay. Coming back to the general room. Anyone want to make a comment on the record about the draft EIS?

Okay. Alan, sure, do you want to come up, please state and spell your name and have at it. Is that my wet copy?

MR. ALAN MULLER: That's your wet copy.

DR. JULIE ANN SMITH: Reading in the rain, right?

MR. ALAN MULLER: Actually, the dampness of this can be attributed to my dog.

My name is Alan Muller, M-U-L-L-E-R, I'm a resident of Red Wing, Minnesota. And I offered

DOC - 14-21 - DEIS PUBLIC MEETING

DOE - EIS-0499 - DEIS PUBLIC HEARING

JULY 16, 2015 - 11:00 A.M. - LITTLEFORK

MINNESOTA DEPARTMENT OF COMMERCE

AND

U.S. DEPARTMENT OF ENERGY

In the Matter of the Route Permit and Presidential Permit Applications by Minnesota Power for the Great Northern High-Voltage Transmission Line Project and Associated Facilities in Beltrami, Itasca, Koochiching, Lake of the Woods, and Roseau Counties

PUC DOCKET NO. E-015/TL-14-21
DOE DOCKET NO. EIS-0499

Littlefork Community Center
220 Main Street
Littlefork, Minnesota

July 16, 2015

COURT REPORTER: Janet Shaddix Elling, RPR

Written comments, August 10th, submit your written comments. (Phone ringing) That's me, that's pretty inappropriate. My information is there, Julie's information is there. You can fax it, e-mail it to us. You don't have to send it to both of us, we're going to share comments, but you can send it to both of us if you want. You can also submit your written comments electronically. You can do it through the DOE's website and you can do it through our website. So you can also comment electronically, if you want.

That's it. So that's basically the process in a nutshell. I did have someone fill out a card, yay, so after I call this gentleman up, when I call you up, please state your name and spell it for the record so the court reporter can get it down. Speak slower than I do. I sort of race, but Janet knows me so she can keep up. But for her sake, maybe speak a little slower than I do.

So the first person is William Gary.

MR. WILLIAM GRAY: Gray.

MR. BILL STORM: Gray, sorry. Please come to the mic and state and spell your name.

MR. WILLIAM GRAY: William Gray, spelled W-I-L-L-I-A-M, G-R-A-Y.

My concern is the C2 segment that runs south of Littlefork. I have an air strip there. I'm a flight instructor, instrument flight instructor, also a mechanic and mechanical inspector. I have student pilots, I have sport pilots. I have regular pilots. I have people coming in and out for maintenance. I have ex-students come in and visit with me occasionally. And I have a problem with the safety of having that line, if chosen. The placement of it is real bad. If you're downwind to the land you have reduced power and you're descending and you are descending into wires and that does not sound like a healthy setup to me.

That's all I guess I need to say at this point in time. I'll probably be talking to you again.

MR. BILL STORM: If I may, William, your air strip, where you're located, are you located along the blue or the orange, or do you know what variation route you're located next to?

MR. WILLIAM GRAY: Well, it's that alternate segment that runs south of Littlefork, they call it C2.

MR. BILL STORM: Okay. C2 alternative.

0019-1

0019-1
Section 5.2.1.6 of the EIS provides a discussion of the airstrips and potential impacts. Please note that within the C2 Segment Option Variation Area, the Airstrip Alignment Modification is included as a means to minimize impacts to the airstrip south of Littlefork (described in Section 4.3.2.5).

No changes are made to the EIS in response to this comment.

MR. WILLIAM GRAY: If they want to have the blue line, that's fine, that's several miles away from me and I don't consider that to be a problem. But I really have a problem with power lines when you're on a takeoff or landing. The most likely spot for you to have an engine failure or power reduction is on takeoff. And then also when you reduce power, and when you hit the power when you go out and I'm doing that over wires, to me that's not cool.

Thank you.

MR. BILL STORM: Thank you, William. I appreciate your comment. I encourage you to come in August when the ALJ is here so you can tell her your personal story and how C2 would impact you so that can get on her record and then she can consider that for not only her findings of fact but her recommendation going forward.

MR. WILLIAM GRAY: Okay. I will be here.

Thank you.

MR. BILL STORM: Okay. That was the only card I had. I'm batting like zero on these cards.

Anybody want to speak on the record, have a question? Anybody interested in looking at the maps, want to take a few minutes to look at the maps

DOC - 14-21 - DEIS PUBLIC MEETING

DOE - EIS-0499 - DEIS PUBLIC HEARING

JULY 21, 2015 - 11:00 A.M. - KELLIHER

MINNESOTA DEPARTMENT OF COMMERCE

AND

U.S. DEPARTMENT OF ENERGY

In the Matter of the Route Permit and Presidential Permit Applications by Minnesota Power for the Great Northern High-Voltage Transmission Line Project and Associated Facilities in Beltrami, Itasca, Koochiching, Lake of the Woods, and Roseau Counties

PUC DOCKET NO. E-015/TL-14-21
DOE DOCKET NO. EIS-0499

Kelliher Old School Center
243 Clark Avenue North
Kelliher, Minnesota

July 21, 2015

COURT REPORTER: Janet Shaddix Elling, RPR

had. But I will certainly go with the show of hands if somebody wants to speak.

Come on up, sir, and state and spell your name for the court reporter. And speak into the mic over there. Thank you, Mike.

MR. MIKE HANDZUS: Mike Handzus, H-A-N-D-Z-U-S. And I'll just try to keep it brief and to the EIS statement. But we have property in section -- or township 155, range 29, section 28 and 33.

Regarding this power line, I guess, for us we just first found out about it April 25th of this year so we're trying to play catchup here. But that's one of the proposed routes, right through the line, or through the center of the property.

I tried to cover the EIS as best we could. But one area I didn't think that it touched on was, like, through our property there will be 24 acres of forest that would have to be cleared, and what kind of impact that would have on the area. And, also, we were planning on a cabin, which would amount to right down the center of the property where this power line is scheduled and I think that would need to be addressed also.

Just a couple other things that I had

0020-1

0020-1
Impacts to forests as a result of clearing are addressed in Chapters 5 and 6 of the EIS.

No changes are made to the EIS in response to this comment.

concerns on as it relates to the EIS. The -- I don't think it covers the fact -- or I didn't see anything to the effect that once they clear the 200 feet, that they have to go in with a chemical to kill the vegetation and what that effect would have on the property. You couldn't do anything organic, you know, under those circumstances.

And maybe just touch on the fact that in that area is a real fragile ecosystem, and most of the year is pretty much standing water, and the effect of having large equipment going in there, what effect that would have. It's, like I say, the soil is so fragile there. And, I don't know, they kind of touch on the different types of wildlife that are in there, but what effect that would have on them also.

And, let's see. I guess that's pretty much it. I'm just concerned of the effect it would have on the area being as fragile of a system as it is in that area.

Thanks.

MR. BILL STORM: Thank you, Mike. Mike, do you want to submit anything in writing today or do you want to follow up during the comment period?

MR. MIKE HANDZUS: Yeah, I'll put

0020-2

0020-2
Potential impacts and avoidance and minimization measures regarding wetlands (soil) and wildlife are discussed in Chapters 2, 5, and 6 of the EIS. Avoidance measures will be further developed through the permitting process.

No changes are made to the EIS in response to this comment.

something together here a little later.

DR. JULIE ANN SMITH: Did you get a disk?

MR. MIKE HANDZUS: Yes.

DR. JULIE ANN SMITH: Okay.

MR. MIKE HANDZUS: Just now.

MR. BILL STORM: Okay. Anyone else?

Yes, ma'am, please step to the mic and state and spell your name and say your piece.

MS. MARY LOU HUFNAGLE: Mary Lou Hufnagle, M-A-R-Y, L-O-U, H-U-F-N-A-G-L-E. We live in Koochiching County.

I'm a little ways from the line, but my one concern, too, was the spraying of herbicides to keep the vegetation down around this line. And some of that stuff is pretty wicked, it gets into the water and it's there forever. And, also, you know, other things it could kill, too, you know.

But I had -- one question I have was the maintenance of the lines, is this done by U.S. citizens and that, or do they have Canadian people that come down and maintain the lines in case there should be a problem or something like that?

MR. BILL STORM: Mary, we will address your question in the final EIS, but we will take up that question and we will address that.

DOC - 14-21 - DEIS PUBLIC MEETING

DOE - EIS-0499 - DEIS PUBLIC HEARING

JULY 21, 2015 - 11:00 A.M. - KELLIHER

MINNESOTA DEPARTMENT OF COMMERCE

AND

U.S. DEPARTMENT OF ENERGY

In the Matter of the Route Permit and Presidential Permit Applications by Minnesota Power for the Great Northern High-Voltage Transmission Line Project and Associated Facilities in Beltrami, Itasca, Koochiching, Lake of the Woods, and Roseau Counties

PUC DOCKET NO. E-015/TL-14-21
DOE DOCKET NO. EIS-0499

Kelliher Old School Center
243 Clark Avenue North
Kelliher, Minnesota

July 21, 2015

COURT REPORTER: Janet Shaddix Elling, RPR

something together here a little later.

DR. JULIE ANN SMITH: Did you get a disk?

MR. MIKE HANDZUS: Yes.

DR. JULIE ANN SMITH: Okay.

MR. MIKE HANDZUS: Just now.

MR. BILL STORM: Okay. Anyone else?

Yes, ma'am, please step to the mic and state and spell your name and say your piece.

MS. MARY LOU HUFNAGLE: Mary Lou Hufnagle, M-A-R-Y, L-O-U, H-U-F-N-A-G-L-E. We live in Koochiching County.

I'm a little ways from the line, but my one concern, too, was the spraying of herbicides to keep the vegetation down around this line. And some of that stuff is pretty wicked, it gets into the water and it's there forever. And, also, you know, other things it could kill, too, you know.

But I had -- one question I have was the maintenance of the lines, is this done by U.S. citizens and that, or do they have Canadian people that come down and maintain the lines in case there should be a problem or something like that?

MR. BILL STORM: Mary, we will address your question in the final EIS, but we will take up that question and we will address that.

0021-1
Section 2.11.1.4 of the EIS specifies that an approved herbicide would be used for vegetation clearing during construction, only with the approval of the landowner or land manager. Similarly, Section 2.12.1 of the EIS refers that during Project maintenance and operation, vegetation may be cleared using a combination of mechanical and hand clearing and herbicides, where allowed and approved by the landowner. Prior to maintaining vegetation in a particular area, the Applicant would make an effort to notify affected landowners.

With respect to the potential contamination of water associated with herbicide spraying, Section 2.11.1.6 of the EIS states that "no petroleum, herbicides, or pesticides, or hazardous chemicals of any kind should be mixed or otherwise handled in wetland areas." The Applicant would be required to implement best management practices to avoid any potential spill of herbicides near water sources.

The Applicant states in the Route Permit Application that the proposed Project would be maintained by the Applicant and it's contractors.

0021-1 No changes are made to the EIS in response to this comment.

0021-2
As mentioned in Section 5.2.1.8 of the EIS, maintenance and emergency repairs would be performed by existing firms and contractors. No new full-time or part-time workers are expected to be hired to operate, maintain, or perform emergency repairs on the proposed Project.

0021-2 No changes are made to the EIS in response to this comment.

MS. MARY LOU HUFNAGLE: I was just curious. But that was my one concern, was that spray of herbicides around the line.

MR. BILL STORM: I understand.

MS. MARY LOU HUFNAGLE: Thank you.

DR. JULIE ANN SMITH: Thank you, Mary Lou.

MR. BILL STORM: Okay. I had to get somebody else. Anybody want to speak?

Okay. I do want to remind you that the written comment period is open until August 10th. Please submit your comments to either me or Jules on the draft EIS.

I do want to encourage and remind everybody that we will be back up here, or I will be back up here with the administrative law judge, Judge O'Reilly, in August for the contested case hearing. And, like I said, that is an opportunity for you to not only comment on the environmental issues, but to step up and address specific issues that you may have concerning any of the routes or the impacts of the routes.

It also is an opportunity for you to cross or question Minnesota Power's experts who put their application together and get some direct

DOC - 14-21 - DEIS PUBLIC MEETING

DOE - EIS-0499 - DEIS PUBLIC HEARING

JULY 22, 2015 - 11:00 A.M. - GRAND RAPIDS

MINNESOTA DEPARTMENT OF COMMERCE

AND

U.S. DEPARTMENT OF ENERGY

In the Matter of the Route Permit and Presidential Permit Applications by Minnesota Power for the Great Northern High-Voltage Transmission Line Project and Associated Facilities in Beltrami, Itasca, Koochiching, Lake of the Woods, and Roseau Counties

PUC DOCKET NO. E-015/TL-14-21
DOE DOCKET NO. EIS-0499

Timberlake Lodge
144 SE 17th Street
Grand Rapids, Minnesota

July 22, 2015

COURT REPORTER: Janet Shaddix Elling, RPR

get it there, but if you go back three slides you gave two numbers that should be on the correspondence and I only had one of them and I sent it to you guys so I want to make sure I had the other one.

MR. BILL STORM: That would be the docket number, it's TL-14-21 --

MR. RODNEY CHARLES TOOMI: And EIS-0499.

MR. BILL STORM: That's the DOE number.

MR. RODNEY CHARLES TOOMI: Okay. I believe. But for this point, as long as we sent it to you, that's as much as we can do here until the contested hearings would be in place?

MR. BILL STORM: That is correct.

MR. RODNEY CHARLES TOOMI: Okay. Thank you.

MR. BILL STORM: Okay. Thank you.

Anyone else want to speak on the record?

Okay, sir, please step to the mic, state and spell your name.

MR. MIKE HUGHES: Mike Hughes, H-U-G-H-E-S.

When I first went to the meeting before, I looked at all the evidence, and I still feel like I'm David trying to fight Goliath. You know, do

these comments as an individual make a difference? And, if so, have you seen that happen? Where a comment has made a change in the statement and a change on a direct route that were taken that were other than those applied for by the utility company itself? In other words, we're trying to fight a big utility company and what do I as an individual have to say that would change everything?

MR. BILL STORM: Okay. The short answer, and we try not to have a dialogue here, but I can't help myself.

DR. JULIE ANN SMITH: No, it's a process question.

MR. BILL STORM: Yes. In the 14 years I've been doing this, I've seen many dockets where routes that were proposed by citizens were ultimately picked by the Commission.

MR. MIKE HUGHES: So what we do or say or what we do write down is taken seriously?

MR. BILL STORM: I would agree with that statement.

MR. MIKE HUGHES: Okay.

MR. BILL STORM: Okay. Thank you, sir.

Okay. Ms. Overland, please step to the mic, state and spell your name.

0022-1

0022-1
The response to the comment is provided in the transcript after the comment.

No changes are made to the EIS in response to this comment.

DOC - 14-21 - DEIS PUBLIC MEETING

DOE - EIS-0499 - DEIS PUBLIC HEARING

JULY 21, 2015 - 6:00 P.M. - BIGFORK

MINNESOTA DEPARTMENT OF COMMERCE

AND

U.S. DEPARTMENT OF ENERGY

In the Matter of the Route Permit and Presidential Permit Applications by Minnesota Power for the Great Northern High-Voltage Transmission Line Project and Associated Facilities in Beltrami, Itasca, Koochiching, Lake of the Woods, and Roseau Counties

PUC DOCKET NO. E-015/TL-14-21
DOE DOCKET NO. EIS-0499

Bigfork School
100 Huskie Boulevard
Bigfork, Minnesota

July 21, 2015

COURT REPORTER: Janet Shaddix Elling, RPR

variation.

MR. DENNY PAVEK: It is the red route, and there are a few people that live there year-round. So that's where we as the cabin owners association would like to see it go.

Thank you.

DR. JULIE ANN SMITH: Thank you.

MR. BILL STORM: Thank you.

Does that spur anybody? Anybody else want to speak?

MR. JOHN KANNAS: I will.

MR. BILL STORM: Yes, sir. State and spell your name, please.

MR. JOHN KANNAS: Sure. My name is John Kannas, K-A-N-N-A-S.

I'm a supervisor in Balsam Township and there are three routes that cross Balsam Township. We understand the line is going through, and the town board is in support, and all the residents, that we want the blue route through Balsam, not the alternative route, which is the green route or the yellow or orange route, which slices the township right in the middle, right through the main populous area. And the other is the abandoned Minnesota Power line, but, again, we don't want that, we want

0023-1

0023-1
Thank you for your comment. No changes are made to the EIS in response to this comment.

to see it as far east of the township as possible.

So that's all I have to say. But thank you for letting us talk.

MR. BILL STORM: Thank you for your comment.

Anyone else?

Okay. Yes, sir. Please state and spell your name.

MR. CHRIS VIERE: Chris Viere, V-I-E-R-E. And I'm commenting on the environmental review.

One of the things that you do, is you aggregate the overall view is some of the micro, you know, easements that happen along different routes. And those, you know, aren't necessarily reflected in detail in certain areas.

So one of the things I want to kind of highlight here, on the orange route that comes through Effie and it passes through County Road 27, we go through and if you go you'll see this various important cultural artifacts.

Everybody here is familiar with the Knights, I have property next to them, I got to know them, very good people. James Knight was an environmentalist and a historian. And the route would pass right through that country. And so

DOC - 14-21 - DEIS PUBLIC MEETING

DOE - EIS-0499 - DEIS PUBLIC HEARING

JULY 22, 2015 - 11:00 A.M. - GRAND RAPIDS

MINNESOTA DEPARTMENT OF COMMERCE

AND

U.S. DEPARTMENT OF ENERGY

In the Matter of the Route Permit and Presidential Permit Applications by Minnesota Power for the Great Northern High-Voltage Transmission Line Project and Associated Facilities in Beltrami, Itasca, Koochiching, Lake of the Woods, and Roseau Counties

PUC DOCKET NO. E-015/TL-14-21
DOE DOCKET NO. EIS-0499

Timberlake Lodge
144 SE 17th Street
Grand Rapids, Minnesota

July 22, 2015

COURT REPORTER: Janet Shaddix Elling, RPR

is the deadline for written comments. You can submit them either to me or Jules or to both of us. E-mail, U.S. mail, fax, and then there are electronic ways to do it, too. You can also submit your comments electronically through the DOE website and through the DOC website. Again, you only have to submit your comments in one spot, if you want, you can do it multiple times, if you want, but we are going to share the comments. So that's how you do it.

So that's the state process, the fed process, and now I'd like to turn it over to why we're here, which is to get your comments on the draft environmental impact statement.

So I did have one person fill out a card, so I will call on that person first. Kathy Kook? Krook. I didn't want to call you a crook.

MS. KATHY KROOK: I'm an honest crook, though.

MR. BILL STORM: Okay. The best kind.

MS. KATHY KROOK: My name is Kathy Krook, Kathy with a K, K-R-O-O-K.

And I just want to state that I will be sending in a correction to one of the buildings on our property that is in one of the proposed routes.

0024-1

0024-1
Section 6.4.3.1 and Map 6-61 of the Final EIS are updated to denote your cabin as a residence.

It's listed as a nonresidential. It's a cabin that we use on a weekly basis. In fact, we use it year-round. So I will be sending in that comment.

DR. JULIE ANN SMITH: Thank you.

MR. BILL STORM: Thank you, Kathy.

Okay. Next? Anyone else?

Sir, please step to the mic and state and spell your name.

MR. RODNEY CHARLES TOOMI: Rodney Charles Toomi, T-O-O-M-I.

If I understood everything both of you said, that right now if we already sent an e-mail to both of you with our concerns, that is as much as we can do at this time, and the contested hearings will be coming up in August and that will be the next step, correct?

MR. BILL STORM: That is correct, sir.

MR. RODNEY CHARLES TOOMI: I'm also guessing everything that was shared on the slides is also on the website, or is there information that you presented that would not be in the website?

MR. BILL STORM: I don't think -- I'll put the slides on the website.

MR. RODNEY CHARLES TOOMI: Okay. My last question is, and if you put it on the website I can

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MR. RICHARD LIBBEY: I'm Richard Libbey, R-I-C-H-A-R-D, L-I-B-B-E-Y, Grand Rapids.

And originally I thought this was going to be an argument over which route we preferred, but we're supposed to discuss the EIS and I didn't study the EIS. And I have a few comments on the main route area that I'm interested in, the Effie variation, it is the orange and the blue route that are the shortest routes that go across country from point A to point B. And the Effie variation is the route that was proposed by the citizens advisory committee that was made up of the county and township people and an environmental group.

But, well, following the transmission line is the longer route, apparently will have less environmental impact, but one of the main concerns of Minnesota Power is that having three large power lines in one corridor affects system reliability due to possible storm damage. Some possibilities are a tornado, ice storms, or straight line winds. And in their application, part of it, they mentioned that there are mitigations that they can do that would make it possible for them to follow the line more and reduce the possibility of the storm events affecting the system reliability. In fact, they are

0025-1

0025-1
The EIS addresses weather-related issues in Section 2.5.8 and Section 2.8.3 addresses the weather study and BMPs. In addition, Section 5.3.7.2 of the EIS describes the weather study that the Applicant would conduct to address unexpected transmission line outages due to extreme weather events and equipment failures. This weather study is available on edocket 14-21, document 20158-113594-06 (Exhibit 83). Based on the results of the weather study, the design criteria for the proposed Project may be adjusted by the Applicant to increase the robustness of the 500 kV transmission line design.

No changes are made to the EIS in response to this comment.

going to parallel a 500 kV line north of this and that's where the section mentions what they can do to parallel a line. And if you have a 230 alongside of it, they say that three lines is too risky, but if they can follow a 500 kV line and use mitigation, I would think they could do the same thing on the Effie alternative. Some of the mitigation they've mentioned is more robust towers. You can also put in an interrupter that can break the circuit if they go down so it doesn't disrupt the grid as much. They mention having circuit breakers, and then they also mentioned that if there is an event that takes down the lines, even if it's one of them, they could have spare parts stockpiled in the area that would be ready and available to get the system up and running again.

I was a control operator for Minnesota Power for many years and I understand built into the system is that all power plants have to have reserve capacity and they have to prove that they can add a certain amount of power in a certain amount of time and maintain it for up to four hours. So if it does go down, there's things built into the grid that can compensate for the loss of these lines, or bring in power from other systems, and if it's a cascading

0025-1 cont'd

0025-1 Continued

0025-2

Section 5.3.7.2 of the EIS discusses the additional measures the Applicant has proposed to maintain system reliability where the proposed Project would be constructed in parallel with existing 500 kV or 230 kV transmission lines.

No changes are made to the EIS in response to this comment.

0025-2

event they can isolate different areas. But I was wondering if the EIS could perhaps get some more detail on what it would take to make the line more robust and make it so that it could parallel the other two lines.

Another issue they have is in used voltage, where the fear of one line is out and the workers are working on that line, there's a possibility of the voltage being transmitted through the air and induced into that line endangered workers. But I know out east there are power line situations where there are five lines this size in a corridor and they can do it out there, I would think we could do it here.

You know, there's people that work on the lines, they do the proper scoping and grounding that makes it safe, I'd like to know if these are, you know, significant issues or to what extent is this really a problem. We know they go cross-country, I'm 100 percent there's going to be forest fragmentation, invasive species brought in, and the impact from that. I think the issue is going to be the environment versus the grid sustainability. I'd like to get a little better handle on what the issues are there and what can be done.

0025-2 cont'd

0025-2 Continued

0025-3

Induced voltage is discussed in Section 5.2.2.4 of the EIS. No changes are made to the EIS in response to this comment.

0025-3

It also appears on what the cost sharing is on this. I believe Minnesota Power is less than 50 percent on this and so Manitoba Hydro would be picking up a sizeable part of the bill. And also I'd like an estimate about what the property taxes are that the county will receive from this line. I'd like an idea of how many dollars per mile they will get out of it, they get paid for the line impacting the environment.

And then when it comes to clearing the lines, I'd like a little more detail on how it's going to be done and when it's going to be done. When you go through, you're going to have to remove trees, and I'm wondering if you're going to just cut the trees off and leave some undisturbed in certain areas and have access roads or are they going to bulldoze the entire line so you have bare soil that opens it up to invasive species. And, if so, how they're going to prevent carrying seeds and so forth along in all their gear and their cribbing that they put across so it doesn't spread up the line.

Probably not as important if they're paralleling the existing power line because there's already two lines there where that has already been done. The orange and blue routes go across country

0025-4

0025-4
Based upon recent estimates of the proposed Project's total cost and property taxes, the Applicant estimates that the transmission line would generate annual property taxes of approximately $40,000 to $60,000 per mile. The two substations would generate approximately $1.7 in annual property taxes. The Applicant estimates that the proposed Project's total annual property tax would be $11.1 million for the Project overall. Based upon current state and local taxing district rates, approximately 1/3 of property taxes would go to the state's general fund. The remainder would be distributed the among the county and other local taxing jurisdictions traversed by the proposed Project.

Cost sharing between Manitoba Hydro and the Applicant is outside the scope of this EIS. The MN PUC certificate of need process is the mechanism for evaluating and addressing this issue.

No changes are made to the EIS in response to this comment.

0025-5

0025-5
Chapter 6 of the EIS identifies that the MN PUC Route Permit could also require the development of a Vegetation Management Plan as a permit condition, which could include plant surveys along the permitted ROW, incorporate vegetation clearing, and management of invasive species. The MN PUC typically requires the Applicant to prepare a plan in coordination with MnDNR as a condition of the Route Permit.

No changes are made to the EIS in response to this comment.

in virgin territory, I think it would be much more critical that they follow best management practices.

I guess that's mostly what I've got right now. I'm going to submit some additional comments when I have time to read it more. I didn't read the whole thing yet.

Another thing I would like to mention, though, is that there's a website on the web, it's the Minnesota Tornado History Project, and they have an interactive map that documents every known tornado that is known to man since I think 1950. And it shows the path of the tornado, the date, and the track that it took. And I know when I've looked at that and you look in the area of the Effie alternative it shows no tornados since the time it has been recorded. So I'd like to get a little more information on what the possibility is of a storm coming that would actually impact these lines.

You know, Bill had mentioned before he's seen footage after tornados have gone through and the power lines are left standing and the homes are gone. So they must have some estimation of what force winds will impact the towers and the separation there that is between the proposed orange and blue routes, and then the Effie variation is

0025-6

0025-6
Electrical system reliabilty and weather events are discussed in the Section 5.3.7 of the EIS. Section 5.3.7.2 of the EIS describes the weather study that the Applicant would conduct to address unexpected transmission line outages due to extreme weather events and equipment failures. This weather study is available on edocket 14-21, document 20158-113594-06 (Exhibit 83). Based on the results of the weather study, the design criteria for the proposed Project may be adjusted by the Applicant to increase the robustness of the 500 kV transmission line design.

No changes are made to the EIS in response to this comment.

really significant. I'd like some data on, like, when a straight line wind comes, what the track is. We had one here several years back and it started at Lake Winnie (phonetic) and traveled all the way to Grand Rapids. So if the separation of line is only three, four miles in that case, is it really significant for that separation. If they're together will it really make a difference. And you can also look at the tornado tracking on the chart and you'll find that bigger tornados have a longer track, so what is the likelihood, if they're right together or if there's several miles separation is that really significant.

So another issue is the earth worms. I'm not sure if you're aware of that. But my son worked for the Chippewa National Forest and they're real concerned about the spread of earth worms. Unknown to most people, they aren't native to the United States, and when they start spreading through the forest they go at a very slow rate, but they decompose a lot of the bitter that's on the ground, in other words, the leaves and so forth, and they have an impact on what grows there. Like all those things that are impacted and they end up changing the forest type to more a grasslands area. So if

0025-6 cont'd

0025-6 Continued

0025-7

The invasion of earthworms into forests occurs primarily through dumping of fishing bait. While it is possible construction equipment could transport seeds of invasive plant species, it is unlikely that construction equipment would transport living earthworms along the construction site.

As discussed in Chapter 6 of the EIS, the Applicant may be required to conduct pre-construction field surveys for rare species as a condition of the MN PUC Route Permit.

No changes are made to the EIS in response to this comment.

0025-7

they choose either the orange or blue route and introduce worming to it, that can have impacts and so they would have to have mitigation to avoid that.

And I'm wondering when the rare plants survey will be done. I know they mentioned it in their -- certain few rare plant species, but I think that's just historical. At archeological sites there's several listed in there. And I'm just wondering if you're going to do a more thorough evaluation of that or if that comes when the final route is chosen. And it did show an archaeological site on the Effie route, and I'm just wondering, they said it hasn't been investigated to the point where, you know, it has complete significance, but it is a significant site and if that route is chosen I'm wondering what mitigation they can do to preserve that site. For instance, you know, place the towers so they're not in the area or avoided during construction.

Another idea is you mentioned in there just generically that a 150-foot high tower can be visible for miles, and in a shrub land area there is swamp or it is forested or hilly where the view shed will be less, and I'm wondering if it's possible to have a view shed map drawn up where we'd have to

0025-7 cont'd

0025-7 Continued

0025-8

Viewshed maps have not been prepared as part of the EIS. The concept for the assessment of visual impacts is stated in Section 5.3.1.1: "The 1,500 foot ROI for aesthetic resources was identified because the proposed Project is most likely to be visible within this near-foreground distance zone and views of the proposed Project from aesthetic resources within this distance zone have the greatest potential to result in visual impacts for sensitive viewers." Visual simulations, provided in Appendix N of the EIS, were prepared for seven viewpoints within the study area to represent typical views of the proposed Project. These photo simulations are intended to provide reviewers with a sense of what the transmission line would look like from various distances and in various landscape settings within the study area.

Bass Lake and Balsam Lake are greater than 1,500 feet from the proposed routes and variations. Although the transmission line may be visible from these locations and surrounding areas, there is less potential for the proposed Project to result in significant visual impacts for sensitive viewers beyond the near-foreground distance zone. Visual impacts are likely to be greater for snowmobile trails, recreation trails, and other visually sensitive resources occurring within the near-foreground distance zone.

In an area where a proposed route or variation results in a visual impact, it may be possible to minimize or mitigate the impact by adjusting the alignment, micro-siting structure locations, reducing structure heights, darkening the finish on structures to reduce color contrast, using non-specular conductors, and/or feathering vegetation edges of cleared rights-of-way to reduce contrast.

No changes are made to the EIS in response to this comment.

0025-8

0025-8 cont'd

0025-8
Continued

check the height of the towers for spacing and see if it's going to have critical impact on different areas. If you look at the map, and the view shed is wide, it's this wide on the map and it is narrow like this then we can see if it's going to impact Bass Lake Park or some of the local lakes that it goes by and crosses the Big Bog that is east of Balsam Lake that is a site of high biological diversity. And, you know, there's snowmobile trails and recreational trails across there now, there are no roads or anything, but the impact on tourism and so forth from power lines that take away from your enjoyment of the outdoors.

I was wondering if it's possible, at least in the critical areas, to check what the view shed is. Minnesota Power said that the reason they're spacing their towers at thousands of feet is because it's cheaper that way. The further you put them apart and the higher you build them it's cheaper. If you put them lower or closer together they cost more, but your view shed is less, and I would assume the towers would be more robust and less susceptible to blow down. So I was wondering if some of those issues could be considered in the EIS.

Thank you.

DR. JULIE ANN SMITH: Thank you.

MR. BILL STORM: Thank you, Rich. I look forward to you digging deeper into the EIS and your further comments. I think some of the issues you brought up, as you dig deeper in the EIS you'll find some answers, but we will certainly address the comments you made tonight in the final EIS and any comments you make written post this meeting.

Okay. Anyone else want to speak on the record?

Okay. Before I wrap it up, because I always come back to people several times to try to prod some comments out of them, but remember, the written comments are due August 10th, and you can send them to either me or Jules or both of us. U.S. mail, e-mail, fax, electronically through our websites, or my comment sheet that's on the table, that'll work, too. So remember that date.

Also remember in August, and the notice should be circling around, if you got a copy of this notice, that means you're on our list, so you should get a copy of Mike's notice on the contested case hearing. I encourage you strongly to also attend the contested case hearings, and that is the spot

where you get to ask Minnesota Power direct questions, you know, about if you have issues about tower spans or you have issues about what kind of vegetation control you're going to have. Any of these issues, they will have their people there to answer the questions. It is also the opportunity for you to, if you have a preference on an alternative or you have an idea for conditions that you would like the judge to consider for the route permit, that is the point to bring those issues up.

So before we wrap up, going once? Anybody want to -- okay, Rich, step up to the mic and have another go at it. State and spell your name, please.

MR. RICHARD LIBBEY: Rich Libbey, L-I-B-B-E-Y.

One other thing I forgot to mention was that one of the mitigation strategies for the power line was to do a climactic study. As I recall in one of the first hearings at the Federal Energy Regulatory Commission, is they're supposed to do a study on the whole line as to the vulnerability to storms. And they were going to put it in storm damage, apparently, you know, they have to pass the FERC study before they're allowed to build the line. 0025-9

0025-9
Section 5.3.7.2 of the EIS describes the weather studies that the Applicant would conduct a weather study to address unexpected transmission line outages due to extreme weather events and equipment failures. Based on the results of the weather study, the design criteria for the proposed Project may be adjusted to increase the robustness of the 500 kV transmission line design.

No changes are made to the EIS in response to this comment.

0025-9 cont'd

0025-9
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I was wondering if that was completed or if I heard it right or is there actually a FERC study out there that's assessing the possibility of a serious storm event.

MR. BILL STORM: Thank you, Rich, we'll look into that.

Okay. Sir, please step to the mic. State and spell your name again.

MR. MIKE HUGHES: Yeah. Is there anywhere in the EIS that lists the costs of going different routes? Financially what it is from route A, B, or C?

MR. BILL STORM: The costs on the various routes is in the EIS.

MR. MIKE HUGHES: Okay.

MR. BILL STORM: The alternatives relative to the preferreds, I guess.

Okay. Let's bring it around again. Anyone want to speak on the record? Going once? Going twice?

Remember, you have until August 10th to get your written comments in. Remember the hearings start in August for the contested case hearings.

And I'm going to bring it to my last call. Anybody?

DOC - 14-21 - DEIS PUBLIC MEETING

DOE - EIS-0499 - DEIS PUBLIC HEARING

JULY 21, 2015 - 11:00 A.M. - KELLIHER

MINNESOTA DEPARTMENT OF COMMERCE

AND

U.S. DEPARTMENT OF ENERGY

In the Matter of the Route Permit and Presidential Permit Applications by Minnesota Power for the Great Northern High-Voltage Transmission Line Project and Associated Facilities in Beltrami, Itasca, Koochiching, Lake of the Woods, and Roseau Counties

PUC DOCKET NO. E-015/TL-14-21
DOE DOCKET NO. EIS-0499

Kelliher Old School Center
243 Clark Avenue North
Kelliher, Minnesota

July 21, 2015

COURT REPORTER: Janet Shaddix Elling, RPR

0026-1

Ronald Lindner, if you wouldn't mind stepping up to the mic. There you go, Ronald.

MR. RONALD LINDNER: Good morning. My name is Ronald B. Lindner, that's L-I-N-D-N-E-R. I reside over by Mizpah, Minnesota. I am quite close where the projected power line will hopefully run through sometime.

And I support this project, I think it's the right direction. Let's face it, we're all faced with energy problems today, with our coal-fired plants, nuclear plants, nobody wants to build. This is coming off of water in Canada, let's face it, that's probably what all these environmentalists don't quite understand yet, that this is where we want to get our power from. 0026-1

And I own land right just above -- just below the power line there, and my wife and I have discussed it, and I was part of the process ever since they've been aligning there and I've looked at it. And I've lived in Koochiching County since 1938, so that makes me about 78 years old. And I hear some of the people come in from the outside, we can't do this, we can't do that. We need what we got in northern Minnesota, the only thing we got to get is something up here that we can use for

0026-1 cont'd

0026-1
Continued

year-round, and that's one thing we do use is power, electricity. How many of you have electricity in your house? Nobody, I guess.

Well, I enjoy my electricity, it's not cheap, I belong to North Itasca, but I guess I've been there since you know when. So, anyway, I've lived there all my life and I strongly support this power line. And I think the direction we've got to go is let's get it down here. We've got to look forward to what our schools are doing today, we've got good schools in Kelliher, we've got good schools in Northome, we should be very proud of that. I am, I know that. I graduated from Northome, my wife graduated from Northome.

And I think people are just on the wrong track when they listen to all these eight balls out there, and that's what I'll call them. And I have this creek, if you'll notice on the map over there, that creek goes through my land in two different chunks through it. I love that creek there, the only thing I don't love is the people who want to continue to destroy beaver that are not where they should be. And we track and try to control our beaver and we want to keep them there because that's what keeps our water in our creek. We just went

0026-1 cont'd

0026-1
Continued

through a drought there, where some eight ball shot and was taking care of the beaver problems themself without permission, and it didn't hurt a thing. Where this stream comes through my property, it goes on north of me, goes out into the swamp up in the north, it is the best filtering system in the world up here in this Bog up here and through that. We've got a great filtering system between Red Lake and down where I live. And that creek is very short lived. It comes from this drainage over to the east of where I live at, and it's not going to hurt anything.

And I've been protecting the beaver on my place as much as I can. And when we went through the drought here for two years, that creek was the first time ever to get bone dry. I mean, it practically went dry. We lost all our minnow population in there, but they're starting to recover now because somebody's taking care of the beaver and given us something on the land down there.

But I think we're in the right direction here, they have a good route picked through there. It's not going to really destroy anybody's property anywhere in that south part of the county where it's going. It's on the edge of the swamp out there and

0026-1 cont'd

0026-1
Continued

it's already in the swamp, a lot of it. And it's great place and this is a great place to live.

How many of you live in Koochiching County here? There's two. Anybody else? How about Beltrami County? Three. Yeah, I don't know where you guys live at, but I think we're in the right direction here of getting the power down here to us. And I know our county board, I see our county commissioners over there, I guess I see where they voted to support the project, which I think they should be smart enough to know that.

But, anyway, I will support this right through to the end, whether we get it here or it goes up on the north end of the county. It's going to go somewhere and we certainly can use it in this end of the county. And maybe down the line we can draw our power off from this power. I'd be happy to have water-powered electricity coming into my place, I don't know how much longer I'll be here, that's not up to me.

But I think people have the wrong idea when we talk about building. Our country has -- we have suffered up here. I've been through hardships all my life. I was born and raised on a farm up here in a small place and the hardships are there.

0026-1 cont'd

0026-1
Continued

And we cannot hold our young people up here, and I'll tell you that right now, we need our young people back up here. And we're going to get it through jobs. And electricity certainly can help us to bring jobs to south Koochiching and north Beltrami, wherever. You all know what the age bracket is in these areas now. Let's try to bring something back to this part of the country that we can tap into or we can get power and be productive. We know the Iron Range is up and down over there, but that's a lot of self destruction over there, too, but they're trying to get cheaper power so they can stay in business, too. And business has to make money. If people don't know it, if a business don't make money, they don't stay in business.

So I encourage you to get back and support this project. And, like I say, I'm going to follow it through, as long as they have meetings I'm going to be at them. And I hope if you've got something to say or if you're opposed to get up here and say it.

So I thank you.

MR. BILL STORM: Thank you, Ron.

MR. RONALD LINDNER: You bet.

MR. BILL STORM: That was the only card I

DOC - 14-21 - DEIS PUBLIC MEETING

DOE - EIS-0499 - DEIS PUBLIC HEARING

JULY 15, 2015 - 11:00 A.M. - ROSEAU

MINNESOTA DEPARTMENT OF COMMERCE

AND

U.S. DEPARTMENT OF ENERGY

In the Matter of the Route Permit and Presidential Permit Applications by Minnesota Power for the Great Northern High-Voltage Transmission Line Project and Associated Facilities in Beltrami, Itasca, Koochiching, Lake of the Woods, and Roseau Counties

PUC DOCKET NO. E-015/TL-14-21
DOE DOCKET NO. EIS-0499

Roseau Civic Center
121 Center Street East
Roseau, Minnesota

July 15, 2015

COURT REPORTER: Janet Shaddix Elling, RPR

that failed. So what I'll do is if anybody wants to speak tonight, please raise your hands if you want to speak.

Okay. We'll start out with Carol. Carol Overland, please state and spell your name. Turn your mic on.

MS. CAROL OVERLAND: Thank you.

Carol Overland, I'm an attorney, and my address is 1110 West Avenue, Red Wing, Minnesota.

And I'm not representing anyone at this point in the certificate of need process. I want to make sure that everyone knows that the buy the farm option is an option here. That if they do want to take your land, they can take -- you can require that they take the entire parcel, not just a small piece of it. And I'll have more comments later on if I have a chance to look at the EIS.

Thank you.

MR. BILL STORM: Thank you, Carol.

Anyone else want to speak on the record tonight -- today, this morning?

MR. TODD LUND: I would.

MR. BILL STORM: Okay. Please step up to the mic and state and spell your name, please.

MR. TODD LUND: My name is Todd H. Lund,

T-O-D-D, H, L-U-N-D.

I think that crossing significant portions of agricultural property is probably not a very good idea due to the fact that the increasing size of equipment, tractors are weighing 55,000 pounds, the drills that they're pulling are equally the same weight. If there were an error in any type of auto steer or anything where the operator doesn't have control, the damage would be, you know, life-threatening.

And there is an existing power line that could be probably paralleled, with many miles of forest, coming across the border, where there's probably very good crossings. Considering this power line is for public use, I think that the majority of the property should be public. We all use it, that land is not a tax-based land. We pay taxes, we bought this land. The amount of turns and inconvenience and the danger to ourselves and our young farmers is never going to go away once the power line is established. It's something that we'll be living with the rest of our lives. The existing power line appears that it probably crossed the least amount of public property. And I think that's probably maybe where it should try to lie.

0027-1

0027-1
During construction, the Applicant would comply with all applicable OSHA requirements and would **implement standard construction, mitigation, and operation and maintenance practices developed from experience with past projects as well as industry-specific BMPs, as specified in Section 2.13 of the EIS. Compliance with OSHA's standards for occupational health and safety along with i**mplementation of BMPs would avoid and minimize impacts on public and worker health and safety resulting from the construction and operation of the proposed Project, regardless of the route or variation.

0027-2

0027-2
The Border Crossing 500kV and 230kV variations evaluated in Section 6.2.1 reflect your preference to parallel existing transmission lines where the proposed Project would cross the U.S. and Canadian border.

No changes are made to the EIS in response to this comment.

That's about all I have to say. Thank you.

DR. JULIE ANN SMITH: Thank you, Mr. Lund.

MR. BILL STORM: Thank you for your comment. And, again, I encourage you to participate in the hearings next month and tell the judge why you prefer one route over the other and why you think one route might be problematic and another more advantageous.

Anyone else who wants to speak tonight -- this morning? The week is young yet.

DR. JULIE ANN SMITH: The day is young.

MR. BILL STORM: Okay. We do have review copies of the document out here. We certainly have staff people that can help you if you want to talk about a particular -- look at a particular map and maybe talk about a particular thing. But if no one wants to speak on the record tonight -- or today? Going once? Twice?

Okay. Remember that you have until August 10th to submit written comments on the draft environmental impact statement. And I strongly encourage you, if you have route preferences or issues that you think one route or another have and

DOC - 14-21 - DEIS PUBLIC MEETING

DOE - EIS-0499 - DEIS PUBLIC HEARING

JULY 15, 2015 - 6:00 P.M. - BAUDETTE

MINNESOTA DEPARTMENT OF COMMERCE

AND

U.S. DEPARTMENT OF ENERGY

In the Matter of the Route Permit and Presidential Permit Applications by Minnesota Power for the Great Northern High-Voltage Transmission Line Project and Associated Facilities in Beltrami, Itasca, Koochiching, Lake of the Woods, and Roseau Counties

PUC DOCKET NO. E-015/TL-14-21
DOE DOCKET NO. EIS-0499

Lake of the Woods School
236 15th Avenue SW
Baudette, Minnesota

July 15, 2015

COURT REPORTER: Janet Shaddix Elling, RPR

MR. ALAN MULLER: I'd be happy to yield to the people here who are local, or I can speak now.

UNIDENTIFIED: I'd like to hear what you have to say.

DR. JULIE ANN SMITH: State and spell your name, please.

MR. ALAN MULLER: Alan Muller, A-L-A-N, M-U-L-L-E-R.

MS. CAROL OVERLAND: The mic is not on.

MR. ALAN MULLER: Is it on now?

My name is Alan Muller, A-L-A-N, M-U-L-L-E-R, and I'm a resident of Red Wing, Minnesota.

What I know about these draft EIS documents is essentially what I've read between this morning's hearing and the present one. So I have some questions, some thoughts for you, and the answers to some of my questions may be in here and I may have missed them so I apologize if that's the case.

First, this is a -- formally this is a federal hearing on the record, am I right, and it's an informal state proceeding. Will the transcript of this meeting and others like it be in the public

record?

MR. BILL STORM: Yes.

DR. JULIE ANN SMITH: Yes.

MR. ALAN MULLER: Let me just sort of go in order on the bullet points on here.

At page 5, at section 1.2.4.1, there's reference to the National Historic Preservation Act and requirements for consultation with the Indian tribes, et cetera, and that is addressed in slightly more detail further into the report.

But it was bothering me that I saw all this procedural stuff, but it didn't say anything about what the Indian tribes have to say about this project. And I really think that that's a rather significant deficiency. And maybe the tribes and the bands involved don't have an opinion about it or didn't express one, but I can't tell by this document. And the preferred way of addressing that would have been to have an appendix containing letters from those tribes rather than Barr Engineering's interpretation of what they had to say because Barr Engineering is not a neutral party.

Okay. Now, there is a certain amount of discussion here about regional energy demand in northeastern Minnesota and the capacity of this

0028-1

0028-2

0028-1
DOE has conducted government-to-government consultation with federally recognized Indian tribes pursuant to Seciton 106 of the National Historic Preservation Act of 1966, as amended. The discussion of DOE's tribal consultation is presented in Section 5.3.3.1 Archaeology and Historic Architectural Resources of the EIS. Further documentation of ongoing consultation with the federally recognized Indian tribes is provided in the EIS.

No changes are made to the EIS in response to this comment.

0028-2
The MN PUC determined that the proposed Project and its 250 MW capacity is needed by the Applicant in eDocket #12-1163 (Certificate of Need).

No changes are made to the EIS in response to this comment.

line. And the information seems vague and unsubstantiated. For example, there's reference to increase in industrial load, and perhaps industrial load is increasing, but anyone reading Minnesota newspapers have seen story after story about large loads shutting down due to the depression or low prices in the iron mining industry. So if, in fact, the load is increasing, it would be nice to see that substantiated in some way other than them writing, or perhaps marketing ambitions of the utilities of the area.

But let me backtrack with another question. I understand that from a Minnesota point of view, questions of need are off the table because there's been a certificate of need proceeding and the PUC did, in fact, grant a certificate of need for this project. And is that correct?

MR. BILL STORM: Yes.

MR. ALAN MULLER: There are places in here that say that and there are other places that talk about the certificate of need proceeding as something that's ongoing and I think those should be updated to be consistent.

From a federal point of view, and this is unfamiliar to me, I have never looked before at a

0028-2 cont'd

0028-2 Continued

0028-3

Section 1.3.2 of the Final EIS is updated to state the Certificate of Need was granted on June 30, 2015.

0028-4

The proposed alternatives are fully analyzed in the EIS.

No changes are made to the EIS in response to this comment.

0028-3

0028-4

Presidential permitting matter, it stated that the federal interest is in the border crossing. But it's also stated in here that the rest of the project is regarded as a connected action, and in a NEPA sense, which it obviously is. So that has, to a certain extent, been evaluated in the DEIS. But it certainly does not appear to me that it has been evaluated in a substantial way.

And Ms. Overland made reference to this at page 45, and I don't have the section number, three-quarters of a page or a little bit less than three quarters of a page is devoted to comments on a no build alternative. That's three-quarters of a page out of 940 pages in these two documents alone. And that certainly does not suggest to me that this DEIS reflects a substantial or meaningful or useful consideration of alternatives.

What's actually evaluated here in fine detail are route alternatives. And I think that the authors of the document should be commended with the detail that they've addressed that, but that is not what the National Environmental Policy Act means by alternatives. And it mocks the intent of NEPA to say that, to represent that as meaning the federal government's obligations to look at alternatives to

0028-4 cont'd

0028-4 Continued

0028-5

The decision of DOE is to determine whether to permit or not permit the transmission line. DOE does not assess the entire realm of potential alternatives (e.g., generaltion or conservation alternatives) as part of their NEPA review. DOE's responsiblity is to consider the alternative put forth by the utility in the their Presidential permit and not to review the utility's resource planning process.

No changes are made to the EIS in response to this comment.

0028-5

this project. I hope I've stated that clearly.

Now, with regard to the capacity of the line, and let me find, if I can, the proper citation for that. We can look at page 30, section 2.8.1, expected power transfer capability. And there are various other mentions throughout the document. For example, there's mention of a 250 megawatt power purchase agreement by the applicant. Then there is mention of the applicant's interest in having, at page 19, at having a power transfer capability of 883 megawatts. And then again back at page 30, there's reference to, quote, at least 750 megawatts, unquote. And elsewhere, and I'm not able to find it at the moment, which I apologize, there have been references to significantly higher numbers for the actual capacity of the line. And that leaves entirely unresolved, in my opinion, the question about whether there's a reasonable relationship between the scale of this project and the applicant's stated purposes. If, in fact, the applicant needs 250 megawatts of additional power transfer capacity, it probably doesn't make sense. It makes sense for DOE or the state to sign off on a project that has perhaps several times that power transfer capability, and it might be motivated by a

0028-5 cont'd

0028-5 Continued

0028-6

0028-6
Section 2.8.1 of the EIS states that the proposed Project is designed to increase the total transfer capability between the U.S. and Manitoba by up to 883 MW. Section 2.8.1 was revised to correctly identify 883 MW.

0028-6 cont'd

0028-6
Continued

desire to engage in market transactions and power or something that one can have an opinion about, but they're not discussed in the document.

Okay. I think I have a number of more comments that I might make here, but I think I'll just write down on what I've said and thank you for considering that.

DR. JULIE ANN SMITH: Okay.

MR. BILL STORM: Thank you, Alan.

Anyone else want to take the opportunity to speak?

MR. MARSHALL NELSON: Yeah I'll do that.

MR. BILL STORM: Please state and spell your name for the court reporter.

MR. MARSHALL NELSON: Marshall Nelson, M-A-R-S-H-A-L-L, N-E-L-S-O-N. Lake of the Woods County.

1600 pages. It's a lot to go through to find out what's relevant. You know, I can't sit here and comment on the west section or east section, I don't live there, I have no intricate knowledge of the area and I have no business commenting on specifics to that.

Like I said, when I got here tonight, I don't know what the proper term is, I have one, but

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COURT REPORTER: Janet Shaddix Elling, RPR

MR. BILL STORM: Okay. Again, anybody else? Any questions, comments, concerns about the draft EIS that you'd like to put on the table?

Alan, would you like to have another go at it?

MR. ALAN MULLER: Just a technical or procedural question for Julie, if I may.

What are the legal criteria for the issuance of a Presidential permit for a border crossing facility? And does the legal burden lie on the applicant to demonstrate that such a permit should be issued? And, if so, what does the applicant have to show? I mean, in a general sense.

DR. JULIE ANN SMITH: There isn't so much a legal burden. What we have, and if you look at 10 CFR part 250, Carol, I believe, pulled up the exact point -- or 205, sorry, 205. Which is our Presidential permit application regulations that lay out very specifically the process for applications as well as the contents of the application, including any electric system information, project information, environmental information, all of those things.

DOE -- and this is discussed in the regulatory context section of both the summary as

0029-1

0029-1
The response to the comment is provided in the transcript.

No changes are made to the EIS in response to this comment.

well as the Chapter 1 section in the EIS, where we talk about our Presidential permit decision. As part of the Presidential permit decision, the DOE accepts applications for border crossing, international border crossings from an applicant, as well as information related to, as I stated, environmental, the electric reliability system. We then vet that information through the NEPA process.

DOE makes the determination of whether or not to issue a Presidential permit based on a couple of different things. A large consideration is what we sort of characterize -- is what's characterized in statute as public interest. What falls under public interest in a very large part is the potential environmental impacts related to not only the border crossing, but as you pointed out, to what we call the connected action, which is the transmission line. We look at those things.

We also work and we have to have concurrence with the Department of State, as well as the Department of Defense for the project, to make sure that they concur on our issuance of the Presidential permit. Within their aspect, they're considering state considerations as well as considerations related to national security and

national defense.

DOE then also considers and makes a determination related to electric system reliability. And then any other factors that are relevant to the particular application that is in front of us.

So those are the variables that are laid out to us in statute and that are also laid out in the regulations as part of our decision and that are discussed in section 1 and the summary of the document.

MR. ALAN MULLER: Thank you. That's helpful. I realize, and some of that you did say before and I heard it, but it wasn't clear to me what you meant.

DR. JULIE ANN SMITH: That's okay.

MR. ALAN MULLER: Could you give us any background information on how many such permits are processed through your organization and how many of them are granted versus how many of them are denied?

DR. JULIE ANN SMITH: The number, I mean, the actual, the overall number of how many Presidential permits, I mean, the program has been in place since 1979, maybe 1980'ish, and I don't have that institutional memory. I can tell you that

0029-2

0029-2
Detailed information about DOE's Presidential permit program, including but not limited to all Presidential permits issued by the Department, are available on DOE's Office of Electricity Delivery and Energy Reliability web site at: http://energy.gov/oe/services/electricity-policy-coordination-and-implementation/international-electricity-regulatio-3.

No changes were made to the EIS in response to this comment.

the -- what we respond to and how busy we are in the Presidential permit arena depends on how many applications we get. And we don't solicit for these applications, they come to us and we respond to them in a timely manner.

We recently issued a Presidential permit for a 336 1000 megawatt line, a DC line going from the international border between New York and Quebec and surveying a substation in Queens. We are considering and we currently have a draft EIS out for New England Powerlink, which is 160 miles, if I remember correctly. That also is a DC line. We're considering Northern Pass, which is a 500 kV in the state of New Hampshire, roughly to the tune of about 180 miles. So we have a lot, and Great Northern, obviously, and we have others that are anticipated.

The DOE, in its history, and, again, I would have to look back so I can't say unequivocally how many applications we received and what we denied. Sometimes some of the applications go away, I mean, so there are those, and so I would have to do some digging to give an accurate and a precise response to that question.

MR. ALAN MULLER: Well, I was asking because I have the impression in Minnesota that

applicants for certificates of need for transmission lines always get them with very few exceptions. And that the process, although it's long and complex, has some of the characteristics of a rubber stamp as a whole. And I'm curious to know whether the data for how the U.S. DOE handles the permits form the same impression. I'm not speculating, but it's a reasonable question from the standpoint of members of the public who would like to know how seriously their concerns really are taken.

And that is all I have to say. So thank you.

DR. JULIE ANN SMITH: Thank you.

MR. BILL STORM: Okay. Thank you, Alan.

Has that spurred anybody else's consciousness? Anybody want to speak on the record?

Okay. I'll give you a few minutes to sink in. Speak. Speak.

Okay. Thanks for coming out. The program doesn't work if people don't participate. Remember that the written comment period deadline is August 10th, your comments to me and Jules about the draft EIS.

Remember that I'll be back up here in August for two weeks with an ALJ, an administrative

DOC - 14-21 - DEIS PUBLIC MEETING

DOE - EIS-0499 - DEIS PUBLIC HEARING

JULY 16, 2015 - 6:00 P.M. - INTERNATIONAL FALLS

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AND

U.S. DEPARTMENT OF ENERGY

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PUC DOCKET NO. E-015/TL-14-21
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AmericInn
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International Falls, Minnesota

July 16, 2015

COURT REPORTER: Janet Shaddix Elling, RPR

well.

MS. ANNE MARGUERITE COYLE: Right. Thank you.

MR. BILL STORM: Thank you for your comment. I encourage you -- I did give you a CD, correct?

MS. ANNE MARGUERITE COYLE: Yes.

MR. BILL STORM: I encourage you to go through the CD. You have until August 10th to formulate it. And is the document searchable? Yeah, the document is searchable on the CD, yes, it is.

Okay. Coming back to the general room. Anyone want to make a comment on the record about the draft EIS?

Okay. Alan, sure, do you want to come up, please state and spell your name and have at it. Is that my wet copy?

MR. ALAN MULLER: That's your wet copy.

DR. JULIE ANN SMITH: Reading in the rain, right?

MR. ALAN MULLER: Actually, the dampness of this can be attributed to my dog.

My name is Alan Muller, M-U-L-L-E-R, I'm a resident of Red Wing, Minnesota. And I offered

some comments on this document a couple of days ago and I didn't complete those comments, but I had a few hours to look through this and so I want to add a couple of comments to the ones that I have already made.

At page 113, which is delineated as section 5.2.1.4, there is a discussion of property values, effects on property values. And there is a paragraph at the bottom of the right-hand column on page 113 that says in the few studies that detected decreases in sales price, those effects ranged from 2 to 9 percent and in a few cases the sales price actually increased. And the intent of this section appears to be to argue that in the construction of this transmission project is not likely to have a substantial effect on the value of the properties through which it passes or approaches.

And I suggest to you that this is a conclusion that is unlikely to be correct and certainly is not a conclusion that is well substantiated by the material in here. What I would like to see would be some sort a quantitative discussion of the number of properties in total that would be impacted and some defensible summation of the likely total decrease in property values that

0030-1

0030-1
Forecasting more than a general estimated percentage change in property values attributable to construction of the proposed Project is not feasible given that the number and type of properties in proximity to the ROW has not yet been determined and the vast number of variables that affect property values and changes in value cannot be assessed. Within your comment, you questioned the validity of the approximate two to nine percent decrease in property values, and a few instances of sale price increases, from the literature review by Jackson and Pitts (2010) of 17 studies conducted between 1954 and 2009. This review is published in the peer-reviewed Journal of Real Estate Literature by the American Real Estate Society, whose membership consists of academics, researchers, and practicing professionals and is a respected analysis. Another study used to support the property values discussion was one by the Wisconsin Public Service Commission (2000) which showed that proximity to a high-voltage transmission line does not always cause property value decrease, and when it does, property value decrease can range from 1 to 14 percent. This summary conclusion was drawn from the Commission's analysis of 30 papers, articles, and court cases and is considered a comprehensive literature review that was vetted by the state of Wisconsin. Also included in the property values discussion are results from studies by Weber and Jensen (1978) and Jensen and Weber (1982) that looked specifically at the effects of transmission lines constructed on or near agricultural land. Weber and Jensen (1978) found no effect on agricultural land sale prices, while Jensen and Weber (1982) found agricultural land sale price decreases from 0 to 20 percent, depending on the level of disruption to farm operations. Appendix J, Property Value Supplement, of the Great Northern Transmission Line Project EIS contains a lengthier discussion of these literature reviews than is included in Section 5.2.1.4 but all studies are considered to be valid property value analyses.

No changes are made to the EIS in response to this comment.

would occur from building this project rather than just kind of a page of denial and hand waving. So, you know, I think that the DEIS is certainly unsatisfactory at this point in how it approaches that.

Now, let me move to the discussion of electric and magnetic fields, which begins on page 141 and is identified as section 5.2.2.1. I'm sure it's well known to everyone in the audience and certainly to the authors that the magnitude of electric fields is generally related to the voltage on the line, and the magnitude of magnetic fields is generally related to the current flowing through the line.

And I see a number of tables here, and they predict magnetic field strengths, but they don't associate these predicted -- the numbers, which are in some cases carried out to four significant figures, and these are not tied to any particular current values or power transmission values and that makes them rather meaningless. Particularly since, as I previously testified, this seems to be some contradictory information about the actual power transfer capability of this line, which would be associated with different levels of

0030-1 cont'd

0030-1 Continued

0030-2

Section 5.2.2.1 the EIS summarizes the predicted intensity of electric and magnetic fields calculated by the Applicant based on two main operational scenarios:

Scenario 1: Stand-alone 500 kV Transmission Line. EMF from the proposed Project transmission line structures only. Electric and magnetic fields are predicted for three types of structures: guyed Delta tower, guyed V-tower, and self-supporting tower at an operating current level of 2,000 amperes.

0030-2

Scenario 2: 500 kV Transmission Line Paralleling Existing Transmission Lines. Electric and magnetic fields are estimated from the proposed 500 kV transmission line operating in parallel with the existing 500 kV, 230 kV, and 115 kV transmission lines. Depending on the configuration, operating line current levels vary.

Predicted magnetic fields from a total of six cases are calculated at average and peak levels. The modeling cases report magnetic fields with maximum current supported by each type of 500-kV transmission structure, ranging from 1,024 to 2,000 amperes.

EMF modeling scenarios and results in Section 5.2.2.1 are revised based on updated modeling results provided by the Applicant (Appendix Y). The revised version of Table 5-22 indicates the current levels supported by the structures modeled.

current. So I think this information is unsatisfactory.

These tables need to have a column that clearly specifies what amperage, what current values are associated with these magnetic field strengths, and it needs to be clear that we need to receive information on the actual maximum amperage that the line could sustain. As it is, we don't have that.

Okay. Now, let me back up, if I may, to a discussion of climate change and greenhouse gas emissions. And this begins, roughly speaking, at page 111, and is delineated as section 5.2.1.3. And there's verbiage in here that suggests that the likely effect of building this project would be a reduction in greenhouse gas emissions due to the use of more hydropower and the burning of less fossil fuels. And there is also a suggestion that it would facilitate the integration of greater amounts of wind capacity in North Dakota. Which, if it occurred, would probably also have a beneficial effect on reducing climate forcing emissions. But everything in here is extremely vague, it rather reads like something that was patched together out of different documents. And it would be extremely helpful to have some numbers assigned to this. Just

0030-2 cont'd

0030-2 Continued

0030-3

The addition of 250 MW of capacity from renewable energy sources will reduce the average GHG emissions per megawatt hour (MWH) of energy generated in the region. The exact value would depend on many variables, from growth in demand to the addition or closure of other new sources of energy to the implementation of state and federal GHG emission restrictions. It would be difficult to quantify the exact reductions in emissions. However, it is very likely the region would see a reduction in GHG emissions as a result of the action, therefore there will be no potential for an increase in GHG emissions and a qualitative discussion was determined to be adequate for this analysis.

0030-3

No changes are made to the EIS in response to this comment.

what reduction in the use of fossil fuels is anticipated, is associated with that 250 megawatt power purchase agreement with Minnesota Power and Manitoba Hydro that's cited here, and whether the information in here is associated with that 250 megawatt power purchase agreement or some significantly larger power transmission. Again, there are contradictory numbers in various parts of the report as I previously testified. So I'm suggesting here that some clarity and at least some roughly quantitative assessment of different scenarios would perhaps give this some credibility.

Now, moving on in the same section there is a discussion of criteria air pollutants. And then that begins on page 111 and the discussion then jumps back to discussions of climate change. But it's not very clear here whether the authors are attempting to discuss emissions of criteria air pollutants associated with the construction of the project or the operation of the project, and it would be very helpful to have some clarification of that so we know what is actually being said here.

And I'll just close here by referring to what Ms. Overland has previously said. It seems to me that the authors and consultants of this report

0030-4

0030-5

0030-4
Project impacts for criteria pollutants as well as climate change and greenhouse gas (GHG) emissions are discussed for construction as well as operation, maintenance and emergency repair of the proposed Project in Section 5.2.1.3 of the EIS. Construction related criteria polluant and climate change and GHG emissions are discussed under the "Construction Impacts" heading while operational emissions of criteria pollutants and climate change and GHG emissions are discussed under the "Operations, Maintenance, and Emergency Repair Impacts" heading.

No changes are made to the EIS in response to this comment.

0030-5
Thank you for your comment. The intent of the Draft EIS comment period is to allow for members of the public, including those opposed to the line, to have the opportunity to review the analysis in the document.

No changes are made to the EIS in response to this comment.

0030-5 cont'd

0030-5
Continued

are parties that have a history of working for the electricity industry, and particularly the power transmission industry, and perhaps that's a reason why so much of the general tone of this report seems to me to be that of an advocacy document rather than a neutral and objective evaluation of the project.

So I would recommend that you obtain some sort of peer review, perhaps peer review from some parties who have been involved in opposing transmission lines and advocating for alternatives, there certainly are such people around. Because really the responsibility for peer reviewing a draft environmental impact statement should not fall on the general public.

Okay. I think that's what I have to say at the moment.

Thank you.

DR. JULIE ANN SMITH: Thank you, Alan.

MR. BILL STORM: Thank you, Alan.

Okay. With that, anyone else who would like to take the opportunity to provide comment, questions on the draft environmental impact statement?

Okay. I want to remind you that the comment period for this phase of the document review

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desire to engage in market transactions and power or something that one can have an opinion about, but they're not discussed in the document.

Okay. I think I have a number of more comments that I might make here, but I think I'll just write down on what I've said and thank you for considering that.

DR. JULIE ANN SMITH: Okay.

MR. BILL STORM: Thank you, Alan.

Anyone else want to take the opportunity to speak?

MR. MARSHALL NELSON: Yeah I'll do that.

MR. BILL STORM: Please state and spell your name for the court reporter.

MR. MARSHALL NELSON: Marshall Nelson, M-A-R-S-H-A-L-L, N-E-L-S-O-N. Lake of the Woods County.

1600 pages. It's a lot to go through to find out what's relevant. You know, I can't sit here and comment on the west section or east section, I don't live there, I have no intricate knowledge of the area and I have no business commenting on specifics to that.

Like I said, when I got here tonight, I don't know what the proper term is, I have one, but

I probably shouldn't say it out loud in public. I tried to pick out a few things and we got a comment period going on yet, I'm sure there will be more submitted by myself. But here's just a couple things. And I'm glad we have copies here because I wasn't going to print it out.

Page 168 you talk about precision farming systems. Kind of an oxymoron here. Page 168, middle of the page, precision farming systems. And I'm quoting here, just part of it. Transmission lines have the potential to interfere with RTK and standard GPS used for precision farming. In further discussion in another section here, which, I apologize, I didn't get to yet, but, I mean, it says that it can happen, but since potential impacts related to precision farming systems are not expected from the proposed project, so it's not discussed any further. I mean, it says it can, but you don't expect any, even though on this blue route crossing agricultural land, I don't understand how you can say that it has potential but you don't expect any. You know, you're contradicting yourself there. I guess in the final I'd appreciate a little more detail or explanation.

Like I was telling you, I do experience

0031-1

0031-1
Impacts to agriculture are discussed in Chapters 5 and 6 of the EIS. As discussed in Section 1.3.1.4 of the EIS, once a route is selected and a permit is issued, the Applicant would contact landowners to gather information about their property and their concerns and discuss how the ROW would best proceed across the property.

No changes are made to the EIS in response to this comment.

0031-1 cont'd

0031-1
Continued

problems with the 230 we got there. It's not that it shuts it down, it limits the capabilities of the very expensive technology that we purchased to operate more efficient, you know. It does that, what can you do, and it is kind of specific to where you're at right under the structure, but when you're going to come across our ag land we're not going to stop farming that specific right-of-way.

And nobody else is standing in line, I do have a couple other things real quick.

Page 204. And this is discussing agricultural impact. It is reciting in 2010. There's been a huge explosion of agriculture in Roseau, Lake of the Woods, and Koochiching County since 2012. I disagree with you that the principal commodities are sugar beets and wheat. I guess I've been here most of my life and I don't know anybody who grows sugar beets. I don't know how that got in there, but this data here I do not agree with. If you looked at more current data from what the ag economics are, there's been a big shift, and that the impact on this ag land, not just the precision farming or whatever, but there is more to it than that.

There's been a lot of government land,

CRP, different programs on land and stuff like that, and it's come out as being actively farmed as we speak and land sales and a lot of that in the past. So that's one spot I think you guys want to take a look at.

Aerial spraying. 205. Yeah. You know, and I understand maybe you're not discussing it further than Chapter 6, as far as this around the transmission lines and trying to line them up with whatever makes sense for travel and, geez, you'll have to use land base. Well, that's what I said when I come in here tonight. It doesn't matter. I can't get out there right now to spray this crop with a land unit because it's wet. And, obviously, if you look out the window, it's getting hit again. If you can't get an airplane to fly it, what do I do? You know, I'm struggling with this, I'm making my way around this power line, it's been there since the '70s, this is, like I said, my grandfather started this, now it's my problem. I've been getting around it different ways, trying to line up to the edge of this thing, you know. Now you're going to come through here and will cut the whole dang section in half again and eliminate everything we got on that particular section. This, and I can

0031-1 cont'd

0031-1 Continued

0031-2

Impacts to agriculture are discussed in Chapters 5 and 6 of the EIS. As discussed in Section 1.3.1.4 of the EIS, once a route is selected and a permit is issued, the Applicant would contact landowners to gather information about their property and their concerns and discuss how the ROW would best proceed across the property.

No changes are made to the EIS in response to this comment.

0031-2

put this in writing and to the ALJ judge, but this is the stuff that needs to be addressed because land isn't always the easy alternative. And I'm glad you included it in this, I guess, and this is the first time I've mentioned it after talking to you guys and so I did mention about it.

One other question before I give up the mic here is what's the ramifications on recreation? You know, I know I have neighbors that have a power line going through their property, they have deer stands and different things, and every time the guys come through to clean up the power line or come underneath there they come through and tear it down. So if the idea is if you're going to come through here and destroy my aesthetics out my kitchen window, and you're going to destroy my farming practices and make it more difficult because of the technology I've invested in, and on top of all this you have to take out my recreation? I think -- is that in here somewhere?

MR. BILL STORM: There is sections on recreation and the impacts.

MR. MARSHALL NELSON: Can you tell me where I'd find it?

MR. BILL STORM: No. But there are

0031-2 cont'd

0031-2 Continued

0031-3

Discussion of impacts on Recreation and Tourism resulting from the proposed Project are in Section 5.2.1.9. The EIS discussion for Recreation and Tourism is limited to activities on public lands. Impacts to landowners as a result of the proposed Project are discussed relative to Displacement in Section 5.2.1.1 and Land Use Compatability in Section 5.3.1.2.

No changes are made to the EIS in response to this comment.

0031-3

0031-3 cont'd

0031-3
Continued

sections for the west, central and east that talk about the impact or potential impact that the proposed route and the alternatives may have on recreational activities.

MR. MARSHALL NELSON: Okay. And does that specifically address recreation by private landowners on their own property once this thing goes through, or is it just -- 'cause I know you're looking as the whole, I mean, I see that term used a lot in here, as a whole, as a whole, as a whole. Specifically to that, 'cause it means I can't have my deer stand, and my dad wants to hunt in retirement, you know, and that's just another --

MR. BILL STORM: I understand your comment --

MR. MARSHALL NELSON: Okay.

MR. BILL STORM: -- and we'll look back at it in the context of the comment you made to see if there's any more we can do to capture that individual impact that you're talking about.

MR. MARSHALL NELSON: Lastly, Alan here or somebody asked about the policy on public record, all these comments here today. Where and when will I find those?

MR. BILL STORM: When the meetings are

over and the comment period is over, I will gather all the comments, the oral transcripts and the written comments, and I will post them on my website, the website that was up there previously. And I will post them on the PUC website, Mike's group -- that's probably not the right way to say that. It's what we call the PUC website, even though I think it's actually the Department of Commerce that runs it, but it's eDockets. And it'll be on the federal site so you can find it there, too.

MR. MARSHALL NELSON: But we're not going to see these comments until --

MR. BILL STORM: You'll see the comments once the comment period closes. Well, actually, no, you'll see them two times.

DR. JULIE ANN SMITH: You'll see them twice. You will see them when the comment period closes, the actual comments, and then the individual comments will be recorded in the comment response document, as well as an indication of where in the document we've changed things or how we dealt with it and the nature of how we dealt with that. And it points you back so you can go back to the document. And that final will have tracked changes to show

where we made changes as well so it will make it clear.

But they will be posted as the comments on the website and then they will also again be captured in the comment response document that will be part of the final.

MR. MARSHALL NELSON: I got this from Minnesota Power, notice of the meeting and stuff like that, I also got an e-mail. And I hate to bring it up, I'm not sure where I got it from, that the draft EIS was available for review. I'm on that list. Will I get all of the things you just talked about as a commenter? This was the thing we talked about last October, was is that we have a problem getting information to people on the land that it didn't cross, you know, and I was one of them that lived right next to it. It's a long story.

MR. BILL STORM: If you signed up for our project list -- did you get a notice from us?

MR. MARSHALL NELSON: From Minnesota Power.

MR. BILL STORM: Yeah, they mailed -- did you mail it out under our envelope?

MR. MARSHALL NELSON: It was a Minnesota Power envelope.

MR. BILL STORM: Okay. Before you leave tonight, on the back table on the green card, just fill out your name and your address and I'll make sure you get on my project list.

MR. MARSHALL NELSON: That would be good.

MR. BILL STORM: And once you're on the project list, when the notice of hearing, which is going to be in August comes out, you'll get it, and when the final EIS is available, you'll get that notice, too. And you can always check my website or eDockets to see if anything has been posted. But after the comment period closes on August 10th, give me a few days to maybe a week and you'll be able to see all the comments plus the transcripts on our websites.

MR. MARSHALL NELSON: What I'm concerned about is I want to see all the comments before we have the hearing. Is that going to be possible?

MR. BILL STORM: No, there's an overlap, you probably will not see them before the hearing. But, again, the comments that we're talking about now are comments on the draft environmental impact statement. The hearing is about the whole permit application, whether you believe they should get a permit, and if they should, what the route should

be, what an alternative route should be, or what conditions should be attached to that permit. That's where you can ask, because all of Minnesota Power's engineers and their witnesses who provided information for the route permit will be at those hearings, and you can ask them directly questions that you don't think the record, including the draft EIS, but the whole record haven't been answered.

MR. MARSHALL NELSON: Right. I'd like to see comments from everybody, it would be nice to have all that.

MR. BILL STORM: If you go to my website you will see all the comments that I've gotten during the scoping period, and you'll be able to see these, but, like I said, there is some overlap about when this comment period ends and when the hearing starts. Usually we like to have a week of separation between those two things, but because of the nexus between us and the feds it just didn't work out that way.

MR. MARSHALL NELSON: Okay. I have your card. And I'll use it.

MR. BILL STORM: And what I would encourage you to do, two things. One, certainly come to the hearing next month to tell the ALJ what

you think about the proposed project and what you think about the various routes that are on the table. For the draft environmental impact statement, you mentioned -- because we do talk about the high-tech GPS units that farmers use, and is there possible interference with these transmission lines. And I haven't looked at that section since it was written and so I don't know if the two lines equal that or are really in conflict if you take them in context. I think the context might be that there is a potential there, but from the literature searches that we've done, the potential seems minimal, and that's why the conclusion is this line probably won't have that effect.

If you, through your trade association or through your farmers journals or through even your equipment manufacturing manuals, if you have information that relates to the impact of these transmission lines on that type of equipment, point me in that direction and I will make sure that information gets put in the final EIS. As long as, you know, I'll review the information, and there's a lot of stuff on the web, and if you send me something from 18 aliens, I might not put that forward. But if you sent me something from a

farmers journal or from an academic study, from a Canada university or a United States university somewhere, some kind of documentation that shows me some more of that, that may cause us to beef that section up if we need to.

Okay. Are you fine? You can make some more comments, if you'd like.

MR. MARSHALL NELSON: No, I don't have time to do that, but I will send something.

MR. BILL STORM: And did I give you a CD copy?

MR. MARSHALL NELSON: I don't need a CD copy, I can get it online.

MR. BILL STORM: Oh, you can get it online? Some people, depending on what kind of online system you have, it's a big document to pull it all down.

Okay. Anybody else want to speak on the record?

MS. CAROL OVERLAND: I have a procedural question.

MR. BILL STORM: Okay. Carol, go ahead.

MS. CAROL OVERLAND: This is fairly quick. Given that there's a federal aspect of this, do you do the -- like record of decision process in

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to study that, going, you know, into the future, so that if there is a problem you can work on it. 'Cause it would be something where you'd want to monitor that over several years. I think that would be a mitigation measure to put into this document as well.

And then just to talk about the rare species plants, that's something that needs to be looked at. And, again, that needs to be looked at as part of your study going forward on this project.

Let's see what else I've got. Gentlemen?

MR. JOE PLUMER: I have something I want to say.

MR. BILL STORM: Are you done?

MR. KADE FERRIS: I'm not done yet, but I'll let these guys in.

MR. CHARLES OLSON: Good evening. I'm Charles Olson, I have just a very short comment.

MR. BILL STORM: Can you state and spell your name for the court reporter?

MR. CHARLES OLSON: Charles Olson, O-L-S-O-N.

I haven't had a chance to read the whole environmental impact statement, that fault likes with me. I did, however, look over the table of the

contents, both the condensed view there and through the books. And what I see is it's done in a vacuum. And it's really just examining just a very narrow scope. And we know when we look at the environment, we know that that's not true, that it is communities with stuff all the way around.

So I would like to see in the final environmental impact statement a section devoted to what the power company is planning to do to minimize the needs for more of these power lines, minimize its needs through solar panels and other renewable resources. And what other projects are going on in Minnesota and what they have for that so we can actually have that macro view at some point.

It's almost -- it's virtually required, because as we go further down and we find more and more on environmental damage, we build more and more structures, such as pipelines, transmission lines and stuff like that, at some point we have to quit looking at it in a vacuum and start looking at them in a macro sense.

MR. BILL STORM: Thank you, Charlie. Next?

Please state and spell your name.

MR. JOE PLUMER: My name is Joe Plumer,

0032-1
Although Minnesota does not have a general statewide energy plan, the MN PUC does review long-term generation and transmission planning for individual utilities. First, the MN PUC reviews and approves the utility's integrated resource plans, which are to consider different options for transmission and generation, including demand reduction and renewables. Then, as the utility seeks approval for individual projects such as this one, the MN PUC considers these alternatives before it decides whether the project is needed and how to meet that need (Certificate of Need). A summary of the Minnesota certificate of need process is provided in EIS Section 1.3.2.

0032-1 In addition, the DOE's Federal Action is to determine whether to permit the international border crossing that is a part of the proposed Project. DOE does not have a role in reviewing an applicant utility's resource planning process. No changes are made to the EIS is response to this comment.

No changes are made to the EIS in response to this comment.

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from the public. As I said before, please state and spell your name, speak slowly, slower than I gave my thing, and make your comment, put your question on the record, and we'll go on from there.

So first up.

MR. KADE FERRIS: First off, my name is not Bill.

MR. BILL STORM: I know, I'm sorry. Although it's such a good name, I don't know why everybody is not Bill.

MR. KADE FERRIS: I guess it's the handlebars that I shaved in last week.

Well, my name is Kade Ferris, the archeologist and anthropologist for Red Lake Nation.

And in reviewing this document, there is a lot of things that we need to look at. I know some of this stuff in here is very general. I know you guys, you know, have put volumes of work in here.

Right off the bat, I guess, is when you're talking about human settlement, in section S.8.1 in the beginning here, and in section 6.2.1.1 as well, it's looking at -- you're looking at this as a place that's kind of void of human settlement for the most part. There's no residences, churches,

0033-1

0033-1
As discussed in Section 5.2.1 of the EIS, high voltage transmission line projects, like the proposed Great Northern Transmission Line project, have the potential to impact human settlement in a variety of ways, including potential displacement of humans which can be assessed by evaluating the presence or absence of human settlement features like residences, churches, schools, etc. The EIS also goes on to assess the potential for impacts to humans from the project in terms of several other closely related resource areas, including, noise, public health and safety, transportation, air quality, electronic interference, and property values. No change is made to the EIS in response to this comment.

schools. That's the comment, or that's the first thing that's drawn out of here, is you're looking at not affecting human uses, or human settlement, or human activities in the area.

But as far as the property value, I think it's important that an assessment is done on how this could affect the Red Lake Nation's property value for those lands up in the ceded area, because that is something that has not been considered by this project as it stands. And I think that would be something that would be very important to do, especially since it's not just, say, the price of the land, but it's the use of the land now and in the future and how people either can or can't use those lands. So I think that that's something that needs to be looked at.

You talked about aesthetics, which is a really important thing. I think it would be very important to look at that as well. As you are close on many of these, the routes through the Red Lake land, and I'm not sure that the 1,300-foot view shed is accurate. I think it's very arbitrary and I think that that needs to be looked at as well. 1,500 is another one that we're talking about as far as feet for historical architectural sites, but as

0033-1 cont'd

0033-1 Continued

0033-2

Impacts to property values are discussed within Section 5.2.1.4 and conclude that potential impacts to property values resulting from construction and operation of the proposed Project, if any, would range from no effect to a 20 percent reduction based on conclusions from the literature review included in Appendix J. While the proposed routes and variations do not cross any of the Red Lake Nation's ceded lands, some of the proposed routes and variations do cross wilderness areas that may be utilized by Red Lake Nation members for hunting, trapping, fishing and gathering; those potential impacts are discussed in Section 5.2.1.8, as part of the impacts to Natural Resource Based Economies. The EIS also acknowledges in Section 5.3.1.3 of the EIS impacts to the Red Lake Nation Band of Chippewa Indians ceded lands.

No changes are made to the EIS in response to this comment.

0033-3

The assessment of visual impacts relies on the approach stated in Section 5.3.1.1 that, "The 1,500 foot ROI for aesthetic resources was identified because the proposed Project is most likely to be visible within this near-foreground distance zone and views of the proposed Project from aesthetic resources within this distance zone have the greatest potential to result in visual impacts for sensitive viewers." Visual simulations, provided in Appendix N, Photo Simulations, of the EIS, were prepared for seven viewpoints within the study area to represent typical views of the proposed Project. These simulations are intended to provide reviewers with a sense of what the transmission line would look like from various distances and in various landscape settings within the study area.

The Area of Potential Effect (APE) used for considering potential adverse effects from the proposed Project on historic architectural sites or for assessing traditional properties is discussed in Section 5.3.3.1 and is included in the draft Programmatic Agreement developed for the proposed Project in accordance with Section 106 of the National Historic Preservation Act. The draft Programmatic Agreement is included in Appendix V of the EIS. Within the EIS the direct APE is the anticipated 200-foot ROW and the footprint of the other elements of the proposed Project. The indirect APE includes the direct APE plus a one mile radius on each side of the

anticipated alignment of the proposed transmission line or the center of the footprint of the other elements of the proposed Project.

far as traditional use of the area, 1,500 feet might not be adequate depending on what a person is doing, when they're doing it, and for what purpose.

Again, looking at land use compatibility. It would be really, I think, important there to look at what -- not just the impact of the project itself now, but have you looked at what type of things might occur in the future on this. So how this project would be through access roads that you're going to use to maintain things, will that create any kind of new land use in the area? Are people going to have better access to land that they didn't have access to previously, and maybe they'll start to drain it and farm it. Has that been considered? I'm not sure it's even considered in here.

Again, 6.2.1.2, land-based economics. You're looking at agriculture, you're looking at the international boundary, you're looking at forestry, but the question here is have you talked to the Red Lake foresters about this? Because Red Lake has a very strong, ongoing forestry activity up in that area, and I think that it would behoove you guys, before you issue the final EIS, to speak to, to engage, and to get information as much as we can, if not now, but for implementing the project. If

0033-3 cont'd

0033-3 Continued

0033-4

0033-5

0033-3 Continued

0033-4
Chapter 2 of the EIS discusses temporary and permanent access roads that are proposed as a part of the project. Permanent access roads would generally be within the ROW and are planned by the Applicant as unimproved roadways with no grading or filling. Section 5.3.1.2 of EIS is updated with a discussion that acknowledges that public access is generally expected to occur in areas where access was previously not possible due to the introduction of temporary and permanent roads that would be put in place as part of the proposed GNTL Project.

0033-5
As a federally-recognized tribal nation with an interest in the general area of the Project, Red Lake Nation is a cooperating agency that has a degree of authority, responsibility, and involvement in the environmental review process. Additional information regarding consultation with Red Lake Nation is provided in the EIS. Discussion of impacts from the proposed Project to Red Lake Forest Projects, Inc. is discussed within the Socioeconomics (Section 5.2.1.8) discussion of "Natural Resource-Based Economies."

No changes are made to the EIS in response to this comment.

anything needs to be done to engage Red Lake forestry on that, because there are a lot of activities that go on up there and it's something that needs to be looked at.

Architecture and archaeological resources. I like the classes you guys did. I'd like to know, and I really can't -- I guess I'm not a big fan of this idea of 126 different locations that you consider high potential areas. As far as for archeology, there's been little or nothing in the environmental impact statement on traditional cultural properties. The Red Lake tribe will be happy to work with you on that.

You know, I mentioned earlier about out by Roseau where the tribe has an old village that belonged to one of the tribal members in the 1800s. His name is Mikinaak. And Mikinaak was right there by Roseau Lake where the river came in, and two of your lines will be crossing in that area. And this first was very important, not just, you know, as a member of the Red Lake tribe, but also it was important historically to that area because when there was, I guess, a panic where the farmers thought there was going to be an Indian uprising, and they all left to escape being killed, I guess,

0033-6

A draft Programmatic Agreement (PA) is developed for the proposed Project in accordance with Section 106 of the National Historic Preservation Act (36 CFR 800.4(b)(2)). The draft PA being developed for the proposed Project is included in Appendix V of the EIS. The PA will:

0033-6

Allow for the adjustment of the APE to ensure that direct and indirect effects on the National Register of Historic Places (NRHP)-listed or -eligible cultural resources are properly considered. NRHP-listed or -eligible resources may include, but would not necessarily be limited to, archaeological resources; architectural, built, or aboveground resources; properties of traditional religious and cultural importance to a federally recognized Indian tribe; and/or TCPs. Stipulate the need for additional cultural resources investigations within the APE to identify and evaluate resources for NRHP-eligibility. Such investigations would address the identification of archaeological and architectural, built, or aboveground resources within the APE and evaluate these resources for NRHP-eligibility by qualified consultants. Address the identification and evaluation of TCPs by qualified consultants to identify TCPs, which may include properties of traditional religious and cultural importance to a federally recognized Indian tribe, and evaluate these properties for NRHP-eligibility. Include obtaining background information from written and oral sources on the prehistory and history of the area, such as the story of Mikinaak and his people's interaction with farmers in the 1800s near the Red Lake Tribe's village by Roseau.

which never, of course, was going to happen, Mikinaak and his people fed and watered cattle and livestock to make sure they didn't die. And he was a really important part of history in that Roseau area. And I think it would be really important as part of this project to hear some of those stories and to get that information out so that it can be noted that this area is Ojibwe land, but more so, it's not something where is it vacated for any other reason than people diminished those lands. So I think that would be really important to do in terms of satisfying that part. I know there's an agreement and we can do great stuff with that. I will definitely have to give some props to the Department of Energy for working with the Red Lake Nation on going over that PA, and I think it would provide some great information moving forward on this project as well.

There's a lot of other things in here that, I mean, I could go on and on and talk the rest of the night, if you'd like.

But some of the other key things, just looking at the natural environment area, is things like water resources. Again, you know, is your project, by having these different, like I said,

0033-6 cont'd

0033-6 Continued

0033-7

As discussed in Section 1.3.1.4 of the EIS, once a route is selected the Applicant will identify the locations for all permanent and temporary access roads, laydown areas, stringing areas, fly-in sites, and structure locations. They will work with the federal and state agencies to develop survey plans, conduct fieldwork, and determine the wetland and other resource impacts for the project. This information will be needed in order to complete the federal and state permitting processes. Draining of land for agricultural purposes is not identified as a reasonably foreseeable action and it is not part of the proposed Project, therefore is not included in the EIS.

No changes are made to the EIS in response to this comment.

0033-7

access roads, staging areas, which are they permanent or not? That's something that needs to be answered in here. And, if so, could that have an impact on water resources in the area, if people decide they're going to start draining the land and use some of that land up there and they have access, that's a big concern.

Also, you know, vegetation. You're removing a lot of areas and keeping them clear and I think that needs to be looked at from a tribal perspective going forward. It's not so much germane here to the EIS in that sense, but I think you need to mention that as a mitigative measure, that you'll work with the tribe to identify plants and other resources like that that will or can be affected, and trying to, I guess, get ideas from the tribe to better manage those up in that area because we know what the long-going cumulative impacts might be to some of those plant colonies.

Wildlife. I have mentioned this probably a good dozen times at the PA meetings. It was not so much in that sense a culture resource issue, but it's also a natural resource issue. These large power lines, you're going to be creating these gigantic slots of more or less predator highway for

0033-7 cont'd

0033-7 Continued

0033-8

Impacts to vegetation are discussed in Chapters 5 and 6 of the EIS. Chapter 6 of the EIS identifies that the MN PUC Route Permit could also require the development of a Vegetation Management Plan as a permit condition, which could include plant surveys along the permitted ROW, incorporate vegetation clearing, and management of invasive species. The MN PUC typically requires the Applicant to prepare a plan in coordination with the MnDNR as a condition of the Route Permit.

No changes are made to the EIS in response to this comment.

0033-8

0033-9

Thank you for providing this information. The references are added to Chapter 9 of the EIS. We have reviewed the documents that you referenced regarding ungulates and smaller animals and their use of transmission line corridors. The studies indicate that ungulates cross transmission line corridors unlike road corridors which act as barriers. Predators may use the corridors more often which would deter use by ungulate and other smaller animals. In addition, animals with young will avoid corridors of any type because they don't provide cover for their young to hide from predators. The results are inconclusive for reindeer for the selected study areas - but there were extenuating circumstances (roads and dams) which may limit their need to cross the tranmission line corridors.
The documents provide some methods to reduce the effects of corridors on ungulates, which primarily involve returning the corridor back to an intermediate level of successional forest that provides more habitat (cover, food, etc.).

0033-9

Following full review of the studies pointed to by the commenter for any new information relevant to the proposed Project, no changes are made to the EIS in response to this comment.

0033-9 cont'd

0033-9
Continued

a lot of hunters, but also for natural predators such as the wolf, and a lot of movements in order to get access and I guess they hunt for subsistence. And so I think that's something that needs to be examined going forward. It might not be something that you really need to address here, but it's something that should be addressed, I think, as far as this project goes.

I think you need to make sure that you're working with the Red Lake DNR on some of the activities that happen up in that area. And what you can do to work with Red Lake DNR going forward into the future as far as monitoring some of those things that happen there as far as is there going to be an effect. We don't know, it's hard to tell. A lot of studies have taken place that say that there can or can't be an effect. There's some Norwegian studies that I've read, deer and other game don't want to cross those areas. Not because it's a gigantic wild area that is traveled by a person or a wolf, but because you've got those high-voltage lines. And there's speculation that those high-voltage lines can keep them from moving naturally.

So I think working with the tribe's DNR

to study that, going, you know, into the future, so that if there is a problem you can work on it. 'Cause it would be something where you'd want to monitor that over several years. I think that would be a mitigation measure to put into this document as well.

And then just to talk about the rare species plants, that's something that needs to be looked at. And, again, that needs to be looked at as part of your study going forward on this project.

Let's see what else I've got. Gentlemen?

MR. JOE PLUMER: I have something I want to say.

MR. BILL STORM: Are you done?

MR. KADE FERRIS: I'm not done yet, but I'll let these guys in.

MR. CHARLES OLSON: Good evening. I'm Charles Olson, I have just a very short comment.

MR. BILL STORM: Can you state and spell your name for the court reporter?

MR. CHARLES OLSON: Charles Olson, O-L-S-O-N.

I haven't had a chance to read the whole environmental impact statement, that fault likes with me. I did, however, look over the table of the

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where they lie as far as the preferred route and the alternate route. And if there's anything that can be done, we would like that to be avoided. These are lands that we don't yet know the exact description.

Okay. Did you get that okay, Janet?

COURT REPORTER: I did. Thank you.

MR. JOE PLUMER: Thank you.

MR. BILL STORM: Okay. Kade, do you want to continue?

MR. KADE FERRIS: Yeah.

I think, you know, Joe made a really good point about the route and, you know, I guess what's going to be the main route.

But, also, I think as far as the construction procedures, that was something I know I've been -- I'd love to see something as far as where you're planning on doing the staging access roads, not just for ongoing maintenance, but also construction. You put those roads in, take those roads out, how you're going to restrict or allow access to those areas, because once a road is somewhere people love to use it. So that's going to be a real big issue that you need to make sure that you address in this document, is how you're going to

0034-1

0034-1
As discussed in Section 1.3.1.4 of the EIS, once a route is selected the Applicant will identify the locations for all permanent and temporary access roads, laydown areas, stringing areas, fly-in sites, and structure locations. They will work with the appropriate federal and state agencies to develop survey plans, conduct fieldwork, and determine the wetland and other resource impacts for the project. This information will be needed in order to complete the federal and state permitting processes.

No changes are made to the EIS in response to this comment.

deal with those roads. Because the second there's a road, then all of a sudden we're going to be hunting on those areas and going back there and doing your things and that's, I guess, an impact that needs to be examined in here.

I think that Charlie made a good point as well as far as how does this tie into future projects. You know, is this going to satisfy your need for the next five years or 10 years or 20 years as far as this line from Canada? Do you see this becoming, I guess, a conduit for future additional projects and how this can open that up? 'Cause that's one of the things that I've always tried to stress, is the second you do something, it makes it easier to do something else. And I think that's exactly what Charles was trying to say, is the second you do a project, it goes through, now all of a sudden, hey, wait, we have to have a substation here or we're going to have to put in additional lines because we have additional need, and is that going to be addressed adequately as far as, you know, sufficiency of this project for a specific amount of time, because that's something people will definitely want to know.

I know, as far as -- what's the section?

0034-1 cont'd

0034-1 Continued

0034-2

Although Minnesota does not have a general statewide energy plan, the MN PUC does review long-term planning for individual utilities. First, the MN PUC reviews and approves the utility's integrated resource plans, which are to consider different options for generation, including renewables. Then, as the utility seeks approval for individual projects such as this one, the MN PUC decided whether the project is needed and how to meet that need (Certificate of Need).The MN PUC certificate of need process is discussed in Section 1.3.2 of the EIS.

Chapter 7 of the EIS addresses the cumulative impacts of "reasonably foreseeable" future actions in the US. Other more speculative actions are outside the scope of analysis for this document.

No changes are made to the EIS in response to this comment.

DR. JULIE ANN SMITH: Can I ask, when you say for a specific amount of time --

MR. KADE FERRIS: I guess how long is this going to be sufficient for the state of Minnesota? I mean, meeting your needs as a power company? Is it five years, 10 years, 20 years? How long do you see it satisfying your needs before you have to go after more lines or, as Charles said, go after alternative energy.

I know hydro is an alternative energy in a sense, it's green energy, and that's great, you don't have to have more coal and that kind of thing and so that's very commendable. But, it's still -- it's not, I guess, as green as other forms of energy could be, because you have to knock out of a lot of trees and so that's the idea there.

A long-eared bat, I assume you guys have a head's up on that one. I know that they're -- that's one of the things that I think is something that needs to be looked at, too, is how much is this habitat -- or how are you going to address it, and that came out recently so you have to make sure you address that adequately in here.

All right. Okay. Here we are. Other than that, we're going to provide some written

0034-2 cont'd

0034-2 Continued

0034-3

The Biological Assessment, added to the EIS in Appendix R, discusses potential impacts to the northern long-eared bat, as well as avoidance and minimization measures intended to protect this Endangered Species Act (ESA)-listed species.

0034-3

comments. But, yeah, those are just some of the things that are, you know, definitely of issue.

Anything else gentlemen?

MR. JOE PLUMER: I can't think of anything right now.

MR. KADE FERRIS: But, I mean, this is a huge document. And we're glad, you know, that you are moving forward, that we have a plan at least to satisfy some of these studies.

And I want to thank Department of Energy and I want to thank Minnesota Power for allowing Red Lake to be a cooperator and see the studies ongoing to help satisfy the EIS. And I think that's where we'll be here shortly, and we'll definitely provide some more written comments as well, and we'll be writing those to Julie at the Department of Energy.

So thank you.

DR. JULIE ANN SMITH: Thank you.

And I just wanted to ask a question for clarification. As a cooperator, this is an ongoing discussion, so I know Al, he is the director for DNR, and the forestry falls under his department? Is that correct?

MR. KADE FERRIS: Yes.

DR. JULIE ANN SMITH: I just wanted to

make sure.

MR. KADE FERRIS: Right. And that's important, you know, is to talk to them directly, because there's a lot of guys on staff and they have a lot of things to do. So if, you know, in implementing some of those things, we have those guys directly seeing, you know, what type of things and work they have to do that would make, I guess, their jobs easier, but also make their management go more smooth. 'Cause there's a lot of lands that are up there, our target over the next several years for them is for harvest, and then there's always the issue of -- and I don't believe you mentioned that in here, but forest fires and cleanup. Because you guys run the risk of having forest fires rip through this area where your transmission line is, and when that happens, how is that going to affect things, like cleanup of those areas, you might want to plop that in here as an extra item.

Okay. Thanks, guys.

DR. JULIE ANN SMITH: Thank you.

MR. BILL STORM: Thank you, Kade.

Anyone else want to go on the record tonight?

Okay. If not, I do want to remind you,

0034-4

Plans associated with the proposed Project would be developed following selection of the final route by the MN PUC. As a standard practice, the Applicant follows industry standard protocol for fire prevention during construction, including but not limited to:

a. Maintain orderly work sites.

b. Regularly inform workers on fire danger, particularly in high fire danger seasons and areas.

c. Identify and communicate emergency contact information for the appropriate work location.

d. Fire extinguishers available on all equipment.

e. Use of fire spotters during hot work (welding, grinding, etc.).

f. Conduct open burning only by and in accordance with burning permit.

g. Requiring construction contractors to act expeditiously to extinguish wildfires and to do everything reasonably within a contractor's power, both independently and on request of any duly-authorized representative of the United States, to prevent and suppress fires on or near the job-site, including making available such construction personnel and equipment as may be reasonably obtainable for the suppression of such fires.

0034-4

The Applicant regularly inspects all of its transmission lines during operation and for maintenance. In the case of a wildfire, lines would be inspected for integrity following an event. The Applicant would work in coordination with responding fire department or other agencies with regard to aerial application of chemical fire retardants that may have corrosive or other deleterious effects to transmission system facilities. Final protocols for fire management would be further defined in the general conditions of the proposed Project in the permitting phase of the process.

No changes are made to the EIS in response to this comment.

DOC - 14-21 - DEIS PUBLIC MEETING

DOE - EIS-0499 - DEIS PUBLIC HEARING

JULY 21, 2015 - 6:00 P.M. - BIGFORK

MINNESOTA DEPARTMENT OF COMMERCE

AND

U.S. DEPARTMENT OF ENERGY

In the Matter of the Route Permit and Presidential Permit Applications by Minnesota Power for the Great Northern High-Voltage Transmission Line Project and Associated Facilities in Beltrami, Itasca, Koochiching, Lake of the Woods, and Roseau Counties

PUC DOCKET NO. E-015/TL-14-21
DOE DOCKET NO. EIS-0499

Bigfork School
100 Huskie Boulevard
Bigfork, Minnesota

July 21, 2015

COURT REPORTER: Janet Shaddix Elling, RPR

your comment.

DR. JULIE ANN SMITH: Did you get an electronic copy of the draft to take with you?

MR. DAVID CHRISTENSON: No, I'd like one.

DR. JULIE ANN SMITH: Okay. We'll make sure you get one before you go.

MR. BILL STORM: Okay. Anyone else who wants to speak?

Yes, sir. If you would step to the mic and state and spell your name.

MR. DENNY PAVEK: My name is Denny Pavek, P-A-V-E-K.

And I wasn't planning to speak, but listening to a couple of folks talk here I wanted to just state the gentleman, Dave Christenson, says it for us, too. We're in Deer Lake, we have a homeowners association, I represent the 50 cabin owners up there, and we fully support, as it's called, I believe, the Effie route. I believe that's the red route, is that correct?

MR. BILL STORM: We have not assigned colors.

MR. DENNY PAVEK: The map has colors, though.

DR. JULIE ANN SMITH: Yeah, the Effie

0035-1

0035-1
Thank you for your comment. No changes are made to the EIS in response to this comment.

variation.

MR. DENNY PAVEK: It is the red route, and there are a few people that live there year-round. So that's where we as the cabin owners association would like to see it go.

Thank you.

DR. JULIE ANN SMITH: Thank you.

MR. BILL STORM: Thank you.

Does that spur anybody? Anybody else want to speak?

MR. JOHN KANNAS: I will.

MR. BILL STORM: Yes, sir. State and spell your name, please.

MR. JOHN KANNAS: Sure. My name is John Kannas, K-A-N-N-A-S.

I'm a supervisor in Balsam Township and there are three routes that cross Balsam Township. We understand the line is going through, and the town board is in support, and all the residents, that we want the blue route through Balsam, not the alternative route, which is the green route or the yellow or orange route, which slices the township right in the middle, right through the main populous area. And the other is the abandoned Minnesota Power line, but, again, we don't want that, we want

DOC - 14-21 - DEIS PUBLIC MEETING

DOE - EIS-0499 - DEIS PUBLIC HEARING

JULY 13, 2015 - 6:00 P.M. - RED LAKE

MINNESOTA DEPARTMENT OF COMMERCE

AND

U.S. DEPARTMENT OF ENERGY

In the Matter of the Route Permit and Presidential Permit Applications by Minnesota Power for the Great Northern High-Voltage Transmission Line Project and Associated Facilities in Beltrami, Itasca, Koochiching, Lake of the Woods, and Roseau Counties

PUC DOCKET NO. E-015/TL-14-21
DOE DOCKET NO. EIS-0499

Seven Clans Casino
10200 Highway 89
Red Lake, Minnesota

July 13, 2015

COURT REPORTER: Janet Shaddix Elling, RPR

contents, both the condensed view there and through the books. And what I see is it's done in a vacuum. And it's really just examining just a very narrow scope. And we know when we look at the environment, we know that that's not true, that it is communities with stuff all the way around.

So I would like to see in the final environmental impact statement a section devoted to what the power company is planning to do to minimize the needs for more of these power lines, minimize its needs through solar panels and other renewable resources. And what other projects are going on in Minnesota and what they have for that so we can actually have that macro view at some point.

It's almost -- it's virtually required, because as we go further down and we find more and more on environmental damage, we build more and more structures, such as pipelines, transmission lines and stuff like that, at some point we have to quit looking at it in a vacuum and start looking at them in a macro sense.

MR. BILL STORM: Thank you, Charlie.

Next?

Please state and spell your name.

MR. JOE PLUMER: My name is Joe Plumer,

P-L-U-M-E-R.

My comment has to do with the route. I've talked with Minnesota Power about this concern, and it has to do with I would say that overall on balance that the tribe would prefer, you know, the blue line, the blue route. Mainly because Minnesota Power has done a pretty good job of avoiding all the tribe ceded lands, known ceded lands. And my comment right now has to do with the unknown ceded lands.

And the tribe has been recently informed of a decision of the field solicitor, or not the field, the main solicitor in Washington, that this issue involving Bolstad leaned parcels was finally resolved 70 years after the restoration order of the ceded lands. And it was decided in the tribe's favor. And what that means, bottom line, is there's going to be about 66,000 acres coming back to the tribe, but we don't know the exact legal descriptions yet.

So I would just like it to be noted that we don't know where they're all located, we know they're in five northern counties, and once we have the exact descriptions, we'll get those to Jim of Minnesota Power as soon as possible just to see

0036-1

0036-1
DOE recognizes the Red Lake Tribe's concerns regarding potential impacts on tribal lands and understand that the tribe will be coordinating with the Applicant regarding the locations of ceded lands that would be restored to the tribe per the recent resolution of disputed Volstead land parcels. Additionally, as discussed in Section 1.3.1.4 of the EIS, once a route is selected and a permit is issued, the Applicant would contact landowners to gather information about their property and their concerns and discuss how the ROW would best proceed across the property.

No changes are made to the EIS in response to this comment.

0036-1 cont'd

0036-1
Continued

where they lie as far as the preferred route and the alternate route. And if there's anything that can be done, we would like that to be avoided. These are lands that we don't yet know the exact description.

Okay. Did you get that okay, Janet?

COURT REPORTER: I did. Thank you.

MR. JOE PLUMER: Thank you.

MR. BILL STORM: Okay. Kade, do you want to continue?

MR. KADE FERRIS: Yeah.

I think, you know, Joe made a really good point about the route and, you know, I guess what's going to be the main route.

But, also, I think as far as the construction procedures, that was something I know I've been -- I'd love to see something as far as where you're planning on doing the staging access roads, not just for ongoing maintenance, but also construction. You put those roads in, take those roads out, how you're going to restrict or allow access to those areas, because once a road is somewhere people love to use it. So that's going to be a real big issue that you need to make sure that you address in this document, is how you're going to

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JULY 21, 2015 - 6:00 P.M. - BIGFORK

MINNESOTA DEPARTMENT OF COMMERCE

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In the Matter of the Route Permit and Presidential Permit Applications by Minnesota Power for the Great Northern High-Voltage Transmission Line Project and Associated Facilities in Beltrami, Itasca, Koochiching, Lake of the Woods, and Roseau Counties

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COURT REPORTER: Janet Shaddix Elling, RPR

reporter can follow you.

Try to focus your comments on the draft EIS. I'm not going to cut you off if you want to comment on something else, but I'm asking you to focus your comments on the draft EIS. And written comments to either me or Jules or both, it doesn't matter, by regular mail, e-mail, snail mail that sort of information. You can also comment electronically. If you go to the Commerce website, there's a link that you can comment electronically. If you go to the fed's website there's a link there, too.

So that's the fed and the state process and I'm going to turn it over to the public. No one filled out a card so I'm just going to go with a show of hands.

Does anyone want to speak on the record tonight?

Okay, sir, I ask that you step to the mic, state and spell your name, and try to speak slowly and deliberately, unlike I do, for the court reporter. Thank you.

MR. DANIEL SIGFRID: My name is Daniel Sigfrid, S-I-G-F-R-I-D. And I own property on this proposed route, the blue route.

I'm going to ask you a question. I see your process. You're buffaloing the people who own property along this route. You said that the EIS draft just came out and before that in 2014 everybody was notified when you did the route. Nobody was notified. Nobody. I've got people who live there, I live in the Cities, I own property up here, and you did your scoping decision and nobody was notified.

You said there was a public hearing. I see that in the record there was a public hearing. But nobody got notified about the public hearing. So you tell me how you can come out here now and you tell me that there's nothing we can do anything about it anymore. Yeah, you've got your process between the federal, state, but you forgot about the people who own and live and have property up here.

I read every piece of mail I get. I never got it. People I know, right here, five or six of them were never notified. Now you're telling us it's too late to show you an alternative, it's too late to raise a fuss. You guys are buffaloing us. You're on a path.

I also know the people who own this company, Minnesota Power, it's not a Minnesota

0037-1

0037-1
Notification of the proposed Project was provided in a manner consistent with DOE and MN PUC requirements and outlined in Section 1.4.4 of the EIS. Additionally, as described in Section 2.3.1, the Applicant hosted numerous public involvement meetings throughout the route selection process to provide Project information and solicit feedback from the public.

No changes are made to the EIS in response to this comment.

company. I also know the shareholders, the politicians who bought into this three, four years ago when it was done underneath us. Now you show up and you just want to show a process which relates, we don't know, because you never notified us. Bullshit.

This is a wilderness. This is a beautiful place in Minnesota. You talk about green, this is the green alternative, that's the opening paragraph, hydropower from Manitoba. Do you know when they back up their river in Manitoba what it'll do with fishery and the wildlife up there? Then you're going to cut 276 miles of wilderness out of the state of Minnesota wilderness. I'm not talking about farmland, I'm talking about wilderness. 276 miles of green trees that don't grow back again. And you're saying this is green, this is good for the state, this keeps us from doing another coal plant. The need for electricity isn't even there and evidently this is forward-looking. People invested. The state capitol, who bought stock in this deal, in this parent company that owns Minnesota Power. They're the only ones who are going to make money. They're the only ones who are going to benefit.

0037-1 cont'd

0037-1 Continued

0037-2

Thank you for your comment. No changes are made to the EIS in response to this comment.

0037-2

The wildlife, the deer hunters. I have a small piece of land. I've been coming up here 30 years. We have people from all over the United States that come up here. We took a vote 10 years ago, if you want to bring electricity to our deer shacks, they voted 10 to nothing, no. This is our solitude, this is our beauty, these are our timber wolf, these are goose, these are white tail deer, links, bobcats, pine martin.

You're going to wipe out 276 miles and pay these people who own this property for a 200-foot stripe through their property, which is nothing. Or you're going to go, why don't you do buy the farm provision. You people know about the buy the farm provision? They have to buy your property. You want to know what, the state gets the last laugh on that. If you decide to do the buy the farm provision, that they buy your property, within 90 days they condemn it and they'll drag you through court on the price of your property for eight years.

And now we get a letter and it's too late to speak, it's too late to talk. You're dealing with Minnesota people here, good people who love this land.

And it's about profit, it's about people

0037-3

0037-4

0037-3
Thank you for your comment. No changes are made to the EIS in response to this comment.

0037-4
The condemnation process and the Buy the Farm provision are summarized in Sections 2.9.1 and 2.9.2 of the EIS, respectively.

No changes are made to the EIS in response to this comment.

making money in the future on a stock that they bought and they passed it through the state capitol. I'd like to ring all their necks, and I don't mean to be violent because I'm not.

So instead of going through the draft EIS, this is all beyond me. You guys are two years ahead of us. We don't even had a stand anymore. We can't complain, we can't show you an alternative route. We can't do anything. You're going to take hundreds and hundreds of years of people's lives who love this area, who love this pristine wilderness. You know what the road is called? The Wilderness Trail. What you want to do is come in and buffalo all these people, you don't even notify people before these hearings.

I saw the list. 12 people in Koochiching and Itasca County. My name was on there. I just saw it the other day. I was here for the Minnesota Power and they immediately took us off into little groups trying to explain this away. That was a year ago. Even that was after the scoping decision was already done.

So that's it. I'm not going to say any more. Except for I've got almost 30 years of family, my son, who was a helicopter pilot in the

0037-5

0037-5
Neither the State of Minnesota (MN PUC) nor the U.S. Department of Energy has made a final decision on its permit for this proposed Project, and the final schedule for the DOE Presidential permit is as yet undetermined.

No changes are made to the EIS in response to this comment.

army, he was killed three years ago. Is this what he was fighting for? To get buffaloed? To run down the road? This is already a done deal. And the politicians who bought the stock already know that. That's why they invested. Two, three, four, five years ago. Now it's a done deal. Nothing we can do. Nothing we can say. It doesn't matter.

Our lives, this is where I come, this is my place. Somebody is telling me be careful up there, what if you break your leg and you're up there by yourself on the deer stands. I said, Luke, he said, I don't want to come and find you dead, and I'm in Alabama training to be a helicopter pilot, he said I don't want to find you dead up there. I told him one thing. I said, you want to know what? If I die up there, there's nobody else in the world who will want to come up there and find me. And I said when you find me, I'll have a smile on my face because this is the place I love.

I'm done.

MR. BILL STORM: Okay. Thank you for your comment.

Next? Anyone else want to comment on the record?

MR. DAVID CHRISTENSON: I will.

DOC - 14-21 - DEIS PUBLIC MEETING

DOE - EIS-0499 - DEIS PUBLIC HEARING

JULY 22, 2015 - 11:00 A.M. - GRAND RAPIDS

MINNESOTA DEPARTMENT OF COMMERCE

AND

U.S. DEPARTMENT OF ENERGY

In the Matter of the Route Permit and Presidential Permit Applications by Minnesota Power for the Great Northern High-Voltage Transmission Line Project and Associated Facilities in Beltrami, Itasca, Koochiching, Lake of the Woods, and Roseau Counties

PUC DOCKET NO. E-015/TL-14-21
DOE DOCKET NO. EIS-0499

Timberlake Lodge
144 SE 17th Street
Grand Rapids, Minnesota

July 22, 2015

COURT REPORTER: Janet Shaddix Elling, RPR

It's listed as a nonresidential. It's a cabin that we use on a weekly basis. In fact, we use it year-round. So I will be sending in that comment.

DR. JULIE ANN SMITH: Thank you.

MR. BILL STORM: Thank you, Kathy.

Okay. Next? Anyone else?

Sir, please step to the mic and state and spell your name.

MR. RODNEY CHARLES TOOMI: Rodney Charles Toomi, T-O-O-M-I.

If I understood everything both of you said, that right now if we already sent an e-mail to both of you with our concerns, that is as much as we can do at this time, and the contested hearings will be coming up in August and that will be the next step, correct?

MR. BILL STORM: That is correct, sir.

MR. RODNEY CHARLES TOOMI: I'm also guessing everything that was shared on the slides is also on the website, or is there information that you presented that would not be in the website?

MR. BILL STORM: I don't think -- I'll put the slides on the website.

MR. RODNEY CHARLES TOOMI: Okay. My last question is, and if you put it on the website I can

0038-1

0038-1
Thank you for your comment. No changes are made to the EIS in response to this comment.

get it there, but if you go back three slides you gave two numbers that should be on the correspondence and I only had one of them and I sent it to you guys so I want to make sure I had the other one.

MR. BILL STORM: That would be the docket number, it's TL-14-21 --

MR. RODNEY CHARLES TOOMI: And EIS-0499.

MR. BILL STORM: That's the DOE number.

MR. RODNEY CHARLES TOOMI: Okay. I believe. But for this point, as long as we sent it to you, that's as much as we can do here until the contested hearings would be in place?

MR. BILL STORM: That is correct.

MR. RODNEY CHARLES TOOMI: Okay. Thank you.

MR. BILL STORM: Okay. Thank you.

Anyone else want to speak on the record?

Okay, sir, please step to the mic, state and spell your name.

MR. MIKE HUGHES: Mike Hughes, H-U-G-H-E-S.

When I first went to the meeting before, I looked at all the evidence, and I still feel like I'm David trying to fight Goliath. You know, do

DOC - 14-21 - DEIS PUBLIC MEETING

DOE - EIS-0499 - DEIS PUBLIC HEARING

JULY 21, 2015 - 6:00 P.M. - BIGFORK

MINNESOTA DEPARTMENT OF COMMERCE

AND

U.S. DEPARTMENT OF ENERGY

In the Matter of the Route Permit and Presidential Permit Applications by Minnesota Power for the Great Northern High-Voltage Transmission Line Project and Associated Facilities in Beltrami, Itasca, Koochiching, Lake of the Woods, and Roseau Counties

PUC DOCKET NO. E-015/TL-14-21
DOE DOCKET NO. EIS-0499

Bigfork School
100 Huskie Boulevard
Bigfork, Minnesota

July 21, 2015

COURT REPORTER: Janet Shaddix Elling, RPR

to see it as far east of the township as possible.

So that's all I have to say. But thank you for letting us talk.

MR. BILL STORM: Thank you for your comment.

Anyone else?

Okay. Yes, sir. Please state and spell your name.

MR. CHRIS VIERE: Chris Viere, V-I-E-R-E. And I'm commenting on the environmental review.

One of the things that you do, is you aggregate the overall view is some of the micro, you know, easements that happen along different routes. And those, you know, aren't necessarily reflected in detail in certain areas.

So one of the things I want to kind of highlight here, on the orange route that comes through Effie and it passes through County Road 27, we go through and if you go you'll see this various important cultural artifacts.

Everybody here is familiar with the Knights, I have property next to them, I got to know them, very good people. James Knight was an environmentalist and a historian. And the route would pass right through that country. And so

0039-1

0039-1
The draft Programmatic Agreement (PA) developed for the proposed Project located in Appendix V includes stipulations related to the need for additional cultural resource investigations to identify and evaluate resources potentially eligible for inclusion on the National Register of Historic Places (NRHP). Such investigations would:

Address the identification of archaeological and architectural, built, or aboveground resources for NRHP-eligibility by qualified cultural consultants; Address the identification and evaluation of traditional cultural properties (TCPs), which may include properties of traditional religious and cultural importance to federally-recognized Indian tribes and evaluate these properties for NHRP-eligibility; Include obtaining background information from written and oral sources on the prehistory and history of the area, including Effie County, County Road 27, and the Knight Family.

0039-1 cont'd

0039-1
Continued

before anybody would even realize what happened, they draw basically a power line right through the important part of the history. And the family is still there. So this book is available on Amazon, We Homesteaded, it's a fantastic read that really is about the environment that was here for a century and in many respects is still here.

And so I think that one of the really excellent things that has been done here is the Effie variation, where there's an 80 percent of the existing corridors, and I think that would greatly diminish the environmental impact.

Thank you.

DR. JULIE ANN SMITH: Thank you.

MR. BILL STORM: Thank you, sir.

Cheryl, could you get the information from that book just so that we can track it down?

Okay. Anyone else? Okay. I'll come back, I do three calls before I call the meeting.

So what I want to remind you is to comment on the draft environmental impact statement you have until August 10. If you want a CD copy, please see me and we'll make sure you get one before you leave. When you make your comment, put the docket number and the DOE number on it.

MINNESOTA DEPARTMENT OF COMMERCE

Comment Form: Draft EIS
Energy Environmental Review and Analysis

Please provide your contact information. This information and your comments will be publicly available.

Name: Carol Avelsgaard Phone: 732-846-5253
Street Address: 105 North 2nd Ave
City: Highland Park State: NJ ZIP: 08904
Email: avelsgaard@msn.com

Share your comments on the Draft EIS regarding the Great Northern Transmission Line project. Be as specific as possible.

- What information or analysis needs to be clarified?
- What information or analysis is missing or incomplete?
- Are any specific edits needed to make the document complete and accurate?

Draft EIS section or page number: S-93 Information to be corrected or new information needed:

East of Battle Lake in 151-29-22 (Gravel Pit) 0041-1
J2 Segment Option runs along the property line on the east side. This pit is operational. The proposed Transmission line runs along a high, steep ridge. The west side of the ridge is being mined for gravel and the ridge has been undercut. It is not stable. Construction of the line would prevent me from extracting more gravel.

Draft EIS section or page number: Information to be corrected or new information needed:

Note: my summer address is
65629 CTy Rd 174
Northome, MN 56661
Phone 218-897-5106

Draft EIS section or page number: Information to be corrected or new information needed:

Attach additional comments as necessary using the format above. If attaching additional comments, please number the page(s) and tell us how many pages you are including: _____ page(s).

0041-1
Map 6-46 in the EIS is revised to show the location of your gravel pit.

Energy Environmental Review and Analysis
MN Department of Commerce
85 7th Place East, Suite 500
Saint Paul, MN 55101-2198

RECEIVED
JUL 27 2015
MAILROOM

PM
25 JUL
2015

WILLIAM COLE STORM
MN DEPARTMENT OF COMMERCE
85 7TH PLACE EAST STE 500
SAINT PAUL MN 55101-2198

55101$6013 C012

Comment Period: Draft Environmental Impact Statement
Great Northern Transmission Line
Docket Nos. E-015/TL-14-21

An environmental impact statement (EIS) evaluates the potential human and environmental impacts and possible mitigation measures associated with a proposed project. The EIS is issued as a draft so that it can be improved through public comment. The purpose of this comment period is to gather feedback about specific, factual information that needs to be clarified or included in the final EIS. Comments regarding new route alternatives are not considered.

After reading the Draft EIS, you might have developed a preference for a specific route alternative. This will be considered, but preferences are best expressed to an administrative law judge through the public hearing portion of the permitting process, currently scheduled for August 5, 6, 12 and 13, 2015.

Direct your questions regarding commenting or submitting your comments to the Environmental Review Manager, Bill Storm, at: bill.storm@state.mn.us or (651) 539-1844. Information regarding the proposed project is available at: http://mn.gov/commerce/energyfacilities/Docket.html?Id=33847. For information regarding the public hearing contact the public advisor at consumer.puc@state.mn.us.

Public Comment Period Closes Monday, August 10, 2015

Comments must be post-marked or received electronically by the comment deadline.

How to comment:

- Submit this form to the Environmental Review Manager at a public meeting
- Mail this form remembering to affix appropriate postage
- Mail comments in a separate envelope using the mailing address on this form
- Fax comments to the Environmental Review Manager: (651) 539-0109
- Email comments to the Environmental Review Manager: bill.storm@state.mn.us
- Use the online comment form at: http://mn.gov/commerce/energyfacilities/#comment

Comments do not need to be on this form to be accepted. We encourage you to provide comments in whatever way is most convenient for you. If commenting by email or fax use "*Public Comment: Great Northern Transmission Line DEIS (E-015/TL-14-21)*" in the subject line.

THANK YOU for commenting on the Draft EIS!

GREAT NORTHERN TRANSMISSION LINE

Connecting Manitoba and Minnesota

Comment on the
Great Northern Transmission Line
Docket Number TL-14-21

Name: Lorris and Elsie Erickson
~~Organization (if any)~~: Farm Land Near project
Mailing Address: 22556 State Hwy 89

City: Roseau
State: MN.
Zip: 56751
Email:

Comment: Please do NOT use the alternate route. Roseau Lake WMA Segment 1 Route South near MN 89 and EAST Near CR 126 Farm Land near project. 0042-1

Please use proposed Blue/orange Shared Route.

Farm Machinery is Bigger.
Also crop Spraying planes are opperating!

0042-1
Thank you for your comment. No changes are made to the EIS in response to this comment.

Please fold, fasten, and mail. No envelope necessary.

Lorris Erickson
22556 State Highway 89
Roseau, MN 56751-8506

GRAND FORKS ND 582
10 JUL 2015 PM 1 T

Bill Storm

Environmental Review Manager

MN Department of Commerce

85 7th Place East, Suite 500

St. Paul, MN 55101

55101$6013

From: David Foster
To: Storm, Bill (COMM)
Subject: power line
Date: Thursday, July 30, 2015 9:25:14 PM

I am against the power line going through Malung 0043-1

Janet Foster

0043-1
Thank you for your comment. No changes are made to the EIS in response to this comment.

From: Linda Johnson
To: Storm, Bill (COMM)
Subject: Fwd: TL-14-21 The Great Northern Transmission Line
Date: Monday, July 13, 2015 7:56:03 AM

Dear Mr. Storm:
I apologize for a serious mistake in my previous email. The last statement should read:
"I urge you to consider the overall environmental impact to this area and choose the **Red Route**".

Thank you,
Linda Johnson
8614 Brant St NE
Circle Pines, MN 55014

---------- Forwarded message ----------
From: **Linda Johnson** <linda.johnson888@gmail.com>
Date: Sun, Jul 12, 2015 at 8:25 PM
Subject: TL-14-21 The Great Northern Transmission Line
To: bill.storm@state.mn.us

Dear Mr. Storm:
I am Linda Johnson, a property owner on Napoleon Lake in Itasca County. It is located in the heart of your proposed and favored transmission line route - referred to as the "Blue Route".
Public opposition to lines tends to focus on their visual and environmental impacts. In 1993 Priestly and Craik conducted a survey regarding public concerns with overhead powerlines (median percentage of respondents perceiving impacts) and here are those findings:

54%	aesthetics
50%	property values
45%	health
24%	safety
15%	noise
8%	TV radio reception

Objectives and benefits of using new transmission technologies that are available today:
• Increase power-carrying capacity within *existing* (constrained) ROWs.
• Reduce/minimize impacts of transmission lines: environmental, visual, footprint, etc.

I am opposed to the Blue Route. The Blue Route would create an undesirable footprint in a heavily hunted / hiked / ATV accessible wilderness area. It would displace wildlife. The men in my family hunt that area; we have hiked and picked berries and enjoyed the wildlife native to that area. The Blue Route will change that dramatically and forever.

I oppose the Orange Route for the same reasons as the Blue route. Why create another negative footprint?

Using the Red Route would make sense as you would piggyback on land that currently has overhead powerlines. The footprint would be much smaller. It would conserve the wilderness that all of us who live in and recreate in have come to appreciate and enjoy.

This is curious to me: I learned that the new lines would serve corporations / industry and you don't even have committed customers for this approved project.

I urge you to consider the overall environmental impact to this area and choose the **Red Route**.

Sincerely,
Linda Johnson
8614 Brant St NE
Circle Pines, MN 55014

0044-1

0044-1
Thank you for your comment. No changes are made to the EIS in response to this comment.

From: Susan Lisell
To: Storm, Bill (COMM)
Subject: Great Northern Transmission Line: TL-14-21
Date: Friday, July 31, 2015 8:52:13 AM

July 31, 2015

TO: Mr. Bill Storm
Ms. Ann O'Reilly
Representative Dan Fabian
Senator LeRoy Stumpf

SUBJECT: COMMENTS CONCERNING THE REQUEST BY MINNESOTA POWER FOR A ROUTE PERMIT FOR THE GREAT NORTHERN TRANSMISSION LINE/DRAFT ENVIRONMENTAL IMPACT STATEMENT

REFERENCE: MPUC DOCKET NO. E01 5/TL-14-21 OAH CASE NO. 65-2500- 3 1637

My name is Susan Lisell and I am a *property owner and agricultural producer* of Roseau County Minnesota. I am writing to express my strong support for Minnesota Power's preferred route as submitted on April 15, 2014 in the above-referenced dockets, and Minnesota Power's proposed border crossing as submitted in October 2014 to the United States Department of Energy.

The amended border crossing and power line route proposed by Minnesota Power is the only feasible border crossing and power line alignment through Roseau County, given the agreement between Minnesota Power and Manitoba Hydro.

The route alternatives submitted by the Minnesota Department of Natural Resources and the United States Fish and Wildlife Service were submitted without input from Roseau County and its residents.

I am opposed to the proposed route alternatives, including the Roseau Lake WMA Alternative --Segments 1 & 2, in Roseau County. These alternatives will cause significant negative impacts on private property owners and agricultural land use, and interfere with the safe and orderly operation of the Roseau Public Airport. Additionally, the proposed alternatives will unnecessarily increase the length of the power lines in Roseau County.

The impact to agricultural land uses and human settlements must be minimized. After careful and thoughtful review of the various proposed routes through Roseau County, I believe that Minnesota Power's proposed route would accomplish these objectives to the greatest extent possible.

The route alternatives, submitted by the Minnesota Department of Natural Resources and the United States Fish and Wildlife Service (Roseau Lake WMA Alternative -- Segments 1 & 2), require the granting of easements across fertile and productive agricultural land. Access to these easements present the potential to cause sustained damage to the agricultural land as Minnesota Power constructs and maintains the power lines that follow the easements.

These easements will also create artificial boundaries in the fields where noxious and harmful weeds and plant life can grow and cause damage to the surrounding agricultural land. These noxious and harmful weeds and plant life can have a significant negative impact on the overall production of the planted field. These easements will create drainage problems for the fields and will increase the difficulty to place drain tile in the fields.

The route alternatives, submitted by the Minnesota Department of Natural Resources and .the United States Fish and Wildlife Service (Roseau Lake WMA Alternative -- Segments 1 & 2), disregard and effectively negate over three years of good faith dialogue and participation by Roseau County officials and its residents, who have been working collaboratively with Minnesota Power to route the Great Northern Transmission Line in a manner that will provide the least impact to residents, property owners and agricultural land.

0046-1

0046-1
The scoping process provided an opportunity to recommend alternatives to be analyzed in the EIS, including the border crossing alternatives submitted by the MnDNR and USFWS. For the range of reasonable alternatives, impacts to human settlement, agriculture, land use, vegetation, and airports/airstrips are among the impacts evaluated in the EIS. No changes are made to the EIS in response to this comment.

0046-1 cont'd

0046-1
Continued

Minnesota Power's extensive planning process, for this project, was conducted in a very deliberate and transparent manner. Minnesota Power used a voluntary outreach approach that included multiple open houses for Roseau County residents and multiple meetings with Roseau County officials. This approach and collaboration resulted in the realignment of the originally proposed border crossing further to the east to avoid potential impacts to any future expansions of the Piney-Pinecreek Border Airport and the Department of Natural Resources' Roseau River Wildlife Management Area. Minnesota Power's proposed route through Roseau County minimizes impacts on private property owners and agricultural land, while maximizing use of state lands and current power line easements.

The Minnesota Department of Natural Resources and US Fish & Wildlife Service had ample opportunity to participate in the initial Minnesota Power planning process. Yet, these two government agencies waited to propose additional border crossings and route alternatives that were carried forward into the scope of the draft EIS without input from Roseau County and its residents.

This back door, after the fact, approach demonstrates a total lack of respect for the planning process, Roseau County and its residents. Based on past history of the Minnesota Department of Natural Resources, concerning projects of this nature, it is my perception that this is DNR's "business as usual" approach to this type of situation.

I request that the Minnesota Power's preferred route, as submitted on April 15, 2014 in the above-referenced dockets and Minnesota Power's proposed border crossing as submitted in October 2014 to the United States Department of Energy, be selected.

I request that the proposed route alternatives in Roseau County submitted by the Minnesota Department of Natural Resources and the United States Fish and Wildlife Service be removed from consideration.

Sincerely,

Susan C. Lisell

24459 County Road 129 Roseau, MN 56751

218-424-7743 or cell phone 218-452-0081

gislisell@gmail.com

From: Joanna Lisell
To: Storm, Bill (COMM)
Subject: Great Northern Transmission Line: TL-14-21
Date: Friday, July 31, 2015 8:48:19 AM

July 31, 2015

TO: Mr. Bill Storm
Ms. Ann O'Reilly
Representative Dan Fabian
Senator LeRoy Stumpf

SUBJECT: COMMENTS CONCERNING THE REQUEST BY MINNESOTA POWER FOR A ROUTE PERMIT FOR THE GREAT NORTHERN TRANSMISSION LINE/DRAFT ENVIRONMENTAL IMPACT STATEMENT

REFERENCE: MPUC DOCKET NO. E01 5/TL-14-21 OAH CASE NO. 65-2500- 3 1637

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The impact to agricultural land uses and human settlements must be minimized. After careful and thoughtful review of the various proposed routes through Roseau County, I believe that Minnesota Power's proposed route would accomplish these objectives to the greatest extent possible.

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These easements will also create artificial boundaries in the fields where noxious and harmful weeds and plant life can grow and cause damage to the surrounding agricultural land. These noxious and harmful weeds and plant life can have a significant negative impact on the overall production of the planted field. These easements will create drainage problems for the fields and will increase the difficulty to place drain tile in the fields.

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0047-1

0047-1
The scoping process provided an opportunity to recommend alternatives to be analyzed in the EIS, including the border crossing alternatives submitted by the MnDNR and USFWS. For the range of reasonable alternatives, impacts to human settlement, agriculture, land use, vegetation, and airports/airstrips are among the impacts evaluated in the EIS. No changes are made to the EIS in response to this comment.

0047-1 Continued

0047-1 cont'd

Minnesota Power's extensive planning process, for this project, was conducted in a very deliberate and transparent manner. Minnesota Power used a voluntary outreach approach that included multiple open houses for Roseau County residents and multiple meetings with Roseau County officials. This approach and collaboration resulted in the realignment of the originally proposed border crossing further to the east to avoid potential impacts to any future expansions of the Piney-Pinecreek Border Airport and the Department of Natural Resources' Roseau River Wildlife Management Area. Minnesota Power's proposed route through Roseau County minimizes impacts on private property owners and agricultural land, while maximizing use of state lands and current power line easements.

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I request that the proposed route alternatives in Roseau County submitted by the Minnesota Department of Natural Resources and the United States Fish and Wildlife Service be removed from consideration.

Sincerely,

Susan C. Lisell

24459 County Road 129 Roseau, MN 56751

218-424-7743 or cell phone 218-452-0081

gislisell@gmail.com

RECEIVED
JUL 15 2015
MAILROOM

To: Bill Storm, Environmental Review Manager

Subject: Great Northern Transmission Line: TL-14-21

Dear Mr. Storm:

I am concerned about the Scoping Decision Route that goes across, and thereby forms, Beltrami North Variation 1. The right of way of this route is largely private land. It includes residences and farmland that is farmed by my son and me. I am concerned because of the difficulty of farming around the towers, especially with large equipment. We would have to give them wide berth to avoid hitting them with, say, the far end of a wide cultivator or field sprayer. Aerial spraying of crops would be difficult, if possible at all. Yet sometimes it is our only alternative if the land is too wet to permit ground travel.

It seems to me that the people who proposed this scoping decision route didn't make much, if any, effort to avoid either farmland or homes. What they apparently did try to avoid was having the route go through public land. This is surprising to me since I thought that a primary objective of any proposed route is that it minimizes affecting homes, farmland, and other private land use.

I don't understand the aversion to having a route cross public land. I don't see what great negative effect is assumed to result by crossing such land. What possible negative effect on the environment, on wildlife, or on the movement or retention of water could have seemed so monumental that it would outweigh the considerable negative effect of crossing a good deal of farmland and numerous homes. I have observed the similar existing power line crossing public land near the farm where I live numerous times each year for all the years since it has been installed. Since most of these times were during deer hunting season, I have been near it for prolonged periods and various times of day. For the most part it is still and silent, although it will often crackle or buzz when exposed to snow, light rain, or moisture laden air. Wind doesn't affect it and the wildlife doesn't seem to mind it, treating it like any other sizable opening. Indeed, the wildlife appears to benefit from the grassy areas on the higher land and the low willows and water tolerant non-woody vegetation on the lower areas. It generates a powerful electromagnetic field, but the vegetation appears unaffected. Once the line is in place, its physical presence consists of nothing more than a supported tower every quarter mile or so and wires strung high overhead, so its contact with the soil is too scant to affect water movement. In the unoccupied and unfarmed areas that I have observed, I have detected no negative effect worth mentioning, let alone the huge negative effect needed to explain the aversion to cross public land in conjunction with the willingness to ignore the priority directive displayed by the creators of that part of the Scoping Decision Route I have been discussing. Perhaps there have been unbiased, well designed scientific studies of this kind of situation, but I do not know of any.

Thank you for your consideration of my concern about this Scoping Decision Route.

John A. Lund

John Lund

0048-1

Impacts to agriculture are discussed in Chapters 5 and 6 of the EIS. As discussed in Section 1.3.4.4 of the EIS, once a route is selected and a permit is issued, the Applicant would contact landowners to gather information about their property and their concerns and discuss how the ROW would best proceed across the property.

0048-1 No changes are made to the EIS in response to this comment.

0048-2

Beltrami North Variation 1 was developed with the intent to avoid USFWS Interest Lands. This alternative one of the scoping comments received for the proposed Project. Based on all of the scoping comments received, the DOC-EERA issued the scoping decision for this EIS on January 8, 2015 (Appendix D). The scoping decision identifies matters to be addressed in this EIS, including resources potentially impacted by the project and alternative route segments and alignment modifications - beyond those proposed routes and associated facilities proposed by the Applicant.

0048-2

No changes are made to the EIS in response to this comment.

June 23, 2015

RECEIVED
JUL 08 2015
MAILROOM

Bill Storm
Environmental Review Manager
MN Department of Commerce
85 7th Place East, Suite 500
St. Paul MN 55101

RE: Great Northern Transmission Line: TL-14-21

Dear Mr. Storm,

With all due respect, I oppose the Minnesota Public Utility Commission's proposed Balsam Variation alternative route of the Great Northern Transmission Line for the following reasons:

1. The Balsam Variation route is not cost effective compared to Minnesota Power's preferred Blue Line route. The Blue Line route, as you know, is a straight line route. The Balsam Variation route zig-zags to take advantage of a 65 foot right-of-way that currently exists. However, an additional 135 feet of right-of-way will still have to be cleared to accommodate the new transmission line.
2. The Advisory Task Force appointed for this project indicated that minimization of impacts to private land and landowners were a priority and the Balsam Variation route developed during Scoping does not satisfy this recommendation. The Balsam Variation route would impact a lot more private land and landowners than the Blue Line route.
3. Also, the Balsam Community Center, Balsam Volunteer Fire Department, Balsam Bible Chapel, parsonage, community playground, tennis courts, softball/baseball field would all be included in the middle of the Balsam Variation right-of-way.
4. As a part owner of 84 acres of undeveloped property located entirely within the Balsam Variation right-of-way, which includes approximately 3,000 feet of undeveloped lakeshore, I am concerned about the impact this new transmission line would have the valuation of our property.
5. In addition, I would like to know what impact this transmission line would have on our ability to sell our property at fair market value should we decide to sell at some point in the future.
6. Minnesota Power's intent was to design the transmission line route to maximize separation from existing homes and cabins. The Blue Line accomplishes that goal. The Balsam Variation route right-of-way would run right behind my family's hunting shack which is on a hill overlooking Snaptail Lake.
7. The transmission line is capable of producing an audible noise produced by corona discharges from transmission line conductors. Minnesota Power states that this noise, which resembles a subtle crackling sound is typically only within the threshold of human hearing during rainy or foggy conditions. They also stated that during light rain, dense fog, snow and other times there is moisture in

0049-1

0049-2

0049-3

0049-4

0049-5

0049-6

0049-1
The EIS provides cost comparisons for the proposed routes compared to the variations in Chapter 6. All alternatives will require new ROW for its entire length. While some alternatives parallel existing transmission lines, none of the alternatives share ROWs with existing transmission lines. No changes are made to the EIS in response to this comment.

0049-2
The scoping process provided the opportunity to recommend alternatives to be analyzed in the EIS. The EIS analyzes potential impacts to land use and land ownership for each alternative.

No changes are made to the EIS in response to this comment.

0049-3
As shown Map 120 in Appendix S of the EIS, these resources are located within the Balsam Variation route width, not the ROW.

No changes are made to the EIS in response to this comment.

0049-4
A discussion about the potential effects of transmission lines on property values is included in the EIS in Section 5.2.1.4. This includes a summary of the potential range of property value effects attributed to transmission lines. Further, Appendix J, Property Values Supplement provides a summary of the literature regarding the relationship between transmission lines and property values used to develop the property values analysis in Section 5.2.1.4.

No changes are made to the EIS in response to this comment.

0049-5
The scoping process provided the opportunity to recommend alternatives for the EIS. The EIS analyzes potential impacts to residences for each alternative.

No changes are made to the EIS in response to this comment.

0049-6
Noise is discussed in Section 5.2.1.2 of the EIS.

No changes are made to the EIS in response to this comment.

the air, the proposed transmission lines may produce audible noise higher than the background noise levels in some rural areas. Deer hunting on our property has been a tradition for over 50 years and I am concerned how this will impact my family's deer hunting success in the future.

8. From a health and safety point of view, Minnesota Power also refers to "induced voltage", which occurs when an electric field reaches a nearby conductive object, such as a vehicle or metal building and it induces a voltage on the object. Then, if the object is insulated or partially insulated from the ground and a person touches that object, a small current would pass through the person's body to the ground. This might be accompanied by a spark discharge and mild shock, similar to what can occur when a person walks across a carpet and touches an object. Minnesota Power states induced voltage normally is not a problem. Again, this transmission line will impact my family's hunting land due to the fact that it will reduce the amount of land my family will be able to hunt on.

   Summarizing noise and potential voltage (shock) issues, we find it hard to believe that these are NOT health issues. One of our deer hunters was never comfortable with the emissions from the old power line and a new higher voltage power line would, in her mind, make that area unusable for anything including deer hunting.

9. When Minnesota Power removed the existing transmission line, they told us we could do whatever we wanted to do with our property, such as plant trees. Trees along with an apple orchard were planted and we had every intention of using our property to its fullest. Now, once again, we face the threat of not being able to use our property the way we want to.
10. There is an existing osprey nest on the property adjoining our property and if you were to drive where roads/highways intersect with the proposed power line right-of-way, you would see a great number of nesting sites.

Based on the reasons stated above, I am respectfully asking you to remove the Balsam Variation from consideration for the Great Northern Transmission Line.

Thank you!

Keeley Todd
PO Box 354
201 1st Street
Bovey MN 55709-0354

41259 Scenic Highway
Bovey MN 55709

0049-6 Continued

0049-6 cont'd
Noise is discussed in Section 5.2.1.2 of the EIS.

No changes are made to the EIS in response to this comment.

0049-7

0049-7
Section 5.2.2.4 in the EIS discusses induced voltage. Section 5.2.1.2 of the EIS presents the estimated audible noise levels from the from the proposed 500 kV transmission lines under rainy conditions (worst case scenario for noise generated from corona effect). Section 5.2.2.8 of the EIS discusses public safety hazards associated with the proposed Project including electrical shocks.

No changes are made to the EIS in response to this comment.

0049-8

0049-8
The EIS provides an analysis of residences within the ROW as well as within the route for all alternatives. Also, as discussed in Section 1.3.1.4 of the EIS, once a route is selected and a permit is issued, the Applicant would contact landowners to gather information about their property and their concerns and discuss how the ROW would best proceed across the property. No changes are made to the EIS in response to this comment.

0049-9

0049-9
As discussed in Section 2.11.1 of the EIS, the Applicant would incorporate industry best practices to minimize impacts to migratory birds, which are consistent with the Avian Powerline Interaction Committee (APLIC's) 2012 guidelines. In addition, the MN PUC Route Permit could require that the Applicant develop and implement an Avian Protection Plan. The Applicant would coordinate with the MnDNR and other appropriate agencies in the development of an Avian Protection Plan.

No changes are made to the EIS in response to this comment.

Manitoba Hydro
PO Box 7950 Stn Main • Winnipeg, Manitoba Canada • R3C 0J1
(204) 360-4394 • sjohnson@hydro.mb.ca

July 30, 2015

Mr. William Cole Storm
Environmental Review Manager
Minnesota Department of Commerce
85 7th Place East, Suite 500
St. Paul, Minnesota, 55101

Dear Mr. Storm:

RE: Great Northern Transmission Line Border Crossing

As you are aware, Manitoba Hydro is the Proponent for the Canadian portion of the 500 kV transmission project known in Canada as the 'Manitoba-Minnesota Transmission Project,' and in the U.S. as the Great Northern Transmission Line (Project). We recently reviewed the Draft Environmental Impact Statement (EIS) (June 19, 2015), submitted by the Minnesota Department of Commerce - Energy Environmental Review and Analysis Staff and U.S. Department of Energy.

The Draft EIS identifies a number of border crossing variations that are under consideration. Manitoba Hydro would like to provide the following comments regarding selection of the border crossing:

1. Manitoba Hydro can only support the agreed-upon border crossing located at Lat. 49 00 00.00N; Long. 95 54 50.49W; known as the Proposed Border Crossing - Blue/Orange Route in the Draft EIS and noted as the MH Preferred Border Crossing and shown as a light blue area on the attached map.

0051-1

Manitoba Hydro completed a robust, transparent comparative analysis of routes and all potential border crossings using a process based on the EPRI-GTC Overhead Electric Transmission Line Siting Methodology. This process:

- Evaluated numerous social, technical and environmental factors, similar to those criteria identified in the Minnesota Public Utilities Commission routing and siting regulations (such as land use, human settlement, agriculture, forestry, cultural and historic resources, wildlife, rare species, water resources, noise, air quality, health and safety, engineering constraints, etc.);
- Incorporated routing preferences (that is, a weighting of the routing criteria) based on discussions with internal and external stakeholders; and
- Used this data to identify and rank potential border crossings and routes.

0051-2

Using this methodology, Manitoba Hydro determined that Piney East Border crossing (MH Former Border Crossing shown in light grey on the attached map) which encompassed Border Crossing Hwy 310 Variation, was not a feasible border crossing for a variety of compelling reasons. These included, but were not limited to, the fact that routes to this crossing traverse areas of high biological diversity that had been noted by government agencies and environmental

0051-1
Thank you for your comment. Section 1.3.2 of the EIS is updated to indicate the border crossing location developed by Manitoba Hydro in their planning process.

0051-2
DOE notes Manitoba Hydro's concerns related to the Border Crossing 500 kV Variation and the Border Crossing 230kV Variation alternatives, which were not analyzed by Manitoba Hydro in its planning and environmental process for the Canadian portion of the proposed transmission line. Section 1.3.2 of the EIS is updated to indicate concerns related to these crossings which are comprised of public (Crown) land immediately north of the international border and this land isidentified as supporting aboriginal uses of great importance to First Nations in the Province of Manitoba.

non-government organizations. Furthermore, this area is primarily composed of Crown (public) lands, which support traditional Aboriginal use and First Nations noted significant concerns in regards to route alternatives in this area. Border Crossing 500 kV Variation and the Border Crossing 230 kV Variation were outside of the agreed upon Border crossing and thus were not analyzed but would pose many of the same challenges.

0051-2 Continued 0051-2 cont'd

Based on our environmental analysis and public, First Nations and Métis engagement processes, in consultation with Minnesota Power, the Proposed Border Crossing - Blue/Orange Route was selected as the preferred end point for each entity. While other border crossings were favored by each entity, the Proposed Border Crossing – Blue/Orange route was jointly selected because it balances environmental, technical, and stakeholder impacts on both sides of the border.

The preferred route and border crossing were presented as part of a third round of our engagement processes earlier this year. With the feedback received and through the environmental review work being undertaken, Manitoba Hydro determined the final placement of the transmission line and will submit an environmental impact statement to Manitoba Conservation and Water Stewardship. An application will also be filed with the National Energy Board in September. Manitoba Hydro **does not** have routes that connect to the border crossing variations included in the Draft EIS. Our application will only include the Proposed Border Crossing - Blue/Orange Route location developed and agreed upon by Manitoba Hydro and Minnesota Power.

Manitoba Hydro and Minnesota Power have made a business commitment to have the Project in service by June 2020. Selection of a border crossing location that does not align with our border crossing and route jeopardizes this commitment and the Project.

Should you have any questions or require further clarification please do not hesitate to contact me at 204-360-4394.

Regards,

Original signed by Shannon Johnson

Shannon Johnson
Manager
Licensing and Environmental Assessment Department
Manitoba Hydro
820 Taylor Ave (3)
Winnipeg, Manitoba
R3M 3T1

Attachments: 1

Cc: Julie Ann Smith, PhD, Federal Document Manager
DOE Office of Electricity Delivery and Energy Reliability
1000 Independence Avenue SW
Washington, DC, 20585

RECEIVED
JUL 13 2016
MAILROOM

Docket
Number TL-14-21

My name is Larry Sullivan. I am a land owner on the Blue Route north of Effie. I understand the blue route has less residents living along it especially on my end. However I went and recieved a Bldg permit in 2012 from Itasca Co.

Thier were some surveyers around but they said it was for the new sub station built by Great River Energy, thats a 1/4 down the rd. When the weather is right I can hear snow + rain crackel on the lines.

Nothing was said and I've never been notified of Great Northern proposed route or I wouldn't have built my dream home 1200 ft from the Blue Route. I am disabled and have put my life savings in my home. If this goes thru they have taken my life savings from me. My home will be worth less than half because of this route - (north of me big power line is 9 tenths of a mile away, east of me great rivers smaller line is 800ft away if blue rt. goes thru west will be 1200ft from my house and south will be less than 5 tenths of a mile..

Not many people would be willing to buy a house thats sorounded by big power lines.

Not to mention my peace and quiet from construction and forever when the power goes on.

If the Blue Route is just proposed why is thier land clear all ready 1 mile

0052-1

0052-1
All comments on the EIS are part of the record that will be reviewed by the Administrative Law Judge (ALJ) before a route permit decision is final. The comments about your property and home are included in this review. There is flexibility in final design and permitting so that if the Blue Route is selected, the Applicant will work with you to minimize impacts to your property.

The MN PUC will not make a decision on the Route Permit until early 2016. The MN PUC is required to review the EIS and select a route based on the information provided in it. While the Applicant has stated their preference for a route, the final route decision is not theirs - the decision will be made by the MN PUC.

No changes are made to the EIS in response to this comment.

0052-1 cont'd

0052-1
Continued

North west of me and Ribbons on
The Route S.E of me
I don't Think This was handled very
well, I was not informed of This till
2 wks ago By A neighbor.
11165 Co. Rd 62 Gheen is my 911
Address Gheen is About 50 To 60 miles from
me. I Tried To get my Address changed
but Koch Co. Sheriff wouldn't chage 911
Address, I Tryed For 2 yrs,
Ther is Another Rt. which makes more
Sense. ~~[illegible]~~ Follow The Power Lines Another
1 mile Then Turn South Thier isn't any
property owners on That Route
My Address is
P.O. Box 7 Effie Minn 56639
Phone # 218-251-1760

Sincerely,

Larry Sallin

MINNESOTA DEPARTMENT OF COMMERCE

Comment Form: Draft EIS
Energy Environmental Review and Analysis

Please provide your contact information. This information and your comments will be publicly available.

Name: Gale OLSON Phone: 218-463-2261

Street Address: 37748 240 ST.

City: Roseau State: Minn ZIP: 56751

Email:

Share your comments on the Draft EIS regarding the Great Northern Transmission Line project. Be as specific as possible.

- What information or analysis needs to be clarified?
- What information or analysis is missing or incomplete?
- Are any specific edits needed to make the document complete and accurate?

Draft EIS section or page number: 23 Information to be corrected or new information needed:

I am 100% against The Green alternate route. Going This Green Route would cut my Farm in Two. I also have Trees planted on part of my Land which will be in The path of The Line. 0053-1

Draft EIS section or page number: Information to be corrected or new information needed:

Draft EIS section or page number: Information to be corrected or new information needed:

Attach additional comments as necessary using the format above. If attaching additional comments, please number the page(s) and tell us how many pages you are including: _____ page(s).

0053-1
The EIS provides an analysis of residences within the ROW as well as within the route for all alternatives. Also, as discussed in Section 1.3.1.4 of the EIS, once a route is selected and a permit is issued, the Applicant would contact landowners to gather information about their property and their concerns and discuss how the ROW would best proceed across the property.

No changes are made to the EIS in response to this comment.

Energy Environmental Review and Analysis
MN Department of Commerce
85 7th Place East, Suite 500
Saint Paul, MN 55101-2198

GRAND FORKS ND 582
16 JUL 2015 PM 1 L

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JUL 20 2015
MAILROOM

WILLIAM COLE STORM
MN DEPARTMENT OF COMMERCE
85 7TH PLACE EAST STE 500
SAINT PAUL MN 55101-2198

55101$6013 C012

FOLD HERE

Comment Period: Draft Environmental Impact Statement
Great Northern Transmission Line
Docket Nos. E-015/TL-14-21

An environmental impact statement (EIS) evaluates the potential human and environmental impacts and possible mitigation measures associated with a proposed project. The EIS is issued as a draft so that it can be improved through public comment. The purpose of this comment period is to gather feedback about specific, factual information that needs to be clarified or included in the final EIS. Comments regarding new route alternatives are not considered.

After reading the Draft EIS, you might have developed a preference for a specific route alternative. This will be considered, but preferences are best expressed to an administrative law judge through the public hearing portion of the permitting process, currently scheduled for August 5, 6, 12 and 13, 2015.

Direct your questions regarding commenting or submitting your comments to the Environmental Review Manager, Bill Storm, at: bill.storm@state.mn.us or (651) 539-1844. Information regarding the proposed project is available at: http://mn.gov/commerce/energyfacilities/Docket.html?Id=33847. For information regarding the public hearing, contact the public advisor at consumer.puc@state.mn.us.

FOLD HERE

Public Comment Period Closes Monday, August 10, 2015

Comments must be post-marked or received electronically by the comment deadline.

How to comment:

- Submit this form to the Environmental Review Manager at a public meeting
- Mail this form remembering to affix appropriate postage
- Mail comments in a separate envelope using the mailing address on this form
- Fax comments to the Environmental Review Manager: (651) 539-0109
- Email comments to the Environmental Review Manager: bill.storm@state.mn.us
- Use the online comment form at: http://mn.gov/commerce/energyfacilities/#comment

Comments do not need to be on this form to be accepted. We encourage you to provide comments in whatever way is most convenient for you. If commenting by email or fax use "*Public Comment: Great Northern Transmission Line DEIS (E-015/TL-14-21)*" in the subject line.

THANK YOU for commenting on the Draft EIS!

MINNESOTA DEPARTMENT OF COMMERCE

Comment Form: Draft EIS
Energy Environmental Review and Analysis

Please provide your contact information. This information and your comments will be publicly available.

Name: GERRY REED/REEDFARM LLC Phone: 218-689-8763
Street Address: 53818 CO. RD. 2
City: WARROAD State: MN ZIP: 56763
Email: gbr@heatmor.com

Share your comments on the Draft EIS regarding the Great Northern Transmission Line project. Be as specific as possible.

- What information or analysis needs to be clarified?
- What information or analysis is missing or incomplete?
- Are any specific edits needed to make the document complete and accurate?

Draft EIS section or page number: 5-10 Information to be corrected or new information needed:

Missing grass airship (161-37-8) along Roseau Lake WMA Var 1

— SEE MAPS —

THE LAND WE FARM WILL BE GREATLY EFFECTED BY THIS OPTION. IT WILL ALSO LIMIT THE USE OF MY PRIVATE AIRSTRIP. I WOULD APPRECIATE IF YOU WOULD ROUTE IT WITH THE

Draft EIS section or page number: Information to be corrected or new information needed:

EXISTING HIGH VOLTAGE LINE.

THANK YOU

Gerry

Draft EIS section or page number: Information to be corrected or new information needed:

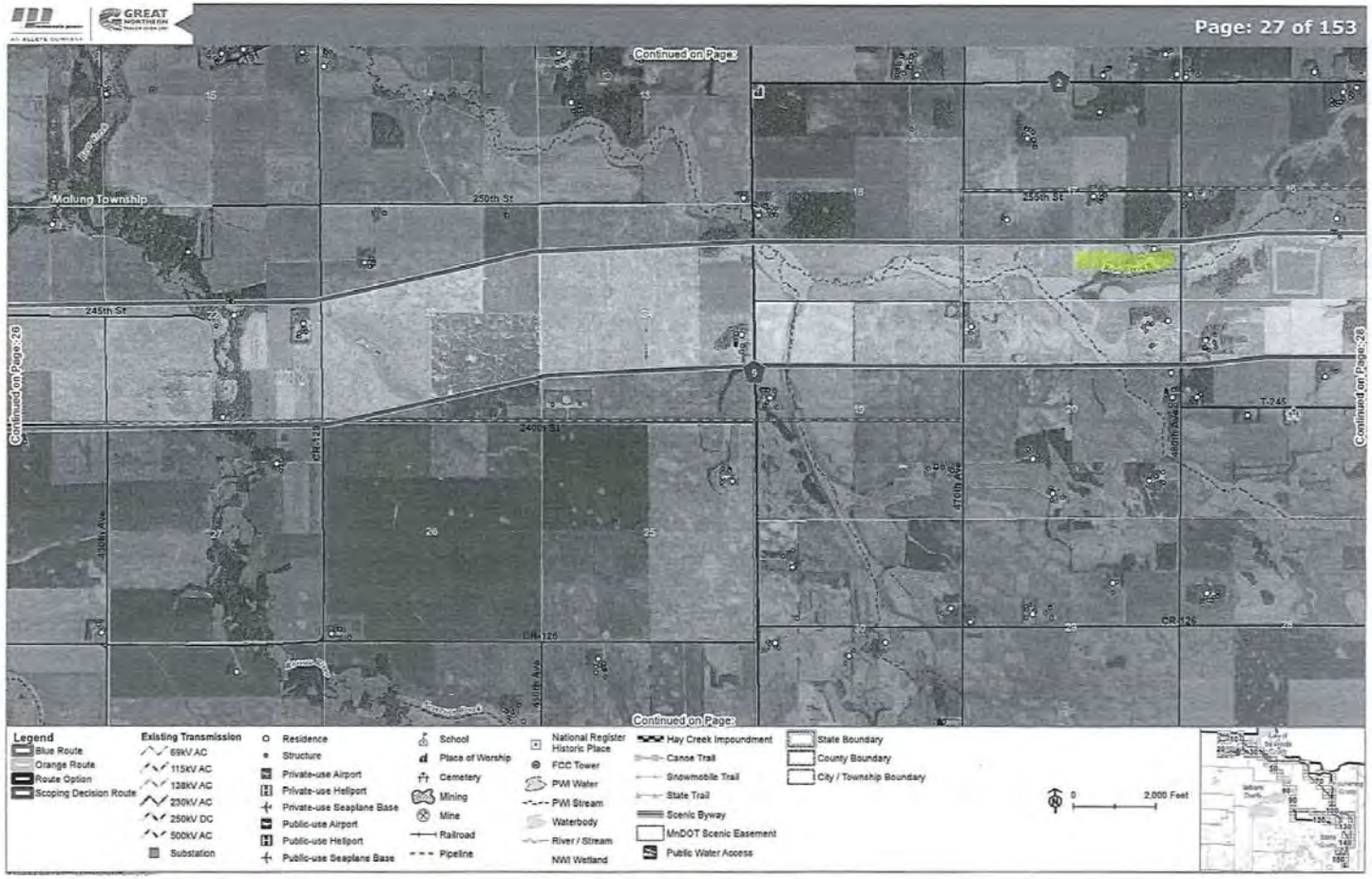
RECEIVED
JUL 20 2015
MAILROOM

Attach additional comments as necessary using the format above. If attaching additional comments, please number the page(s) and tell us how many pages you are including: _____ page(s).

0054-1

0054-1
The EIS provides an analysis of residences within the ROW as well as within the route for all alternatives. Also, as discussed in Section 1.3.1.4 of the EIS, once a route is selected and a permit is issued, the Applicant would contact landowners to gather information about their property and their concerns and discuss how the ROW would best proceed across the property.

No changes are made to the EIS in response to this comment.


Page: 27 of 153
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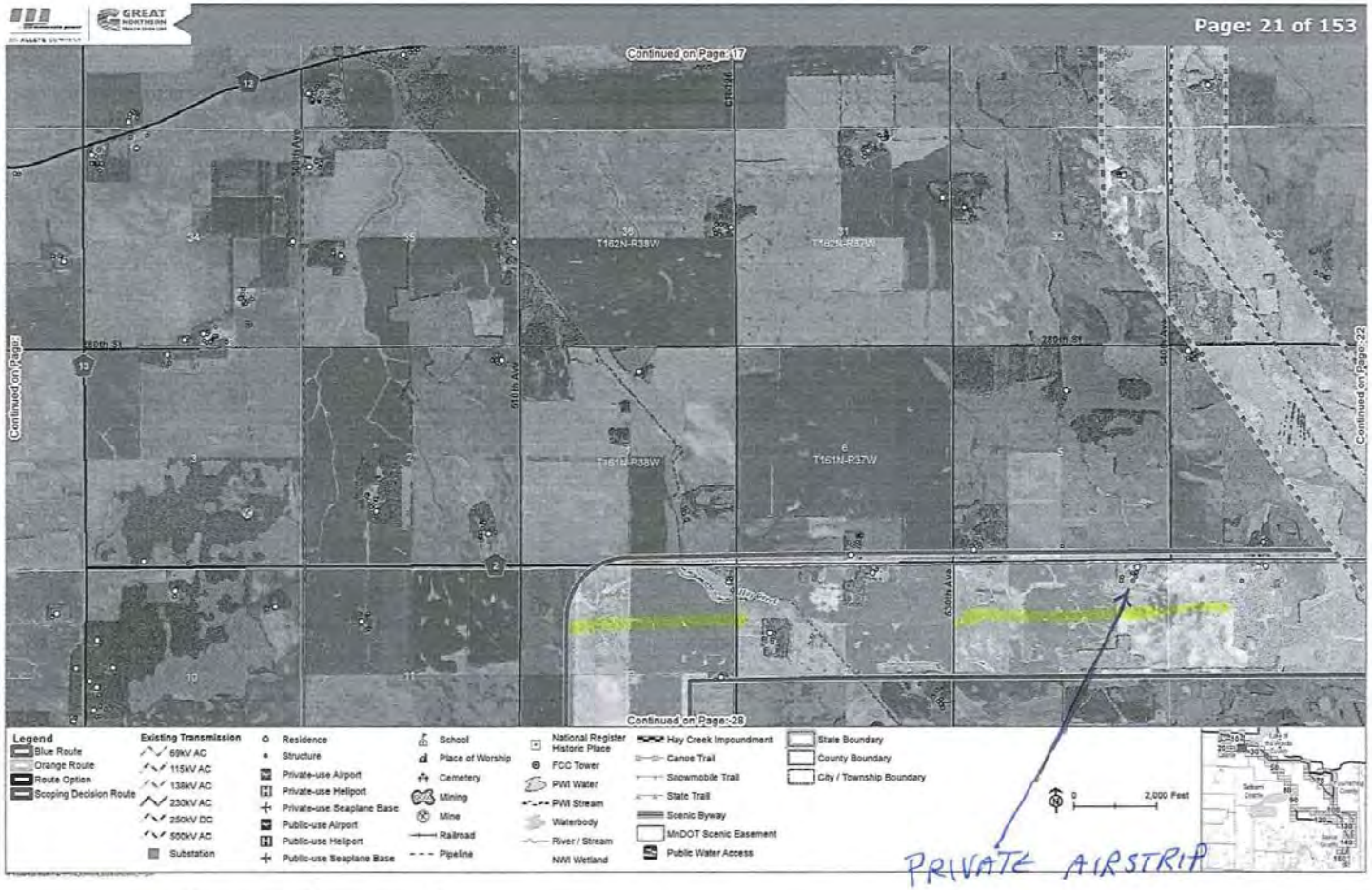
Molung Township
250th St
255th St
245th St
240th St
CR-126
T-245
Legend
Blue Route
Orange Route
Route Option
Scoping Decision Route
Existing Transmission
69kV AC
115kV AC
138kV AC
230kV AC
250kV DC
500kV AC
Substation
Residence
Structure
Private-use Airport
Private-use Heliport
Private-use Seaplane Base
Public-use Airport
Public-use Heliport
Public-use Seaplane Base
School
Place of Worship
Cemetery
Mining
Mine
Railroad
Pipeline
National Register Historic Place
FCC Tower
PWI Water
PWI Stream
Waterbody
River / Stream
NWI Wetland
Hay Creek Impoundment
Canoe Trail
Snowmobile Trail
State Trail
Scenic Byway
MnDOT Scenic Easement
Public Water Access
State Boundary
County Boundary
City / Township Boundary
0
2,000 Feet

LAND FARMED


Page: 21 of 153
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T162N-R38W
T162N-R37W
T161N-R38W
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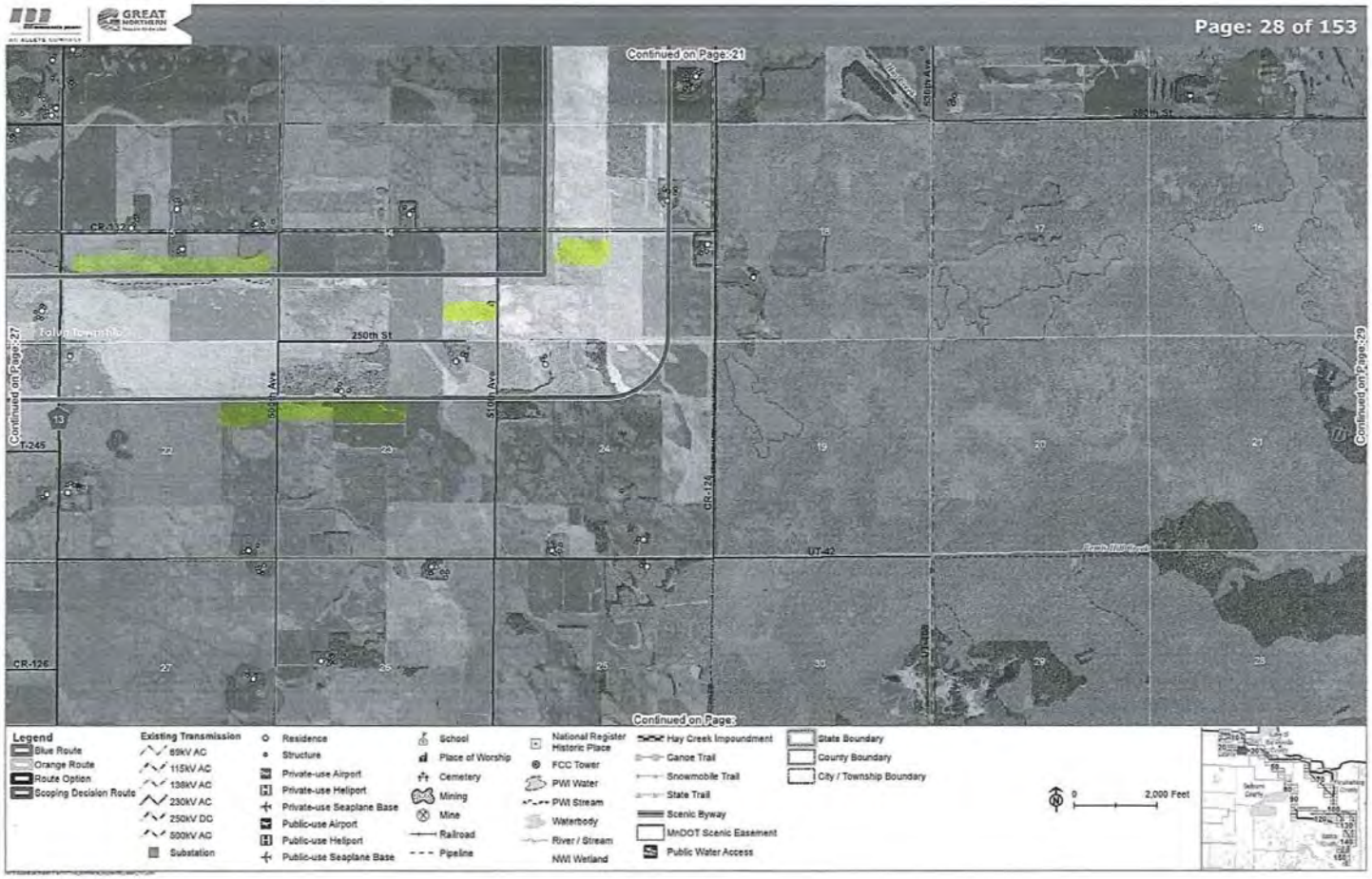
Public-use Airport
Public-use Heliport
Public-use Seaplane Base
School
Place of Worship
Cemetery
Mining
Mine
Railroad
Pipeline
National Register Historic Place
FCC Tower
PWI Water
PWI Stream
Waterbody
River / Stream
NWI Wetland
Hay Creek Impoundment
Canoe Trail
Snowmobile Trail
State Trail
Scenic Byway
MnDOT Scenic Easement
Public Water Access
State Boundary
County Boundary
City / Township Boundary
0
2,000 Feet
PRIVATE AIRSTRIP

LAND FARMED


Page: 28 of 153
Continued on Page: 21
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Railroad
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National Register Historic Place
FCC Tower
PWI Water
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Waterbody
River / Stream
NWI Wetland
Hay Creek Impoundment
Canoe Trail
Snowmobile Trail
State Trail
Scenic Byway
MnDOT Scenic Easement
Public Water Access
State Boundary
County Boundary
City / Township Boundary
0
2,000 Feet

LAND FARMED

GREAT NORTHERN TRANSMISSION LINE

Connecting Manitoba and Minnesota

Comment on the
Great Northern Transmission Line
Docket Number TL-14-21

Name: NORMAN KVEEN
~~Organization (if any)~~: ALLAYN KVEEN
Mailing Address: 4760 N. 186 ST

City: BROOKFIELD
State: WISCONSIN
Zip: 53045
Email:

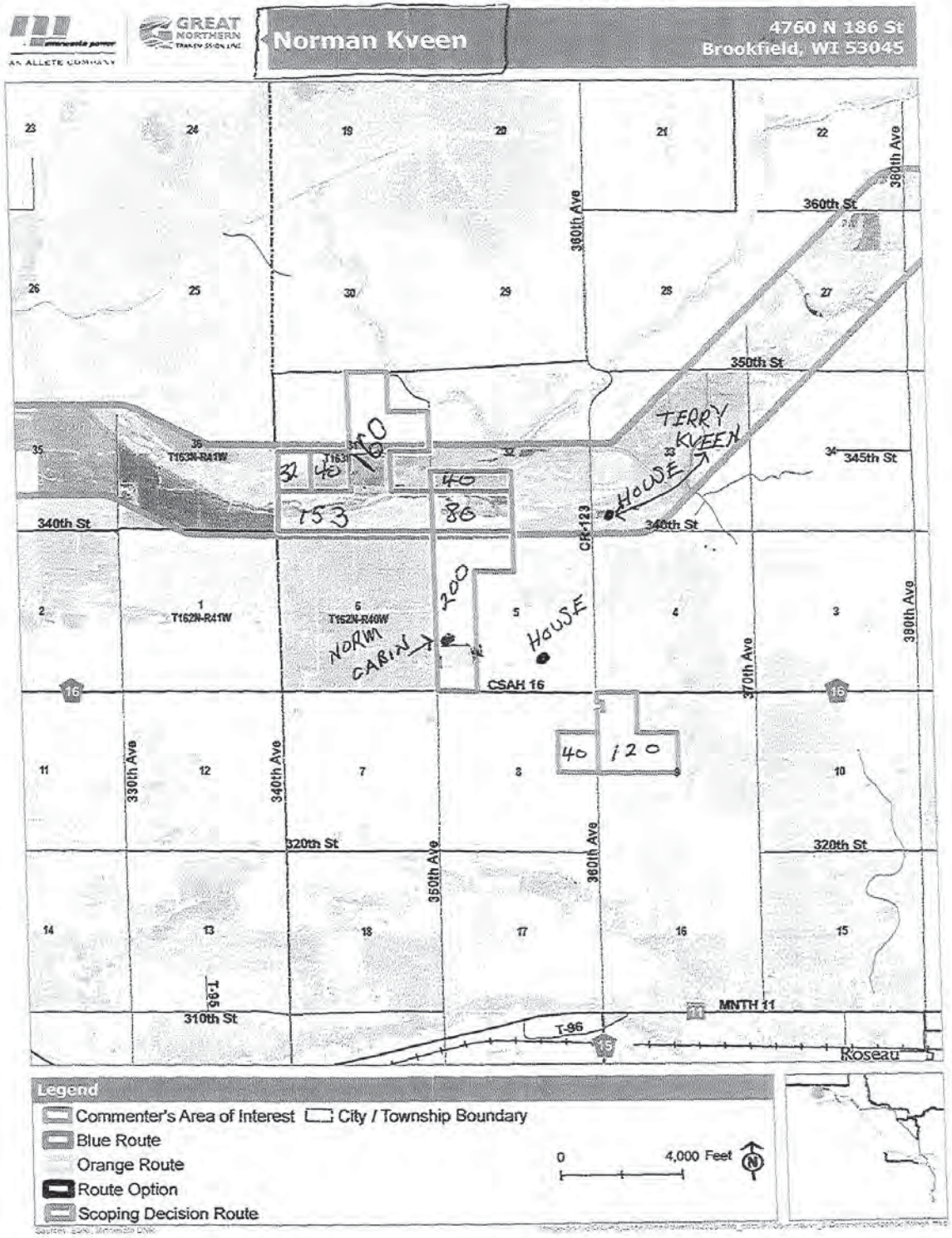
Comment: DEAR JULIE ANN SMITH
WE OWN LAND IN THE EAST WEST SCOPING DECISION ROUTE. MY FAMILY HAS FARMED HERE FOR OVER 100 YRS. I HAVE OWNED SOME OF THIS LAND SINCE I WAS 16 I AM NOW 73 CROP SPRAYING PILOTS WILL NOT GO NEAR THESE WIRES.
SURROUNDING FARM LAND WILL BE WORTH CONSIDERABLY LESS. I HAVE PERSONALLY STOOD NEXT TO THESE TOWERS AND HEARD THE WINE THEY CAUSE. VERY DISTURBING. THEY WOULD BE AN EYESORE ON OUR BEAUTIFUL FIELDS.
PLEASE REMOVE THE ROUTE THAT INCLUDES MY LAND FROM CONSIDERATION
THE BLUE/ORANGE ALTERNATIVE IS MORE FAMILY, FARM AND NEIGHBOR FRIENDLY
WE PREFER THIS ROUTE. THESE WIRES ARE UNHEALTHY FOR ANIMALS AND PEOPLE.
THANK YOU
Norm Kveen
Allayn Kveen

0055-1

0055-1
Thank you for your comment. Impacts to agriculture, including aerial spraying, noise, aesthetics are discussed in Chapters 5 and 6 of the EIS.

No changes are made to the EIS in response to this comment.

MY LAND AND CABIN SHOWN HERE



P.O. Box 16

Warroad, MN. 56763

July 9 2015

Julie Ann Smith

National Electric Delivery Division (OE-20)

U S Department of Energy

1000 Independence Avenue S W

Washington D C 20585 PCU Document Number TL-14-21

DOE E 15-0499

I am writing testimony for the July hearings to be held at various locations along the proposed power line routes in northern Minnesota.

This is the forth or fifth document I have submitted regarding the power line routing, it has been a frustrating experience. The meetings I have attended and documents that have been submitted seem to be "feel good" experiences for the individuals directly affected by the power line routes. There is also a multitude of agencies and time tables involved in the lengthy process which are confusing to lay persons trying to give constructive input and hinders public involvement. The power companies submit a route with specific possible variations that best suits their needs and to fundamentally change their route is very difficult and if a change is made it comes through a specific group and not an individual.

In the case of the proposed Minnesota Power new line I asked to become a member of the citizens committee that met several times to discuss route variations and was denied this request.

Several times it was suggested a variation be obtained to follow the existing 500 kV line where it goes through a Scenic and Natural area that was added after the present 500 kV line was built. It only makes sense to parallel an existing line rather than environmentally destroy a completely new wilderness area. This suggestion was pursued by members of the Minnesota legislature but it is questionable how much, if at all, this avenue was pursued by Minnesota Power. An employee of Minnesota Power stated they were more interested in pursuing the "blue" route because of ease of access by Minnesota Power.

After reading summaries in the PUC – GNTV certificate it would seem that there should be no controversy that the Orange route would be a better ecological, less public interference, less Agricultural land interference, less impact of State conservation lands and State forests, four times less acres of mineral leases, and less historic architectural sites within one mile of the line. At one point Minnesota Power states the blue route would affect less farmland if drained. With the federal and state wetland and drainage laws and the value of wetlands, draining more land to become farmland should not be an option that should even be part of the report. The new orange route proposed would come

0056-1

0056-2

0056-3

0056-1
DOE recognizes the potential confusion of having multiple government agencies involved in the same planning process. DOE believes that the inclusion of all of these agencies in the process will lead to a more inclusive and corrdinated process and better decision-making.

The scoping process provided an opportunity to recommend alternatives for the EIS, including the border crossing alternatives as well as 33 route variations submitted by the MnDNR, the USFWS, and members of the public. For all alternatives proposed during the scoping process, impacts to human settlement, agriculture, land use, vegetation, and airports/airstrips are evaluated in the EIS.

Anticipated schedules for all DOE Key EISs are publicly available on DOE's Office of NEPA Policy and Compliance website at: http://energy.gov/nepa/office-nepa-policy-and-compliance. Once a schedule for a ROD is developed for the Great Northern Transmission Line project it will be made available to the public via this website.

No changes are made to the EIS in response to this comment.

0056-2
As discussed in Section 4.1.1 of the EIS, MnDNR Scientific and Natural Areas are protected under state regulation with regard to transmission line crossings. No changes are made to the EIS in response to this comment.

0056-3
Thank you for your comment. No changes are made to the EIS in response to this comment.

near the Big Bog State Park, the report is very clear that a new line in this area would not be visible from the park.

An area of interest to me is the Beltrami North Central Variation 1, 2, and 3; Hop 5. This is an area south of Williams Minnesota that Minnesota Power proposes to jump from the orange route to the blue route. The Minnesota Power proposal is to run the line east and then back north to hook up with the 240 kV blue route. The proposal runs east and then back north to contact the blue route. This is probably the longest route they could take to join the blue route. This route also ecologically changes more forest land in the major area of the "Peppermint Creek wolf pack". There are two shorter routes approximately two and three miles north of this route that were presented during the routing process. These routes would also require much less forest cutting and ecological disruption.

There will soon be three major power lines going through the central area of northern Minnesota all ending in the same general area. There will probably be more in the future. It certainly would make sense for there to be one major corridor through this primitive and ecological forest area rather than three only partial paralleling corridors.

I urge you to require Minnesota Power to use the orange route for this new power line.

Thank you

Sincerely,

Richard W. Myers

Richard W. Myers

0056-3 Continued

0056-3 cont'd

Thank you for your comment. No changes are made to the EIS in response to this comment.

From: Richard Stacy
To: Storm, Bill (COMM); O"Reilly, Ann (OAH); rep.dan.fabian@house.mn
Subject: Great Northern Transmission Line: TL-14-21
Date: Thursday, July 30, 2015 12:36:12 PM

July 30, 2015

TO: Mr. Bill Storm
Ms. Ann O'Reilly
Representative Dan Fabian
Senator LeRoy Stumpf

SUBJECT: COMMENTS CONCERNING THE REQUEST BY MINNESOTA POWER FOR A ROUTE PERMIT FOR THE GREAT NORTHERN TRANSMISSION LINE/DRAFT ENVIRONMENTAL IMPACT STATEMENT
REFERENCE: MPUC DOCKET NO. E01 5/TL-14-21 OAH CASE NO. 65-2500- 3 1637

My name is Richard Stacy and I am a property owner in Roseau County Minnesota. I am writing to express my strong support for Minnesota Power's preferred route as submitted on April 15, 2014 in the above-referenced dockets, and Minnesota Power's proposed border crossing as submitted in October 2014 to the United States Department of Energy.
The amended border crossing and power line route proposed by Minnesota Power is the only feasible border crossing and power line alignment through Roseau County, given the agreement between Minnesota Power and Manitoba Hydro.

The route alternatives submitted by the Minnesota Department of Natural Resources and the United States Fish and Wildlife Service were submitted without input from Roseau County and its residents.
I am opposed to the proposed route alternatives, including the Roseau Lake WMA Alternative -- Segments 1 & 2, in Roseau County. These alternatives will cause significant negative impacts on private property owners and agricultural land use, and interfere with the safe and orderly operation of the Roseau Public Airport. Additionally, the proposed alternatives will unnecessarily increase the length of the power lines in Roseau County.

The impact to agricultural land uses and human settlements must be minimized. After careful and thoughtful review of the various proposed routes through Roseau County, I believe that Minnesota Power's proposed route would accomplish these objectives to the greatest extent possible.
The route alternatives, submitted by the Minnesota Department of Natural Resources and the United States Fish and Wildlife Service (Roseau Lake WMA Alternative -- Segments 1 & 2), require the granting of easements across fertile and productive agricultural land. Access to these easements present the potential to cause sustained damage to the agricultural land as Minnesota Power constructs and maintains the power lines that follow the easements.

These easements will also create artificial boundaries in the fields where noxious and harmful weeds and plant life can grow and cause damage to the surrounding agricultural land. These noxious and harmful weeds and plant life can have a significant negative impact on the overall production of the planted field. These easements will create drainage problems for the fields and will increase the

0057-1

0057-1
The scoping process provided an opportunity to recommend alternatives to be analyzed in the EIS, including the border crossing alternatives submitted by the MnDNR and USFWS. For the range of reasonable alternatives, impacts to human settlement, agriculture, land use, vegetation, and airports/airstrips are among the impacts evaluated in the EIS. No changes are made to the EIS in response to this comment.

difficulty to place drain tile in the fields.

The route alternatives, submitted by the Minnesota Department of Natural Resources and .the United States Fish and Wildlife Service (Roseau Lake WMA Alternative -- Segments 1 & 2), disregard and effectively negate over three years of good faith dialogue and participation by Roseau County officials and its residents, who have been working collaboratively with Minnesota Power to route the Great Northern Transmission Line in a manner that will provide the least impact to residents, property owners and agricultural land.

Minnesota Power's extensive planning process, for this project, was conducted in a very deliberate and transparent manner. Minnesota Power used a voluntary outreach approach that included multiple open houses for Roseau County residents and multiple meetings with Roseau County officials. This approach and collaboration resulted in the realignment of the originally proposed border crossing further to the east to avoid potential impacts to any future expansions of the Piney-Pinecreek Border Airport and the Department of Natural Resources' Roseau River Wildlife Management Area. Minnesota Power's proposed route through Roseau County minimizes impacts on private property owners and agricultural land, while maximizing use of state lands and current power line easements.

The Minnesota Department of Natural Resources and US Fish & Wildlife Service had ample opportunity to participate in the initial Minnesota Power planning process. Yet, these two government agencies waited to propose additional border crossings and route alternatives that were carried forward into the scope of the draft EIS without input from Roseau County and its residents.

This back door, after the fact, approach demonstrates a total lack of respect for the planning process, Roseau County and its residents. Based on past history of the Minnesota Department of Natural Resources, concerning projects of this nature, it is my perception that this is DNR's "business as usual" approach to this type of situation.

I request that the Minnesota Power's preferred route, as submitted on April 15, 2014 in the above-referenced dockets and Minnesota Power's proposed border crossing as submitted in October 2014 to the United States Department of Energy, be selected.

I request that the proposed route alternatives in Roseau County submitted by the Minnesota Department of Natural Resources and the United States Fish and Wildlife Service be removed from consideration.

Sincerely,

Richard Stacy
43126 County Road 2
Roseau, MN 56751
703-915-5258
rkconsult@aol.com

0057-1 Continued

0057-1 cont'd

From: Karen Stacy
To: Storm, Bill (COMM); O"Reilly, Ann (OAH); rep.dan.fabian@house.mn
Subject: Great Northern Transmission Line: TL-14-21
Date: Thursday, July 30, 2015 3:21:36 PM

July 30, 2015

TO: Mr. Bill Storm
Ms. Ann O'Reilly
Representative Dan Fabian
Senator LeRoy Stumpf

SUBJECT: COMMENTS CONCERNING THE REQUEST BY MINNESOTA POWER FOR A ROUTE PERMIT FOR THE GREAT NORTHERN TRANSMISSION LINE/DRAFT ENVIRONMENTAL IMPACT STATEMENT

REFERENCE: MPUC DOCKET NO. E01 5/TL-14-21 OAH CASE NO. 65-2500- 3 1637

My name is Karen Stacy and I am a property owner in Roseau County Minnesota. I am writing to express my strong support for Minnesota Power's preferred route as submitted on April 15, 2014 in the above-referenced dockets, and Minnesota Power's proposed border crossing as submitted in October 2014 to the United States Department of Energy.

The amended border crossing and power line route proposed by Minnesota Power is the only feasible border crossing and power line alignment through Roseau County, given the agreement between Minnesota Power and Manitoba Hydro.

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These easements will also create artificial boundaries in the fields where noxious and harmful weeds and plant life can grow and cause damage to the surrounding agricultural land. These noxious and harmful weeds and plant life can have a significant negative impact on the overall production of the planted field. These easements will create drainage problems for the fields and will increase the difficulty to place drain tile in the fields.

The route alternatives, submitted by the Minnesota Department of Natural Resources and .the United States Fish and Wildlife Service (Roseau Lake WMA Alternative -- Segments 1 & 2), disregard and effectively negate over three years of good faith dialogue and participation by Roseau County officials and its residents, who have been working collaboratively with Minnesota Power to route the Great Northern Transmission Line in a manner that will provide the least impact to residents, property owners and agricultural land.

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0058-1

0058-1
The scoping process provided an opportunity to recommend alternatives to be analyzed in the EIS, including the border crossing alternatives submitted by the MnDNR and USFWS. For the range of reasonable alternatives, impacts to human settlement, agriculture, land use, vegetation, and airports/airstrips are among the impacts evaluated in the EIS. No changes are made to the EIS in response to this comment.

0058-1 Continued

0058-1 cont'd

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I request that the proposed route alternatives in Roseau County submitted by the Minnesota Department of Natural Resources and the United States Fish and Wildlife Service be removed from consideration.

Sincerely,

//kls

Karen L. Stacy
43126 Co. Rd. 2
Roseau, MN 56751
Phone #: 703.915-5266
Email address: kstacy662@aol.com

From: Gary
To: Storm, Bill (COMM)
Subject: MPUC DOCKET NO. E01 5/TL-14-21 OAH CASE NO. 65-2500- 3 1637
Date: Thursday, July 30, 2015 10:32:49 PM

July 30, 2015

TO: Mr. Bill Storm

SUBJECT: COMMENTS CONCERNING THE REQUEST BY MINNESOTA POWER FOR A ROUTE PERMIT FOR THE GREAT NORTHERN TRANSMISSION LINE/DRAFT ENVIRONMENTAL IMPACT STATEMENT

REFERENCE: MPUC DOCKET NO. E01 5/TL-14-21 OAH CASE NO. 65-2500- 3 1637

Dear Mr. Storm,

Our names are Gary & Ione Olson and we are *property owners in* Roseau County Minnesota. We are writing to express our strong support for Minnesota Power's preferred route as submitted on April 15, 2014 in the above-referenced dockets, and Minnesota Power's proposed border crossing as submitted in October 2014 to the United States Department of Energy.

The amended border crossing and power line route proposed by Minnesota Power is the only feasible border crossing and power line alignment through Roseau County, given the agreement between Minnesota Power and Manitoba Hydro.

The route alternatives submitted by the Minnesota Department of Natural Resources and the United States Fish and Wildlife Service were submitted without input from Roseau County and its residents.

We are opposed to the proposed route alternatives, including the Roseau Lake WMA Alternative -- Segments 1 & 2, in Roseau County. These alternatives will cause significant negative impacts on private property owners and agricultural land use, and interfere with the safe and orderly operation of the Roseau Public Airport. Additionally, the proposed alternatives will unnecessarily increase the length of the power lines in Roseau County.

The impact to agricultural land uses and human settlements must be minimized. After careful and thoughtful review of the various proposed routes through Roseau County, We believe that Minnesota Power's proposed route would accomplish these objectives to the greatest extent possible.

The route alternatives, submitted by the Minnesota Department of Natural Resources and the United States Fish and Wildlife Service (Roseau Lake WMA Alternative -- Segments 1 & 2), require the granting of easements across fertile and productive agricultural land. Access to these easements present the potential to cause sustained damage to the agricultural land as Minnesota Power constructs and maintains the power lines that follow the easements.

These easements will also create artificial boundaries in the fields where noxious and harmful weeds and plant life can grow and cause damage to the surrounding agricultural land. These noxious and harmful weeds and plant life can have a significant negative impact on the overall production of the planted field. These easements will create drainage problems for the fields and will increase the difficulty to place drain tile in the fields.

The route alternatives, submitted by the Minnesota Department of Natural Resources and .the United States Fish and Wildlife Service (Roseau Lake WMA Alternative -- Segments 1 & 2), disregard and effectively negate over three years of good faith dialogue and participation by Roseau County officials and its residents, who have been working collaboratively with Minnesota Power to route the Great Northern Transmission Line in a manner that will provide the least impact to residents, property owners and agricultural land.

Minnesota Power’s extensive planning process, for this project, was conducted in a very deliberate and transparent manner. Minnesota Power used a voluntary outreach approach that included multiple open houses for Roseau County residents and multiple meetings with Roseau County officials. This approach and collaboration resulted in the realignment of the originally proposed

0059-1

0059-1
The scoping process provided an opportunity to recommend alternatives to be analyzed in the EIS, including the border crossing alternatives submitted by the MnDNR and USFWS. For the range of reasonable alternatives, impacts to human settlement, agriculture, land use, vegetation, and airports/airstrips are among the impacts evaluated in the EIS. No changes are made to the EIS in response to this comment.

0059-1 Continued

0059-1 cont'd

border crossing further to the east to avoid potential impacts to any future expansions of the Piney-Pinecreek Border Airport and the Department of Natural Resources' Roseau River Wildlife Management Area. Minnesota Power's proposed route through Roseau County minimizes impacts on private property owners and agricultural land, while maximizing use of state lands and current power line easements.

The Minnesota Department of Natural Resources and US Fish & Wildlife Service had ample opportunity to participate in the initial Minnesota Power planning process. Yet, these two government agencies waited to propose additional border crossings and route alternatives that were carried forward into the scope of the draft EIS without input from Roseau County and its residents.

This back door, after the fact, approach demonstrates a total lack of respect for the planning process, Roseau County and its residents. Based on past history of the Minnesota Department of Natural Resources, concerning projects of this nature, it is our perception that this is DNR's "business as usual" approach to this type of situation.

We request that the Minnesota Power's preferred route, as submitted on April 15, 2014 in the above-referenced dockets and Minnesota Power's proposed border crossing as submitted in October 2014 to the United States Department of Energy, be selected.

We request that the proposed route alternatives in Roseau County submitted by the Minnesota Department of Natural Resources and the United States Fish and Wildlife Service be removed from consideration.

Sincerely,

Gary & Ione Olson
23704 370th Ave
Roseau, MN 56751

218-463-2828

garolson@wiktel.com

From: K&M
To: Storm, Bill (COMM)
Subject: Comment on Mn.Power -Great northern Transmission Line docket number TL-14-21
Date: Friday, July 31, 2015 4:50:11 PM

Dear Mr. Storm

"Thank you" for all the information that you have provided about this project. Greatly appreciate your input. I tried to reach you by phone on July 31,2015 but you were unavailable. I hope you can please consider this email as part of my comments towards this project in the West Section. I live in Roseau county.

There is a alternative route on some maps that are orange and on another map that was mailed to me it shows green.. This particlular line I am referring to comes down from canada on highway 89 then travels in a eastern direction leading to the south of Warroad ,Mn. . I live on the far east edge in Falun township about .5 miles off Highway #2 in Roseau county. The powerline alternative route would then be placed directly by our home.. I do not feel comfortable with this power source being so close to a living residence. With this same plan a neighbor to the east of me by the name of Jerry Reed has an airstrip which he uses to land and fly his airplanes. This would cause problems for him also.I hope that this alternative route that I have mentioned will be permanetly removed from this project.

I would express that if at all possible keeping the route as close to the other preexcisting power line that runs thru Roseau county. This would not expose allot of families to living near such huge power sources in there back yards but instead be located more near wooded nonpopulated areas...

Thank you again for all information about this project. Will be keeping intouch with all future meetings and plans made about this project that affect the Roseau County area..

Sincerely;
Marie Johnson

0060-1

0060-1
The scoping process provided an opportunity to recommend alternatives to be analyzed in the EIS, including the border crossing alternatives submitted by the MnDNR and USFWS. For the range of reasonable alternatives, impacts to human settlement, agriculture, land use, vegetation, and airports/airstrips are among the impacts evaluated in the EIS. No changes are made to the EIS in response to this comment.

0061-1
The scoping process provided an opportunity to recommend alternatives to be analyzed in the EIS, including the border crossing alternatives submitted by the MnDNR and USFWS. For the range of reasonable alternatives, impacts to human settlement, agriculture, land use, vegetation, and airports/airstrips are among the impacts evaluated in the EIS. No changes are made to the EIS in response to this comment.

July 30, 2015

TO: Mr. Bill Storm
Ms. Ann O'Reilly
Representative Dan Fabian
Senator LeRoy Stumpf

SUBJECT: COMMENTS CONCERNING THE REQUEST BY MINNESOTA POWER FOR A ROUTE PERMIT FOR THE GREAT NORTHERN TRANSMISSION LINE/DRAFT ENVIRONMENTAL IMPACT STATEMENT

REFERENCE: MPUC DOCKET NO. E01 5/TL-14-21 OAH CASE NO. 65-2500- 3 1637

My name is Darryll Dahlquist and I am a *property owner and a resident* of Roseau County Minnesota. I am writing to express my strong support for Minnesota Power's preferred route as submitted on April 15, 2014 in the above-referenced dockets, and Minnesota Power's proposed border crossing as submitted in October 2014 to the United States Department of Energy.

The amended border crossing and power line route proposed by Minnesota Power is the only feasible border crossing and power line alignment through Roseau County, given the agreement between Minnesota Power and Manitoba Hydro.

The route alternatives submitted by the Minnesota Department of Natural Resources and the United States Fish and Wildlife Service were submitted without input from Roseau County and its residents.

I am opposed to the proposed route alternatives, including the Roseau Lake WMA Alternative --Segments 1 & 2, in Roseau County. These alternatives will cause significant negative impacts on private property owners and agricultural land use, and interfere with the safe and orderly operation of the Roseau Public Airport. Additionally, the proposed alternatives will unnecessarily increase the length of the power lines in Roseau County.

The impact to agricultural land uses and human settlements must be minimized. After careful and thoughtful review of the various proposed routes through Roseau County, I believe that Minnesota Power's proposed route would accomplish these objectives to the greatest extent possible.

The route alternatives, submitted by the Minnesota Department of Natural Resources and the United States Fish and Wildlife Service (Roseau Lake WMA Alternative -- Segments 1 & 2), require the granting of easements across fertile and productive agricultural land. Access to these easements present the potential to cause sustained damage to the agricultural land as Minnesota Power constructs and maintains the power lines that follow the easements.

These easements will also create artificial boundaries in the fields where noxious and harmful weeds and plant life can grow and cause damage to the surrounding agricultural land. These noxious and harmful weeds and plant life can have a significant negative impact on the overall production of the planted field. These easements will create drainage problems for the fields and will increase the difficulty to place drain tile in the fields.

The route alternatives, submitted by the Minnesota Department of Natural Resources and .the United States Fish and Wildlife Service (Roseau Lake WMA Alternative -- Segments 1 & 2), disregard and effectively negate over three years of good faith dialogue and participation by Roseau County officials

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Continued

and its residents, who have been working collaboratively with Minnesota Power to route the Great Northern Transmission Line in a manner that will provide the least impact to residents, property owners and agricultural land.

Minnesota Power's extensive planning process, for this project, was conducted in a very deliberate and transparent manner. Minnesota Power used a voluntary outreach approach that included multiple open houses for Roseau County residents and multiple meetings with Roseau County officials. This approach and collaboration resulted in the realignment of the originally proposed border crossing further to the east to avoid potential impacts to any future expansions of the Piney-Pinecreek Border Airport and the Department of Natural Resources' Roseau River Wildlife Management Area. Minnesota Power's proposed route through Roseau County minimizes impacts on private property owners and agricultural land, while maximizing use of state lands and current power line easements.

The Minnesota Department of Natural Resources and US Fish & Wildlife Service had ample opportunity to participate in the initial Minnesota Power planning process. Yet, these two government agencies waited to propose additional border crossings and route alternatives that were carried forward into the scope of the draft EIS without input from Roseau County and its residents.

This back door, after the fact, approach demonstrates a total lack of respect for the planning process, Roseau County and its residents. Based on past history of the Minnesota Department of Natural Resources, concerning projects of this nature, it is my perception that this is DNR's "business as usual" approach to this type of situation.

I request that the Minnesota Power's preferred route, as submitted on April 15, 2014 in the above-referenced dockets and Minnesota Power's proposed border crossing as submitted in October 2014 to the United States Department of Energy, be selected.

I request that the proposed route alternatives in Roseau County submitted by the Minnesota Department of Natural Resources and the United States Fish and Wildlife Service be removed from consideration.

Sincerely, Darryll Dahlquist

Name Darryll Dahlquist

Address43529 240th St. Roseau, MN 56751

Phone # (218)463-3916

Email address maryjdahlquist@centurytel.net

From: Greg3
To: Storm, Bill (COMM); O"Reilly, Ann (OAH); rep.dan.fabian@house.mn
Subject: Great Northern Transmission Line: TL-14-21
Date: Monday, August 03, 2015 6:51:53 AM

Aug 3, 2015

TO: Mr. Bill Storm
Ms. Ann O'Reilly
Representative Dan Fabian
Senator LeRoy Stumpf

SUBJECT: COMMENTS CONCERNING THE REQUEST BY MINNESOTA POWER FOR A ROUTE PERMIT FOR THE GREAT NORTHERN TRANSMISSION LINE/DRAFT ENVIRONMENTAL IMPACT STATEMENT

REFERENCE: MPUC DOCKET NO. E01 5/TL-14-21 OAH CASE NO. 65-2500- 3 1637

My name is Greg Grahn and I am a *property owner and/or resident* of Roseau County Minnesota. I am writing to express my strong support for Minnesota Power's preferred route as submitted on April 15, 2014 in the above-referenced dockets, and Minnesota Power's proposed border crossing as submitted in October 2014 to the United States Department of Energy.

The amended border crossing and power line route proposed by Minnesota Power is the only feasible border crossing and power line alignment through Roseau County, given the agreement between Minnesota Power and Manitoba Hydro.

The route alternatives submitted by the Minnesota Department of Natural Resources and the United States Fish and Wildlife Service were submitted without input from Roseau County and its residents.

I am opposed to the proposed route alternatives, including the Roseau Lake WMA Alternative -- Segments 1 & 2, in Roseau County. These alternatives will cause significant negative impacts on private property owners and agricultural land use, and interfere with the safe and orderly operation of the Roseau Public Airport. Additionally, the proposed alternatives will unnecessarily increase the length of the power lines in Roseau County.

The impact to agricultural land uses and human settlements must be minimized. After careful and thoughtful review of the various proposed routes through Roseau County, I believe that Minnesota Power's proposed route would accomplish these objectives to the greatest extent possible.

The route alternatives, submitted by the Minnesota Department of Natural Resources and the United States Fish and Wildlife Service (Roseau Lake WMA Alternative -- Segments 1 & 2), require the granting of easements across fertile and productive agricultural land. Access to these easements present the potential to cause sustained damage to the agricultural land as Minnesota Power constructs and maintains the power lines that follow the easements.

These easements will also create artificial boundaries in the fields where noxious and harmful weeds and plant life can grow and cause damage to the surrounding agricultural land. These noxious and harmful weeds and plant life can have a significant negative impact on the overall production of the planted field. These easements will create drainage problems for the fields and will increase the difficulty to place drain tile in the fields.

The route alternatives, submitted by the Minnesota Department of Natural Resources and .the United States Fish and Wildlife Service (Roseau Lake WMA Alternative -- Segments 1 & 2), disregard and effectively negate over three years of good faith dialogue and participation by Roseau County officials and its residents, who have been working collaboratively with Minnesota Power to route the Great Northern Transmission Line in a manner that will provide the least impact to residents, property owners and agricultural land.

Minnesota Power's extensive planning process, for this project, was conducted in a very deliberate and transparent manner. Minnesota Power used a voluntary outreach approach that included multiple open houses for Roseau County residents and multiple meetings with Roseau County officials. This approach and collaboration resulted in the realignment of the originally proposed

0062-1

0062-1
The alternatives analyzed in the EIS represent what DOE determines to be a reasonable range of alternatives based on scoping and comment periods. The addition suggested in this comment does not present an option significant enough to warrant an additional alternative to be analyzed in detail. For all alternatives analyzed in detail, impacts to human settlement, agriculture, land use, vegetation, and airports/airstrips were evaluated in the EIS. No changes are made to the EIS in response to this comment.

border crossing further to the east to avoid potential impacts to any future expansions of the Piney-Pinecreek Border Airport and the Department of Natural Resources' Roseau River Wildlife Management Area. Minnesota Power's proposed route through Roseau County minimizes impacts on private property owners and agricultural land, while maximizing use of state lands and current power line easements.

0062-1 Continued

0062-1 cont'd

The Minnesota Department of Natural Resources and US Fish & Wildlife Service had ample opportunity to participate in the initial Minnesota Power planning process. Yet, these two government agencies waited to propose additional border crossings and route alternatives that were carried forward into the scope of the draft EIS without input from Roseau County and its residents.

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0062-2

This back door, after the fact, approach demonstrates a total lack of respect for the planning process, Roseau County and its residents. Based on past history of the Minnesota Department of Natural Resources, concerning projects of this nature, it is my perception that this is DNR's "business as usual" approach to this type of situation.

I request that the Minnesota Power's preferred route, as submitted on April 15, 2014 in the above-referenced dockets and Minnesota Power's proposed border crossing as submitted in October 2014 to the United States Department of Energy, be selected.

I request that the proposed route alternatives in Roseau County submitted by the Minnesota Department of Natural Resources and the United States Fish and Wildlife Service be removed from consideration.

Sincerely,

Greg Grahn

31199 430th Ave

Roseau, MN 56751

greg3@goldenflax.com

July 30, 2015

TO: Mr. Bill Storm
Ms. Ann O'Reilly
Representative Dan Fabian
Senator LeRoy Stumpf

SUBJECT: COMMENTS CONCERNING THE REQUEST BY MINNESOTA POWER FOR A ROUTE PERMIT FOR THE GREAT NORTHERN TRANSMISSION LINE/DRAFT ENVIRONMENTAL IMPACT STATEMENT

REFERENCE: MPUC DOCKET NO. E01 5/TL-14-21 OAH CASE NO. 65-2500- 3 1637

My name is Gerry Grahn and I am a *property owner* of Roseau County Minnesota. I am writing to express my strong support for Minnesota Power's preferred route as submitted on April 15, 2014 in the above-referenced dockets, and Minnesota Power's proposed border crossing as submitted in October 2014 to the United States Department of Energy. 0063-1

The amended border crossing and power line route proposed by Minnesota Power is the only feasible border crossing and power line alignment through Roseau County, given the agreement between Minnesota Power and Manitoba Hydro.

The route alternatives submitted by the Minnesota Department of Natural Resources and the United States Fish and Wildlife Service were submitted without input from Roseau County and its residents.

I am opposed to the proposed route alternatives, including the Roseau Lake WMA Alternative -- Segments 1 & 2, in Roseau County. These alternatives will cause significant negative impacts on private property owners and agricultural land use, and interfere with the safe and orderly operation of the Roseau Public Airport. Additionally, the proposed alternatives will unnecessarily increase the length of the power lines in Roseau County.

The impact to agricultural land uses and human settlements must be minimized. After careful and thoughtful review of the various proposed routes through Roseau County, I believe that Minnesota Power's proposed route would accomplish these objectives to the greatest extent possible.

The route alternatives, submitted by the Minnesota Department of Natural Resources and the United States Fish and Wildlife Service (Roseau Lake WMA Alternative -- Segments 1 & 2), require the granting of easements across fertile and productive agricultural land. Access to these easements present the potential to cause sustained damage to the agricultural land as Minnesota Power constructs and maintains the power lines that follow the easements.

These easements will also create artificial boundaries in the fields where noxious and harmful weeds and plant life can grow and cause damage to the surrounding agricultural land. These noxious and harmful weeds and plant life can have a significant negative impact on the overall production of the planted field. These easements will create drainage problems for the fields and will increase the difficulty to place drain tile in the fields.

The route alternatives, submitted by the Minnesota Department of Natural Resources and .the United States Fish and Wildlife Service (Roseau Lake WMA Alternative -- Segments 1 & 2), disregard and

0063-1
The scoping process provided an opportunity to recommend alternatives to be analyzed in the EIS, including the border crossing alternatives submitted by the MnDNR and USFWS. For the range of reasonable alternatives, impacts to human settlement, agriculture, land use, vegetation, and airports/airstrips are among the impacts evaluated in the EIS. No changes are made to the EIS in response to this comment.

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Continued

effectively negate over three years of good faith dialogue and participation by Roseau County officials and its residents, who have been working collaboratively with Minnesota Power to route the Great Northern Transmission Line in a manner that will provide the least impact to residents, property owners and agricultural land.

Minnesota Power's extensive planning process, for this project, was conducted in a very deliberate and transparent manner. Minnesota Power used a voluntary outreach approach that included multiple open houses for Roseau County residents and multiple meetings with Roseau County officials. This approach and collaboration resulted in the realignment of the originally proposed border crossing further to the east to avoid potential impacts to any future expansions of the Piney-Pinecreek Border Airport and the Department of Natural Resources' Roseau River Wildlife Management Area. Minnesota Power's proposed route through Roseau County minimizes impacts on private property owners and agricultural land, while maximizing use of state lands and current power line easements.

The Minnesota Department of Natural Resources and US Fish & Wildlife Service had ample opportunity to participate in the initial Minnesota Power planning process. Yet, these two government agencies waited to propose additional border crossings and route alternatives that were carried forward into the scope of the draft EIS without input from Roseau County and its residents.

This back door, after the fact, approach demonstrates a total lack of respect for the planning process, Roseau County and its residents. Based on past history of the Minnesota Department of Natural Resources, concerning projects of this nature, it is my perception that this is DNR's "business as usual" approach to this type of situation.

I request that the Minnesota Power's preferred route, as submitted on April 15, 2014 in the above-referenced dockets and Minnesota Power's proposed border crossing as submitted in October 2014 to the United States Department of Energy, be selected.

I request that the proposed route alternatives in Roseau County submitted by the Minnesota Department of Natural Resources and the United States Fish and Wildlife Service be removed from consideration.

Sincerely,

Gerry Grahn

43594 County Rd 124

Roseau, MN 56751

915-497-5948

gbgrahn@hotmail.com

July 30, 2015

TO: Mr. Bill Storm
Ms. Ann O'Reilly
Representative Dan Fabian
Senator LeRoy Stumpf

SUBJECT: COMMENTS CONCERNING THE REQUEST BY MINNESOTA POWER FOR A ROUTE PERMIT FOR THE GREAT NORTHERN TRANSMISSION LINE/DRAFT ENVIRONMENTAL IMPACT STATEMENT

REFERENCE: MPUC DOCKET NO. E01 5/TL-14-21 OAH CASE NO. 65-2500- 3 1637

My name is Michael Grahn and I am a *property owner and resident* of Roseau County Minnesota. I am writing to express my strong support for Minnesota Power's preferred route as submitted on April 15, 2014 in the above-referenced dockets, and Minnesota Power's proposed border crossing as submitted in October 2014 to the United States Department of Energy.

The amended border crossing and power line route proposed by Minnesota Power is the only feasible border crossing and power line alignment through Roseau County, given the agreement between Minnesota Power and Manitoba Hydro.

The route alternatives submitted by the Minnesota Department of Natural Resources and the United States Fish and Wildlife Service were submitted without input from Roseau County and its residents.

I am opposed to the proposed route alternatives, including the Roseau Lake WMA Alternative –Segments 1 & 2, in Roseau County. These alternatives will cause significant negative impacts on private property owners and agricultural land use, and interfere with the safe and orderly operation of the Roseau Public Airport. Additionally, the proposed alternatives will unnecessarily increase the length of the power lines in Roseau County.

The impact to agricultural land uses and human settlements must be minimized. After careful and thoughtful review of the various proposed routes through Roseau County, I believe that Minnesota Power's proposed route would accomplish these objectives to the greatest extent possible.

The route alternatives, submitted by the Minnesota Department of Natural Resources and the United States Fish and Wildlife Service (Roseau Lake WMA Alternative – Segments 1 & 2), require the granting of easements across fertile and productive agricultural land. Access to these easements present the potential to cause sustained damage to the agricultural land as Minnesota Power constructs and maintains the power lines that follow the easements.

These easements will also create artificial boundaries in the fields where noxious and harmful weeds and plant life can grow and cause damage to the surrounding agricultural land. These noxious and harmful weeds and plant life can have a significant negative impact on the overall production of the planted field. These easements will create drainage problems for the fields and will increase the difficulty to place drain tile in the fields.

The route alternatives, submitted by the Minnesota Department of Natural Resources and .the United States Fish and Wildlife Service (Roseau Lake WMA Alternative – Segments 1 & 2), disregard and effectively negate over three years of good faith dialogue and participation by Roseau County officials

0064-1

0064-1
Thank you for your comment. No changes are made to the EIS in response to this comment.

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Continued

and its residents, who have been working collaboratively with Minnesota Power to route the Great Northern Transmission Line in a manner that will provide the least impact to residents, property owners and agricultural land.

Minnesota Power's extensive planning process, for this project, was conducted in a very deliberate and transparent manner. Minnesota Power used a voluntary outreach approach that included multiple open houses for Roseau County residents and multiple meetings with Roseau County officials. This approach and collaboration resulted in the realignment of the originally proposed border crossing further to the east to avoid potential impacts to any future expansions of the Piney-Pinecreek Border Airport and the Department of Natural Resources' Roseau River Wildlife Management Area. Minnesota Power's proposed route through Roseau County minimizes impacts on private property owners and agricultural land, while maximizing use of state lands and current power line easements.

The Minnesota Department of Natural Resources and US Fish & Wildlife Service had ample opportunity to participate in the initial Minnesota Power planning process. Yet, these two government agencies waited to propose additional border crossings and route alternatives that were carried forward into the scope of the draft EIS without input from Roseau County and its residents.

This back door, after the fact, approach demonstrates a total lack of respect for the planning process, Roseau County and its residents. Based on past history of the Minnesota Department of Natural Resources, concerning projects of this nature, it is my perception that this is DNR's "business as usual" approach to this type of situation.

I request that the Minnesota Power's preferred route, as submitted on April 15, 2014 in the above-referenced dockets and Minnesota Power's proposed border crossing as submitted in October 2014 to the United States Department of Energy, be selected.

I request that the proposed route alternatives in Roseau County submitted by the Minnesota Department of Natural Resources and the United States Fish and Wildlife Service be removed from consideration.

Sincerely,

Michael Grahn

43598 County Rd 124

Roseau, MN 56751

218-463-2559

mgrahn1954@gmail.com

0065-1
The scoping process provided an opportunity to recommend alternatives to be analyzed in the EIS, including the border crossing alternatives submitted by the MnDNR and USFWS. For the range of reasonable alternatives, impacts to human settlement, agriculture, land use, vegetation, and airports/airstrips are among the impacts evaluated in the EIS. No changes are made to the EIS in response to this comment.

August 3, 2015

TO: Mr. Bill Storm
Ms. Ann O'Reilly
Representative Dan Fabian
Senator LeRoy Stumpf

SUBJECT: COMMENTS CONCERNING THE REQUEST BY MINNESOTA POWER FOR A ROUTE PERMIT FOR THE GREAT NORTHERN TRANSMISSION LINE/DRAFT ENVIRONMENTAL IMPACT STATEMENT

REFERENCE: MPUC DOCKET NO. E01 5/TL-14-21 OAH CASE NO. 65-2500- 3 1637

My name is Willard Comstock and I am a property owner of Roseau County Minnesota. I am writing to express my strong support for Minnesota Power's preferred route as submitted on April 15, 2014 in the above-referenced dockets, and Minnesota Power's proposed border crossing as submitted in October 2014 to the United States Department of Energy.

0065-1

The amended border crossing and power line route proposed by Minnesota Power is the only feasible border crossing and power line alignment through Roseau County, given the agreement between Minnesota Power and Manitoba Hydro.

The route alternatives (the "Scoping Decision Route"), in particular the route through Malung and Falun Townships, submitted by the Minnesota Department of Natural Resources and the United States Fish and Wildlife Service were submitted without input from Roseau County and its residents.

I am opposed to the proposed route alternatives, including the Roseau Lake WMA Alternative -- Segments 1 & 2, in Roseau County. These alternatives will cause significant negative impacts on private property owners and agricultural land use, and interfere with the safe and orderly operation of the Roseau Public Airport. Additionally, the proposed alternatives will unnecessarily increase the length of the power lines in Roseau County.

The impact to agricultural land uses and human settlements must be minimized. After careful and thoughtful review of the various proposed routes through Roseau County, I believe that Minnesota Power's proposed route would accomplish these objectives to the greatest extent possible.

The route alternatives, submitted by the Minnesota Department of Natural Resources and the United States Fish and Wildlife Service (Roseau Lake WMA Alternative -- Segments 1 & 2), require the granting of easements across fertile and productive agricultural land. Access to these easements present the potential to cause sustained damage to the agricultural land as Minnesota Power constructs and maintains the power lines that follow the easements.

These easements will also create artificial boundaries in the fields where noxious and harmful weeds and plant life can grow and cause damage to the surrounding agricultural land. These noxious and harmful weeds and plant life can have a significant negative impact on the overall production of the planted field. These easements will create drainage problems for the fields and will increase the difficulty to place drain tile in the fields.

0065-1 cont'd

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Continued

The route alternatives, submitted by the Minnesota Department of Natural Resources and .the United States Fish and Wildlife Service (Roseau Lake WMA Alternative -- Segments 1 & 2), disregard and effectively negate over three years of good faith dialogue and participation by Roseau County officials and its residents, who have been working collaboratively with Minnesota Power to route the Great Northern Transmission Line in a manner that will provide the least impact to residents, property owners and agricultural land.

Minnesota Power's extensive planning process, for this project, was conducted in a very deliberate and transparent manner. Minnesota Power used a voluntary outreach approach that included multiple open houses for Roseau County residents and multiple meetings with Roseau County officials. This approach and collaboration resulted in the realignment of the originally proposed border crossing further to the east to avoid potential impacts to any future expansions of the Piney-Pinecreek Border Airport and the Department of Natural Resources' Roseau River Wildlife Management Area. Minnesota Power's proposed route through Roseau County minimizes impacts on private property owners and agricultural land, while maximizing use of state lands and current power line easements.

The Minnesota Department of Natural Resources and US Fish & Wildlife Service had ample opportunity to participate in the initial Minnesota Power planning process. Yet, these two government agencies waited to propose additional border crossings and route alternatives that were carried forward into the scope of the draft EIS without input from Roseau County and its residents.

This back door, after the fact, approach demonstrates a total lack of respect for the planning process, Roseau County and its residents. Based on past history of the Minnesota Department of Natural Resources, concerning projects of this nature, it is my perception that this is DNR's "business as usual" approach to this type of situation.

I request that the Minnesota Power's preferred route, as submitted on April 15, 2014 in the above-referenced dockets and Minnesota Power's proposed border crossing as submitted in October 2014 to the United States Department of Energy, be selected.

I request that the proposed route alternatives in Roseau County submitted by the Minnesota Department of Natural Resources and the United States Fish and Wildlife Service be removed from consideration.

Sincerely,

Willard Comstock

25443 County Road 9
Roseau, MN 56751
218-424-7351
wncomstock@wiktel.com

From: Blair Comstock
To: Storm, Bill (COMM); O"Reilly, Ann (OAH); rep.dan.fabian@house.mn
Subject: Great Northern Transmission Line: TL-14-21
Date: Monday, August 03, 2015 10:48:41 AM

August 3, 2015

TO: Mr. Bill Storm

Ms. Ann O'Reilly

Representative Dan Fabian

Senator LeRoy Stumpf

SUBJECT: COMMENTS CONCERNING THE REQUEST BY MINNESOTA POWER FOR A ROUTE PERMIT FOR THE GREAT NORTHERN TRANSMISSION LINE/DRAFT ENVIRONMENTAL IMPACT STATEMENT

REFERENCE: MPUC DOCKET NO. E01 5/TL-14-21 OAH CASE NO. 65-2500- 3 1637

My name is Blair Comstock and I am a *property owner and resident* of Roseau County Minnesota. I am writing to express my strong support for Minnesota Power's preferred route as submitted on April 15, 2014 in the above-referenced dockets, and Minnesota Power's proposed border crossing as submitted in October 2014 to the United States Department of Energy.

Bear creek runs between the majority of our farm land. The route alternatives runs within a couple hundred feet from bear creek. Every year hundreds of ducks and geese nest here. Countless seagulls, pelicans, herons, cormorants, snipes, hawks, crows, swans and other migratory birds either make bear creek their home or visit it daily. Within 500 feet a pair of bald eagles have been nesting for 20 years. The Bald and Golden Eagle Protection Act of 1940 protects eagles from any outside human disturbance and "In addition to immediate impacts, this definition also covers impacts that result from human-induced alterations initiated around a previously used nest site during a time when eagles are not present, if, upon the eagle's return, such alterations agitate or bother an eagle to a degree that interferes with or interrupts normal breeding, feeding, or sheltering habits, and causes injury, death or nest abandonment." The migratory Bird Treaty Act of 1918 does the same thing, it protects the birds safety. Whether that's hunting or any other threat to the birds safety. And right now, the birds safety is under risk from Great Northern Transmission lines. Birds are not alot different from humans. They live where we live. Like Deer and other animals, they live off of our fields. They eat the food that we grow for the world.

The amended border crossing and power line route proposed by Minnesota Power is the only feasible border crossing and power line alignment through Roseau County, given the agreement between Minnesota Power and Manitoba Hydro.

The route alternatives submitted by the Minnesota Department of Natural Resources and the United States Fish and Wildlife Service were submitted without input from Roseau County and its residents.

I am opposed to the proposed route alternatives, including the Roseau Lake WMA Alternative --Segments 1 & 2, in Roseau County. These alternatives will cause significant negative impacts on private property owners and agricultural land use, and interfere with the safe and orderly operation of the Roseau Public Airport. Additionally, the proposed alternatives will unnecessarily increase the length of the power lines in Roseau County.

The impact to agricultural land uses and human settlements must be minimized. After careful and thoughtful review of the various proposed routes through Roseau County, I believe that Minnesota Power's

0066-1

0066-1
The scoping process provided an opportunity to recommend alternatives to be analyzed in the EIS, including the border crossing alternatives submitted by the MnDNR and USFWS. For the range of reasonable alternatives, impacts to human settlement, agriculture, land use, vegetation, and airports/airstrips are among the impacts evaluated in the EIS. No changes are made to the EIS in response to this comment.

proposed route would accomplish these objectives to the greatest extent possible.

The route alternatives, submitted by the Minnesota Department of Natural Resources and the United States Fish and Wildlife Service (Roseau Lake WMA Alternative -- Segments 1 & 2), require the granting of easements across fertile and productive agricultural land. Access to these easements present the potential to cause sustained damage to the agricultural land as Minnesota Power constructs and maintains the power lines that follow the easements.

These easements will also create artificial boundaries in the fields where noxious and harmful weeds and plant life can grow and cause damage to the surrounding agricultural land. These noxious and harmful weeds and plant life can have a significant negative impact on the overall production of the planted field. These easements will create drainage problems for the fields and will increase the difficulty to place drain tile in the fields.

The route alternatives, submitted by the Minnesota Department of Natural Resources and .the United States Fish and Wildlife Service (Roseau Lake WMA Alternative -- Segments 1 & 2), disregard and effectively negate over three years of good faith dialogue and participation by Roseau County officials and its residents, who have been working collaboratively with Minnesota Power to route the Great Northern Transmission Line in a manner that will provide the least impact to residents, property owners and agricultural land.

Minnesota Power’s extensive planning process, for this project, was conducted in a very deliberate and transparent manner. Minnesota Power used a voluntary outreach approach that included multiple open houses for Roseau County residents and multiple meetings with Roseau County officials. This approach and collaboration resulted in the realignment of the originally proposed border crossing further to the east to avoid potential impacts to any future expansions of the Piney-Pinecreek Border Airport and the Department of Natural Resources' Roseau River Wildlife Management Area. Minnesota Power’s proposed route through Roseau County minimizes impacts on private property owners and agricultural land, while maximizing use of state lands and current power line easements.

The Minnesota Department of Natural Resources and US Fish & Wildlife Service had ample opportunity to participate in the initial Minnesota Power planning process. Yet, these two government agencies waited to propose additional border crossings and route alternatives that were carried forward into the scope of the draft EIS without input from Roseau County and its residents.

This back door, after the fact, approach demonstrates a total lack of respect for the planning process, Roseau County and its residents. Based on past history of the Minnesota Department of Natural Resources, concerning projects of this nature, it is my perception that this is DNR’s “business as usual” approach to this type of situation.

I request that the Minnesota Power's preferred route, as submitted on April 15, 2014 in the above-referenced dockets and Minnesota Power's proposed border crossing as submitted in October 2014 to the United States Department of Energy, be selected.

I request that the proposed route alternatives in Roseau County submitted by the Minnesota Department of Natural Resources and the United States Fish and Wildlife Service be removed from consideration.

Sincerely,

Blair Comstock

27380 county road 9

Roseau Mn 56751

701-866-6593

0066-1 Continued

0066-1 cont'd

horsiemcgrath@hotmail.com

From: Arthur Krahn
To: Storm, Bill (COMM)
Subject: Transmission line
Date: Monday, August 03, 2015 9:55:26 PM

Dear Bill Storm,
The original proposed line is the best. Power lines in the forest are a good thing. Hikers,berry pickers,bird watchers,hunters,DNR workers,loggers,firefighters, and anyone else who actually spends time in the woods uses and benefits from open lines cut into the forest. They help many people keep from getting lost as well. The big game,small game, and birds also use and benefit form the young growth and better grass that comes as a result maintaining a transmission line through the forest. The line going north of the Beltrami Island state forest is not so. Back yards, food plots, and small woods do not benefit from a transmission line but are damaged by it.

Sincerely,
Arthur Krahn

0067-1

0067-1
Thank you for your comment. No changes are made to the EIS in response to this comment.

From: apache@web.lmic.state.mn.us
To: Storm, Bill (COMM)
Subject: Gaukerud Sun Aug 2 09:12:13 2015 14-21
Date: Sunday, August 02, 2015 9:12:14 AM

This public comment has been sent via the form at: mn.gov/commerce/energyfacilities/publicComments.html

You are receiving it because you are listed as the contact for this project.

Project Name: Minnesota Power Great Northern Transmission Line Project (Routing)

Docket number: 14-21

User Name: John Gaukerud

County: Roseau County

City: Badger

Email: jgaukerud@wiktel.com

Phone: 2185283529

Impact: As a private landowner and farmer I am very much opposed to the alternative route proposed. The line would divide my fields on my farm and would make it very difficult for aerial spraying and other normal farming practice's. This is a project for public good and should follow the route on public land. My property is on map 21 of the west section of the project.

Mitigation:

Submission date: Sun Aug 2 09:12:13 2015

This information has also been entered into a centralized database for future analysis.

For questions about the database or the functioning of this tool, contact:

Andrew Koebrick
andrew.koebrick@state.mn.us

0068-1

0068-1
Thank you for your comment.

No changes are made to the EIS as a result of this comment.

COPY

Manitoba

Justice
Legal Services Branch
Civil Law Division
Room 730 Woodsworth Building
405 Broadway
Winnipeg MB R3C 3L6

In reply, please refer to:
Gord Hannon
General Counsel

Phone: (204) 945-0242
Fax: (204) 948-2244
Gord.Hannon@gov.mb.ca
File No: NR04D0 (429)

June 2, 2015

RECEIVED
JUN 04 2015
MINNESOTA PUBLIC
UTILITIES COMMISSION

Administrative Law Judge Ann O'Reilly
Office of Administrative Hearings
600 N. Robert Street
St. Paul, MN 55164

Dear Madam:

Re: Canadian and Provincial Permitting of the Manitoba Minnesota Transmission Project
OAH Docket No. 65-2500-31367
MPUC Docket No. E-015/TL-14-21

Please find enclosed Manitoba Justice's comments to the Minnesota Public Utilities Commission E-Docket Number E-015/TL-14-21, in the Matter of the Application of Minnesota Power for a Route Permit for the Great Northern Transmission Line Project in Roseau, Lake of the Woods, Beltrami, Koochiching and Itasca Counties. Please include our comments in the above-referenced record.

Yours truly,

Gordon E. Hannon
General Counsel

c. Dan Wolf, Executive Secretary, Minnesota Public Utilities Commission

Manitoba

Justice
Legal Services Branch
Civil Law Division
Room 730 Woodsworth Building
405 Broadway
Winnipeg MB R3C 3L6

In reply, please refer to:
Gord Hannon
General Counsel

Phone: (204) 945-0242
Fax: (204) 948-2244
Gord.Hannon@gov.mb.ca
File No: NR04D0 (429)

June 2, 2015

Administrative Law Judge Ann O'Reilly
Office of Administrative Hearings
600 N. Robert Street
St. Paul, MN 55164

Dear Madam:

Re: Canadian and Provincial Permitting of the Manitoba Minnesota Transmission Project
OAH Docket No. 65-2500-31367
MPUC Docket No. E-015/TL-14-21

Through representatives of Manitoba Hydro, representatives of the Government of Manitoba have been informed of regulatory developments regarding Minnesota Power's application for a route permit that would allow the construction of the Great Northern Transmission Line, the United States portion of a proposed new International Power Line ("IPL"), that would connect with the Manitoba Minnesota Transmission Project ("the Project") at the Canada-United States Border.

On behalf of the Government of Manitoba, this letter is being submitted for filing on the public record and to inform the Administrative Law Judge, Minnesota Department of Commerce – Energy Environmental Review and Analysis Division and Minnesota Public Utilities Commission about these issues:

(I) Canadian federal and Manitoba provincial legal regime and regulatory processes for authorizing an International Transmission Line;
(II) an overview of the regulatory processes in Canada to date;
(III) the required steps to complete the regulatory processes in Canada; and
(IV) coordination with United States and Minnesota regulatory processes.

As a representative of the Government of Manitoba we can advise particularly of the Manitoba Government understanding of Manitoba provincial regulatory processes. However, the federal National Energy Board ("the NEB") has Canadian federal regulatory responsibilities under federal law because of the international nature of the

IPL. Manitoba is working with the NEB to coordinate the provincial and federal regulatory processes.

I. Canadian Federal and Provincial Legal Regime and Regulatory Processes for Authorizing an International Transmission Line

A. Overview

Under Canada's *Constitution Act, 1867*, laws in relation to international power lines are matters of exclusive federal jurisdiction. This jurisdiction has been exercised by the enactment by Canadian Parliament of the *National Energy Board Act* and the provisions of the *Canadian Environmental Assessment Act, 2012* relating to IPLs.

Provincial legislation applies to the use and allocation of Crown (public) land in Manitoba for the line in Manitoba.

Generally, intra-provincial power transmission lines are subject to environmental assessment and licensing under *The Environment Act* of Manitoba. *The Environment Act* provides a regime of environmental assessment and licensing of projects or developments of defined classes. Transmission lines greater than 230 kV are considered Class 3 developments under the Classes of Development Regulation made under *The Environment Act* and are thus subject to the highest level of environmental assessment under Manitoba legislation. All documents filed in the environmental assessment process are filed on a public registry. The Environmental Impact Statement is open to public comments which are considered in the decision-making process.

Federal legislation allows for the involvement of provincial authorities and processes, including the assessment of the environmental impacts of IPLs, under certain circumstances. A common feature of both federal and provincial environmental review processes is the requirement for an applicant to conduct a public engagement program ("PEP") regarding the project, including the proposed route of an IPL, and its potential socio-economic and environmental impacts as part of its environmental assessment of the project prior to filing an application for licenses and authorizations.

The regulatory practice in Manitoba is that government authorities do not formally engage in public consultations about projects of this type. Government decision makers do not generally engage directly in public consultation: public input is provided through the proponent's public engagement program and through comments on the public registry. In some cases, however, a public hearing may be commissioned by the minister of Conservation and Water Stewardship before the Clean Environment Commission, for the Commission to provide advice to decision makers respecting a proposed development.

The Government of Manitoba engages directly in consultations with Aboriginal peoples about potential adverse effects of the project on the exercise of Aboriginal or treaty rights recognized pursuant to section 35 of the *Constitution Act, 1982*.

B. Canadian Federal law

1. *National Energy Board Act*, R.S.C., 1985, c. N-7

The responsibility for regulating the construction and operation of IPLs rests with the National Energy Board of Canada pursuant to the *National Energy Board Act,* R.S.C., 1985, c. N-7. In accordance with Section 58.1 of the *National Energy Board Act*, authorization is required to construct or operate an IPL. The National Energy Board Electricity Regulations, SOR/97-130 set out a comprehensive list of information requirements for inclusion in an application to be filed with the NEB for an authorization of an IPL. The NEB Electricity Filing Manual provides additional extensive detail and guidance on the expectations for the content of an application. Both the regulations and the Filing Manual identify the need for an application to contain: an identification of a single proposed route and border crossing point for the IPL; an environmental and socio-economic assessment of the IPL; and a description of the Public Engagement Program that has been undertaken by the applicant. Upon the filing of an application, the NEB's authority is limited under Section 58.11 of the Act to either issuing a permit authorizing the IPL or recommending and issuing a certificate for the IPL. There is no authority for NEB to determine an alternate route for an IPL.

Notwithstanding federal jurisdiction over IPLs, Sections 58.17 and 58.2 of the Act allow for the application of provincial laws to certain matters relating to IPLs, including environmental assessment, where an Order in Council is issued by the government of the province where the IPL is located. While the NEB allows for a provincial environmental review process, and while the NEB is also under a duty to seek to avoid the duplication of measures undertaken by a province in respect of an IPL, the NEB is prohibited from delegating its decision-making authority regarding the environmental impacts of an IPL under federal environmental legislation, as discussed below.

2. *Canadian Environmental Assessment Act, 2012*, S.C. 2012, c. 19, s. 52

The construction, operation and decommissioning of a new electrical transmission line with a voltage of 345 kV or more and requiring 75 km or more of new right of way in totality is considered a Designated Project pursuant s. 39 of the Schedule to the *Regulation Designating Physical Activities* SOR/2012-147 under the *Canadian Environmental Assessment Act, 2012*, S.C. 2012, c. 19, s. 52 (*CEAA, 2012*).

Pursuant to paragraph 15(b) of *CEAA, 2012*, the NEB is a "Responsible Authority" for a "Designated Project" regulated under the *National Energy Board Act.* As part of its responsibilities, the NEB must ensure that an environmental assessment has been performed by the applicant pursuant to *CEAA, 2012* and must determine whether the IPL is likely to cause significant adverse environmental effects.

C. Provincial law

1. *The Crown Corporations Public Review and Accountability Act*, C.C.S.M. c. P336 and *The Public Utilities Board Act*, C.C.S.M. c. P280

The Public Utilities Board of Manitoba ("the PUB") has jurisdiction over Manitoba Hydro's retail electricity rates in accordance with Section 26 of *The Crown Corporations Public Review and Accountability Act* and *The Public Utilities Board Act*. Although the PUB does not have the specific authority to review Manitoba Hydro's capital projects, the PUB can be assigned additional duties by order of the Lieutenant Governor in Council.

Manitoba Order in Council 128/2013 was issued on April 17, 2013 under the authority of section 107 of *The Public Utilities Board Act* requiring a panel of the Public Utilities Board of Manitoba to conduct a "Needs For and Alternatives To" ("NFAT") review of Manitoba Hydro's preferred development plan, including the construction of a new 500 kV IPL and to make a recommendation to the Government of Manitoba as to whether construction of the new IPL should go forward.

2. *The Environment Act*, C.C.S.M. c. E125

The construction of electrical transmission lines greater than 230 kV and associated facilities is considered a Class 3 Development pursuant to the Classes of Development Regulation M.R. 164/88, made under *The Environment Act* and is subject to licensing under Section 12 of *The Environment Act*. The Licensing Procedures Regulation, M.R. 163/88 made under the Act outlines the process to be used and the information requirements for proposals under the Act. Subsection 1(1) of this Regulation requires the submission of a proposal that contains the location of the proposed development and a description of the environmental and socio-economic impacts of the development. A full, detailed assessment of the impacts for the proposed development is limited to the single proposed route and associated infrastructure. While alternative routes are included in the proposal, they are included only for comparison purposes to demonstrate why the single proposed route was selected. The proposal will not include detailed environmental or social-economic impacts of these alternatives. Should the proposed route be rejected in this process, an alternative route is not chosen by the regulator.

The Environment Act process includes an opportunity for public comments through a public registry maintained by Manitoba Conservation and Water Stewardship

3. *The Crown Lands Act*, C.C.S.M. c. C.340

Publicly-owned lands in Canada are considered to be "Crown lands", administered and controlled on behalf of the Crown. Under Canada's constitution Crown lands are generally administered and controlled by the provinces. The use and allocation of Crown

lands in Manitoba is governed by *The Crown Lands Act*. That Act provides the legislative authority for the provincial government to allocate or grant rights in provincial Crown land in Manitoba. Authorizations for the use of any Crown land for the IPL in Manitoba will be required to be granted under *The Crown Lands Act*.

4. The *Constitution Act, 1982* and Consultation by the Government with Aboriginal Peoples

Subsections 35(1) and (2) of the *Constitution Act, 1982* state:

> Recognition of existing aboriginal and treaty rights
> 35. (1) The existing aboriginal and treaty rights of the aboriginal peoples of Canada are hereby recognized and affirmed.
>
> Definition of "aboriginal peoples of Canada"
> (2) In this Act, "aboriginal peoples of Canada" includes the Indian, Inuit and Métis peoples of Canada.

The *Constitution Act, 1982* is part of the constitution of Canada and applies to federal and provincial government action. In accordance with governing case law interpreting s. 35, including leading Supreme Court of Canada cases *Haida Nation v. British Columbia (Minister of Forests),* [2004] 3 S.C.R. 511, 2004 SCC 73 and *Mikisew Cree First Nation v. Canada (Minister of Canadian Heritage) [2005] 3 S.C.R. 388, 2005 SCC 69*, it is settled law in Canada that the Crown (federal and provincial governments within the scope of their responsibilities) has a duty to consult with Aboriginal peoples about any decision or action that might affect the exercise of Aboriginal rights or treaty rights of the Aboriginal peoples and to attempt in good faith to address or accommodate concerns expressed by the Aboriginal peoples about those effects before making the decision or taking the action.

The Government of Manitoba has developed an Interim Provincial Policy for Crown Consultation with First Nations, Métis Communities and Other Aboriginal Communities as a general statement of the approach of the Government to meeting its duty of consultation with Aboriginal peoples. The Government is committed to completing consultation processes with potentially-affected Aboriginal communities. In order to determine the communities potentially affected an initial assessment of the consultation requirements is undertaken by the Government based on the route of the proposed project. Consultation is being planned based on the identified proposed route in Manitoba.

II. An Overview of the Regulatory Processes to Date

The need for and justification for the Project has already been confirmed by the Public Utilities Board of Manitoba as a result of the NFAT review process conducted between June 2013 and May 2014. The PUB issued a final report to the Manitoba Government

on the NFAT process in June 2014. The NFAT review process commenced with the filing of Manitoba Hydro's proposal and rationale, followed by two rounds of written information requests, the filing of evidence by interveners, one further round of information requests, and finally a hearing held from March 3 to May 26, 2014. The NFAT review included the appointment of independent expert consultants to examine Manitoba Hydro's plans. Those experts filed reports on their findings and testified at the NFAT hearing.

The PUB final report recommended that Manitoba Hydro be given approval to proceed with the construction of the proposed 500 kV Manitoba Minnesota transmission line. On December 10, 2014, Order in Council 545/2014 was issued by the Government Manitoba under *The Manitoba Hydro Act* authorizing Manitoba Hydro to proceed with all actions necessary to construct and operate the new transmission line.

Manitoba Order in Council No. 00386/2013 has also been issued under the authority of the *National Energy Board Act* designating the Manitoba Minister of Conservation and Water Stewardship as the provincial regulatory agency for the proposed IPL. This allows for the provincial environmental assessment and licensing process under *The Environment Act* to apply to the portion of the line in Manitoba.

It is our understanding that Manitoba Hydro has considered several different alternative routes for the Project over the last few years and conducted a Public Engagement Process that included consideration of these alternative routes. Based upon the outcome of that Public Engagement Process and a detailed route selection process conducted with the assistance of several external consultants, Manitoba Hydro has selected a specific proposed route. That route ends at a border crossing that was determined after several months of analysis and in-depth discussion with Minnesota Power. The crossing selected was considered to be in the best interests of the overall project and acceptable to both parties.

It is our understanding that Manitoba Hydro will be filing an application with the NEB for approval of a specific final preferred route with an identified associated border crossing, consistent with Canadian legal requirements.

We understand that three pre-application meetings have been held with the NEB providing information regarding the scope of the Project and the intended authorizations that will be sought once the application is filed. As described below, the NEB was also provided with Manitoba Hydro's draft Scoping Document.

Several meetings have also been held with representatives of Manitoba Conservation and Water Stewardship with respect to scope of environmental assessment, including the Public Engagement Program. On November 21, 2014, Manitoba Hydro filed an Environment Act Proposal with MCWS for a Class 3 Development under subsections 12(1) and 12(3) of *The Environment Act*, and provided a draft Scoping Document that outlines the proposed contents of an Environmental Impact Statement (EIS) for the Manitoba-Minnesota Transmission Project that describes the various environmental

components that will be studied. Included in that draft Scoping Document was a map of the final preferred route that identified the selected border crossing.

Pursuant to subsection 12(4) of *The Environment Act,* MCWS posted the filed documents on a public registry, and provided an opportunity for public/stakeholder comment until February 25, 2015. The public registry is available on-line at: http://www.gov.mb.ca/conservation/eal/registries/5750mbhydrombminnesota/index.html

Also pursuant to subsection 12(4) of *The Environment Act*, the Proposal was provided for analysis to the Technical Advisory Committee (TAC), made up of experts from several different provincial departments, including the wildlife branch, heritage branch, and fisheries branch, of the preferred route and associated border crossing. Comments from various departments have already been received.

III. The Required Steps to Complete the Regulatory Processes in Canada

It is anticipated that the current round of public engagement by Manitoba Hydro will be completed by summer 2015 and Manitoba Hydro will file its Environmental Impact Statement with Manitoba Conservation and Water Stewardship shortly after that pursuant to subsection 12(5) of *The Environment Act.*

An application will subsequently be filed with NEB. The NEB application and the EIS filed under the Environment Act will both seek approval for the single proposed route and the selected border crossing.

Public notification of the NEB application will be made and an opportunity for interested parties to file written comments with NEB will be specified in the notice. Manitoba Hydro will then have an opportunity to file written responses to any comments.

Once the EIS is filed, MCWS, coordinating with the NEB, will then begin its assessment of the Project and the EIS in accordance with subsection 12(5) of *The Environment Act.* Public consultations conducted by Manitoba Hydro are taken into consideration by MCWS when conducting its assessment. A public hearing before the Manitoba Clean Environment Commission may also be ordered under clause 12(5)(e) and subsection 12(6) of that Act. The NEB also has jurisdiction to order a public hearing under section 24 of the *National Energy Board Act.* As such, there could possibly be a joint public hearing or two separate hearings.

The provincial Technical Advisory Committee also conducts an extensive review of submitted EIS documents and provides written information requests to Manitoba Hydro that must be satisfied as part of the process. This may be done in advance of the public hearing or concurrently. Again, that review is based upon the single proposed route and selected border crossing.

Independent of the environmental assessment process, including any public hearings is the Crown consultation process with Aboriginal communities referred to above. The

0069-1

0069-1
DOE notes Manitoba Hydro's concerns related to the Border Crossing 500 kV Variation and the Border Crossing 230kV Variation alternatives, which were not analyzed by Manitoba Hydro in its planning and environmental process for the Canadian portion of the proposed transmission line. Section 1.3.2 of the EIS is updated to indicate concerns related to these crossings which are comprised of public (Crown) land immediately north of the international border and this land isidentified as supporting aboriginal uses of great importance to First Nations in the Province of Manitoba.

consultations will involve consideration of the single proposed route and selected border crossing.

IV. Coordination with United States and Minnesota Regulatory Processes

It is our understanding from Manitoba Hydro that the Minnesota Department of Commerce – Energy Environmental Review and Analysis Division and Minnesota Public Utilities Commission have issued an environmental scoping document that includes multiple alternative border crossings in addition to the border crossing associated with the Preferred Route. It is further our understanding that these additional border crossings are not included in Minnesota Power's application for a Presidential Permit.

Any decision by the Minnesota Department of Commerce, Energy Environmental Review and Analysis Division, or Minnesota Public Utilities Commission that would require a border crossing other than the selected border crossing included in the Canadian, Provincial and Presidential Permit review process will require the filing of new or amended applications containing a different proposed route. Manitoba Hydro advises that the filing of new or amended proposals with MCWS, or a new or amended application to the NEB, would require significant new studies to address the change in route to a different border crossing as part of the regulatory process in Canada. Manitoba Hydro also advises that it would be very unlikely that the necessary studies and the regulatory process would be completed in time to meet the proposed 2020 in-service date. As the agreements between Manitoba Hydro and Minnesota Power require a 2020 in-service date, the project may therefore be jeopardized.

Yours truly,

Gordon E. Hannon
General Counsel

c. Dan Wolf, Executive Secretary, Minnesota Public Utilities Commission

Appendix A – Links to legislation and key documents referred to in letter

Order in Council 00128/2013 for Manitoba Public Utilities Board NFAT Review:
http://oic.gov.mb.ca/OICDocs/2013/04/Healthy%20Living,%20Seniors%20&%20Consumer%20Affairs.130417.Public%20Utilities%20Board%20Act.1282013.pdf

Terms of Reference for Manitoba Public Utilities Board NFAT Review:
http://www.pub.gov.mb.ca/pdf/nfat/TermsOfReference-Ap25.pdf

Interim Provincial Policy for Crown Consultation with First Nations, Métis Communities and Other Aboriginal Communities:
http://www.gov.mb.ca/ana/pdf/pubs/interim_aboriginal_consultation_policy_and_guidelines.pdf

National Energy Board Act (Canada)
http://laws-lois.justice.gc.ca/eng/acts/N-7/FullText.html

National Energy Board Electricity Regulations
http://laws-lois.justice.gc.ca/eng/regulations/SOR-97-130/index.html

Canadian Environmental Assessment Act, 2012 (Canada)
http://laws-lois.justice.gc.ca/eng/acts/C-15.21/index.html

The Environment Act (Manitoba)
http://web2.gov.mb.ca/laws/statutes/ccsm/e125e.php

Classes of Development Regulation
http://web2.gov.mb.ca/laws/regs/current/_pdf-regs.php?reg=164/88

The Public Utilities Board Act (Manitoba)
http://web2.gov.mb.ca/laws/statutes/ccsm/p280e.php

The Crown Lands Act (Manitoba)
http://web2.gov.mb.ca/laws/statutes/ccsm/c340e.php

Order in Council 545/2014, authorizing Transmission Line
http://oic.gov.mb.ca/OICDocs/2014/12/Manitoba%20Hydro.141210.Manitoba%20Hydro%20Act.5452014.pdf

Order in Council 00386/2013
http://oic.gov.mb.ca/OICDocs/2013/11/Conservation%20&%20Water%20Stewardship.131106.National%20Energy%20Board%20Act.3862013.pdf

Manitoba Hydro
PO Box 7950 Stn Main • Winnipeg, Manitoba Canada • R3C 0J1
(204) 360-4394 • sjohnson@hydro.mb.ca

July 30, 2015

Mr. William Cole Storm
Environmental Review Manager
Minnesota Department of Commerce
85 7th Place East, Suite 500
St. Paul, Minnesota, 55101

Dear Mr. Storm:

RE: Great Northern Transmission Line Border Crossing

As you are aware, Manitoba Hydro is the Proponent for the Canadian portion of the 500 kV transmission project known in Canada as the 'Manitoba-Minnesota Transmission Project,' and in the U.S. as the Great Northern Transmission Line (Project). We recently reviewed the Draft Environmental Impact Statement (EIS) (June 19, 2015), submitted by the Minnesota Department of Commerce - Energy Environmental Review and Analysis Staff and U.S. Department of Energy.

The Draft EIS identifies a number of border crossing variations that are under consideration. Manitoba Hydro would like to provide the following comments regarding selection of the border crossing:

1. Manitoba Hydro can only support the agreed-upon border crossing located at Lat. 49 00 00.00N; Long. 95 54 50.49W; known as the Proposed Border Crossing - Blue/Orange Route in the Draft EIS and noted as the MH Preferred Border Crossing and shown as a light blue area on the attached map.

0070-1

Manitoba Hydro completed a robust, transparent comparative analysis of routes and all potential border crossings using a process based on the EPRI-GTC Overhead Electric Transmission Line Siting Methodology. This process:

- Evaluated numerous social, technical and environmental factors, similar to those criteria identified in the Minnesota Public Utilities Commission routing and siting regulations (such as land use, human settlement, agriculture, forestry, cultural and historic resources, wildlife, rare species, water resources, noise, air quality, health and safety, engineering constraints, etc.);
- Incorporated routing preferences (that is, a weighting of the routing criteria) based on discussions with internal and external stakeholders; and
- Used this data to identify and rank potential border crossings and routes.

0070-2

Using this methodology, Manitoba Hydro determined that Piney East Border crossing (MH Former Border Crossing shown in light grey on the attached map) which encompassed Border Crossing Hwy 310 Variation, was not a feasible border crossing for a variety of compelling reasons. These included, but were not limited to, the fact that routes to this crossing traverse areas of high biological diversity that had been noted by government agencies and environmental

0070-1
Thank you for your comment. Section 1.3.2 of the EIS is updated to indicate the border crossing location developed by Manitoba Hydro in their planning process.

0070-2
DOE notes Manitoba Hydro's concerns related to the Border Crossing 500 kV Variation and the Border Crossing 230kV Variation alternatives, which were not analyzed by Manitoba Hydro in its planning and environmental process for the Canadian portion of the proposed transmission line. Section 1.3.2 of the EIS is updated to indicate concerns related to these crossings which are comprised of public (Crown) land immediately north of the international border and this land isidentified as supporting aboriginal uses of great importance to First Nations in the Province of Manitoba.

0070-2 Continued 0070-2 cont'd

non-government organizations. Furthermore, this area is primarily composed of Crown (public) lands, which support traditional Aboriginal use and First Nations noted significant concerns in regards to route alternatives in this area. Border Crossing 500 kV Variation and the Border Crossing 230 kV Variation were outside of the agreed upon Border crossing and thus were not analyzed but would pose many of the same challenges.

Based on our environmental analysis and public, First Nations and Métis engagement processes, in consultation with Minnesota Power, the Proposed Border Crossing - Blue/Orange Route was selected as the preferred end point for each entity. While other border crossings were favored by each entity, the Proposed Border Crossing – Blue/Orange route was jointly selected because it balances environmental, technical, and stakeholder impacts on both sides of the border.

The preferred route and border crossing were presented as part of a third round of our engagement processes earlier this year. With the feedback received and through the environmental review work being undertaken, Manitoba Hydro determined the final placement of the transmission line and will submit an environmental impact statement to Manitoba Conservation and Water Stewardship. An application will also be filed with the National Energy Board in September. Manitoba Hydro **does not** have routes that connect to the border crossing variations included in the Draft EIS. Our application will only include the Proposed Border Crossing - Blue/Orange Route location developed and agreed upon by Manitoba Hydro and Minnesota Power.

Manitoba Hydro and Minnesota Power have made a business commitment to have the Project in service by June 2020. Selection of a border crossing location that does not align with our border crossing and route jeopardizes this commitment and the Project.

Should you have any questions or require further clarification please do not hesitate to contact me at 204-360-4394.

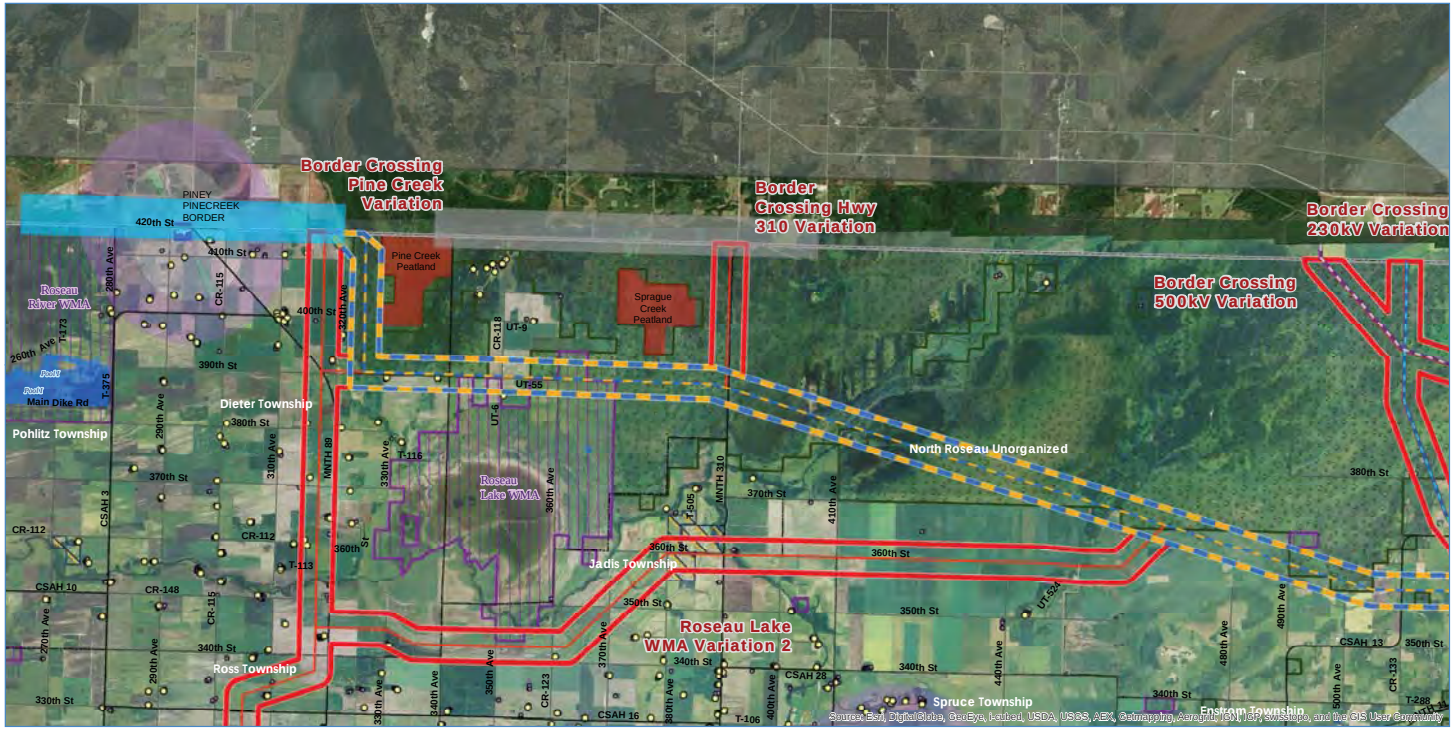
Regards,

Original signed by Shannon Johnson

Shannon Johnson
Manager
Licensing and Environmental Assessment Department
Manitoba Hydro
820 Taylor Ave (3)
Winnipeg, Manitoba
R3M 3T1

Attachments: 1

Cc: Julie Ann Smith, PhD, Federal Document Manager
DOE Office of Electricity Delivery and Energy Reliability
1000 Independence Avenue SW
Washington, DC, 20585



Blue Route
Orange Route
Route Option
Scoping Decision Route
MH Preferred Border Crossing
MH Former Border Crossing Option
230kV AC
500kV AC
Railroad
Public-use Airport
Approach
Conical
Horizontal
Residence
Structure
County Boundary
City / Township Boundary
Reservation Boundary
Conservation Land
Mining
Wildlife Management Area
Scientific & Natural Area
State Park
State Conservation Easement
State Forest
Federal Land
Waterfowl Production Area
Wildlife Management Area
USDA NRCS Easement
The Nature Conservancy
Waterbody

16,000 8,000 0 16,000
Feet

Roseau County
MINNESOTA

Board of Commissioners
606 5th Ave. SW, Room #131
Roseau, MN 56751
Phone: 218-463-4248
Fax: 218-463-3252

A motion was made by Commissioner Miller, seconded by Commissioner Falk and carried unanimously to adopt the following resolution:

2015-02-01

SUPPORTING MINNESOTA POWER'S GREAT NORTHERN TRANSMISSION LINE PROPOSED ROUTE ALTERNATIVES

MPUC DOCKET NO. E015/TL-14-21

OAH CASE NO. 65-2500-31637

DOE OE DOCKET NO. PP-398

WHEREAS, Minnesota Power is proposing to construct the 500 kV Great Northern Transmission Line from the Manitoba/Minnesota international border in Roseau County to the Blackberry Substation in Itasca County by June 1, 2020; and

WHEREAS, Minnesota Power is partnering with Manitoba Hydro to build this line that will deliver, clean renewable hydropower from northern Manitoba to Minnesota and the upper Midwest; and

WHEREAS, Minnesota Power has been working with Roseau County, and residents and landowners in Roseau County, for over three years to develop and refine a route for this project that provides the least impact to residents and landowners; and

WHEREAS, this voluntary outreach has included multiple open houses in Roseau County, and multiple meetings updating Roseau County Commissioners, in addition to the required legal notices to Roseau County and multiple public hearings on the need for the Great Northern Transmission Line, and the scope of the environmental impact statement for the State route permit and Federal Presidential Permit; and

WHEREAS, in September 2014, the Minnesota Public Utilities Commission approved a working group to gather additional public input and two Roseau County Commissioners participated in these working group meetings, and provided input on the proposed routes and border crossing; and

WHEREAS, in October 2014, Minnesota Power submitted to the United States Department of Energy an amendment to its border crossing based on consultation with landowners and stakeholders in Roseau County that the originally proposed border crossing was no longer feasible given constraints from the future expansion of the Piney-Pinecreek Border Airport and the Roseau River Wildlife Management Area; and

WHEREAS, with this new information, Minnesota Power and Manitoba Hydro reached an agreement on a new border crossing that would originate at the Minnesota-Manitoba border roughly 2.9 miles east of Highway 89 in Roseau County. It would proceed southeast 0.2 miles and then travel south 2.3 miles to 390th Street and turn east following Minnesota Power's proposed Blue and Orange Routes as proposed in its April 15, 2014 Route Permit and Presidential Permit applications; and

0071-1
Thank you for your comment. No changes are made to the EIS in response to this comment.

WHEREAS, during the scoping process for the environmental impact statement, additional border crossings were proposed by the Minnesota Department of Natural Resources and private landowners, and four of these additional border crossings were carried forward by the Minnesota Department of Commerce into the scope of the draft environmental impact statement; and

WHEREAS, Roseau County supports the amended border crossing proposed by Minnesota Power as the only feasible border crossing given the agreement between Minnesota Power and Manitoba Hydro; and

WHEREAS, Roseau County opposes the proposed route alternatives in Roseau County submitted by the Minnesota Department of Natural Resources and the United States Fish and Wildlife Service that were done without input from Roseau County, including the Roseau Lake WMA Alternative, due to more impacts on private landowners and agricultural land use and interfering with a public airport; and

WHEREAS, it is in the best interests of Roseau County that impacts to agricultural land uses and human settlements be minimized and Minnesota Power's proposed route appears to accomplish those objectives; and

WHEREAS, the route alternatives submitted by the Minnesota Department of Natural Resources and the United States Fish and Wildlife Service effectively negate over three years of good faith participation by Roseau County, and its residents, in working collaboratively with Minnesota Power to route the Great Northern Transmission Line in a manner that attempts to provide the least impact to residents and landowners;

NOW THEREFORE BE IT RESOLVED, Roseau County supports Minnesota Power's preferred route as submitted on April 15, 2014 in the above-referenced dockets and Minnesota Power's proposed border crossing as submitted in October 2014 to the United States Department of Energy; and 0071-1

BE IT FURTHER RESOLVED, Roseau County designates Commissioners Roger Falk and Todd Miller as possible participants in the public information meetings on the draft environmental impact statement, and the State route permit public hearings, and may provide written and oral testimony consistent with this Resolution.

STATE OF MINNESOTA)
) ss
COUNTY OF ROSEAU)

I, Jeff Pelowski, County Coordinator in and for Roseau County, Minnesota, do hereby certify that the foregoing is a true and correct copy of a part of the proceedings adopted by the Roseau County Board of Commissioners on February 10, 2015.

(SEAL)

Jeff Pelowski
Roseau County Coordinator

District 1, Glenda Phillipe** District 2, Jack Swanson, Chair
District 3, Roger Falk, Vice-Chair ** District 4, Todd Miller ** District 5, Mark Foldesi

An Equal Opportunity Employer

ATTN: The Honorable Ann O'Reilly
Bill Storm
Jim Atkinson

the Dieter Town Board County of Roseau MN with Reservations will support Minnesota Powers Proposed transmission line Rout Alteratives, from the Manitoba Canada USA Border Crossing 2.2 miles East of State Hiway 89 then south 2.3 miles to 390th Street than East along 390th Street out of Dieter township, our main concern in Dieter township is the Line goes close to Building sites and Homes IT could be moved Into waste Land and Not Harm anybody or anything.

The Proposed routs the DNR Has Laid out are extremely Distructive and Intrusive on Farm Land and occupied Homes and building sites. each time the Home owners and Land owners Pay these taxes they Pay for the waist Land that is Not taxed. when a project for the public good Like this Comes along IT should Be on Public Land.

0072-1

thanks, Marlin Elton

Clerk Dieter township
Land and Home owner Dieter township Roseau Co.
Marlin Elton

0072-1
Thank you for your comment. No changes are made to the EIS in response to this comment.

Dan Fabian
State Representative

District 1A
Kittson, Marshall, Pennington and Roseau Counties

Minnesota House of Representatives

MPUC DOCKET NO. E015/TL-14-21

OAH CASE NO. 65-2500-31637

Dear Mr. Wolf,

I am writing to express my strong support for Minnesota Power's proposed route alternatives and international border crossing of the Great Northern Transmission Line through my House District. The Great Northern Transmission Line is an important project that will connect not just Minnesota Power and Manitoba Hydro, but will provide connections and benefits for the entire region. That said, a transmission project of this size and magnitude must be planned in a careful and deliberate manner recognizing the critical international cooperation. Based on what I have observed first hand and through working closely with Minnesota Power and my constituents, I firmly believe Minnesota Power has exceeded that standard and hope that the Minnesota Public Utilities Commission takes this into account when evaluating route alternatives and the border crossing.

The MPUC should take into account that Minnesota Power has been working with Roseau County and my constituents for over three years to develop and refine a route for this project that provides the least impact to residents and landowners. These routes have not been done in isolation, but through a voluntary outreach approach that has included multiple open houses in Roseau County and multiple meetings with Roseau County. This approach and collaboration led Minnesota Power to moving the originally proposed border crossing further to the east to avoid potential impacts to any future expansions of the Piney-Pinecreek Border Airport and the Department of Natural Resources' Roseau River Wildlife Management Area. The new border crossing minimizes impacts on private landowners, maximizes use of state lands, and is the only feasible border crossing given the agreement between Minnesota Power and Manitoba Hydro.

However, despite these facts, the DNR and US Fish & Wildlife Service proposed additional border crossings and route alternatives that were carried forward into the scope of the draft EIS. Similar to the reasons expressed by the Roseau County Board Resolution, I oppose these proposed route alternatives in Roseau County. These route alternatives were done without input from Roseau County or my constituents and would inflict significantly more impacts on private landowners and farmers, while unnecessarily increasing the length of the line in Roseau County. While I understand the MPUC must apply its statutory factors in evaluating routes for transmission lines, in this instance I believe it is in the best interest of my constituents to limit the impacts on agricultural land uses and homes and Minnesota Power's proposed route accomplishes that interest. If the MPUC accepts any of the route alternatives submitted by the DNR and US Fish & Wildlife Service, the three years of coordination by Minnesota Power and stakeholders, including myself, will be negated.

The Great Northern Transmission Line provides many benefits to the State of Minnesota and to maximize those benefits the MPUC should minimize impacts on residents and farmers in Roseau County.

Sincerely,

Dan Fabian

Dan Fabian

705 Main Ave. S., Roseau, Minnesota 56751 (218) 463-1209
State Office Building, 100 Rev. Dr. Martin Luther King Jr. Blvd., St. Paul, Minnesota 55155-1299 (651) 296-9635
FAX: (651) 296-1270 Email: rep.dan.fabian@house.mn

0073-1

0073-1
Thank you for your comment. No changes are made to the EIS in response to this comment.

0074-1
Thank you for your comment. No changes are made to the EIS in response to this comment.

April, 2015

Senate
State of Minnesota

Daniel P. Wolf
Executive Director
Minnesota Public Utilities Commission
121 7th Place East, Suite 350
St. Paul, MN 55101-2147

RE: Great Northern Transmission Line
MPUC Docket No. E015/TL-14-21

Dear Executive Director Wolf,

We are writing to express our solid support for Minnesota Power's proposed route alternatives and international border crossing of the Great Northern Transmission Line. This project will go through Senator Skoe's Senate District and has a statewide impact given size and projected property tax revenues of $40,000 to $70,000 per mile from the project. The Great Northern Transmission Line is an important project that will connect not just Minnesota Power and Manitoba Hydro, but will provide connections and benefits for the entire region. This project will also support additional clean, renewable hydro power being transmitted from Manitoba Hydro to electric consumers in Minnesota. A transmission project of this size and scope must be planned in a careful and deliberate manner recognizing the important international cooperation. 0074-1

The MPUC should take into account that Minnesota Power has been working with local governments and Senator Skoe's constituents for over three years to develop and refine a route for this project that provides the least impact to residents and landowners. These routes have not been done in isolation, but through a voluntary outreach approach that has included multiple open houses and multiple meetings updating local governments. However, despite these facts, the DNR and US Fish & Wildlife Service proposed additional border crossings and route alternatives that were carried forward into the scope of the draft EIS. We oppose these proposed route alternatives. These route alternatives were done without input from local governments or Senator Skoe's constituents and would provide significantly more impacts to private landowners and farmers, while unnecessarily increasing the length of the line. While we understand the MPUC must apply its statutory factors in evaluating routes for transmission lines, in this instance it is in the best interest of Minnesota residents to limit the impacts on agricultural land uses and homes and Minnesota Power's proposed route accomplishes that interest. If the MPUC accepts any of the route alternatives submitted by the DNR and US Fish & Wildlife Service, the three years of coordination by Minnesota Power and stakeholders will be negated.

The Great Northern Transmission Line provides many benefits to the State of Minnesota and to maximize those benefits the MPUC should minimize impacts on residents and farmers.

Sincerely,

Senator Rod Skoe
Chair, Senate Tax Committee

Sincerely,

Senator Ann H. Rest
Chair, Senate Tax Reform Division

0075-1
Thank you for your comment. No changes are made to the EIS in response to this comment.

April, 2015

Senate
State of Minnesota

Daniel P. Wolf
Executive Director
Minnesota Public Utilities Commission
121 7th Place East, Suite 350
St. Paul, MN 55101-2147

RE: Great Northern Transmission Line
MPUC Docket No. E015/TL-14-21

Dear Executive Director Wolf,

We are writing to express our solid support for Minnesota Power's proposed route alternatives and international border crossing of the Great Northern Transmission Line. This project will go through Senator Skoe's Senate District and has a statewide impact given size and projected property tax revenues of $40,000 to $70,000 per mile from the project. The Great Northern Transmission Line is an important project that will connect not just Minnesota Power and Manitoba Hydro, but will provide connections and benefits for the entire region. This project will also support additional clean, renewable hydro power being transmitted from Manitoba Hydro to electric consumers in Minnesota. A transmission project of this size and scope must be planned in a careful and deliberate manner recognizing the important international cooperation. 0075-1

The MPUC should take into account that Minnesota Power has been working with local governments and Senator Skoe's constituents for over three years to develop and refine a route for this project that provides the least impact to residents and landowners. These routes have not been done in isolation, but through a voluntary outreach approach that has included multiple open houses and multiple meetings updating local governments. However, despite these facts, the DNR and US Fish & Wildlife Service proposed additional border crossings and route alternatives that were carried forward into the scope of the draft EIS. We oppose these proposed route alternatives. These route alternatives were done without input from local governments or Senator Skoe's constituents and would provide significantly more impacts to private landowners and farmers, while unnecessarily increasing the length of the line. While we understand the MPUC must apply its statutory factors in evaluating routes for transmission lines, in this instance it is in the best interest of Minnesota residents to limit the impacts on agricultural land uses and homes and Minnesota Power's proposed route accomplishes that interest. If the MPUC accepts any of the route alternatives submitted by the DNR and US Fish & Wildlife Service, the three years of coordination by Minnesota Power and stakeholders will be negated.

The Great Northern Transmission Line provides many benefits to the State of Minnesota and to maximize those benefits the MPUC should minimize impacts on residents and farmers.

Sincerely,

Senator Rod Skoe
Chair, Senate Tax Committee

Sincerely,

Senator Ann H. Rest
Chair, Senate Tax Reform Division

LeRoy Stumpf
Senator – District 1
G-12 State Capitol
75 Dr. Martin Luther King, Jr. Blvd.
St. Paul, MN 55155
Phone (651) 296-8660

Senate
State of Minnesota

May 6, 2015

MPUC DOCKET NO. E015/TL-14-21

Dear PUC Commissioners Heydinger, Wergin, Lange, Lipschultz and Tuma,

I am writing to express my strong support for Minnesota Power's proposed route alternatives and international border crossing of the Great Northern Transmission Line through my Senate District. The Great Northern Transmission Line is an important project that will connect not just Minnesota Power and Manitoba Hydro, but will provide connections and benefits for the entire region. This project will also support additional clean, renewable hydro power being transmitted from Manitoba Hydro to electric consumers in Minnesota. A transmission project of this size and scope must be planned in a careful and deliberate manner recognizing the important international cooperation.

The MPUC should take into that Minnesota Power has been working with Roseau County and my constituents for over three years to develop and refine a route for this project that provides the least impact to residents and landowners. These routes have not been done in isolation, but through a voluntary outreach approach that has included multiple open houses in Roseau County and multiple meetings updating Roseau County. However, despite these facts, the DNR and US Fish & Wildlife Service proposed additional border crossings and route alternatives that were carried forward into the scope of the draft EIS. Similar to the reasons expressed by the Roseau County Board Resolution, I oppose these proposed route alternatives in Roseau County. These route alternatives were done without input from Roseau County or my constituents and would provide significantly more impacts to private landowners and farmers, while unnecessarily increasing the length of the line in Roseau County. While I understand the MPUC must apply its statutory factors in evaluating routes for transmission lines, in this instance I believe it is in the best interest of my constituents to limit the impacts on agricultural land uses and homes and Minnesota Power's proposed route accomplishes that interest. If the MPUC accepts any of the route alternatives submitted by the DNR and US Fish & Wildlife Service, the three years of coordination by Minnesota Power and stakeholders will be negated.

0076-1

Chair, Capital Investment Committee

0076-1
Thank you for your comment. No changes are made to the EIS in response to this comment.

PUC Commissioners Heydinger, Wergin, Lange, Lipschultz and Tuma,
May 6, 2015
Page 2

The Great Northern Transmission Line provides many benefits to the State of Minnesota and to maximize those benefits the MPUC should minimize impacts on residents and farmers in Roseau County.

Sincerely,

LeRoy Stumpf
Senator – District 1

218-634-2836
218-634-2509 (Fax)

LAKE OF THE WOODS COUNTY

Lake of the Woods County Commissioners
206 8th Ave SE, Suite 260
Baudette, MN 56623

The following resolution was offered by Commissioner Hanson, seconded by Commissioner Moorman and moved for adoption:

MINNESOTA POWER'S GREAT NORTHERN TRANSMISSION LINE

RESOLUTION NO. 15-06-08

MPUC Docket No. E015/TL-14-21
OAH CASE NO. 65-2500-31637,
DOE OE DOCKET NO. PP-398

WHEREAS; Minnesota Power is proposing to construct the 500 KV Great Northern Transmission Line through Lake of the Woods County by June 1, 2020;

WHEREAS; Minnesota Power has been working with Lake of the Woods County Board of Commissioners, residents, and landowners in Lake of the Woods County, for over three years to develop and refine a route for this project that provides the least impact to residents and landowners;

WHEREAS; Lake of the Woods County does not support Great Northern Transmission Line alternate routes indicated in Red;

NOW THEREFORE BE IT RESOLVED THAT; Lake of the Woods County prefers Minnesota Power's "Orange Route" as reviewed with Jim Atkinson from Minnesota Power on May 26, 2015.

0077-1

I certify that this is a true and complete copy of the original thereof, which is on file and of record the Office of the County Auditor/Treasurer, Lake of the Woods County, Minnesota.

DATED at Baudette, Minnesota this 23rd day of June, 2015.

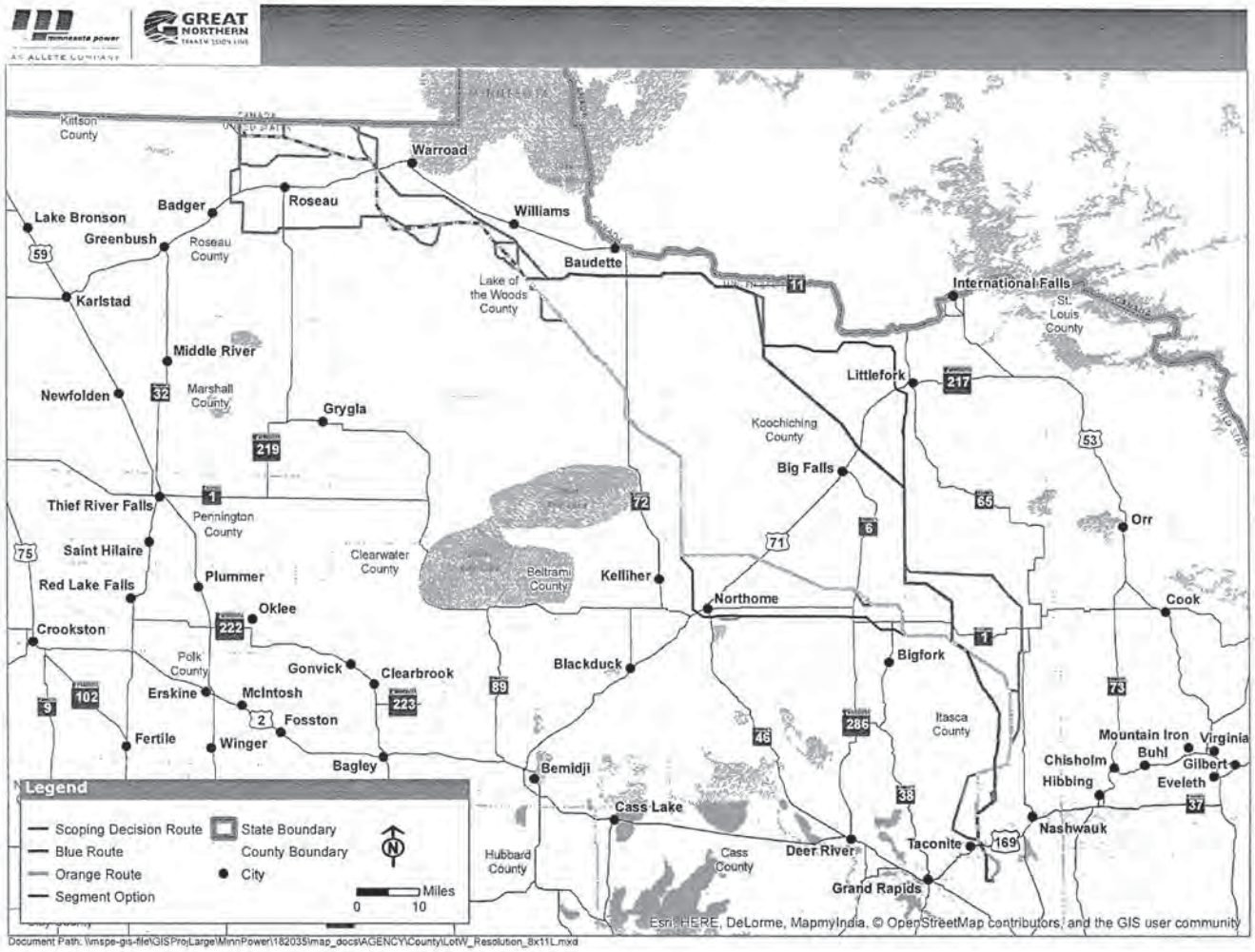
Lorene Hanson

Lorene Hanson, County Auditor/Treasurer

(SEAL)

- EQUAL OPPORTUNITY EMPLOYER -

0077-1
Thank you for your comment. No changes are made to the EIS in response to this comment.


Kittson County
Warroad
Roseau
Badger
Lake Bronson
Greenbush
Roseau County
Williams
Baudette
Lake of the Woods County
International Falls
St. Louis County
Karlstad
Middle River
Marshall County
Newfolden
Grygla
Littlefork
Koochiching County
Big Falls
Thief River Falls
Pennington County
Orr
Saint Hilaire
Clearwater County
Beltrami County
Kelliher
Red Lake Falls
Plummer
Northome
Cook
Oklee
Crookston
Polk County
Gonvick
Clearbrook
Blackduck
Bigfork
Erskine
McIntosh
Fosston
Itasca County
Fertile
Winger
Bagley
Bemidji
Mountain Iron
Virginia
Buhl
Chisholm
Gilbert
Hibbing
Eveleth
Cass Lake
Nashwauk
Taconite
Hubbard County
Cass County
Deer River
Grand Rapids
Legend
Scoping Decision Route
Blue Route
Orange Route
Segment Option
State Boundary
County Boundary
City
Miles
0 10
Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors, and the GIS user community
Document Path: \\mspe-gis-file\GISProjLarge\MinnPower\182035\map_docs\AGENCY\County\LotW_Resolution_8x11L.mxd

REGULAR MEETING OF THE KOOCHICHING COUNTY BOARD OF COMMISSIONERS
Held on Tuesday, June 16 2015; 11:00 a.m.

MEMBERS PRESENT: Commissioners Pavleck, McBride, Skoe, Ecklund, Adee
MEMBERS ABSENT: None

2015/06-28 Motion by McBride, seconded by Skoe adopting the following resolution stating Koochiching County's support of the construction by Minnesota Power for the Proposed Great Northern Transmission Line:

WHEREAS Minnesota Power has proposed the construction of the Great Northern Transmission Line to carry electricity from Manitoba Canada to the Blackberry Substation 10 miles east of Grand Rapids, Minnesota; and

WHEREAS this proposed line would provide access to clean, reliable and affordable energy to many Koochiching County residents who rely upon Minnesota Power to meet their energy needs; and

WHEREAS the proposed routes would necessitate the construction of a 500kv transmission line in Koochiching County; and

WHEREAS Minnesota Power has collaborated with Koochiching County officials and residents to create routes for said transmission line with minimal adverse impact to county residents, landowners and business; and

WHEREAS this collaborative effort included multiple rounds of open houses and public comment meetings in the communities of Littlefork, International Falls and Northome as well as several updates at regular meetings of the Koochiching County Board of Commissioners; and

WHEREAS this collaborative process has resulted in the creation of two proposed routes referred to as the "Blue Route" and the "Orange Route" across Koochiching County; and

WHEREAS the segment option to the Blue Route passes through the Lindford area, the segment option to the Orange Route passes near the Northome School and the red "EIS Alternate Alignment" options were proposed without any input from County Stakeholders.

NOW THEREFORE BE IT RESOLVED, Koochiching County supports the approval of either the Blue Route or the Orange Route of the Great Northern Transmission Line with strong preference being given to the Blue Route; and

BE IT FURTHER RESOLVED Koochiching County opposes all segment options and "EIS Alternate Alignment" options to both the Blue and Orange Route. Voting yes: Pavleck, McBride, Skoe, Ecklund, Adee

CERTIFICATION
STATE OF MINNESOTA
COUNTY OF KOOCHICHING

I, Teresa Briggs, Clerk to the Koochiching County Board of Commissioners, in and for the County of Koochiching, State of Minnesota, do hereby certify that the records of my office show that the above is a true and correct copy of a resolution adopted by the County Board at their meeting on June 16, 2015.

Date: 6-17-15 Teresa Briggs
Teresa Briggs, Board Clerk
Koochiching County Board

0078-1

0078-1
Thank you for your comment. No changes are made to the EIS in response to this comment.

GREAT NORTHERN TRANSMISSION LINE

Connecting Manitoba and Minnesota

Comment on the
Great Northern Transmission Line
Docket Number TL-14-21

Name: Jerry Adam

Organization (if any):

Mailing Address: 40180 Bray Lake Rd
Nashwauk, MN

City:

State:

Zip:

Email:

Comment: We prefer the Balsam Variation Route-
STAY AWAY FROM "BRAY LAKE"

0079-1

0079-1
Thank you for your comment. No changes are made to the EIS in response to this comment.

GREAT NORTHERN TRANSMISSION LINE

Connecting Manitoba and Minnesota

Comment on the Great Northern Transmission Line

Docket Number TL-14-21

Name: Karen Adam

Organization (if any):

Mailing Address: 40180 Bray Lake Rd

City: Nashwauk

State: MN

Zip:

Email:

Comment: We prefer the Balsam Variation Route - please stay away from Bray Lake. 0080-1

0080-1
Thank you for your comment. No changes are made to the EIS in response to this comment.

Comment on the Great Northern Transmission Line

Docket Number TL-14-21

RECEIVED
MAY 14 2015
MAILROOM

Name: Curtis + Carol Amundson
Organization (if any): 21906 370th Ave
Mailing Address:

City: Roseau
State: MN
Zip: 56751
Email:

Comment:

Since this power line is for public use we think it should go on public land as much as possible. 0081-1

Therefore we are opposed to the route pictured on the back of this page.

We think there are just too many people living on this route.

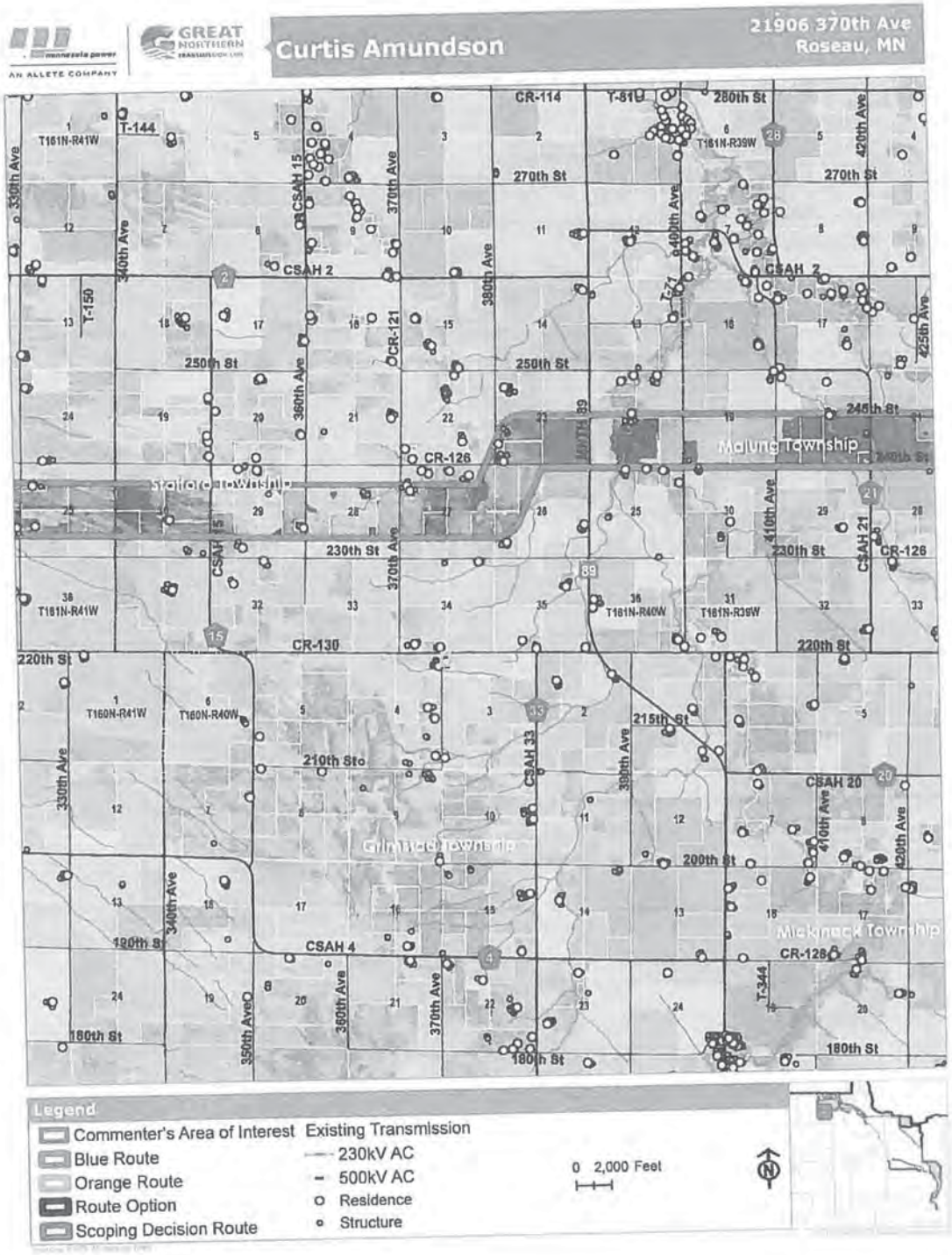
No one knows the effect big power lines will have on humans. The effect (whatever that may be) would be unrelenting. 0081-2

Carol + Curtis Amundson

0081-1
Thank you for your comment. No changes are made to the EIS in response to this comment.

0081-2
The impacts on human health from the proposed Project are evaluated in the EIS, specifically noise in Section 5.2.1.2 and public health and safety in Section 5.2.2 of the EIS.

No changes are made to the EIS in response to this comment.


Curtis Amundson
21906 370th Ave
Roseau, MN
Legend
Commenter's Area of Interest
Blue Route
Orange Route
Route Option
Scoping Decision Route
Existing Transmission
230kV AC
500kV AC
Residence
Structure
0 2,000 Feet
Malung Township
Gilchrist Township
Mickinock Township
CR-114
T-81U
280th St
270th St
250th St
245th St
230th St
220th St
215th St
210th St
200th St
190th St
180th St
CSAH 2
CR-126
CR-130
CSAH 4
CSAH 20
CSAH 21
CSAH 33
CR-128
T-144
T-150
T-344
T161N-R41W
T161N-R39W
T161N-R40W
T160N-R41W
T160N-R40W
330th Ave
340th Ave
350th Ave
360th Ave
370th Ave
380th Ave
390th Ave
410th Ave
420th Ave
425th Ave

0082

Great Northern Transmission Line <greatnortherntransmissionline@gmail.com>

Contact Us Form Submission

greatno9@box355.bluehost.com <greatno9@box355.bluehost.com> Wed, Jun 3, 2015 at 10:53 PM
Reply-To: kelly.spitzley@hdrinc.com
To: greatnortherntransmissionline@gmail.com

There has been a submission of the form Contact Us through your concrete5 website.

Name:
Ben Bleess

Email
benbleess@gmail.com

Street Address:
29272 650th avenue

City:
Warroad

State:
MN

Zipcode:
56763

Phone:
2182424633

Preferred method of contact:
Email

Inquiry:
I am concerned that the transmission lines will go over my future home building site 2 miles south of Swift MN. Please do not use this alternate route. 0082-1

To view all of this form's submissions, visit http://www.greatnortherntransmissionline.com/index.php/dashboard/reports/forms/?qsid=1347460636

0082-1
Thank you for your comment. The EIS only analyzes existing residences.

No changes are made to the EIS in response to this comment.

From: Benjamin Bleess
To: Storm, Bill (COMM)
Subject: TL-14-21
Date: Tuesday, May 05, 2015 4:44:24 PM

Hello Bill,
I just attended the Warroad meeting for the above issue.
I oppose the Cedar Bend WMA. This will go directly over my pasture and likely future home building sit if it goes on the south side of the current power lines.

If this goes through it will impact many homes and farms/animals. There is ample research that I could provide from government sources on stray voltage harming grazing/drinking of cows.

If this goes through I would like to know if my land could be rented annually (12 acres) instead of "purchasing" easement.

Thank you!
Ben Bleess

0083-1

0083-1
As discussed in Section 1.3.1.4 of the EIS, once a route is selected and a permit is issued, the Applicant would contact landowners to gather information about their property and their concerns and discuss how the ROW would best proceed across the property.

No changes are made to the EIS in response to this comment.

Great Northern Transmission Line
GIS Map Comment Form

Name: Janet Delird
Address: 37845 Co. Rd. 326
City: Pengy
County: Itasca
State: MN.
Phone Number: 218-245-1840 Zip: 55709
Email: —

Comment: I prefer the Red Route Balsam Variation because it's an existing power line area

Thank You

RECEIVED
JUN 29 2015
MAILROOM

0085-1

0085-1
Thank you for your comment. No changes are made to the EIS in response to this comment.

Comment on the Great Northern Transmission Line *Docket Number TL-14-21*

Name: Lorella Fulton
Organization (if any): Property owner
Mailing Address: 1210 Main Ave

City: Int'l Falls
State: MN
Zip: 56649
Email: blackriverwoman@gmail.com

Comment:

I wish to continue to be on record as supporting MN Powers Blue Route as proposed

As a property owner in Sec 30 Twp 158 Rang 25 I strongly oppose the Black segment out of Littlefork as circled on back map

Lorella Fulton

RECEIVED
JUN 29 2015
MAILROOM

0086-1

0086-1
Thank you for your comment. No changes are made to the EIS in response to this comment.

Fulton
1210 Main av
Intl Falls
opposed
desired
County Rd 32 W
T158N-R26W
T158N-R25W
T157N-R26W
T157N-R25W
UT-94
Legend
Commenter's Area of Interest
Blue Route
Orange Route
Route Option
Scoping Decision Route
Existing Transmission
230kV AC
500kV AC
Residence
Structure
0 2,000 Feet

GREAT NORTHERN TRANSMISSION LINE

Connecting Manitoba and Minnesota

Comment on the Great Northern Transmission Line

Docket Number TL-14-21

Name: Lindsey Horne

Organization (if any):

Mailing Address: 5824 Co. Rd. 1

City: Littlefork

State: Minn

Zip: 56653

Email:

Comment: Please put the line through the Minnesota Power Blue line. There are a lot of families living on the Littlefork line. If you put it through those swamps very few people will be affected by it. I have a large garden and a lot of fruit trees which many families use the vegetables and fruit. 0087-1

0087-1
Thank you for your comment. No changes are made to the EIS in response to this comment.

GREAT NORTHERN TRANSMISSION LINE

Connecting Manitoba and Minnesota

Comment on the
Great Northern Transmission Line
Docket Number TL-14-21

Name: Bonnie Horne

Organization (if any):

Mailing Address: 1500 8th Avenue

City: Littlefork

State: MN

Zip: 56653 218-278-6709

Email:

Comment: Please put the line through the Minnesota's Powers Blue Route, that bypasses Littlefork and all the family's that have homes ~~the~~ and children that will be affected by the other route Please put the line through the Minnesota Powers Blue Route

Why would you want to affect ~~the~~ many residents health of adults and children that can not afford to move to another area to get away from the health hazzards. It affects many peoples lives if you do not go through Minnesota Powers Blue Route. 0088-1

0088-1
Thank you for your comment. No changes are made to the EIS in response to this comment.

From: P & J TURKEYS
To: Storm, Bill (COMM)
Subject: Docket Number TL-14-21
Date: Tuesday, May 05, 2015 9:34:49 PM

As a land owner and agricultural producer in Roseau County, Minnesota I am opposed to the Great Northern Transmission Line going through agricultural land of Stokes, Stafford, and Malung townships of our county. The Original northern route through mostly unpopulated, non agricultural land is far more acceptable. The route through ag land imposes limitations on how our land is farmed and impacts values. I am tired of Minnesota wildlife and conservation interests taking precedence over people making a living off the land.

Thank you,
Duane Jaenicke
23786 370th Ave
Roseau, MN 56751
218.689.0494

0089-1

0089-1
Thank you for your comment. No changes are made to the EIS in response to this comment.

Comment on the Great Northern Transmission Line
Docket Number TL-14-21

RECEIVED
JUN 29 2015
MAILROOM

Name: CANDACE JOHNSON
Organization (if any): INDIVIDUAL & MEMBER OF THE HARTLEY LAKE ASSOC.
Mailing Address: 4468 E. HWY 169
City: BOVEY, MN.
State: MN.
Zip: 55709
Email: SNOWTA@USLINK.NET

Comment:

IN SEEING THE NEW ADDITION OF THE RED ROUTE IN ITASCA CO. (SEE MAP BACK SIDE) AS A PROPOSAL, I WOULD URGE STRONG CONSIDERATION OF THIS NEW PROPOSAL. THE HARTLEY LAKE ASSOC. ORIGINALLY PROPOSED USING THE CORRIDOR OF THE EXISTING LINE NEXT TO HWY 65 BUT WERE TOLD AT THE TIME THAT RUNNING THE NEW POWER LINE NEXT TO AN EXISTING ONE WAS NOT FEASIBLE BECAUSE OF A DANGER OF MULTIPLE OUTAGES. HOWEVER, IF IT IS FEASIBLE, I, AND I THINK MOST HARTLEY L. ASSOC. MEMBERS, FEEL IT IS A ROUTE THAT NOT ONLY IMPACTS THE FEWEST PEOPLE, BUT IT ALSO IMPACTS THE ENVIRONMENT MUCH LESS THE TOTALLY NEW ROUTE POSSIBILITIES. 0090-1

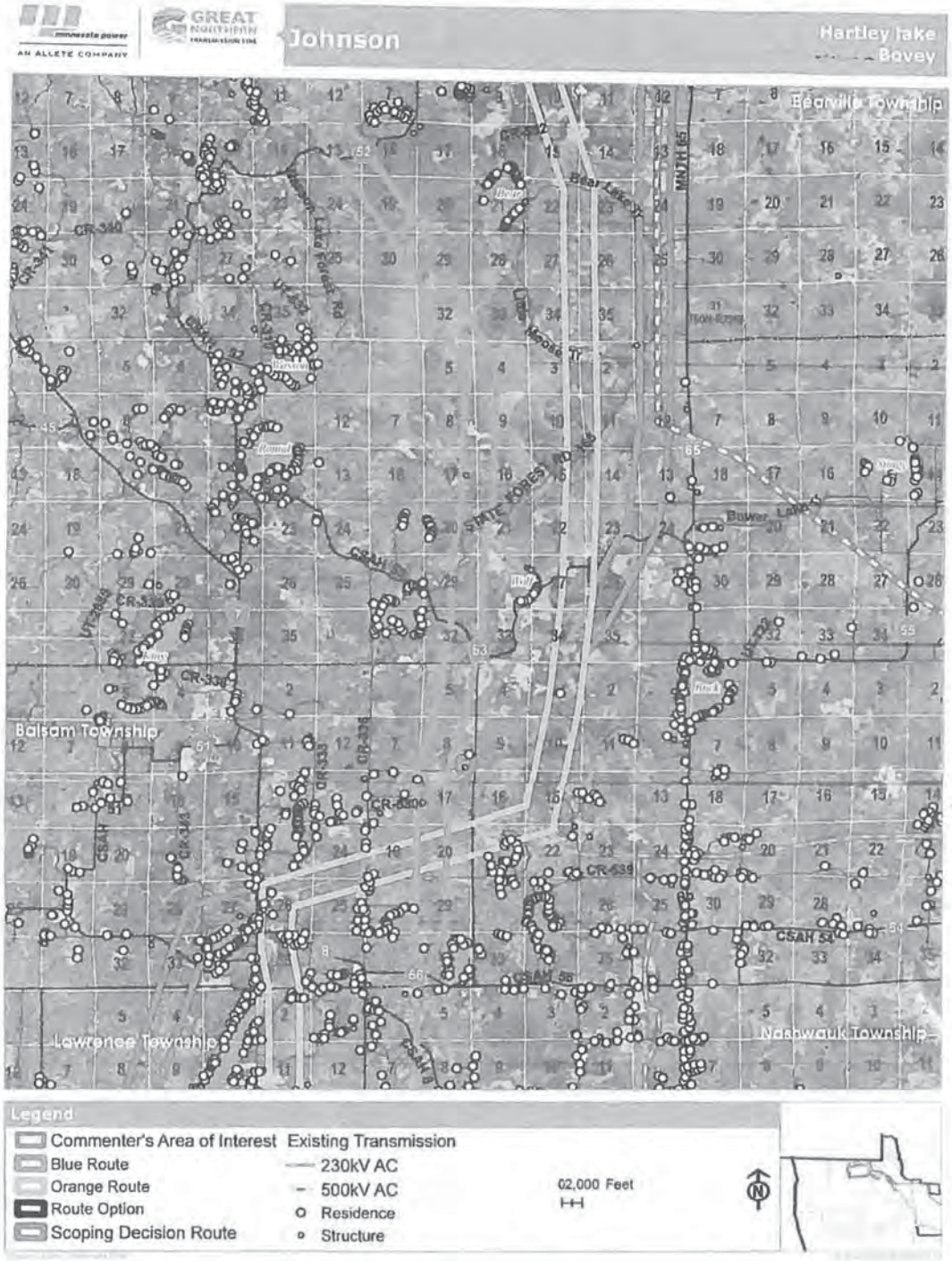
ALSO, I SEE GREAT BENEFIT IN USING THE REST OF THE NEW RED (COMBINED WITH ORANGE PARTLY) LINE SOUTH OF THIS AREA AS IT WOULD FOLLOW A PREVIOUS USED LINE THAT WOULD IMPACT FEWER PEOPLE IN ITASCA COUNTY AND, AGAIN, HAVE LESS ENVIRONMENTAL IMPACT THAN A NEW ROUTE BEING CREATED.

I REALIZE THIS WILL ADD COST, BUT THIS LINE WILL BE IN EXISTANCE FOR SUCH A LONG TIME, THAT THE BENEFITS TO THE MAJORITY OF PEOPLE AND THE ENVIRONMENT COULD VERY WELL BE WORTH IT.

THANK YOU FOR YOUR CONSIDERATION.

Candace Johnson

0090-1
Thank you for your comment. No changes are made to the EIS in response to this comment.


Johnson
Hartley lake
Bovey
Bearville Township
Balsam Township
Lawrence Township
Nashwauk Township
Legend
Commenter's Area of Interest
Blue Route
Orange Route
Route Option
Scoping Decision Route
Existing Transmission
230kV AC
500kV AC
Residence
Structure
02,000 Feet

0091

Great Northern Transmission Line <greatnortherntransmissionline@gmail.com>

Leave a comment! Form Submission

greatno9@box355.bluehost.com <greatno9@box355.bluehost.com> Mon, May 4, 2015 at 12:50 PM
Reply-To: kelly.spitzley@hdrinc.com
To: greatnortherntransmissionline@gmail.com

There has been a submission of the form Leave a comment! through your concrete5 website.

Name:
Jon Johnson

Email:
jon.johnson@polaris.com

Comment:
In the scoping area(red) in Falun Township. Not liking wahat I'm seeing. 0091-1

Join our mailing list:
Yes

To view all of this form's submissions, visit http://www.greatnortherntransmissionline.com/index.php/dashboard/reports/forms/?qsid=1347305251

0091-1
Thank you for your comment. No changes are made to the EIS in response to this comment.

Comment on the Great Northern Transmission Line *Docket Number TL-14-21*

RECEIVED
JUN 29 2015
MAILROOM

Name: JOHN E JOHNSON
Organization (if any):
Mailing Address: 59255 TAMARACK FOREST RD
City: WARROAD
State: MN
Zip: 56763
~~Email:~~ 218-386-3166

Comment:

I am NOT AGAINST THIS LINE
BUT I DO HAVE CONCERNS AS FAR AS if
this ADDED LINE will BOTHER my Defibulator
The LINE SOUTH OF ME NOW IS JUST FAR
enough THAT I'LL BE AR RIGHT. But I HAVE TO
STAY AWAY FROM IT. I CAN'T BE ANY CLOSER
OR IT will CAUSE my Defibulator TO GO OFF.
THESE ARE my CONCERNS
I AM TRYING to SELL my PLACE AT THIS
TIME. If I SELL NO PROBLEM

THANK YOU PLEASE
STAY IN TOUCH

the TWO ROUTE'S there ARE LOOKING AT - DEFINITELY
will BOTHER ME.
WOULD the POWER CO. BE INTERESTED IN
BYING my PLACE

0092-1

0092-2

0092-3

0092-1
The impacts from the proposed Project on implantable medical devices are evaluated in Section 5.2.2.2 of the EIS. No changes are made to the EIS in response to this comment.

0092-2
A discussion about the potential effects of transmission lines on property values is included in the EIS in Section 5.2.1.4. This includes a summary of the potential range of property value effects attributed to transmission lines. Further, Appendix J, Property Values Supplement provides a summary of the literature regarding the relationship between transmission lines and property values used to develop the property values analysis in Section 5.2.1.4.

No changes are made to the EIS in response to this comment.

0092-3
If the final route crosses your property, you have the right to use the "Buy the Farm" option as cited in Minnesota Statute 216E,12 subdivision 4.

No changes are made to the EIS in response to this comment.

minnesota power
AN ALLETE COMPANY
GREAT NORTHERN TRANSMISSION LINE
John Johnson
59255 TANGNES FOREST RD
Warroad
Moranville Township
280th St
CSAH 2
CR-135
570th Ave
580th Ave
T162N-R37W
T162N-R36W
T161N-R37W
T161N-R36W
UT-540
UT-37
600th Ave
610th Ave
UT-46
CR-136
Tangnes Forest Rd
Wobble Grade Forest Rd
Ditch 10 Rd
Thompson Forest Rd
Bednar Forest Rd
Schwartz Rd
Dicks Pkwy
UT-38
UT-545
Roseau County
Lake of the Woods County
T160N-R37W
T160N-R36W
My House
New Line?
Legend
Commenter's Area of Interest
Blue Route
Orange Route
Route Option
Scoping Decision Route
Existing Transmission
230kV AC
500kV AC
Residence
Structure
0 2,000 Feet
N

GREAT NORTHERN TRANSMISSION LINE

Connecting Manitoba and Minnesota

Comment on the
Great Northern Transmission Line
Docket Number TL-14-21

Name: Raymond H. Johnson

Organization (if any):

Mailing Address: P.O. Box 306

City: Little York

State: MN

Zip: 56653

Email: kjhn@frontiernet.net

Comment: My preference for the transmission line location/route is the Orange One. 0093-1

0093-1
Thank you for your comment. No changes are made to the EIS in response to this comment.

GREAT NORTHERN TRANSMISSION LINE

Connecting Manitoba and Minnesota

Comment on the Great Northern Transmission Line
Docket Number TL-14-21

Name: John Kannas
Organization (if any): Balsam Twp Supervisor
Mailing Address: 40874 Co Rd. 336

City: Bovey
State: MN
Zip: 55709
Email: JbKannas@northlink.com

Comment: Balsam Township recommends The route enter Balsam on the orange route and then Take The Blue route as you leave Balsam going From North to South.

I, John Kannas, would like to see the red route along #65 be utilized to the north.

J L Kannas

0094-1

0094-1
Thank you for your comment. No changes are made to the EIS in response to this comment.

Comment on the
Great Northern Transmission Line
Docket Number TL-14-21

Name: John Kannas
Organization (if any): Balsam Twp. Supervisor
Mailing Address: 40874 Co. Rd. 336

City: Bovey
State: MN
Zip: 55709
Email: JbKannas@northlc.com

Comment:

Balsam Township recommends the route enter Balsam, from the North on the orange route and then Take the blue route as you leave Balsam. We do not want the red route or the west orange route utilized. 0095-1

John Kannas

RECEIVED
JUN 29 2015
MAILROOM

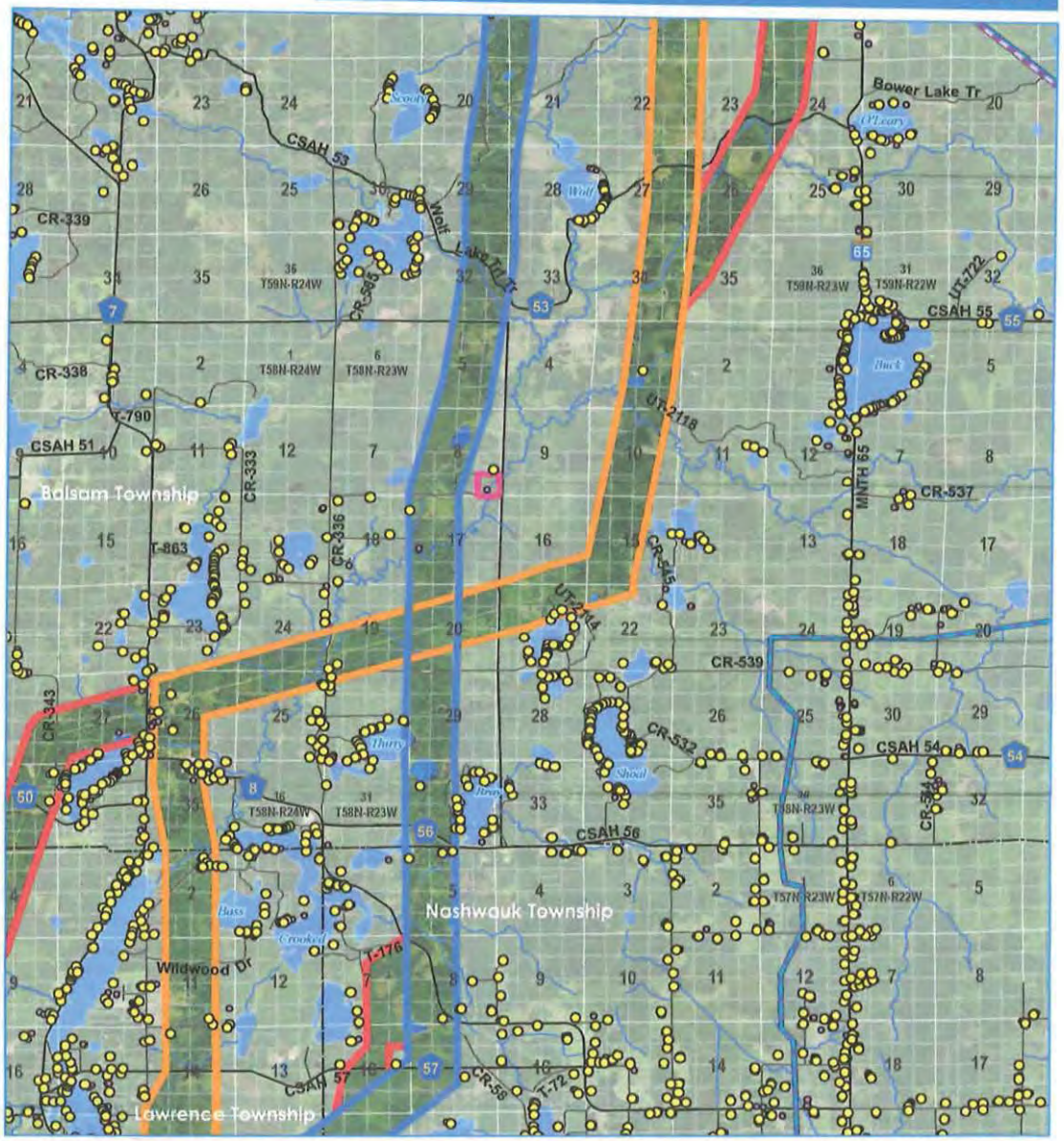
0095-1
Thank you for your comment. No changes are made to the EIS in response to this comment.

minnesota power
AN ALLETE COMPANY

GREAT NORTHERN TRANSMISSION LINE

Kannas

40874 CR 336
Bovey



Legend

- Commenter's Area of Interest
- Blue Route
- Orange Route
- Route Option
- Scoping Decision Route

Existing Transmission
- 230kV AC
- 500kV AC
- Residence
- Structure

0 2,000 Feet

Sources: Esri, Minnesota DNR

GREAT NORTHERN TRANSMISSION LINE

Connecting Manitoba and Minnesota

Comment on the Great Northern Transmission Line
Docket Number TL-14-21

Name: Jon Keener
Organization (if any): Sterling Lumber
Mailing Address: 501 151st St

City: Phoenix
State: IL
Zip: 60426
Email: jonk@sterlinglumber.com

Comment: Sterling Lumber supports this project. We understand the need for modern infrastructure development. Our business supports the ecologically sound construction methods that will be needed to complete the project. Many construction/support/materials jobs will be created directly benefitting the region. 0096-1

In terms of the open house - good format I liked having a single-point-of contact person guide me through the proceeding. HDR staff were very accomodating.

Thank You

Jon Keener

0096-1
Thank you for your comment. No changes are made to the EIS in response to this comment.

Great Northern Transmission Line
GIS Map Comment Form

Name: Tony Kellin
Address: 20634 County Rd 530 – PRC address

City: Bovey
County: Itasca
State: MN
Phone Number: 218 259-2050 Zip:
Email: tkellin@pradeoutdoorbrands.com

Comment: I am part owner of Prairie River Camp and we would prefer you go with the orange route. If you end up going with the blue route, we would like you to stay west of Christmas Lake. Our 80 acres is SE of the lake and we would greatly appreciate it if the line stays west.

Thank
TK

RECEIVED
MAY 19 2015
MAILROOM

0097-1

0097-1
Thank you for your comment. No changes are made to the EIS in response to this comment.

PRAIRIE RIVER CAMP LLC C/O TONY KELLIN
19490 RUFF SHORES RD
GRAND RAPIDS MN 55744
East Bear Lake Variation
Effie Variation
Balsam Variation
CSAH 53
CR-339
CR-338
CR-337
T-790
CSAH 51
CR-333
CR-336
CR-335
T-863
T-2080
CR-343
CR-330
UT-2175
UT-2148
UT-2114
CR-539
CR-532
CSAH 56
T59N-R24W
T58N-R24W
T58N-R23W
Balsam Township
Lawrence Township
Nashwauk Township
Legend
Commenter's Area of Interest
Blue Route
Orange Route
Route Option
Scoping Decision Route
Existing Transmission
230kV AC
500kV AC
Residence
Structure
0 2,000 Feet

Comment on the Great Northern Transmission Line

Docket Number TL-14-21

Name: Thomas M. King
Organization (if any):
Mailing Address: 304 Dale Ave. SW
City: Warroad
State: MN
Zip: 56763
Email: tomking@wiktel.com

RECEIVED
JUN 29 2015
MAILROOM

Comment:

In reference to my families land on: See line on map Beltrami North Central Variation 1
My family is completely opposed to the selection of our property to cross with the power line for the following:
1. Would destroy valuable timber that is used for recreationt use by my family. Also the timber has economic value as well.
2. We personally have planted several thousand trees in this area to preserve the forest resources.
3. It is my hope to be able to leave this property to all of my Grandkids one day for their recreational use. We don't want to leave them a powerline to deal with.
4. Why not use the existing line site which is only about ½ a mile from our property
5. This makes both economic and conservation sense.
6. I would hope that my state would do the best thing to preserve the existing natural resources of our state and of its citizens property

Tom King

0098-1

0098-2

0098-3

0098-1
Thank you for your comment. No changes are made to the EIS in response to this comment.

0098-2
Potential impacts to forests are discussed in Chapters 5 and 6 of the EIS.

As discussed in Section 1.3.1.4 of the EIS, once a route is selected and a permit is issued, the Applicant would contact landowners to gather information about their property and their concerns and discuss how the ROW would best proceed across the property.

No changes are made to the EIS in response to this comment.

0098-3
As stated in Section 5.2.1.9, most recreational activities (e.g., hiking,snowmobiling, mountain biking, bird watching,etc.) can be done safely in transmission line ROWs.

King
304 Dale Av Sw
Warroad
12
13
2
3
CSAH 2
CSAH 3
11th St SW
Legend
Commenter's Area of Interest
Blue Route
Orange Route
Route Option
Scoping Decision Route
Existing Transmission
230kV AC
500kV AC
Residence
Structure
0
2,000 Feet

GREAT NORTHERN TRANSMISSION LINE

Connecting Manitoba and Minnesota

Comment on the Great Northern Transmission Line

Docket Number TL-14-21

Name: Barb Kirk

Organization (if any):

Mailing Address: 715 5th St

City: Int'l Falls

State: MN

Zip: 56649

Email:

Comment: I prefer MN Power Blue Route that advoids Little fork. A powerline exists on my land already. It is adding insult to injury. 0099-1

0099-1
Thank you for your comment. No changes are made to the EIS in response to this comment.

GREAT NORTHERN TRANSMISSION LINE

Connecting Manitoba and Minnesota

Comment on the
Great Northern Transmission Line
Docket Number TL-14-21

Name: Scott Kufstad

Organization (if any):

Mailing Address: 36798 St. Hwy 11

City: Roseau

State: Mn

Zip: 56751

Email: Scottkufstad@yahoo.com

Comment: We would prefer to not have the line cross our private property north of Roseau when there is no lack of state land to route the line north of our property. Our property is 80 acres northeast of Roseau along Sprague Creek. It is also developed land with a cabin built like a permanent home. Route it Elsewhere! OR Move slightly north of our property.

Scott Kufstad

RECEIVED
JUN 29 2015
MAILROOM

0100-1

0100-1
Maps are updated in the Final EIS to identify the location of your residence.

Please fold, fasten, and mail. No envelope necessary.

Place
Stamp
Here

Bill Storm

Environmental Review Manager

MN Department of Commerce

85 7th Place East, Suite 500

St. Paul, MN 55101

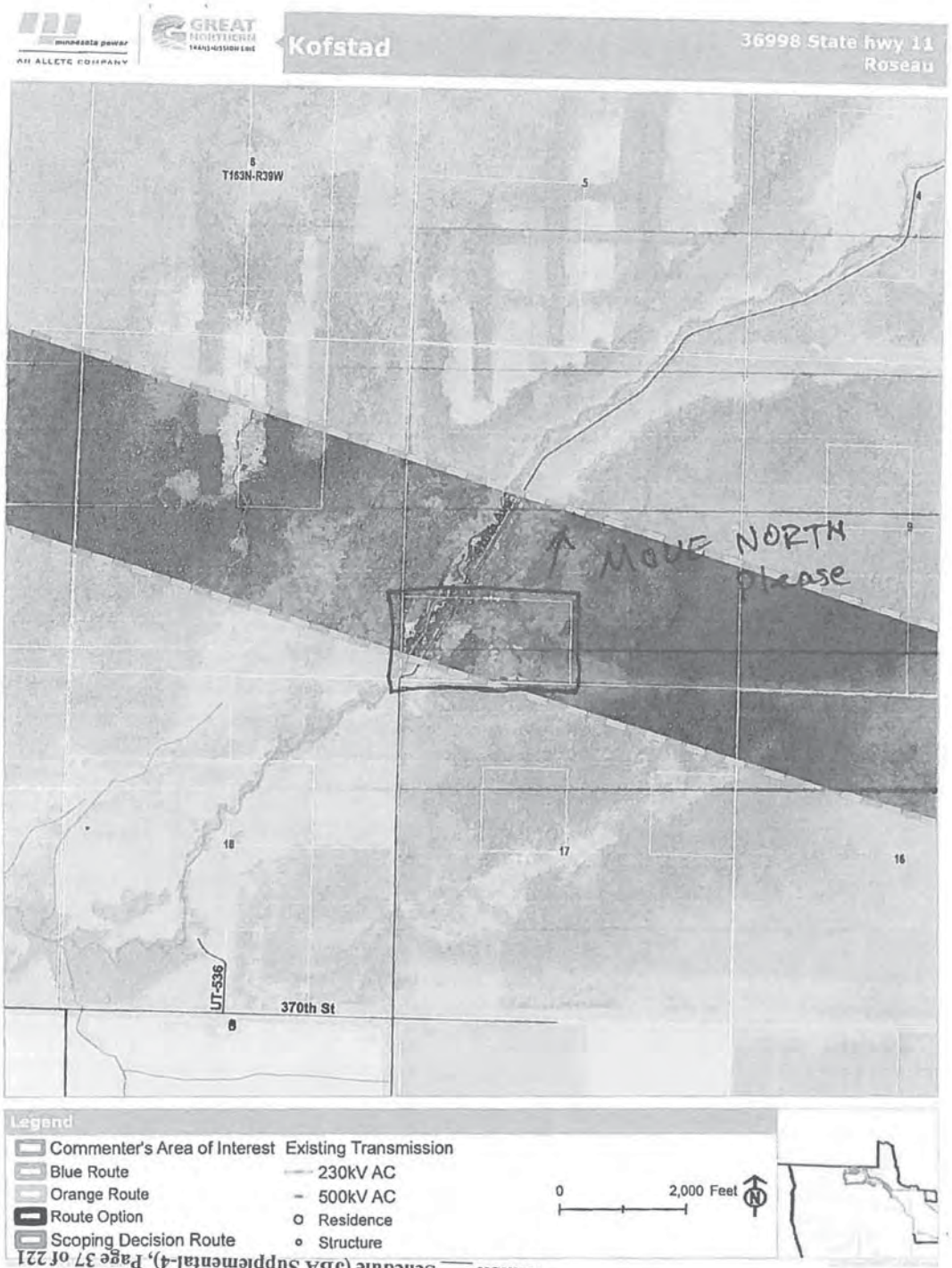


Exhibit ___ Schedule (JBA Supplemental-4), Page 37 of 221

0101

Great Northern Transmission Line <greatnortherntransmissionline@gmail.com>

Contact Us Form Submission

greatno9@box355.bluehost.com <greatno9@box355.bluehost.com> Sat, Jul 18, 2015 at 7:10 PM
Reply-To: kelly.spitzley@hdrinc.com
To: greatnortherntransmissionline@gmail.com

There has been a submission of the form Contact Us through your concrete5 website.

Name:
Arthur Krahn

Email
artkrahn@wiktel.com

Street Address:
59404 County Road 12

City:
Warroad

State:
MN Minnesota

Zipcode:
56763

Phone:
2183861933

Preferred method of contact:
Email

Inquiry:
I took time off work to go testify at the Roseau meeting, that said it ran from 11-3 but when I got there at 2 everyone was gone. Powerlines going through the forest are a great thing. Hikers,birdwatchers,hunters,forestry workers, game wardens, loggers, search teams firefighters,anyone I know uses and appreciates power lines in the forest. Deer,birds,and all kinds of small game use the clearing and fresh growth the comes from the power lines. Going through private areas and peoples back yards,small woods and food plots is not environmentally beneficial. 0101-1

To view all of this form's submissions, visit http://greatnortherntransmissionline.com/index.php/dashboard/reports/forms/?qsid=1347460636

0101-1
Thank you for your comment. No changes are made to the EIS in response to this comment.

GREAT NORTHERN TRANSMISSION LINE

Connecting Manitoba and Minnesota

Comment on the
Great Northern Transmission Line
Docket Number TL-14-21

Name: Arthur Kroehn

Organization (if any):

Mailing Address: 59404 CR 12

City: Warroad, MN

State: MN

Zip: 56763

Email:

Comment: The proposed MN power line is the best route. 0102-1

There are some very serious benefits to running the power line through the forest. Power lines in the forest are loved by wildlife of many kinds including bird, large game, and small game. 0102-2

Wildlife watchers and hunters also love powerlines ~~[illegible]~~ in the forest. Anyone who works in the forest including loggers + DNR workers benefit from and use the clearings of the power lines. They also help many hikers + hunter keep from being lost. Power lines also provide a great help to fire fighters and can potentially save huge amounts of forests from burning.

When in the forest people love to find and use the power line clearing. When in fields and small private properties people avoid and are hindered by them. ~~The~~

The proposed Cedar bend line may even put the country corn maze out of business. 0102-3

0102-1
Thank you for your comment. No changes are made to the EIS in response to this comment.

0102-2
Impacts to forests and private property are discussed in Chapters 5 and 6 of the EIS.

0102-3
Potential impacts to wildlife and forests are discussed in Chapters 5 and 6 of the EIS.

No changes are made to the EIS in response to this comment.

GREAT NORTHERN TRANSMISSION LINE

Connecting Manitoba and Minnesota

Comment on the Great Northern Transmission Line
Docket Number TL-14-21

Name: Mark Lofgren

Organization (if any):

Mailing Address: 41366 Scenic Hwy

City: Bovey

State: MN

Zip: 55709

Email: coliemark@gmail.com

Comment: Bill — I recremend the Blue route thru Balsam Township! The township park is in the orange route as well as local business i.e. store etc, The Balsam Bible Chapel Church is in the New Red route as well as close to the orange route parsonage is in both red + orange routes.

Go Blue route thru Balsam Township

Mark

RECEIVED
JUN 29 2015
MAILROOM

0103-1

0103-1
Thank you for your comment. No changes are made to the EIS in response to this comment.

Comment on the
Great Northern Transmission Line
Docket Number TL-14-21

Name: Mark Lofgren
Organization (if any):
Mailing Address: 41366 Scenic Hwy
City: Bovey
State: MN
Zip: 55709
Email: colicmark@gmail.com

Comment:

Go Blue route thru Balsam Township —
It has the least impact on property owners

Stay away from the Church, Park + local business !!

0104-1

0104-1
Thank you for your comment. No changes are made to the EIS in response to this comment.

minnesota power
AN ALLETE COMPANY

GREAT NORTHERN TRANSMISSION LINE

Lofgren for Balsam Twnshp

Balsam township park
Bovey

Legend

- Commenter's Area of Interest
- Blue Route
- Orange Route
- Route Option
- Scoping Decision Route

Existing Transmission

- 230kV AC
- 500kV AC
- Residence
- Structure

0

Comment on the
Great Northern Transmission Line
Docket Number TL-14-21

Name: Mark Lofgren
Organization (if any):
Mailing Address: 41366 Scenic Hwy
City: Bovey
State: MN
Zip: 55709
Email: eolicmark@gmail.com

Comment:

This area is a township park
stay away from this area!
use Blue route

0105-1

0105-1
Thank you for your comment. No changes are made to the EIS in response to this comment.

Lofgren / Balsam Towship
41366 Scenic Hwy
Bovey
Balsam Township
Scenic Hwy
T-2030
Legend
Commenter's Area of Interest
Blue Route
Orange Route
Route Option
Scoping Decision Route
Existing Transmission
230kV AC
500kV AC
Residence
Structure
0
N

Comment on the
Great Northern Transmission Line
Docket Number TL-14-21

Name: Mark Lofgren
Organization (if any):
Mailing Address: 41366 Scenic Hwy
City: Bovey
State: MN
Zip: 55709
Email: colicmark@gmail.com

Comment:

Active Balsam Bible Chapel - church -
Avoid this Church & use the BLUE route 0106-1

0106-1
Thank you for your comment. No changes are made to the EIS in response to this comment.

Lofgren
41366 Scenic Hwy
Bovey
Scenic Hwy
Legend
Commenter's Area of Interest
Blue Route
Orange Route
Route Option
Scoping Decision Route
Existing Transmission
230kV AC
500kV AC
Residence
Structure
0
N

0107

Great Northern Transmission Line <greatnortherntransmissionline@gmail.com>

Leave a comment! Form Submission

greatno9@box355.bluehost.com <greatno9@box355.bluehost.com> Fri, May 15, 2015 at 9:29 AM
Reply-To: kelly.spitzley@hdrinc.com
To: greatnortherntransmissionline@gmail.com

There has been a submission of the form Leave a comment! through your concrete5 website.

Name:
Karen Lucachick

Email:
kato5761@msn.com

Comment:
I am opposed to the Balsam Variation and will provide comments soon! 0107-1

Join our mailing list:
Yes

To view all of this form's submissions, visit http://www.greatnortherntransmissionline.com/index.php/dashboard/reports/forms/?qsid=1347305251

0107-1
Thank you for your comment. No changes are made to the EIS in response to this comment.

From: Tom Lund
To: Storm, Bill (COMM)
Subject: Great Northern Transmission Line TL-14-21
Date: Friday, May 15, 2015 2:33:23 PM

Dear Bill Storm,

Our names are Annie and Tom Lund we are land owner in the Cedar Bend WMA Alternative Scoping Decision Route proposed for the Great Northern Transmission Line. We have been following the project and have not had issues with the proposed Blue/Orange route which minimizes issues with private landowners. The Cedar Bend Alternative route could go though our yard. We have three children and we feel these are not safe to have in our yard. Our address is 29856 660 ave. Warroad, MN 56763. Also the Cedar Bend alternative route will go through many acres of private forest and wetlands, state forest and wetlands plus many yards including ours. If you have any questions please contact us (218)386-1193. Please remove the Cedar Bend WMA Alternative route from consideration.

Thank you,

Annie and Tom Lund
29856 660 ave
Warroad, MN 56763

0108-1

0108-1
The EIS provides an analysis of residences within the ROW as well as within the route for all alternatives. Also, as discussed in Section 1.3.1.4 of the EIS, once a route is selected and a permit is issued, the Applicant would contact landowners to gather information about their property and their concerns and discuss how the ROW would best proceed across the property.

From: Tom
To: Storm, Bill (COMM)
Cc: Bob Evans; Julie Jorgensen; Dick Stone
Subject: Great Northern Transmission Project
Date: Saturday, May 16, 2015 11:44:25 AM

Dear Bill:
Please add Bob Evans and me to your contact/information list. My address is: 708 1st Street N, Suite 421, Minneapolis, MN. 55401.
I have recently advised Minnesota Power that while we have no current objections to the 500kV transmission facilities, we want to be assured that the project will not adversely impact the Mesaba Energy Project facilities in any way. As you know, one of the proposed routes would take the new transmission line on or very close to our designated site.
Thank you for your attention to this. Hope you are well, and please contact Bob or me if you have any questions.
Tom

Tom Micheletti | Co-President & CEO | Excelsior Energy Inc | Mobile: 952.250.2252 |

0109-1
Thank you for your comment. No changes are made to the EIS in response to this comment.

0109-1

Two Rivers Watershed District

In Roseau, Kittson, & Marshall Counties

Board of Managers: Roger Anderson, Jim Kukowski, Jon Vold, Darrel Johnson, Paul Olsonawski, Allen Brazier, Daryl Klegstad
Staff: Dan Money, District Administrator; Matt Thompson, District Technician
410 5th Street S., Suite 112, Hallock, MN 56728 - Phone (218) 843-3333 - Email: daniel.money@mn.nacdnet.net

April 29, 2015

Jim Atkinson
Minnesota Power
30 West Superior Street
Duluth, MN 55802-2093

Dear Mr. Atkinson-,

Thank you for your recent letter to the Two Rivers Watershed District regarding the Great Northern Transmission Line Update and the invitation to upcoming open houses. We appreciate the opportunity to review the project and provide comments. Unfortunately we will not be able to attend the open house in Roseau and the others are not in close proximity. Therefore we would like to provide the following comments.

The Two Rivers Watershed District is a local unit of government organized under Minnesota Statute 103D. The District is focused on water management in the areas of drainage, flood control, water quality and water quantity. The District performs water quality and quantity studies, performs drainage ditch construction, operation, and maintenance, constructs flood control impoundments, permits for water related activities, and works with local, state, and federal governments and private individuals and entities.

The District operates three flood control impoundments. One of these is located in sections 26, 27, 28, 32, 33, and 34 of Ross Township, Roseau County, Minnesota. The District either owns the land within the impoundment or holds an easement, totaling approximately 2,200 acres. In 2005 a dike was constructed around the perimeter and an outlet structure consisting of a culvert with an operable gate was installed. The District closes the gate when flooding is occurring and up to 3,600 acre feet of water can be stored on the site. The water is stored typically for 4 to 6 weeks and then slowly released to downstream receiving watercourses. This alleviates flooding of public infrastructure, cropland, farmsteads and other property.

It has come to our attention that one of your scoping decision routes intends to traverse this project. We would caution that if this is chosen as the preferred route that you coordinate with us very early in the process. Because of the nature of the impoundment project, when it is impounding water soils will become saturated for extended periods of time and will become soft. This may or may not have an affect on your proposed project. In addition, there is a wetland easement on a portion of the land that is a requirement of a permit that we received from the US Army Corps of Engineers. As such no structures can be erected in it, this wetland cannot be drained or filled and must remain in its natural state. Also, the integrity of the dikes on our project needs to be protected, so we would not want any construction activity on or near these structures. 0110-1

0110-1
Thank you for your comment. No changes are made to the EIS in response to this comment.

One other item to note is that the District established the *Rules of the Two Rivers Watershed District* in 1981. These Rules require permits for certain activities that alter or affect the water resources within the District. I have included a fact sheet regarding these Rules which explains what types of projects require a permit. Your project may be subject to the Rules, depending on the nature of the work.

Once again, thank you for the opportunity to provide comments to you regarding your project. I would appreciate receiving any future updates. If you have any questions or comments please give me a call at 218-843-3333 or by email at Daniel.money@mn.nacdnet.net. Have a good day.

Sincerely,

Dan Money
District Administrator

Two Rivers Watershed District

In Roseau, Kittson, & Marshall Counties

Board of Managers:
Roger Anderson, O'Neil Larson, Richard Novacek, Jim Kukowski, Jon Vold, Darrel Johnson, Paul Olsonawski
Staff: Dan Money, District Administrator; Matt Thompson, District Technician

410 5th Street S., Suite 112, Hallock, MN 56728 - Phone (218) 843-3333 - Fax (218) 843-2020 - Email: daniel.money@mn.nacdnet.net

PROJECTS WHICH REQUIRE A PERMIT FROM THE TWO RIVERS WATERSHED DISTRICT

The Two Rivers Watershed District ammended its rules on June 5, 1997. These rules govern projects which have a potential effect on the water resources of the District and specifically relate to drainage, flood control, water use, and water quality. Projects of this type require a permit from the Two Rivers Watershed District before any work is done. There is no charge for the permit, however projects which are commenced or completed without a permit will require a $100 fee. **Some of the specific works which require a permit are listed below.** A complete set of Rules and a permit application form can be obtained at the District office located in the Kittson County Courthouse in Hallock, Minnesota or by calling the office at (218) 843-3333.

Drainage: Any construction or alteration of any drain tile or drainage ditch that drains an area in excess of 20 acres. Also, any artificial drainageway which delivers water from one sub-watershed to another sub-watershed, and any drainage of water by any means into any legal drainage system from any land not assessed to that drainage system.

Construction: Any construction or alteration of any bridge, dike, culvert,or drain across any drainageway, lake, wetland, or other water body.

Dikes: Any construction, alteration, or removal of any dike or reservoir.

Utilities: Any sanitary sewer system which discharges to surface water, storm sewer, or other major utility project which affects surface water within the District.

Roads: Any street, road, or highway construction project which by means of its construction has any effect on the quality or quantity of water runoff.

Water Appropriation: Any artificial or mechanical transfer of water from a water source including but not limited to gravel pits, ponds, rivers, wetlands, and other reservoirs consistent with the general purposes of the District.

Wetlands: Any works which include draining, filling, excavating, or dredging of any type 3, 4, 5, or 8 wetland as defined by the U.S. Fish & Wildlife Service's *Circular # 39*.

GREAT NORTHERN TRANSMISSION LINE

Connecting Manitoba and Minnesota

Comment on the Great Northern Transmission Line

Docket Number TL-14-21

Name: Brian Moody
Organization (if any): Bear Lake Cabin Owners Assoc.
Mailing Address: 7634 Pine Tree Rd

City: Side Lake
State: MN
Zip: 55781
Email: moody7634@msn.com

Comment: Our Association would prefer the routes in this order.

#1 Red Scoping Effie variation
#2 Blue Route
#3 Red Scoping East Bear Lake variation
#4 Orange Route

The Association would prefer the routes that would less visable from our cabins and the State campground.

Br Moody

0111-1

0111-1
Thank you for your comment. No changes are made to the EIS in response to this comment.

Comment on the Great Northern Transmission Line

Docket Number TL-14-21

Name: Donna Muirhead

Organization (if any):

Mailing Address: 63834 cty Rd #2

City: Roosevelt, Minn.

State: Mn.

Zip: 56673

Email:

Comment:

I prefer the Minn power proposed Route because alternatives impact more homes + people. 0112-1

RECEIVED
JUN 29 2015
MAILROOM

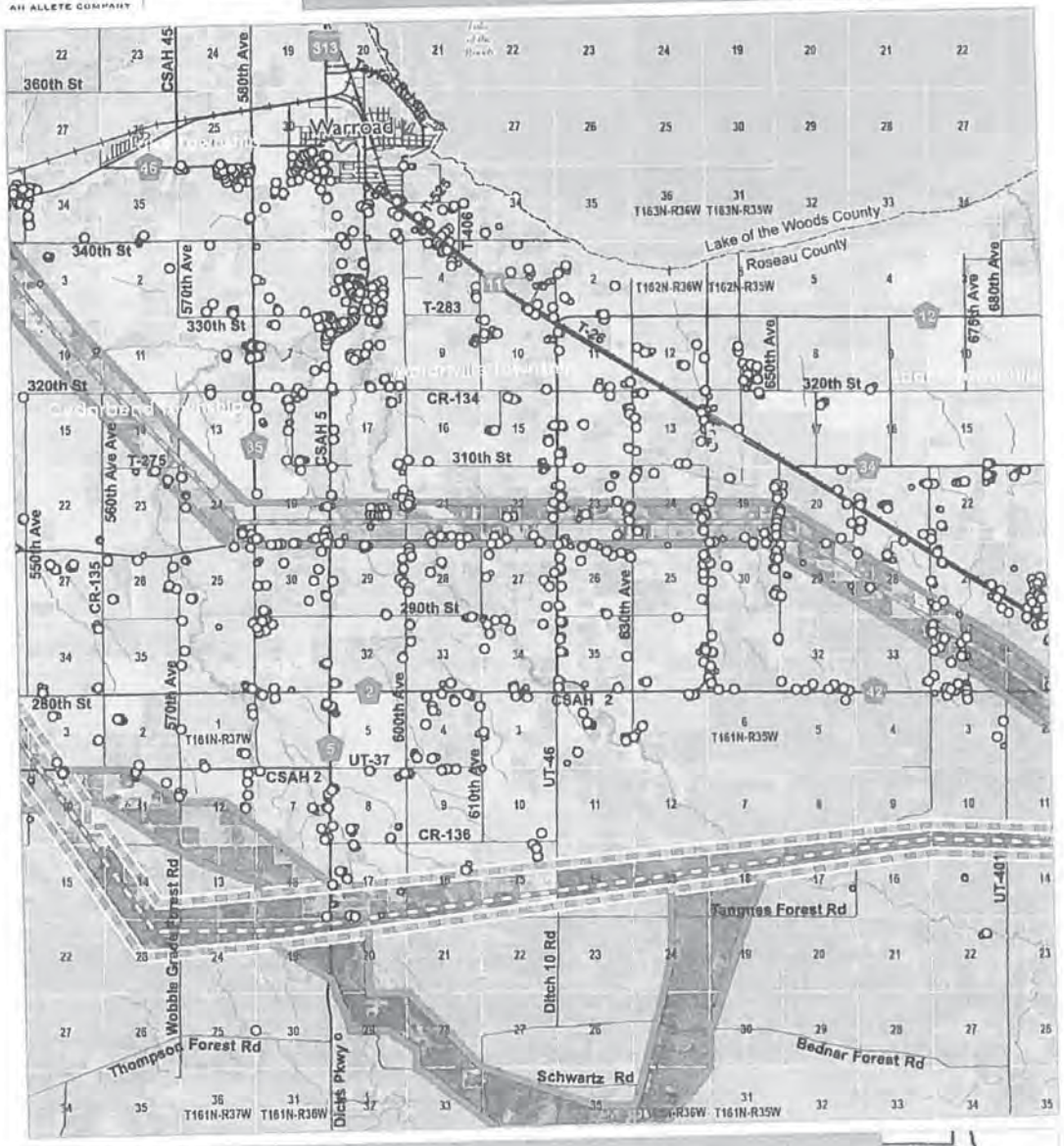
0112-1
Thank you for your comment. No changes are made to the EIS in response to this comment.

minnesota power
AN ALLETE COMPANY

GREAT NORTHERN TRANSMISSION LINE

Kim O'Donnell

C/O DONNA E MUIRHEAD 53834 CO RD 2
Roosevelt



Legend

- Commenter's Area of Interest
- Blue Route
- Orange Route
- Route Option
- Scoping Decision Route

Existing Transmission

- 230kV AC
- 500kV AC
- Residence
- Structure

0 2,000 Feet

Comment on the Great Northern Transmission Line *Docket Number TL-14-21*

Name: Kari Olson
Organization (if any):
Mailing Address: 1000 6th St SW
City: Chisholm
State: MN
Zip: 55719
Email: Kariolsonw@gmail.com

Comment:

I would prefer you use the blue route. Orange route is second choice. If you use the red route, please go as close to the existing line as you can on the Effie variation. ~~or~~ Prefer it goes south on the East Bear Lake variation.

0113-1

RECEIVED
JUN 29 2015
MAILROOM

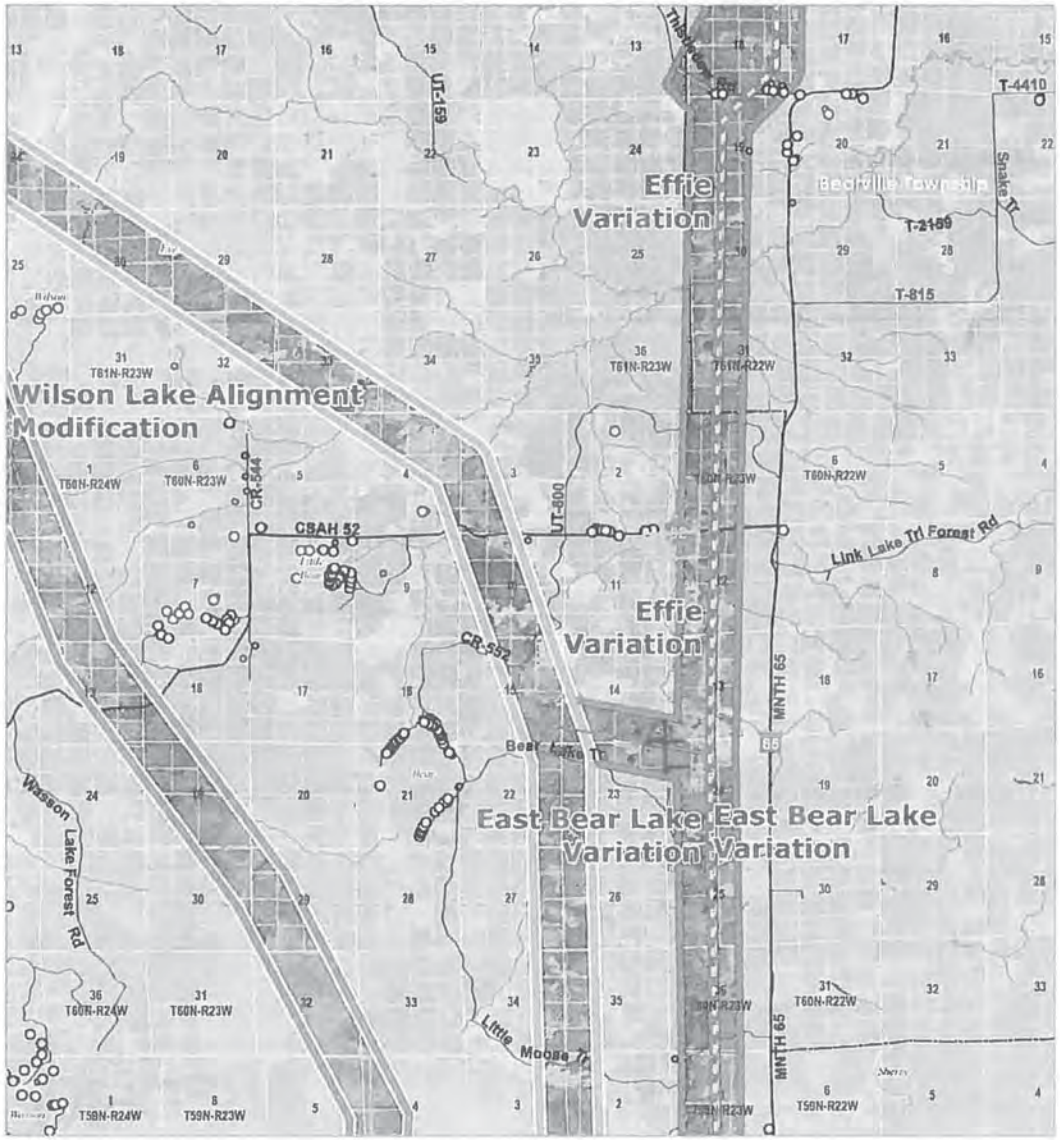
0113-1
Thank you for your comment. No changes are made to the EIS in response to this comment.

minnesota power
AN ALLETE COMPANY

GREAT NORTHERN TRANSMISSION LINE

OLSON, KARI

1000 SIXTH STREET SW
CHISHOLM MN 55719



Legend

- Commenter's Area of Interest
- Blue Route
- Orange Route
- Route Option
- Scoping Decision Route

Existing Transmission

- 230kV AC
- 500kV AC
- Residence
- Structure

0 2,000 Feet

GREAT NORTHERN TRANSMISSION LINE

Connecting Manitoba and Minnesota

Comment on the Great Northern Transmission Line
Docket Number TL-14-21

Name: Colin Pearson

Organization (if any):

Mailing Address: 107 2nd Av NW Ste #1

City: Roseau

State: MN

Zip: 56751

Email:

Comment: Totally opposed to Beltrami N Variation ONE! Reason why follows.

My Son and I purchased 120 acres of Farmland/recreational property South of Warroad, MN Last fall. (Roseau County - Township 161 N - Range 36W - Section 16.) The Existing powerline is Approx. 1/4 mi. S. of us, which leaves a wooded Buffer between our property and the Existing Line. 0114-1

Please adhere to Great Northern's proposed route of the New line being Installed South of existing line. IF not, we will have 4 wheelers, snowmobiles - hunters right in our backyard totally destroying the Sanctity and Value of the property.

Thank you

Colin Pearson

0114-1
Thank you for your comment. No changes are made to the EIS in response to this comment.

Roseau County
MINNESOTA

Board of Commissioners
606 5th Ave. SW, Room #131
Roseau, MN 56751
Phone: 218-463-4248
Fax: 218-463-3252

A motion was made by Commissioner Miller, seconded by Commissioner Falk and carried unanimously to adopt the following resolution:

2015-02-01

SUPPORTING MINNESOTA POWER'S GREAT NORTHERN TRANSMISSION LINE PROPOSED ROUTE ALTERNATIVES

MPUC DOCKET NO. E015/TL-14-21

OAH CASE NO. 65-2500-31637

DOE OE DOCKET NO. PP-398

WHEREAS, Minnesota Power is proposing to construct the 500 kV Great Northern Transmission Line from the Manitoba/Minnesota international border in Roseau County to the Blackberry Substation in Itasca County by June 1, 2020; and

WHEREAS, Minnesota Power is partnering with Manitoba Hydro to build this line that will deliver, clean renewable hydropower from northern Manitoba to Minnesota and the upper Midwest; and

WHEREAS, Minnesota Power has been working with Roseau County, and residents and landowners in Roseau County, for over three years to develop and refine a route for this project that provides the least impact to residents and landowners; and

WHEREAS, this voluntary outreach has included multiple open houses in Roseau County, and multiple meetings updating Roseau County Commissioners, in addition to the required legal notices to Roseau County and multiple public hearings on the need for the Great Northern Transmission Line, and the scope of the environmental impact statement for the State route permit and Federal Presidential Permit; and

WHEREAS, in September 2014, the Minnesota Public Utilities Commission approved a working group to gather additional public input and two Roseau County Commissioners participated in these working group meetings, and provided input on the proposed routes and border crossing; and

WHEREAS, in October 2014, Minnesota Power submitted to the United States Department of Energy an amendment to its border crossing based on consultation with landowners and stakeholders in Roseau County that the originally proposed border crossing was no longer feasible given constraints from the future expansion of the Piney-Pinecreek Border Airport and the Roseau River Wildlife Management Area; and

WHEREAS, with this new information, Minnesota Power and Manitoba Hydro reached an agreement on a new border crossing that would originate at the Minnesota-Manitoba border roughly 2.9 miles east of Highway 89 in Roseau County. It would proceed southeast 0.2 miles and then travel south 2.3 miles to 390th Street and turn east following Minnesota Power's proposed Blue and Orange Routes as proposed in its April 15, 2014 Route Permit and Presidential Permit applications; and

0115-1

0115-1
Thank you for your comment. No changes are made to the EIS in response to this comment.

0115-1 cont'd

0115-1
Continued

WHEREAS, during the scoping process for the environmental impact statement, additional border crossings were proposed by the Minnesota Department of Natural Resources and private landowners, and four of these additional border crossings were carried forward by the Minnesota Department of Commerce into the scope of the draft environmental impact statement; and

WHEREAS, Roseau County supports the amended border crossing proposed by Minnesota Power as the only feasible border crossing given the agreement between Minnesota Power and Manitoba Hydro; and

WHEREAS, Roseau County opposes the proposed route alternatives in Roseau County submitted by the Minnesota Department of Natural Resources and the United States Fish and Wildlife Service that were done without input from Roseau County, including the Roseau Lake WMA Alternative, due to more impacts on private landowners and agricultural land use and interfering with a public airport; and

WHEREAS, it is in the best interests of Roseau County that impacts to agricultural land uses and human settlements be minimized and Minnesota Power's proposed route appears to accomplish those objectives; and

WHEREAS, the route alternatives submitted by the Minnesota Department of Natural Resources and the United States Fish and Wildlife Service effectively negate over three years of good faith participation by Roseau County, and its residents, in working collaboratively with Minnesota Power to route the Great Northern Transmission Line in a manner that attempts to provide the least impact to residents and landowners;

NOW THEREFORE BE IT RESOLVED, Roseau County supports Minnesota Power's preferred route as submitted on April 15, 2014 in the above-referenced dockets and Minnesota Power's proposed border crossing as submitted in October 2014 to the United States Department of Energy; and

BE IT FURTHER RESOLVED, Roseau County designates Commissioners Roger Falk and Todd Miller as possible participants in the public information meetings on the draft environmental impact statement, and the State route permit public hearings, and may provide written and oral testimony consistent with this Resolution.

STATE OF MINNESOTA)
) ss
COUNTY OF ROSEAU)

I, Jeff Pelowski, County Coordinator in and for Roseau County, Minnesota, do hereby certify that the foregoing is a true and correct copy of a part of the proceedings adopted by the Roseau County Board of Commissioners on February 10, 2015.

(SEAL)

Jeff Pelowski
Roseau County Coordinator

0116

Great Northern Transmission Line <greatnortherntransmissionline@gmail.com>

Contact Us Form Submission

greatno9@box355.bluehost.com <greatno9@box355.bluehost.com> Thu, May 7, 2015 at 9:34 AM
Reply-To: kelly.spitzley@hdrinc.com
To: greatnortherntransmissionline@gmail.com

There has been a submission of the form Contact Us through your concrete5 website.

Name:
Bruce Sampson

Email
bsampwd45@citlink.net

Street Address:
4960 County Road 29

City:
Ray

State:
Mn

Zipcode:
56669-9204

Phone:
2188752609

Preferred method of contact:
Email

Inquiry:
I am in favor of the portion of the proposed scoping route which places the new transmission line adjacent to the west ROW on Mn hwy 65 going south from it's intersection with hwy 1 . We own property in the George Washington State forest to the west of this proposed route and appreciate the fact that the scoping route leaves the area pretty much in a large unbroken tract . 0116-1
Thank You
Bruce

To view all of this form's submissions, visit http://www.greatnortherntransmissionline.com/index.php/dashboard/reports/forms/?qsid=1347460636

0116-1
Thank you for your comment. No changes are made to the EIS in response to this comment.

0117

Great Northern Transmission Line <greatnortherntransmissionline@gmail.com>

Contact Us Form Submission

greatno9@box355.bluehost.com <greatno9@box355.bluehost.com> Tue, Apr 28, 2015 at 6:26 PM
Reply-To: kelly.spitzley@hdrinc.com
To: greatnortherntransmissionline@gmail.com

There has been a submission of the form Contact Us through your concrete5 website.

Name:
Brad Springer

Email
brdspringer@hotmail.com

Street Address:

City:
Bloomington

State:
Mn

Zipcode:
55437

Phone:

Preferred method of contact:
Email

Inquiry:
I am still 101% opposed to this power line!!!

0117-1

To view all of this form's submissions, visit http://www.greatnortherntransmissionline.com/index.php/dashboard/reports/forms/?qsid=1347460636

0117-1
Thank you for your comment. No changes are made to the EIS in response to this comment.

0118

Great Northern Transmission Line <greatnortherntransmissionline@gmail.com>

Contact Us Form Submission

greatno9@box355.bluehost.com <greatno9@box355.bluehost.com> Tue, Apr 28, 2015 at 1:43 PM
Reply-To: kelly.spitzley@hdrinc.com
To: greatnortherntransmissionline@gmail.com

There has been a submission of the form Contact Us through your concrete5 website.

Name:
Rod Tuomi

Email
rodneycharlestuomi@yahoo.com

Street Address:
2826 6th Avenue East

City:
Hibbing

State:
MN

Zipcode:
55746

Phone:
218-929-1940

Preferred method of contact:
Phone

Inquiry:
I oppose the Dead Man's Pond Segment extension...one of the scoping surveys putting the possibility of the line further west...by Little Moose Lake in Itasca County. Please conta
ct me...either by email or phone. 0118-1

Thank you,
Rod Tuomi

To view all of this form's submissions, visit http://greatnortherntransmissionline.com/index.php/dashboard/reports/forms/?qsid=1347460636

0118-1
Thank you for your comment. No changes are made to the EIS in response to this comment.

0119

Great Northern Transmission Line <greatnortherntransmissionline@gmail.com>

Contact Us Form Submission

greatno9@box355.bluehost.com <greatno9@box355.bluehost.com> Wed, Apr 29, 2015 at 12:57 PM
Reply-To: kelly.spitzley@hdrinc.com
To: greatnortherntransmissionline@gmail.com

There has been a submission of the form Contact Us through your concrete5 website.

Name:
Rodney Tuomi

Email
rodneycharlestuomi@yahoo.com

Street Address:
2826 6th Avenue East

City:
Hibbing

State:
MN

Zipcode:
55746

Phone:
218-929-1940

Preferred method of contact:
Phone

Inquiry:
On the Blue route, the scoping decision route for Dead Mans Pond segment alignment modification by Little Moose Lake.....the whole lowland area from Dead Mans Pond to Crooked Lake is a flourishing nesting area for Geese, Mallards, Wood Ducks, Herons, and other kinds of ducks and waterfowl.It is even more populated during the fall season. This proposed route would cut right through it, and parrallel it. Since I have not gotten any response, I will try Ducks Unlimited, Sierra Club, and MN DNR. Thank you...Rod Tuomi 0119-1

To view all of this form's submissions, visit http://greatnortherntransmissionline.com/index.php/dashboard/reports/forms/?qsid=1347460636

0119-1
Potential impacts to wetlands and wildlife are discussed in Chapters 5 and 6 of the EIS.

No changes are made to the EIS in response to this comment.

0121

Great Northern Transmission Line <greatnortherntransmissionline@gmail.com>

Great Northern Transmission Line: Docket Number TL-14-21

Rodney Tuomi <rodneycharlestuomi@yahoo.com> Wed, May 13, 2015 at 10:57 AM
Reply-To: Rodney Tuomi <rodneycharlestuomi@yahoo.com>
To: "info@GreatNorthernTransmissionLine.com" <info@greatnortherntransmissionline.com>

I was at the public meeting in Grand Rapids Tuesday May 12, and the MN Power rep encouraged me to send this email in again.

Great Northern Transmission Line: Docket Number TL-14-21

Minnesota Power is building a High Power Transmission Line from Manitoba to Minnesota (greatnortherntransmissionline.com). On the Blue Route Alternative, there is a scoping decision route proposed segment for an alignment modification near Dead Man's Pond (by Little Moose Lake). The wetlands area between Dead Man's Pond and Crooked Lake is a highly used nesting area for geese, mallards, wood ducks (high population), herons, other ducks, other birds, and possibly swans. The lake also houses loons. The fall season brings much duck activity into this area. This proposed segment (one of many alternatives…I am not against the line) would cut right through and parallel this wetlands area. I would think that there would be a better alternative route that would avoid wetlands areas. I have been active for years in putting up wood duck nests, and doing other projects to protect our wetlands, and wildlife.

There is another wildlife issue in this little basin from Dead Man's Pond to Crooked Lake. It is also a little ecosystem where moose live. We have been in that area since

0121-1
Potential impacts to wetlands and wildlife are discussed in Chapters 5 and 6 of the EIS.

No changes are made to the EIS in response to this comment.

1957, and that little self-contained ecosystem has generally had one or more moose that have lived there. One does not even see them very often because they stay in that little basin. I know that the State on Minnesota is working hard to bring back the moose population, and I would find it a tragedy if that ecosystem that not only contains much nesting wetlands waterfowl, but is also a habitat for moose would be violated by a high power transmission line.

In conclusion, this is a unique self-enclosed watershed. Few know it is there, and it is relatively difficult to get into it. I have hiked the greater area around it for over 50 years, and there are very few smaller secluded areas of pristine nature that escape the mainstream of people. It is also heavily used as a nesting area by waterfowl, and other aquatic animals. It is also the only area in that whole vicinity that I know of where moose will live year round and escape the harassment of invading people. There are presently four possible routes for the power line at this latitude, and I am hoping that one of them, or possibly a new addition would be a much better alternative.

I fully support building the power line, but I so strongly believe in preserving our wildlife and wetlands that I have been in contact with the US District Court, and if need be, I would pursue a Federal Injunction to stop any power line from being constructed in this Dead Man's segment.

Thank you,

Rodney Charles Tuomi

2826 6th Avenue East

Hibbing MN 55746

(218) 929-1940

Land owner in the Little Moose Lake Area

GREAT NORTHERN TRANSMISSION LINE

Connecting Manitoba and Minnesota

Comment on the
Great Northern Transmission Line
Docket Number TL-14-21

Name: Frank Weber
Organization (if any):
Mailing Address: 20406 Co Rd 8
City: NASHWAUK
State: MN
Zip: 55769
Email: fisherman52_us@yahoo.com

Comment: It will be interesting to see how the Certificate of Need is justified as the economy slows and collapse approaches. The arguments for anything but the straightest and shortests distance are weak and defy simple engineering principles while meeting someones agenda. If eliminating the use of coal was the goal it would be much easier to swallow. The willingness to continue to destroy and fragment what little forests are left is truly disheartening. 0123-1

0123-1
Thank you for your comment.

GREAT NORTHERN TRANSMISSION LINE

Connecting Manitoba and Minnesota

Comment on the Great Northern Transmission Line
Docket Number TL-14-21

Name: Roger Weber
Organization (if any):
Mailing Address: 20517 CR8
City: Nashwauk
State: MN
Zip: 55769
Email: Charlie-120rtw@yahoo.com

Comment: The Balsam Variation would be my Route of Choice. It uses an exiting old line.

Thanks

Roger Weber

0124-1

0124-1
Thank you for your comment. No changes are made to the EIS in response to this comment.

0125-1
Thank you for your comment. No changes are made to the EIS in response to this comment.

RESOLUTION No. 39-15

SUPPORTING THE GREAT NORTHERN TRANSMISSION LINE AND THE ROUTE PROPOSED BY MINNESOTA POWER

Resolution Offered by Councilor: Jaksa
Resolution Supported by Councilor: Kalar

0125-1

WHEREAS, Minnesota Power has served the City of International Falls, its citizens, businesses and industries with reliable electrical energy needed for productive and comfortable living for many decades; and

WHEREAS, Minnesota Power has proposed a new transmission line project to bring renewable, reliable and affordable energy and provide greater commerce in the State of Minnesota; and

WHEREAS, Minnesota Power has been planning and participating in Regulatory Review since the inception of the project in 2012; and

WHEREAS, Minnesota Power has received input from citizens and local units of government through numerous public hearings and has been sensitive to those concerns in developing and scoping the transmission line route; and

WHEREAS, a Draft Environmental Impact Statement (DEIS) under MPUC Docket number E-015/TL-14-21 is anticipated in June 2015;

NOW THEREFORE BE IT RESOLVED, that the City Council for the City of International Falls desires to go on record in support of the route chosen by Minnesota Power and especially its route through Koochiching County and rejects/opposes those alternatives/modifications designed by agencies of government and their personnel that do not reside in Koochiching County and understand our needs and preferences.

Ayes: Briggs, Droba, Jaksa, Kalar, Anderson
Nays: none
Abstained: none
Absent: none

Approved and adopted on this 18th day of May, 2015.

Robert W. Anderson

Robert W. Anderson, Mayor

Attest:

Kenneth R. Anderson, City Administrator

Page 1 of 1

STAFFORD TOWNSHIP	TOWNSHIP SUPERVISORS:	David Dahlgren
ROSEAU COUNTY		Michelle Mekash
MINNESOTA	TOWNSHIP CLERK:	Shelia Holter

A motion was made by Supervisor Dahlgren, seconded by Supervisor Mekash, and carried unanimously to adopt the following resolution:

2015-03-23

SUPPORTING MINNESOTA POWER'S GREAT NORTHERN TRANSMISSION LINE PROPOSED ROUTE ALTERNATIVES

MPUC DOCKET NO.E015/TL-14-21

OAH CASE NO. 65-2500-31637

DOE OE DOCKET NO. PP-398

WHEREAS, Minnesota Power is proposing to construct the 500 KV Great Northern Transmission Line from the Manitoba/Minnesota international border in Roseau County to the Blackberry Substation in Itasca County by June 1, 2020; and

WHEREAS, Minnesota Power is partnering with Manitoba Hydro to build this line that will deliver, clean renewable hydropower from northern Manitoba to Minnesota and the upper Midwest; and

WHEREAS, Minnesota Power has been working with Roseau County residents and landowners in Roseau County, for over three years to develop and refine a route for this project that provides the least impact to residents and landowners; and

WEAREAS, this voluntary outreach included multiple open houses in Roseau County, in addition to the required legal notices to Roseau County and multiple public hearings on the need for the Great Northern Transmission Line; and

WHERAS, in October 2014, Minnesota Power submitted to the United States Department of Energy an amendment to its border crossing based on consultation with landowners and stakeholders in Roseau County that the originally proposed border crossing was no longer feasible given constraints from the future expansion of the Piney-Pinecreek Border Airport and the Roseau Wildlife Management Area; and

WHEREAS, with this new information, Minnesota Power and Manitoba Hydro reached an agreement on a new border crossing that would originate at the Minnesota-Manitoba border roughly 2.9 miles east of Highway 89 in Roseau County. It would proceed southeast 0.2 miles and then travel south 2.3 miles to 390th Street and turn east following Minnesota Power's proposed Blue and Orange Routes as proposed in its April 15, 2014 Route Permit and Presidential Permit applications; and

0126-1
Thank you for your comment. No changes are made to the EIS in response to this comment.

WHEREAS, during the scoping process for the environmental impact statement, additional border crossings were proposed by the Minnesota Department of Natural Resources and private landowners, and four of these additional border crossings were carried forward by the Minnesota Department of Commerce into the scope of the draft environmental impact statement; and

0126-1

WHEREAS, Stafford Township in Roseau County supports the amended border crossing proposed by Minnesota Power as the only feasible border crossing given the agreement between Minnesota Power and Manitoba Hydro; and

WHEREAS, Stafford Township in Roseau County opposes the proposed route alternatives in Roseau County, submitted by the Minnesota Department of Natural Resources and the United States Fish and Wildlife Service that were done without input from Roseau County including the Roseau Lake WMA Alternative, due to more impacts on private landowners and agricultural land use and interfering with a public airport; and

WHEREAS, it is in the best interest of Stafford Township residents in Roseau County that the impacts to agricultural land uses and human settlements be minimized, and Minnesota Power's proposed route appears to accomplish those objectives; and

WHEREAS, the route alternatives submitted by the Minnesota Department of Natural Resources and the United States Fish and Wildlife Service negate over three years of good faith participation of Roseau County residents ,in working collaboratively with Minnesota Power to route the Great Northern Transmission Line in a manner that attempts to provide the least impact to residents and landowners;

NOW THEREFORE BE IT RESOLVED, Stafford Township in Roseau County supports Minnesota Powers preferred route as submitted on April 15, 2014 in the above referenced dockets and Minnesota Power's proposed border crossing as submitted in October, 2014 to the United States Department of Energy.

STATE OF MINNESOTA)

COUNTY OF ROSEAU)

STAFFORD TOWNSHIP)

I, Shelia Holter, Clerk of Stafford Township in Roseau County, Minnesota, and we, David Dahlgren and Michelle Mekash, Supervisors of Stafford Township in Roseau County, Minnesota, do hereby certify that the foregoing is a true and correct copy of a part of the proceedings adopted by the Stafford Township Supervisors

Shelia Holter	David Dahlgren	Michelle Mekash
Stafford Township Clerk	Supervisor	Supervisor
3-23-15	3-23-15	3-23-15

STOKES TOWNSHIP
ROSEAU COUNTY

MINNESOTA

CLERK MARY MONSRUD. TREASURER: CHET CASTLE

TOWNSHIP SUPERVISORS: JUSTIN HOWELL, ROB DAVY, DAN PENAS.

A motion was made by Supervisor Justin Howell, seconded by Supervisor Rob Davy and carried
unanimously to adopt the following resolution:

2015-03-31

SUPPORTING MINNESOTA POWER'S GREAT NORTHERN TRANSMISSION LINE PROPOSED ROUTE ALTERNATIVES

MPUC DOCKET NO.E015/TL-14-21

OAH CASE NO. 65-2500-31637

DOE OE DOCKET NO. PP-398

WHEREAS, Minnesota Power is proposing to construct the 500 KV Great Northern Transmission Line from the Manitoba/Minnesota international border in Roseau County to the Blackberry Substation in Itasca County by June 1, 2020; and

WHEREAS, Minnesota Power is partnering with Manitoba Hydro to build this line that will deliver, clean renewable hydropower from northern Manitoba to Minnesota and the upper Midwest; and

WHEREAS, Minnesota Power has been working with Roseau County residents and landowners in Roseau County, for over three years to develop and refine a route for this project that provides the least impact to residents and landowners; and

WEAREAS, this voluntary outreach included multiple open houses in Roseau County, in addition to the required legal notices to Roseau County and multiple public hearings on the need for the Great Northern Transmission Line; and

WHERAS, in October 2014, Minnesota Power submitted to the United States Department of Energy an amendment to its border crossing based on consultation with landowners and stakeholders in Roseau County that the originally proposed border crossing was no longer feasible given constraints from the future expansion of the Piney-Pinecreek Border Airport and the Roseau Wildlife Management Area; and

0127-1
Thank you for your comment. No changes are made to the EIS in response to this comment.

WHEREAS, with this new information, Minnesota Power and Manitoba Hydro reached an agreement on a new border crossing that would originate at the Minnesota-Manitoba border roughly 2.9 miles east of Highway 89 in Roseau County. It would proceed southeast 0.2 miles and then travel south 2.3 miles to 390th Street and turn east following Minnesota Power's proposed Blue and Orange Routes as proposed in its April 15, 2014 Route Permit and Presidential Permit applications; and

WHEREAS, during the scoping process for the environmental impact statement, additional border crossings were proposed by the Minnesota Department of Natural Resources and private landowners, and four of these additional border crossings were carried forward by the Minnesota Department of Commerce into the scope of the draft environmental impact statement; and

WHEREAS, Stokes Township in Roseau County supports the amended border crossing proposed by Minnesota Power as the only feasible border crossing given the agreement between Minnesota Power and Manitoba Hydro; and 0127-1

WHEREAS, Stokes Township in Roseau County opposes the proposed route alternatives in Roseau County, submitted by the Minnesota Department of Natural Resources and the United States Fish and Wildlife Service that were done without input from Roseau County including the Roseau Lake WMA Alternative, due to more impacts on private landowners and agricultural land use and interfering with a public airport; and

WHEREAS, it is in the best interest of Stokes Township residents in Roseau County that the impacts to agricultural land uses and human settlements be minimized, and Minnesota Power's proposed route appears to accomplish those objectives; and

WHEREAS, the route alternatives submitted by the Minnesota Department of Natural Resources and the United States Fish and Wildlife Service negate over three years of good faith participation of Roseau County residents ,in working collaboratively with Minnesota Power to route the Great Northern Transmission Line in a manner that attempts to provide the least impact to residents and landowners;

NOW THEREFORE BE IT RESOLVED, Stokes Township in Roseau County supports Minnesota Powers preferred route as submitted on April 15, 2014 in the above referenced dockets and Minnesota Power's proposed border crossing as submitted in October, 2014 to the United States Department of Energy.

STATE OF MINNESOTA)

COUNTY OF ROSEAU)

STokes TOWNSHIP)

I, Mary Monsrud, Clerk of Stokes Township in Roseau County, Minnesota, and we, Justin Howell and Rob Davy, Supervisors of Stokes Township in Roseau County, Minnesota, do hereby certify that the foregoing is a true and correct copy of a part of the proceedings adopted by the Stokes Township Supervisors.

Mary Monsrud	Justin Howell	Rob Davy
Stokes Township Clerk	Supervisor	Supervisor

Scott Johnson, Chairman
Wilfred Moser, Vice-Chairman
Eugene Krzoska, Supervisor

TOWN OF FALUN
47600 225TH STREET
ROSEAU, MN 56751-8636

Jennifer Moser, Clerk
Florence Rygh, Treasurer

24 March 2015

The Town of Falun board passed the following resolution on March 24th, 2015.

RESOLUTION SUPPORTING MINNESOTA POWER'S GREAT NORTHERN TRANSMISSION LINE PORPOSED ROUTE ALTERNATIVES

Town of Falun Resolution #2015-02

A motion was made by Supervisor WILFRED MOSER, seconded by Supervisor EUGENE KRZOSKA, to adopt the following resolution:

MPUC DOCKET NO: E015/TL-14-21
OAH CASE NO: 65-2500-31637
DOE OE DOCKET NO: PP-398

WHEREAS, Minnesota Power is proposing to construct the 500 KV Great Northern Transmission Line from the Manitoba/Minnesota international border in Roseau County to the Blackberry Substation in Itasca County by June 1, 2020; and

WHEREAS, Minnesota Power is partnering with Manitoba Hydro to build this line that will deliver, clean renewable hydropower from northern Manitoba to Minnesota and the upper Midwest; and

WHEREAS, Minnesota Power has been working with Roseau County residents and landowners in Roseau County, for over three years to develop and refine a route for this project that provides the least impact to residents and landowners; and

WEAREAS, this voluntary outreach included multiple open houses in Roseau County, in addition to the required legal notices to Roseau County and multiple public hearings on the need for the Great Northern Transmission Line; and

WHERAS, in October 2014, Minnesota Power submitted to the United States Department of Energy an amendment to its border crossing based on consultation with landowners and stakeholders in Roseau County that the originally proposed border crossing was no longer feasible given constraints from the future expansion of the Piney-Pinecreek Border Airport and the Roseau Wildlife Management Area; and

Scott Johnson, Chairman
Wilfred Moser, Vice-Chairman
Eugene Krzoska, Supervisor

TOWN OF FALUN
47600 225TH STREET
ROSEAU, MN 56751-8636

Jennifer Moser, Clerk
Florence Rygh, Treasurer

WHEREAS, with this new information, Minnesota Power and Manitoba Hydro reached an agreement on a new border crossing that would originate at the Minnesota-Manitoba border roughly 2.9 miles east of Highway 89 in Roseau County. It would proceed southeast 0.2 miles and then travel south 2.3 miles to 390th Street and turn east following Minnesota Power's proposed Blue and Orange Routes as proposed in its April 15, 2014 Route Permit and Presidential Permit applications; and

WHEREAS, during the scoping process for the environmental impact statement, additional border crossings were proposed by the Minnesota Department of Natural Resources and private landowners, and four of these additional border crossings were carried forward by the Minnesota Department of Commerce into the scope of the draft environmental impact statement; and

WHEREAS, Falun Township in Roseau County supports the amended border crossing proposed by Minnesota Power as the only feasible border crossing given the agreement between Minnesota Power and Manitoba Hydro; and

WHEREAS, Falun Township in Roseau County opposes the proposed route alternatives in Roseau County, submitted by the Minnesota Department of Natural Resources and the United States Fish and Wildlife Service that were done without input from Roseau County including the Roseau Lake WMA Alternative, due to more impacts on private landowners and agricultural land use and interfering with a public airport; and

WHEREAS, it is in the best interest of Falun Township residents in Roseau County that the impacts to agricultural land uses and human settlements be minimized, and Minnesota Power's proposed route appears to accomplish those objectives; and

WHEREAS, the route alternatives submitted by the Minnesota Department of Natural Resources and the United States Fish and Wildlife Service negate over three years of good faith participation of Roseau County residents, in working collaboratively with Minnesota Power to route the Great Northern Transmission Line in a manner that attempts to provide the least impact to residents and landowners;

NOW THEREFORE BE IT RESOLVED, Falun Township in Roseau County supports Minnesota Power's preferred route as submitted on April 15, 2014 in the above referenced dockets and Minnesota Power's proposed border crossing as submitted in October 2014 to the United States Department of Energy.

Adopted by the Falun Town Board, March 24th, 2015

Signed by:

Scott A Johnson

Chairperson

Attested to by:

JENNIFER MOSER

Town Clerk

JENNIFER MOSER
Clerk, Falun Twnshp., Roseau Co., Minnesota
Notarial Officer (ex-officio notary public)
My term is indeterminate

0128-1

0128-1
Thank you for your comment. No changes are made to the EIS in response to this comment.

ROSS TOWNSHIP
ROSEAU COUNTY
MINNESOTA

TOWNSHIP SUPERVISORS: Jon Johnson
Mitch Magnusson
Sheldon Larson

ROSS TOWNSHIP RESOLUTION

SUPPORTING MINNESOTA POWER'S GREAT NORTHERN TRANSMISSION LINE PROPOSED ROUTE ALTERNATIVES

MPUC DOCKET NO.E015/TL-14-21

OAH CASE NO. 65-2500-31637

DOE OE DOCKET NO. PP-398

WHEREAS, Minnesota Power is proposing to construct the 500 KV Great Northern Transmission Line from the Manitoba/Minnesota international border in Roseau County to the Blackberry Substation in Itasca County by June 1, 2020; and

WHEREAS, Minnesota Power is partnering with Manitoba Hydro to build this line that will deliver, clean renewable hydropower from northern Manitoba to Minnesota and the upper Midwest; and

WHEREAS, Minnesota Power has been working with Roseau County residents and landowners in Roseau County, for over three years to develop and refine a route for this project that provides the least impact to residents and landowners; and

WEAREAS, this voluntary outreach included multiple open houses in Roseau County, in addition to the required legal notices to Roseau County and multiple public hearings on the need for the Great Northern Transmission Line; and

WHERAS, in October 2014, Minnesota Power submitted to the United States Department of Energy an amendment to its border crossing based on consultation with landowners and stakeholders in Roseau County that the originally proposed border crossing was no longer feasible given constraints from the future expansion of the Piney-Pinecreek Border Airport and the Roseau Wildlife Management Area; and

WHEREAS, with this new information, Minnesota Power and Manitoba Hydro reached an agreement on a new border crossing that would originate at the Minnesota-Manitoba border roughly 2.9 miles east of Highway 89 in Roseau County. It would proceed southeast 0.2 miles and then travel south 2.3 miles to 390th Street and turn east following Minnesota Power's proposed Blue and Orange Routes as proposed in its April 15, 2014 Route Permit and Presidential Permit applications; and

0129-1
Thank you for your comment. No changes are made to the EIS in response to this comment.

WHEREAS, during the scoping process for the environmental impact statement, additional border crossings were proposed by the Minnesota Department of Natural Resources and private landowners, and four of these additional border crossings were carried forward by the Minnesota Department of Commerce into the scope of the draft environmental impact statement; and

WHEREAS, Ross Township in Roseau County supports the amended border crossing proposed by Minnesota Power as the only feasible border crossing given the agreement between Minnesota Power and Manitoba Hydro; and 0129-1

WHEREAS, Ross Township in Roseau County opposes the proposed route alternatives in Roseau County, submitted by the Minnesota Department of Natural Resources and the United States Fish and Wildlife Service that were done without input from Roseau County including the Roseau Lake WMA Alternative, due to more impacts on private landowners and agricultural land use and interfering with a public airport; and

WHEREAS, it is in the best interest of Ross Township residents in Roseau County that the impacts to agricultural land uses and human settlements be minimized, and Minnesota Power's proposed route appears to accomplish those objectives; and

WHEREAS, the route alternatives submitted by the Minnesota Department of Natural Resources and the United States Fish and Wildlife Service negate over three years of good faith participation of Roseau County residents, in working collaboratively with Minnesota Power to route the Great Northern Transmission Line in a manner that attempts to provide the least impact to residents and landowners;

NOW THEREFORE BE IT RESOLVED, Ross Township in Roseau County supports Minnesota Powers preferred route as submitted on April 15, 2014 in the above referenced dockets and Minnesota Power's proposed border crossing as submitted in October, 2014 to the United States Department of Energy.

STATE OF MINNESOTA)

COUNTY OF ROSEAU)

ROSS TOWNSHIP)

Adopted by:

Jon Johnson	Mitch Magnusson	Sheldon Larson
Supervisor	Supervisor	Supervisor

3-30-15

DIETER TOWNSHIP
ROSEAU COUNTY
Pearson, Warren Stoe
MINNESOTA
Elton

TOWNSHIP SUPERVISORS: Steve Lee
Casey

TOWNSHIP CLERK: Marlin

A motion was made by Supervisor Lee, seconded by Supervisor Pearson, and carried unanimously to adopt the following resolution:

2015-03-23

SUPPORTING MINNESOTA POWER'S GREAT NORTHERN TRANSMISSION LINE PROPOSED ROUTE ALTERNATIVES

MPUC DOCKET NO.E015/TL-14-21

OAH CASE NO. 65-2500-31637

DOE OE DOCKET NO. PP-398

WHEREAS, Minnesota Power is proposing to construct the 500 KV Great Northern Transmission Line from the Manitoba/Minnesota international border in Roseau County to the Blackberry Substation in Itasca County by June 1, 2020; and

WHEREAS, Minnesota Power is partnering with Manitoba Hydro to build this line that will deliver, clean renewable hydropower from northern Manitoba to Minnesota and the upper Midwest; and

WHEREAS, Minnesota Power has been working with Roseau County residents and landowners in Roseau County, for over three years to develop and refine a route for this project that provides the least impact to residents and landowners; and

WEAREAS, this voluntary outreach included multiple open houses in Roseau County, in addition to the required legal notices to Roseau County and multiple public hearings on the need for the Great Northern Transmission Line; and

WHERAS, in October 2014, Minnesota Power submitted to the United States Department of Energy an amendment to its border crossing based on consultation with landowners and stakeholders in Roseau County that the originally proposed border crossing was no longer feasible given constraints from the future expansion of the Piney-Pinecreek Border Airport and the Roseau Wildlife Management Area; and

0130-1
Thank you for your comment. No changes are made to the EIS in response to this comment.

WHEREAS, with this new information, Minnesota Power and Manitoba Hydro reached an agreement on a new border crossing that would originate at the Minnesota-Manitoba border roughly 2.9 miles east of Highway 89 in Roseau County. It would proceed southeast 0.2 miles and then travel south 2.3 miles to 390th Street and turn east following Minnesota Power's proposed Blue and Orange Routes as proposed in its April 15, 2014 Route Permit and Presidential Permit applications; and

WHEREAS, during the scoping process for the environmental impact statement, additional border crossings were proposed by the Minnesota Department of Natural Resources and private landowners, and four of these additional border crossings were carried forward by the Minnesota Department of Commerce into the scope of the draft environmental impact statement; and

WHEREAS, Dieter Township in Roseau County supports the amended border crossing proposed by Minnesota Power as the only feasible border crossing given the agreement between Minnesota Power and Manitoba Hydro; and

0130-1

WHEREAS, Dieter Township in Roseau County opposes the proposed route alternatives in Roseau County, submitted by the Minnesota Department of Natural Resources and the United States Fish and Wildlife Service that were done without input from Roseau County including the Roseau Lake WMA Alternative, due to more impacts on private landowners and agricultural land use and interfering with a public airport; and

WHEREAS, it is in the best interest of Dieter Township residents in Roseau County that the impacts to agricultural land uses and human settlements be minimized, and Minnesota Power's proposed route appears to accomplish those objectives; and

WHEREAS, the route alternatives submitted by the Minnesota Department of Natural Resources and the United States Fish and Wildlife Service negate over three years of good faith participation of Roseau County residents ,in working collaboratively with Minnesota Power to route the Great Northern Transmission Line in a manner that attempts to provide the least impact to residents and landowners;

NOW THEREFORE BE IT RESOLVED, Dieter Township in Roseau County supports Minnesota Powers preferred route as submitted on April 15, 2014 in the above referenced dockets and Minnesota Power's proposed border crossing as submitted in October, 2014 to the United States Department of Energy.

STATE OF MINNESOTA)

COUNTY OF ROSEAU)

DIETER TOWNSHIP)

I, Marlin Elton, Clerk of Dieter Township in Roseau County, Minnesota, and we, Steve Lee and Casey Pearson, Supervisors of Dieter Township in Roseau County, Minnesota, do hereby certify that the foregoing is a true and correct copy of a part of the proceedings adopted by the Dieter Township Supervisors

Marlin Elton	Steve Lee	Casey Pearson
Dieter Township Clerk	Supervisor	Supervisor
Date: 3-30-15	Date: 3-30-15	Date: 3-30-15

3

From: tom johnson
To: Storm, Bill (COMM)
Subject: TL-14-21
Date: Wednesday, May 20, 2015 4:43:43 PM

Dear Bill Storm,

My name is Tom Johnson and I am a landowner within the Beltrami WMA Alternative Route. In particular I own land in sections 23 & 24 of Stafford Township in Roseau County. I am writing you today to voice my deep concern over this proposed alternative route of the power transmittion line and think it is not in the best interest of the residents of Stafford Township nor the best use of the land.

There are several observations I would hope you to consider: 1) It is well known that Stafford Township is considered the bedroom community of Roseau. It has a beautiful landscape which is host to a large number of residences of people who mainly work at many of our outstanding industries in Roseau County and the townships vision is to encourage more development of nice building sites. It is apparent that when looking at the map of the southern proposed alternative route it would travel thru and disrupt many residents along this route versus nearly none along the northern routes. 2) Agriculture is also a big deal in our township and the southern alternative route will clearly be disruptive to many of the farmers like myself who try to make a living off the crops we raise. Trying to farm around these structures is going to place a monetary burden on these farmers year after year. 3) A large amount of wooded land, land in which would be very desirous in which to locate a home, would be greatly affected by this southern alternative route. In particular on land I own in Section 24 it would cut across a half mile of my woods which holds great value not only to incredible building sites but also greatly contributes to the wonderful game this area produces. I would be very saddened to see this disappear.

I have followed along with this process the best I could and have voiced my concerns at several meetings. It was mentioned several times that a minimization of impacts to private land and landowners was a priority. Therefore I appeal to your senses and to please remove the Beltrami WMA Route Alternative from your consideration. If you would wish to discuss this with me directly you may reach me on my cell (218) 469-9357. Call anytime.

Sincerely,

Tom C. Johnson
24506 State Hwy. 89
Roseau, MN 56751

0131-1

0131-1
For all alternatives proposed during the scoping process, residences, agriculture, land use (including forests), and land ownership are evaluated in Chapter 6 of the EIS.

As discussed in Section 1.3.4.4 of the EIS, once a route is selected and a permit is issued, the Applicant would contact landowners to gather information about their property and their concerns and discuss how the ROW would best proceed across the property.

No changes are made to the EIS in response to this comment.

From: Coleen Lofgren
To: Storm, Bill (COMM)
Subject: The Great Northern Transmission Line Docket No. TL-14-21
Date: Wednesday, May 20, 2015 8:03:02 AM

41366 Scenic Highway

Bovey, MN 55709

May 19, 2015

Dear Mr. Storm,

My name is Coleen Lofgren. My husband and I have 40 acres in Itasca County (sec 26, T58N, R24W) we have owned this property since the 1970's. If the orange route is chosen, it will go right through the center of our property. The orange route will also go close to our local township park, community center, volunteer fire department, church, local convenience store, café, medical clinic, chiropractic clinic and peoples' homes. 0132-1

We don't want to move and would like to live out our lives here, but if the line comes through, we will be forced to do the "buy the farm" option.

WE RECOMMEND THAT YOU CHOOSE THE BLUE ROUTE. Please remove the orange and red route from consideration.

Respectfully,

Coleen Lofgren

0132-1
Thank you for your comment. No changes are made to the EIS in response to this comment.

To Bill Storm
Environmental Review Manager
MN Department of Commerce
85 7th Place Ease, Suite 500
St. Paul, MN 55101

From: Gerald Krahn
59450 County Road 12 (300th St.)
Warroad, MN, 56763
05/11/2015

My name is Gerald Krahn and I have farmed in four sections of Moranville township along the Cedar Bend WMA for many years as well as the Beltrami WMA in Clear River township the past few year. I will address the Beltrami route first.

I attended one of the first meetings concerning the route for the Great Northern Transmission line and gave my input as a farm operator along the Beltrami route. Some time later I visited with my land lords, Bill and Jeff Thompson, and we agreed that the power company had indeed done their homework well with the route chosen. It appeared to be very environmentally friendly going over Jeff's property. The remaining land would then be taken out of crop production and planted to grasses and legumes This would leave some excellent wild life habitat adjacent to Beltrami State Forest. It would also leave no actively farmed crop land under the power line in Clear River township. I own two parcels of land in Clear River township and have farmed in the area going back into the 1950's. The route going South and then circling back around looks to me like there would be substantial increased original construction cost as well as added up keep for all the corners and extra distance.

0133-1

While I think the Beltrami alternative is poor, the Cedar Bend route is much worse. While my son now owns the half mile in section 20 under the current line I still own three quarters of a mile in section 29 right on the South side of the right of way. I also continue to rent land under the Cedar Bend route.

I started farming with a ten foot cultivator, currently my biggest one is 53 feet although I mostly use a 40 foot near the big power towers. In some places it is hard to get between the power tower and the property line. I hire professional operators to do my spraying and they use up to a 120 foot booms. You can imagine the challenges this causes. Last year I had to have some spraying done by air and ended up paying a premium because of the location of the power line. While training farm equipment operators I try to stay out of the fields with large power towers. Those I have included neighbors, children, grandchildren, and if I make it a few more years maybe even a few great grandchildren. In section 20 if you go on the South side it will go right over The Country Corn Maze and if you go to the North It will impact homes.

The proposed Blue/Orange Route minimizes impact to homes and private land use. Please remove the Cedar Bend WMA variation and the Beltrami Alternative from consideration.
Sincerely

Gerald Krahn

Gerald Krahn

0133-1
The EIS provides an analysis of residences within the ROW as well as within the route for all alternatives. Also, as discussed in Section 1.3.1.4 of the EIS, once a route is selected and a permit is issued, the Applicant would contact landowners to gather information about their property and their concerns and discuss how the ROW would best proceed across the property.

Dear Bill Storm

My name is Mike Hardzus, I and my son ISAAC have a farm Located within the boundries of Pine Island State Forest. We purchased the property in 11-1-13 and we did not recive any notice of a transmission Line being proposed in the area until April 25th 2015, this is the reason we have not given input at any of the public information meetings held prior to this date.

As you can see with the enclosed copy of the proposed route, it would impact our Land completely, going from North to South which would totally destroy the value of the Land and severly restrict it's use.

We have plans for a small cabin, which now would be Located directly in the path of the transmission Line.

RECEIVED MAY 2 2015 MDOC

0134-1

0134-2

0134-1
All comments on the Draft EIS are part of the record that will be reviewed by the Administrative Law Judge (ALJ) before a route permit decision is final. The comments about your property and home will be included in this review. There is flexibility in final design and permitting so that if the Blue Route is selected, the Applicant will work with you to minimize impacts to your property.

No changes are made to the EIS in response to this comment.

0134-2
All comments on the Draft EIS are part of the record that will be reviewed by the Administrative Law Judge (ALJ) before a route permit decision is final. The comments about your property and home will be included in this review. There is flexibility in final design and permitting so that if the Blue Route is selected, the Applicant will work with you to minimize impacts to your property.

No changes are made to the EIS in response to this comment.

We have invested considerable resources to aquire this Land with the intensions of preservation and passing it on to future generations.

It is my understanding that, when a transmission Line is built, they clear cut a 200' wide path where the Line would go, and approximately every three years, that area is sprayed with a Herbicide to kill any type of vegitation that might try to grow back.

Now the full 640 acres of our property could be certified organic, as it has not had chemicals on it prior to this time. This would ruin that if this transmission Line were allowed to be built here.

This is a very fragile ecosystem with standing water on most of the property most of the year and with the peat holding the water year round.

0134-2 cont'd

0134-2 Continued

0134-3

The Applicant would likely develop a vegetation management plan through the permitting process. This management plan will include information on control of invasive species and treatment of certified organic farms. Once a route is selected, the Applicant would contact landowners to gather information about their property and their concerns, including use of herbicides.

No changes are made to the EIS in response to this comment.

0134-3

0134-4

Chapter 6 of the EIS discusses potential impacts to forests, rare communities, wetlands, and wildlife for each alternative. The EIS also discusses avoidance and minimization measures for these resources in Chapters 2 and 5.

No changes are made to the EIS in response to this comment.

0134-4

0134-4 cont'd

0134-4
Continued

Enclosed are photo's of the property, and as you can tell it is a very sensative area.

This is one of the reasons we chose this property, because of the remote location and by being surrounded by state forrest on three sides, we feel that it would prevent any encroachment from outside sources.

We have seen moose tracks, Amphibia, wolf tracks, and various fowl etc, this is one of the major concerns with spraying these chemicals and the effect it would have on animalia as well as humans since the water table is on or next to the surface.

As you may already know this land is surrounded by sientific and natural areas, also thousands of conifer and deciduous trees would be destroyed, not only on our property but throughout the Pine Island

State Forrest that surrounds our property. You could not bring in heavy equipment into this area without totally uprooting and destroying the sensative soil and peat that ties this ground together.

In summary the proposed orange route would be devistating to the whole ecosystem of the area, plus ruin our hopes and plans for keeping a pristine area protected from pollution and outside developmnent, so that it could be maintained and passed on to future generations.

Therefore any action that you can take to exempt the orange route from consideration as a possible route is most greatly appreciated.

Sincerely
Mike Handzus
73833 State Hwy 86
Lakefield, MN 56150

Questions or concerns phone 507-662-5264

0134-4 Continued

0134-5

0134-4 cont'd

0134-5
All comments on the Draft EIS are part of the record that will be reviewed by the Administrative Law Judge (ALJ) before a route permit decision is final. The comments about your property and home will be included in this review. There is flexibility in final design and permitting so that if the Blue Route is selected, the Applicant will work with you to minimize impacts to your property.

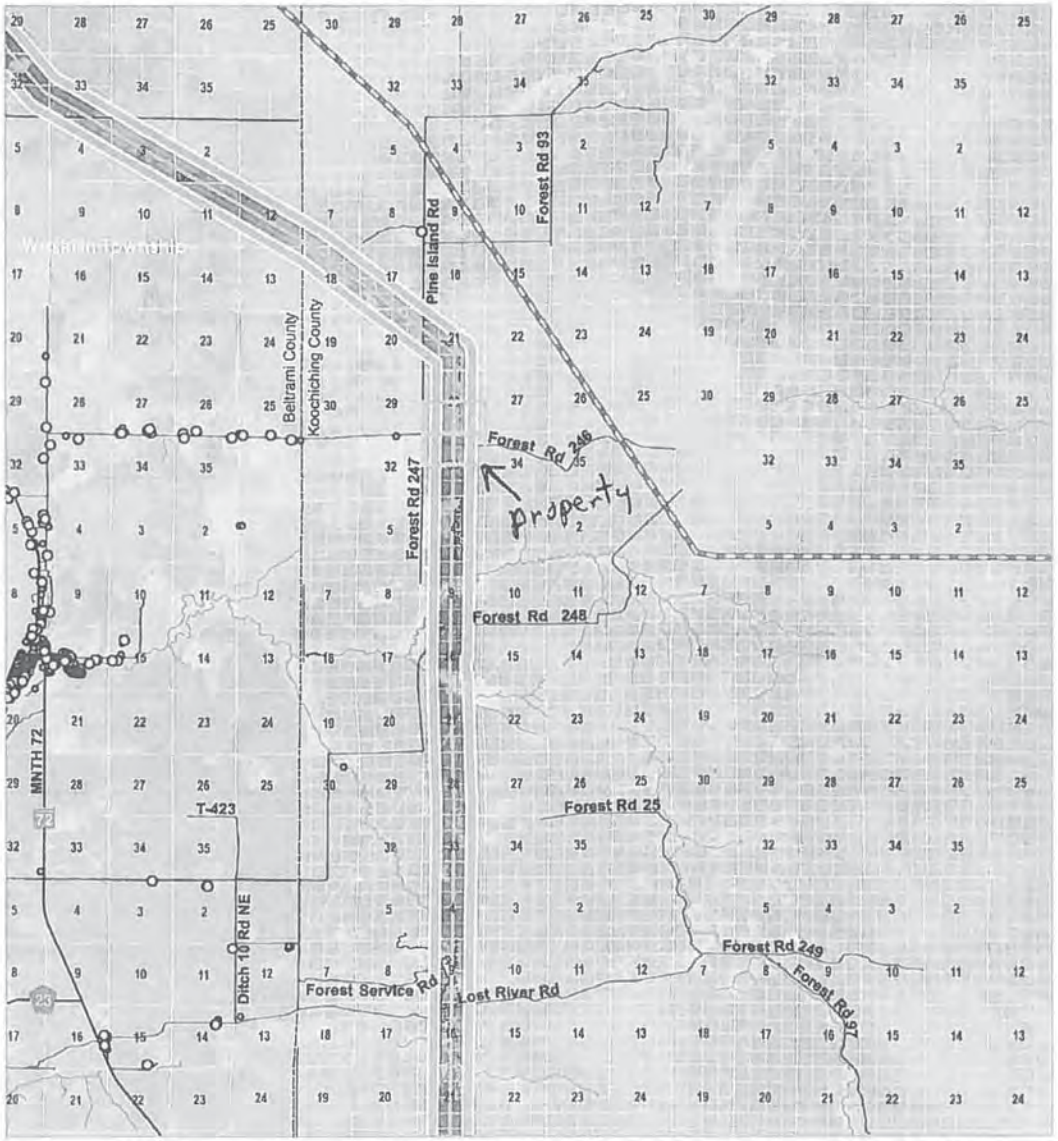
No changes are made to the EIS in response to this comment.

minnesota power
AN ALLETE COMPANY

GREAT NORTHERN TRANSMISSION LINE

Isaac Handzus

73833 STATE HIGHWAY 86
LAKEFIELD, MN 56150



Legend

- Commenter's Area of Interest
- Blue Route
- Orange Route
- Route Option
- Scoping Decision Route

Existing Transmission

- 230kV AC
- 500kV AC
- Residence
- Structure

02,000 Feet

MOTHER EARTH NEWS

Peat Bogs Help to Mitigate Climate Change

Peat bogs play an essential role in mitigating climate change by keeping billions of tons of carbon buried beneath them.
June/July 2001
http://www.motherearthnews.com/nature-and-environment/peat-bogs-help-to-mitigate-climate-change-zmaz01jjzsel.aspx
By I. E. Sadowski

Peat bogs are diverse ecosystems that form solely from surface water and precipitation.

Photo courtesy CORBIS

One step forward for wetlands, but two steps back for peat bogs? For a while there, it appeared that wetland conservation was on the upswing, experiencing an 80 percent reduction in annual loss of acreage over the last decade. But last winter, the Supreme Court decided to limit the scope of the Clean Water Act and exclude wetlands that are not attached to another body of water—a ruling that may have a devastating effect on those peat bogs that accumulate water exclusively by precipitation.

Wetlands act as buffers between land and liquid, working like sponges to moderate flood control, water quality and coastal erosion. The peat bogs that rim the Northern hemisphere may also play a crucial role in mitigating climate change. "There are lots of intersections between global warming and wetlands," says Dan Becker, director of the Sierra Club's Global Warming and Energy Program. Fluctuating sea and lake levels could have devastating effects on the wetlands, he says, which could result in dire global consequences since wetlands are also storage tanks for carbon.

Peat bogs contain sphagnum moss, sometimes many feet thick. In the oxygen-poor environment of a bog, the moss remains stable. But when phenol oxidase goes to work breaking peat down into humus, between 20 and 75 percent of the moss's carbon mass is released as carbon dioxide. New Scientist

magazine reports that the 455 billion tons of carbon buried in peat bogs worldwide would release the equivalent of 70 years of industrial emissions. Scientists disagree on whether changing water levels or pH stimulate the enzyme, but some worry that drying wetlands would belch greenhouse gases and cause temperatures to climb even higher.

Amid increasing reports that global warming is real and occurring faster than predicted, drying out wetlands seems like a step in the wrong direction.

Bog

Previous (Boer Wars) (/entry/Boer_Wars)

Next (Bogota, Colombia) (/entry/Bogota,_Colombia)

A **bog** is a freshwater wetland (/entry/Wetland) characterized by acidic (/entry/Acid) peat (/entry/Peat) deposits and by moisture provided by precipitation (rain (/entry/Rain) and snow (/entry/Snow)) rather than groundwater or interior drainage. The precipitation leaches nutrients from the soil (/entry/Soil), while acid is produced from the decomposing organic material (Finlayson and Moser 1991). The United States Environmental Protection Agency (EPA) considers the bog one of the four general categories of wetlands, the others being marshes (/entry/Marsh), swamps (/entry/Swamp), and fens (/entry/Fen) (EPA 2004), although categorization of wetlands varies widely.

(/entry/File:L%C3%BCtt-Witt_Moor-2.jpg)

Lütt-Witt Moor, a bog in Henstedt-Ulzburg in northern Germany (/entry/Germany).

Bogs provide many ecological (/entry/Ecology), commercial, archaeological, and recreational benefits. As a unique habitat, they serve as a biogenetic reservoir for many rare and protected plant and animal species. They are a source of peat, which can be dried and burned as an energy source and alternatively used as a soil amendment. Bogs are also a very early stage in the formation of coal deposits. Bogs serve as a carbon (/entry/Carbon) store, and afford aesthetic enrichment and renewal. Archaeologically, they have been known to preserve mammalian (/entry/Mammal) bodies extremely well for millennia.

Despite these valuable aspects of bogs, many people consider them to be wastelands that can better be converted to some "useful" purpose, such as reclaimed land for intensive agricultural or residential use. Many bogs have been lost, including an estimated 94 percent of the original bogs in the United Kingdom (/entry/United_Kingdom) (RSPB 2007).

Overview and description

A bog is a type of **wetland**. A wetland is a transitional environment between permanently aquatic and terrestrial environments that shares characteristics of both environments and where water (/entry/Water), which covers the soil (/entry/Soil) or is near the surface for substantial parts of the year, is the key factor in determining the nature of the ecosystem (/entry/Ecosystem) and soil. Although wetlands have aspects similar to both wet and and dry environments, they cannot be classified unambiguously as either aquatic or terrestrial (Barbier et al. 1997).

A bog is a wetland type that accumulates acidic (/entry/Acid) peat (/entry/Peat). Peat is the dark, fibrous accumulation of partially decomposed and disintegrated organic matter (/entry/Biological_tissue) found in wet areas, usually residues of plants (/entry/Plant) such as mosses (/entry/Moss), but also including sedges, trees (/entry/Tree), and other plant and even animal matter. It is generally light and spongy in consistency and dark brown or black in color (/entry/Color). Many North American bogs are characterized by *Sphagnum (/entry/Sphagnum)* moss.

Contents

- 1 Overview and description
- 2 Distribution and extent
- 3 Importance
  - 3.1 Biodiversity
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Bogs are not the only peat-forming wetland. For example, a fen is a freshwater, peat-forming wetland with chemically basic (/entry/Base_(chemistry)) (which roughly means alkaline (/entry/Alkali)) ground water. This means that it contains a moderate or high proportion of hydroxyl ions (pH (/entry/PH) value greater than seven).

In bogs, moisture is provided essentially by precipitation, and for this reason bog waters are acidic and termed ombrotrophic (or cloud-fed), which accounts for their low plant nutrient status. Excess rainfall outflows, with dissolved tannins from the plant matter giving a distinctive tan color to bog waters.

(/entry/File:Raselink.jpg)

Sphagnum (/entry/Sphagnum) bog vegetation

In the United States (/entry/United_States), the four general categories of wetlands, according to the Environmental Protection Agency, are marshes, swamps, bogs, and fens. (EPA 2004) The term *mires* is sometimes used for a type of complex, wetland ecosystems (/entry/Ecosystem) that includes bogs and fens. Finlayson and Moser (1991) state that bogs are formed when rain and snow feed directly into an area with an already high watertable, with nutrients being leached from the soil and acid being produced as organic material slowly decomposes. They distinguish bogs from fens by stating that fens are fed by ground water or by interior drainage into a hollow rather than by precipitation; fens are higher in nutrients and lower in acidity than bogs, but can still produce peat.

(/entry/File:Brown_Lake_Bog_OH.jp

Virgin boreal acid bogs at Brown's Lake Bog, Ohio. The tree cover is not typical of a bog.

The EPA notes that bogs often are formed in old glacial lakes and characterized by spongy peat deposits, evergreen trees and shrubs, and a floor covered by a thick carpet of sphagnum (/entry/Sphagnum) moss (EPA 2004).

Distribution and extent

Bogs are widely distributed in cold, temperate climates, mostly in the northern hemisphere (Boreal). The world's largest wetlands are the bogs of the Western Siberian Lowlands in Russia (/entry/Russia), which cover more than 600,000 square kilometers. Sphagnum (/entry/Sphagnum) bogs historically were widespread in northern Europe, and Ireland (/entry/Ireland) once was more than 15 percent bog. Achill Island off Ireland remains 87 percent bog.

There are extensive bogs in Canada (/entry/Canada) and Alaska (/entry/Alaska) (labeled muskeg), Scotland (/entry/Scotland), Denmark (/entry/Denmark), Estonia (/entry/Estonia) (20 percent boglands), Finland (/entry/Finland) (26 percent), northern Germany (/entry/Germany), the Netherlands (/entry/Netherlands), and Sweden (/entry/Sweden). There are also bogs in the Falkland Islands (/entry/Falkland_Islands).

Ombrotrophic wetlands (that is, bogs) are also found in the tropics, with notable areas documented in Kalimantan; these habitats are forested so would be better called swamps (/entry/Swamp). Extensive bogs cover the northern areas of the U.S. states of Minnesota (/entry/Minnesota) and Michigan (/entry/Michigan), most notably on Isle Royale in Lake Superior (/entry/Lake_Superior). The pocosin of the southeastern United States is like a bog in that it is an acidic wetland but it has its own unusual combination of features. In certain areas such as Ireland and Scotland, coastal bogs are frequently intruded upon by low lying dunes called *Machairs*.

Importance

Bogs provide innumerable benefits. Nonetheless, many have been drained or otherwise converted to intensive agricultural, residential, or commercial use. It is estimated that more than 90 percent of the United Kingdom's lowland peat bogs have been damaged or destroyed (BBC 2004; RSPB 2007).

Biodiversity

Bogs are recognized as a significant habitat type by a number of governmental and conservation agencies. For example, the United Kingdom (/entry/United_Kingdom) in its Biodiversity Action Plan establishes bog habitats as a priority for conservation. Bogs are challenging environments for plant life because they are low in nutrients and very acidic. Furthermore, the absorption of water by sphagnum moss reduces the amount of water available for plants. As a result of these unique conditions, many unique flora and fauna may be found. Carnivorous plants have adapted to the low nutrient conditions by using insects (/entry/Insect) as a nutrient source. Some bog plants, such as Leatherleaf, have waxy leaves to help retain moisture. English (/entry/England) bogs are home to the boghopper beetle and a yellow fly (/entry/Fly) called the hairy canary.

Many rare and protected plant and animal species are found on bogs. These include the Greenland white-fronted goose, which relies on bogs for feeding and roosting, and the bog moss *Sphagnum imbricatum* is entirely restricted to bogs (IPCC 1996).

Commercial uses

Peat, which is characteristic of bogs, is a very early stage in the formation of coal (/entry/Coal) deposits. Indeed, peat can be dried and burned and thus is used as an energy source, such as for home heating or even for power stations. More than 20 percent of home heat in Ireland comes from peat, and peat is also used for fuel in Finland (/entry/Finland), Scotland (/entry/Scotland), Germany (/entry/Germany), and Russia (/entry/Russia). Russia is the leading producer of peat for fuel at more than 90 million metric tons per year.

The other major use of dried peat is as a soil amendment (sold as *moss peat* or *sphagnum*) to increase the soil's capacity to retain moisture and enrich the soil. It is also used as a mulch, although this generally is not advisable since it can repel water when dried. Some distilleries (/entry/Distillation), notably Laphroaig, use peat fires to smoke the barley (/entry/Barley) used in making scotch whiskey. This gives Scotch whiskey its distinctive smoky flavor, often called "peatiness" by its aficionados.

Blueberries (/entry/Blueberry), cranberries, cloudberries, huckleberries, wild strawberries, and lingonberries are harvested from the wild in bogs. Bog oak, wood that has been partially preserved by bogs, has been used in manufacture of furniture (/entry/Furniture).

(/entry/File:BogHBy.jpg)

Bog Huckleberry at Polly's Cove, Nova Scotia (/entry/Nova_Scotia)

Archeology

The anaerobic acidic bogs are known to preserve mammalian (/entry/Mammal) bodies extremely well for millennia, making them a valuable archaeological resource.

During prehistoric times, peat bogs had considerable ritual significance to Bronze Age and Iron Age peoples, who considered them to be home to (or at least associated with) nature gods or spirits. The bodies of the victims of ritual sacrifices have been found in a number of locations in England (/entry/England), Ireland (/entry/Ireland), and especially northern Germany (/entry/Germany) and Denmark (/entry/Denmark), almost perfectly preserved by the tanning properties of the acidic water. Some bogs have preserved ancient oak (/entry/Oak) logs useful in dendrochronology

(/entry/Dendrochronology), and they have yielded extremely well-preserved bog bodies, with organs, skin, and hair intact, buried there thousands of years ago after apparent Germanic and Celtic human sacrifice. Excellent examples of such human specimens are Haraldskær Woman and Tollund Man in Denmark. Both of these specimens retained remarkably intact skin, internal organs, and skeletons.

The discovery of several victims of ritual sacrifice by strangulation during the Iron Age culture of Denmark has been recorded (Glob 1969). The corpses were thrown into peat bogs where they were discovered after 2000 years, perfectly preserved down to their facial expressions, although well-tanned by the acidic environment of the Danish bogs. The Germanic culture has similarities to the characteristics of the probably Celtic Lindow man found at Lindow Common and with the Frisian culture described in the story of St. Wulfram. In Ireland, at Celde fields in County Mayo, a 5000 year old neolithic (/entry/Neolithic) farming landscape complete with field walls and hut sites has been found preserved under a raised blanket bog.

Other uses

Carbon store. Worldwide, peat contains an estimated 550 gigatons (one gigaton = one billion metric tons) of carbon (/entry/Carbon), which is equivalent to 30 percent of all global soil carbon, 75 percent of all atmospheric carbon, and twice the carbon stock of the world's forest biomass (Joosten 2007).

Recreational. Sphagnum (/entry/Sphagnum) bogs are used for sport, but this can be damaging. All-terrain vehicles are especially damaging to bogs. Bog snorkeling is popular in England and Wales. Llanwrtyd Wells, which claims to be the smallest town in Wales, hosts the World Bog Snorkeling Championships. In this event, competitors with mask, snorkel, and scuba fins swim along a 60-meter trench cut through a peat bog.

Aesthetic. The value of bogs as an aesthetic resource is difficult to quantify, but for many people bogs' uniqueness and biodiversity helps to make them places of beauty.

Agriculture. The blanket bogs of the west of Ireland have been used year round for grazing cattle and sheep (IPCC). Blanket bog habitats cover about ten million hectares of the earth's surface with Ireland claiming about eight percent of the total (IPCC).

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Larix laricina

"Tamarack" redirects here. For other uses, see Tamarack (disambiguation).

"Hackmatack" redirects here. For the balsam poplar species, see Populus balsamifera.

This page has some issues

Larix laricina, commonly known as the **tamarack**,[2] **hackmatack**[2] **eastern larch**,[2] **black larch**,[2] **red larch**,[2] or **American larch**,[2] is a species of larch native to Canada, from eastern Yukon and Inuvik, Northwest Territories east to Newfoundland, and also south into the northeastern United States from Minnesota to Cranesville Swamp, Maryland; there is also a disjunct population in central Alaska. The word *tamarack* is the Algonquian name for the species and means "wood used for snowshoes."

Tamarack larch

Tamarack larch in fall colors, with black spruce

Conservation status

Extinct — Threatened — Lower Risk

EX EW CR EN VU cd nt lc

Least Concern (IUCN 2.3)[1]

Scientific classification

Kingdom:	Plantae
Division:	Pinophyta
Class:	Pinopsida
Order:	Pinales
Family:	Pinaceae
Genus:	*Larix*

Species: *L. laricina*

Binomial name

Larix laricina

(Du Roi) K. Koch

Natural range of *Larix laricina*

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Description

It is a small to medium-size boreal coniferous and deciduous tree reaching 10–20 metres (33–66 ft) tall, with a trunk up to 60 centimetres (24 in) diameter. Tamaracks and Larches (Larix species) are deciduous conifers. The bark is tight and flaky, pink, but under flaking bark it can appear reddish. The leaves are needle-like, 2–3 cm (0.8–1.2 in) short, light blue-green, turning bright yellow before they fall in the autumn, leaving the pale pinkish-brown shoots bare until the next spring. The needles are produced spirally on long shoots and in dense clusters on long woody spur shoots. The cones are the smallest of any larch, only 1–2.3 cm (0.4–0.9 in) long, with 12-25 seed scales; they are bright red, turning brown and opening to release the seeds when mature, 4 to 6 months after pollination.

Key characteristics:[3]

- The needles are normally borne on a short shoot in groups of 10–20 needles.
- The larch is deciduous and the needles turn yellow in autumn.
- The seed cones are small, less than 2 cm (0.8 in) long, with lustrous brown scales.
- Larch are commonly found in swamps, bogs, and other low-land areas.

Distribution and ecology

It is very cold tolerant, able to survive temperatures down to at least −65 °C (−85 °F), and commonly occurs at the arctic tree line at the edge of the tundra. Trees in these severe climatic conditions are smaller than farther south, often only 5 m (16 ft) tall. Tamarack can tolerate a wide range of soil conditions but grows most commonly in swamps in wet to moist organic soils such

Tamarack larch foliage and cones in August. The lighter brown cones are from the current season; the darker brown cones are mature cones from

as sphagnum peat and woody peat. The tree is found on mineral soils that range from heavy clay to coarse sand; thus texture does not seem to be limiting. Although tamarack can grow well on calcareous soils, it is not abundant on the limestone areas of eastern Ontario.

previous seasons.

Tamarack is commonly an early invader.[4] Tamarack is generally the first forest tree to invade filled-lake bogs. In the lake states, tamarack may appear first in the sedge mat, sphagnum moss, or not until the bog shrub stage. Farther north, it is the pioneer tree in the bog shrub stage. Tamarack is fairly well adapted to reproduce successfully on burns, so it is one of the common pioneers on sites in the boreal forest immediately after a fire.

The central Alaskan population, separated from the eastern Yukon populations by a gap of about 700 kilometres (430 mi), is treated as a distinct variety *Larix laricina* var. *alaskensis* by some botanists, though others argue that it is not sufficiently distinct to be distinguished.

Associated forest cover

Tamarack forms extensive pure stands in the boreal region of Canada and in northern Minnesota. In the rest of its United States range and in the Maritime Provinces, tamarack is found locally in both pure and mixed stands. It is a major component in the SAF forest cover types Tamarack and black spruce–tamarack.

Young tree with fall colors

Black spruce (*Picea mariana*) is usually tamarack's main associate in mixed stands on all sites. The other most common associates include balsam fir (*Abies balsamea*), white spruce (*Picea glauca*), and quaking aspen (*Populus tremuloides*) in the

boreal region. In the better organic soil sites
in the northern forest region, the most common associates are the northern white-cedar (*Thuja occidentalis*), balsam fir, black ash (*Fraxinus nigra*), and red maple (*Acer rubrum*). In Alaska, quaking aspen and tamarack are almost never found together. Additional common associates are American elm (*Ulmus americana*), balsam poplar (*Populus balsamifera*), jack pine (*Pinus banksiana*), paper birch (*Betula papyrifera*), Kenai birch (*B. papyrifera* var. *kenaica*), and yellow birch (*B. alleghaniensis*).

Tamarack stands cast light shade and so usually have a dense undergrowth of shrubs and herbs. Because the tree has an extensive range, a great variety of shrubs is associated with it. Dominant tall shrubs include dwarf (resin) and low (swamp) birch (Betula glandulosa and Betula pumila), willows (Salix spp.), speckled alder (Alnus rugosa), and red-osier dogwood (Cornus stolonifera). Low shrubs include Labrador-tea (Ledum groenlandicum), bog-rosemary (Andromeda glaucophylla), leather leaf (Chamaedaphne calyculata), and small cranberry (Vaccinium oxycoccos). Characteristically the herbaceous cover includes sedges (Carex spp.), cottongrass (Eriophorum spp.), false Solomonseal (Smilacina trifolia), marsh cinquefoil (Potentilla palustris), marsh-marigold (Caltha palustris), and bogbean (Menyanthes trifoliata). Ground cover is usually composed of sphagnum moss (Sphagnum spp.) and other mosses.

Flowering and fruiting

Tamarack is monoecious. Male and female flowers are small, either solitary or in groups of 2 or 3, and appear with the needles. Male flowers are yellow and are borne mainly on 1- or 2-year-old branchlets. Female flowers resemble tiny roses. They are reddish/maroon in color, have needles at their base which are shorter and bluer than the other needles on the tree. They are borne most commonly on 2 to 4-year-old branchlets, but may also appear on branchlets 5 or more years old. Cones usually are produced on young growth of vigorous trees. On open-grown trees, cones are borne on all parts of the crown. Ripe cones are brown, oblong-ovoid, and 13 to 19 mm (½ to ¾ in) long.

Uses

Larix laricina bonsai

The wood is tough and durable, but also flexible in thin strips, and was used by the Algonquian people for making snowshoes and other products where toughness was required. The natural crooks located in the stumps and roots are also preferred for creating knees in wooden boats. Currently, the wood is used principally for pulpwood, but also for posts, poles, rough lumber, and fuelwood; Not a major commercial timber species.[5]

It is also grown as an ornamental tree in gardens in cold regions. Several dwarf cultivars have been created that are available commercially.[6][7] Tamarack is commonly used for bonsai.[8]

Tamarack poles were used in corduroy roads because of their resistance to rot. Tamarack trees were used before 1917 in Alberta to mark the northeast corner of sections surveyed within townships. They were used by the surveyors because at that time the very rot-resistant wood was readily available in the bush and was light to carry.[citation needed] Their rot resistance was also why they often used in early water distribution systems.

The aboriginal peoples of Canada's northwest regions used the inner bark as a poultice to treat cuts, infected wounds, frostbite, boils and hemorrhoids. The outer bark and roots are also said to have been used with another plant as a treatment for arthritis, cold and general aches and pains.[9]

Wildlife use the tree for food and nesting.[citation needed]

Reaction to competition

Tamarack is very intolerant of shade. Although it can tolerate some shade during the first several years, it must become dominant to survive. When mixed with other species, it must be in the over story. The tree is a good self-pruner, and boles of 25- to 30-year-old trees may be clear for one-half or two-thirds their length.

Because tamarack is very shade-intolerant, it does not become established in its own shade. Consequently, the more tolerant black spruce eventually succeeds tamarack on poor bog sites, whereas northern white-cedar, balsam fir, and swamp hardwoods succeed tamarack on good swamp sites. Recurring sawfly outbreaks throughout the range of tamarack have probably speeded the usual succession to black spruce or other associates.

Various tests on planting and natural reproduction indicate that competing vegetation hinders tamarack establishment.

The shade-intolerance of tamarack dictates the use of even-aged management. Some adaptation of clear cutting or seed-tree cutting is generally considered the best silvicultural system because tamarack seeds apparently germinate better in the open, and the seedlings require practically full light to survive and grow well. Tamarack is also usually wind-firm enough for the seed-tree system to succeed. Satisfactory reestablishment of tamarack, however, often requires some kind of site preparation, such as slash disposal and herbicide spraying.

Damaging agents

The tamarack has thin bark and is therefore highly susceptible to fire damage, except perhaps in older, upland stands. However, the habitat of tamarack, especially south of the boreal forest, is normally wet enough to protect the tree from fire. The tamarack is also susceptible to high winds. Strong winds can uproot large tamarack trees growing in swamps or other wet-land sites where rooting is shallow. It has also been discovered that abnormally high water levels often kill tamarack stands. Those that survive under such conditions usually grow very slowly. Other effects of high water include dieback and the

development of adventitious roots and shoots. Wetland road crossings and beaver damming are the primary causes of flooding.

Many insect species are known to be destructive to tamaracks. The larch sawfly is the most destructive. Epidemics occur periodically across Canada and the northern United States and have caused tremendous losses of merchantable tamarack throughout most of the tree's range. Indications are that radial increment declines markedly after 4 to 6 years of outbreak. After 6 to 9 years of moderate to heavy defoliation, the trees die. In southeastern Manitoba and northern Minnesota, however, imported parasites of the sawfly have become established and should reduce the frequency and duration of future outbreaks. Another serious defoliator is the larch casebearer *Coleophora laricella*. The larch casebearer attacks tamarack of all ages, and several severe outbreaks have caused extensive mortality in some areas. Outbreak severity has lessened in recent years, however, probably due to imported parasites of the casebearer that have become widely established.

Only a few other insects and related organisms (such as mites) that feed on tamarack are known to sometimes cause serious injury. During an outbreak, the spruce budworm (*Choristoneura fumiferana*) can severely damage tamarack. The larch-bud moth (*Zeiraphera improbana*) has had occasional short epidemics, and the spruce spider mite (*Oligonychus ununguis*) is occasionally found in large numbers on tamarack. The larch-shoot moth (Argyresthia laricella) is widely distributed, but serious injury is unusual. One of the most common bark beetles attacking tamarack is the eastern larch beetle (*Dendroctonus simplex*), but it feeds mainly on weakened, dying, or dead trees.

Tamarack is a host to many pathogens, but only one cause diseases serious enough to have an economic impact on its culture, the *Lachnellula willkommii* fungus. It is a relatively new pathogen in Canada, first recorded in 1980 and originating in Europe. The fungus cause large cankers to form and a disease known as Larch Canker which is particularly harmful to the tamarack larch, killing both young and mature trees.[10] Apart from this, the only common foliage diseases are rusts, such as the leaf rust in eastern and central North America. However, this rust, caused by the fungus *Melampsora medusae*, and

other rusts do little damage to tamarack. The needle-cast fungus *Hypodermella laricis* has attacked tamarack in Ontario and has the potential for local damage.

See also

- Larch ball

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7. [redacted]. *Encyclopedia of Conifers*. Royal Horticultural Society.

8. Joyce, David (2006). [redacted]. Sterling Publishing Company. p. 154. ISBN 9781402735240. "As bonsai, they are my favorite genus because of their speed of growth, hardiness, ease of wiring and shaping, and, most of all, for their beautiful foliage color in spring and autumn."

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10. [redacted] Natural Resources Canada

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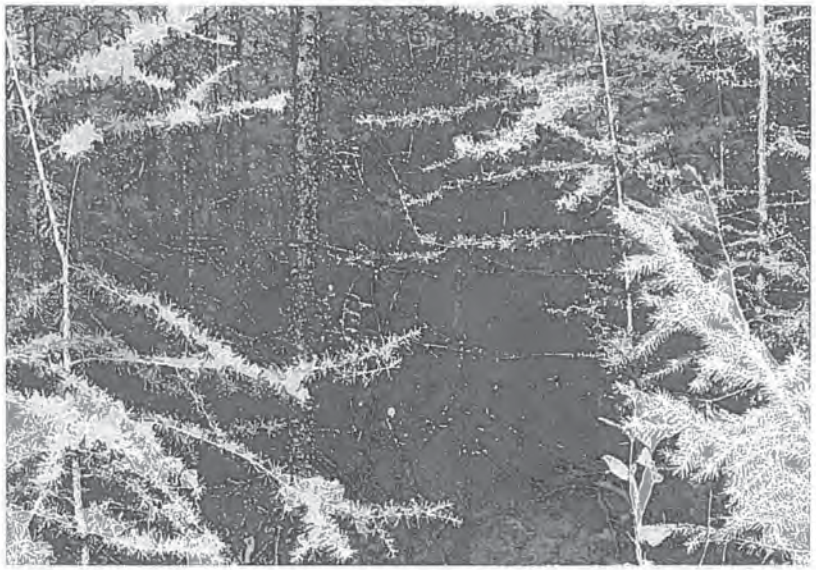

GREAT NORTHERN TRANSMISSION LINE

Connecting Manitoba and Minnesota

Comment on the Great Northern Transmission Line
Docket Number TL-14-21

Name: Mark Cass
Organization (if any):
Mailing Address: 29250 Eden Loop Road
City: Bovey,
State: MN.
Zip: 55709
Email:

Comment: To whom it may Concern:
This Line Comes Close to both Home near Twin Lakes and Cabin at Bear Lake. For me The Blue Line route Seems to be The most reasonable.
Thank you.
Mark Cass 5-17-2015

0135-1

0135-1
Thank you for your comment. No changes are made to the EIS in response to this comment.

0136-1
Thank you for your comment. No changes are made to the EIS in response to this comment.

Dear Bill Storm,

Scott Habstritt and I (Charles Habstritt) are landowners within the Beltrami WMA Route Alternative Scoping Decision Route proposed for the Great Northern Transmission Line. We have worked with the Minnesota Power staff to remove the area that includes our property (Township: Spruce Valley, Sections: 20,29) for the following reasons.

1. The land is peat (organic soil) farmed and can be a fire hazard.
2. The cropping systems in this area require field burning to control trash, diseases, and insects.
3. Because of the texture of the soil, fields have to be sprayed by **Arial Application.**
4. Power lines give off electrical magnetic frequencies that may be a hazard to humans, livestock, and the land through electrical, fire, and biological hazards.

0136-1

In summary of the above points, if the Beltrami BMW route Alternative crosses the peat lands that are being farmed a detrimental effect in agriculture production will be the result i.e. No Arial application or field burning will cause a decrease in yields and in land values.

The proposed Blue/Orange Route Alternative would minimize impacts to home, humans, livestock, and private land use.

The Advisory Task Force appointed for this project indicated that minimization of impacts to private land and landowners was a priority and the Beltrami WMA Route Alternative developed during Scoping does not satisfy this recommendation.

Please remove the Beltrami WMA Route Alternative from consideration.

Sincerely,

Charles Habstritt

Scott Habstritt

PO Box 148

Roseau MN

56751

DOCKET NUMBER 1421

Bill Storm
MN Department Of Commerce
85 7th Place East, Suite 500
St. Paul, MN 55101

Terry Kveen
N69 W20473 Orchard Ct
Menomonee Falls, WI 53051

Dear Bill Storm,

My Name is Terry Kveen and I am a landowner located within the east to west Scoping Decision Route on and south of the Roseau River near roads 28 and 123. I would ask that my property be removed from the route for consideration. I do however question why the route is being run into the United States in the manner it is. It would seem to me it would be better to run through the land in Canada East to West before needing to be run South through private land in the United States. This would remove the majority of the privately owned land inside the United States and remove a majority of the objections of the landowners affected by this. 0137-1

I do realize the Advisory Task Force is attempting to minimize the impacts to private landowners and I hope my recommendation assists in this. Under the current route I have several properties, including a quonset with nearby homes.

Thank you for your consideration,

Terry Kveen

Terry Kveen

RECEIVED
MAY 2 1 2015
MAILROOM

0137-1
Thank you for your comment.

The U.S. DOE does not have the authority to site electric transmission lines in any of the states or in a sovereign country. The EIS addresses these limitations in Section 1.4.2 of the EIS, which provides a discussion of the siting and review process in Canada.

No changes are made to the EIS in response to this comment.

DOCKET NUMBER 1421

Bill Storm
MN Department Of Commerce
85 7th Place East, Suite 500
St. Paul, MN 55101

Jessica Kveen
1920 Sunkist Ave
Waukesha, WI 53188

Dear Bill Storm,

My Name is Jessica Kveen and I am a landowner located within the east to west Scoping Decision Route on and south of the Roseau River near roads 28 and 123. I would ask that my property be removed from the route for consideration. I do however question why the route is being run into the United States in the manner it is. It would seem to me it would be better to run through the land in Canada East to West before needing to be run south through private land in the United States. This would remove the majority of the privately owned land inside the United States and remove a majority of the objections of the landowners affected by this. 0138-1

I do realize the Advisory Task Force is attempting to minimize the impacts to private landowners and I hope my recommendation assists in this. Under the current route I have several properties, including a Quonset with nearby homes.

Thank you for your consideration,

Jessica Kveen

RECEIVED
MAY 21 2015
MAILROOM

0138-1
Thank you for your comment. No changes are made to the EIS in response to this comment.

From: Gary Johnson
To: Storm, Bill (COMM)
Subject: Great Northern Transmission Line TL-14-21. routing
Date: Saturday, May 30, 2015 2:22:33 PM

Dear Bill Storm,

My name is Gary Johnson and I own seasonal property on Napoleon Lake in Itasca County. First, thank you to Minnesota Power and the Bigfork Edge Center for the May 12th open house and the opportunity to speak with various representatives.

My comments concern the blue and orange route alternatives within Itasca County between hwy 1 and CR 52. Using either of these two routes would drastically change the face of several large and beautiful wildlife recreation areas. Construction of the blue route would have the more negative impact of these two routes.

The western-most blue route would pass through very heavily used public and Blandin land that is used for everything from hunting and fishing to berry picking. This is due to the accessibility provided by CR 342/Wilson Lake Rd, many existing trails, the OHV on-road accessibility (corridor access trail) and a public access on Wilson Lake.

The latest recommended red route alternative, which routes near existing power lines, would preserve this area. I firmly believe the preservation of the aforementioned area is more important than a diverse route based on unlikely scenarios and potential issues created by having two large and one small power line in close proximity.

Sincerely,

Gary Johnson

0139-1

0139-1
Thank you for your comment. No changes are made to the EIS in response to this comment.

Comment on the Great Northern Transmission Line

Docket Number TL-14-21

Name: JOHN & JANICE HIATT
Organization (if any):
Mailing Address: 21301 N. THIRTY LKDR
City: BOVEY
State: MN
Zip: 55709
Email: jbhiatt@northlc.com

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JUN 05 2015
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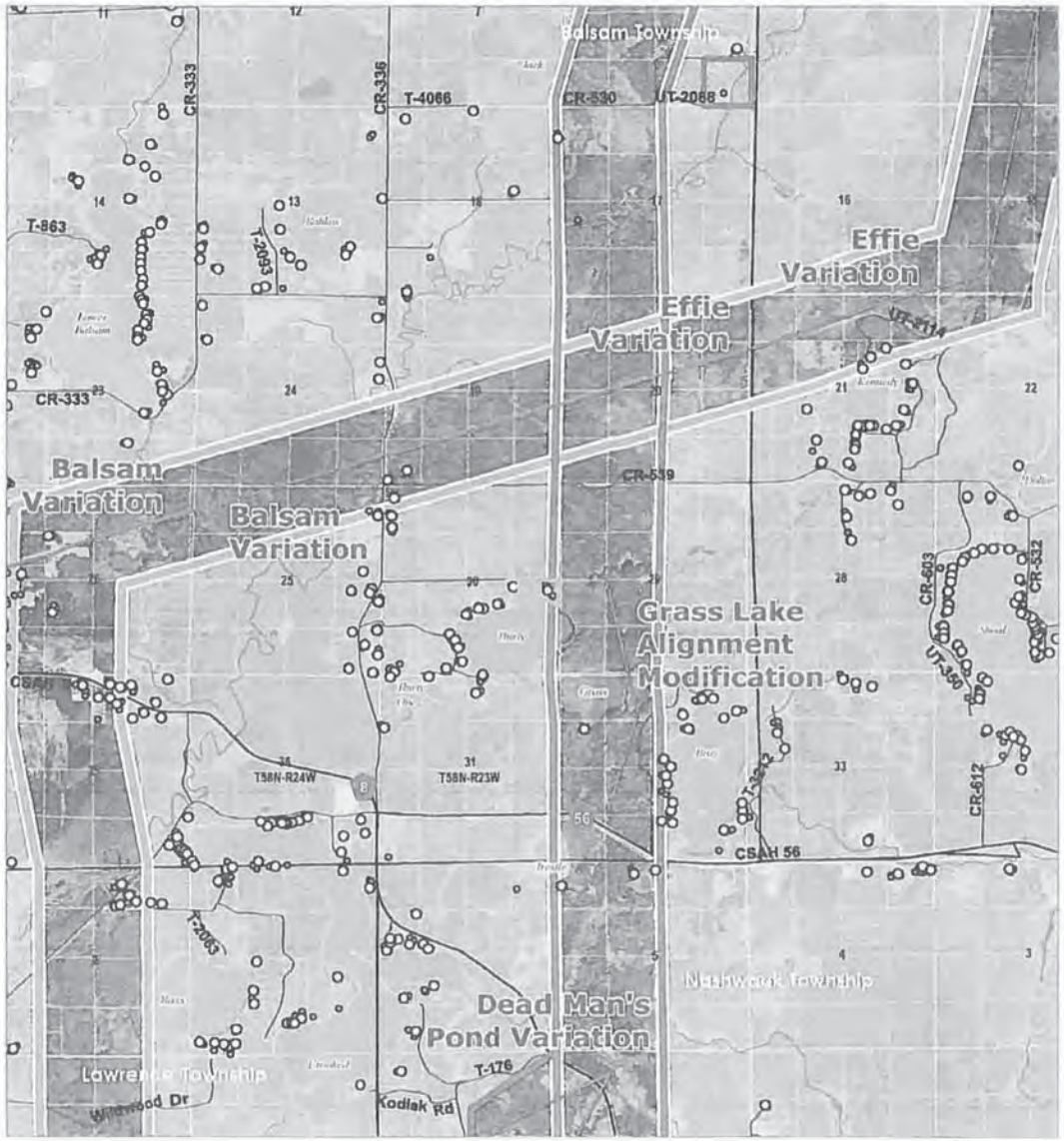
Comment:

We would prefer the Balsam Variation. The blue line would ruin our view on property that has been in family since the 1930's. 0140-1

0140-1
Thank you for your comment. No changes are made to the EIS in response to this comment.

minnesota power
AN ALLETE COMPANY
GREAT NORTHERN TRANSMISSION LINE

HIATT, JOHN & JANICE
21301 NORTH THIRTY LAKE DRIVE
BOVEY MN 55709



Legend

Commenter's Area of Interest	Existing Transmission
Blue Route	230kV AC
Orange Route	500kV AC
Route Option	Residence
Scoping Decision Route	Structure

0 2,000 Feet

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May 27, 2015

Bill Storm
Environmental Review Manager
MN Department of Commerce
85-7th Place East, Suite 500
St. Paul, MN 55101

Comment on Great Northern Transmission Line
Docket Number TL-14-21

From:
John Wahlberg
309-7th Ave. SE
Roseau, MN 56751
Email: jwahlberg@wiktel.com

Comment:
I am a landowner located in the Red corridor Scoping Route. This Scoping Route is located on my property directly East of Highway 310. This affects my valuable crop producing agricultural land for a distance of 2 miles along 360th St
In addition it also affects the same type of agricultural land to the East of 410th Ave. All of this land is currently in crop production and has been for many years. 0141-1

I feel a better place for this corridor would be East of Highway 310 and North of 370th St. parallel with (J. D. 61) Easterly to and crossing 410th Ave. onto DNR Sections 17, 16, and 15. This would then connect with the Blue/Orange Route. Or simply use the entire original Blue/Orange Route. 0141-2

These changes would have less effect on valuable private crop producing agricultural land versus land that is mainly covered in brush and marginal timber. I would hope that the final decision would favor valuable crop land.

John Wahlberg

0141-1
Impacts to agriculture are discussed in Chapters 5 and 6 of the EIS. As discussed in Section 1.3.4.4 of the EIS, once a route is selected and a permit is issued, the Applicant would contact landowners to gather information about their property and their concerns and discuss how the ROW would best proceed across the property.

No changes are made to the EIS in response to this comment.

0141-2
Thank you for your comment. No changes are made to the EIS in response to this comment.

June 23, 2015

RECEIVED
JUN 29 2015
MAILROOM

Bill Storm
Environmental Review Manager
MN Department of Commerce
85 7th Place East, Suite 500
St. Paul MN 55101

RE: Great Northern Transmission Line: TL-14-21

Dear Bill Storm,

With all due respect, I oppose the Minnesota Public Utility Commission's proposed Balsam Variation alternative route of the Great Northern Transmission Line for the following reasons:

1. The Balsam Variation route is not cost effective compared to Minnesota Power's preferred Blue Line route. The Blue Line route, as you know, is a straight line route. The Balsam Variation route zig-zags to take advantage of a 65 foot right-of-way that currently exists. However, an additional 135 feet of right-of-way will still have to be cleared to accommodate the new transmission line.
2. The Advisory Task Force appointed for this project indicated that minimization of impacts to private land and landowners were a priority and the Balsam Variation route developed during Scoping does not satisfy this recommendation. The Balsam Variation route would impact a lot more private land and landowners than the Blue Line route.
3. Also, the Balsam Community Center, Balsam Volunteer Fire Department, Balsam Bible Chapel, parsonage, community playground, tennis courts, softball/baseball field would all be included in the middle of the Balsam Variation right-of-way.
4. As a part owner of 84 acres of undeveloped property located entirely within the Balsam Variation right-of-way, which includes approximately 3,000 feet of undeveloped lakeshore, I am concerned about the impact this new transmission line would have the valuation of our property.
5. In addition, I would like to know what impact this transmission line would have on our ability to sell our property at fair market value should we decide to sell at some point in the future.
6. Minnesota Power's intent was to design the transmission line route to maximize separation from existing homes and cabins. The Blue Line accomplishes that goal. The Balsam Variation route right-of-way would run right behind my family's hunting shack which is on a hill overlooking Snaptail Lake.
7. The transmission line is capable of producing an audible noise produced by corona discharges from transmission line conductors. Minnesota Power states that this noise, which resembles a subtle crackling sound is typically only within the threshold of human hearing during rainy or foggy conditions. They also stated that during light rain, dense fog, snow and other times there is moisture in

0142-1

0142-1
The EIS provides cost comparisons for the Proposed Routes compared to the variations in Chapter 6. All alternatives will require new ROW for its entire length. While some alternatives parallel existing transmission lines, none of the alternatives share ROWs with existing transmission lines.

No changes are made to the EIS in response to this comment.

0142-2

0142-2
The EIS analyzes potential impacts to land use and land ownership for each alternative.

No changes are made to the EIS in response to this comment.

0142-1

0142-3
Thank you for your comment. The EIS analyzes potential impacts to land use and land ownership for each alternative.

No changes are made to the EIS in response to this comment.

0142-2

0142-3

0142-4

0142-4
A discussion about the potential effects of transmission lines on property values is included in the EIS in Section 5.2.1.4. This includes a summary of the potential range of property value effects attributed to transmission lines. Further, Appendix J, Property Values Supplement provides a summary of the literature regarding the relationship between transmission lines and property values used to develop the property values analysis in Section 5.2.1.4.

0142-5

No changes are made to the EIS in response to this comment.

0142-6

0142-5
Thank you for your comment. For all alternatives proposed during the scoping process, impacts to property values are evaluated in the EIS. A discussion about the potential effects of transmission lines on property values is included in the EIS in Section 5.2.1.4.

No changes are made to the EIS in response to this comment.

0142-6
Noise is discussed in Section 5.2.1.2 of the EIS.

No changes are made to the EIS in response to this comment.

the air, the proposed transmission lines may produce audible noise higher than the background noise levels in some rural areas. Deer hunting on our property has been a tradition for over 50 years and I am concerned how this will impact my family's deer hunting success in the future.

8. From a health and safety point of view, Minnesota Power also refers to "induced voltage", which occurs when an electric field reaches a nearby conductive object, such as a vehicle or metal building and it induces a voltage on the object. Then, if the object is insulated or partially insulated from the ground and a person touches that object, a small current would pass through the person's body to the ground. This might be accompanied by a spark discharge and mild shock, similar to what can occur when a person walks across a carpet and touches an object. Minnesota Power states induced voltage normally is not a problem. Again, this transmission line will impact my family's hunting land due to the fact that it will reduce the amount of land my family will be able to hunt on.

   Summarizing noise and potential voltage (shock) issues, we find it hard to believe that these are NOT health issues. One of our deer hunters was never comfortable with the emissions from the old power line and a new higher voltage power line would, in her mind, make that area unusable for anything including deer hunting.

9. When Minnesota Power removed the existing transmission line, they told us we could do whatever we wanted to do with our property, such as plant trees. Trees along with an apple orchard were planted and we had every intention of using our property to its fullest. Now, once again, we face the threat of not being able to use our property the way we want to.
10. There is an existing osprey nest on the property adjoining our property and if you were to drive where roads/highways intersect with the proposed power line right-of-way, you would see a great number of nesting sites.

Based on the reasons stated above, I am respectfully asking you to remove the Balsam Variation from consideration for the Great Northern Transmission Line.

Thank you!

Karen Lucachick
18469 Sugar Lake Trail
Cohasset MN 55721

41259 Scenic Highway
Bovey MN 55709

0142-6 cont'd

0142-6 Continued

0142-7

0142-7 Section 5.2.2.4 in the EIS discusses induced voltage. Section 5.2.1.2 of the EIS presents the estimated audible noise levels from the from the proposed 500 kV transmission lines under rainy conditions (worst case scenario for noise generated from corona effect). Section 5.2.2.8 of the EIS discusses public safety hazards associated with the proposed Project including electrical shocks.

No changes are made to the EIS in response to this comment.

0142-8

As discussed in Section 1.3.1.4 of the EIS, once a route is selected and a permit is issued, the Applicant would contact landowners to gather information about their property and their concerns and discuss how the ROW would best proceed across the property.

No changes are made to the EIS in response to this comment.

0142-8

0142-9

0142-9 As discussed in Section 2.11.1 of the EIS, the Applicant would incorporate industry best practices to minimize impacts to migratory birds, which are consistent with the Avian Powerline Interaction Committee (APLIC's) 2012 guidelines. In addition, the MN PUC Route Permit could require that the Applicant develop and implement an Avian Protection Plan. The Applicant would coordinate with the MnDNR and other appropriate agencies in the development of an Avian Protection Plan.

No changes are made to the EIS in response to this comment.

Northern Transmission Line

Bill Storm
MN Department Of Commerce
85 7th Place East, Suite 500 St. Paul, Minn. 55101

Patricia Kveen Beaumont
5258 S. 22nd Place
Milwaukee, WI 53221

Docket # TL-14-21

Dear Bill Storm;

My name is Patricia Kveen Beaumont and I am a landowner within the east to west Scoping Decision Route on and south of the Roseau River near roads 28 and 123 and Hwy. 16. As a teenager I belonged to Jadis Jets 4-H. My parents lived there until 2002 and are buried at Rose church with the rest of my family. We have deep roots in this community. My brother still has a home there which he lives in for part of the year. 0145-1

I would ask for the route for consideration near my property be removed from consideration. These lands were homesteaded by our great-grandparents and has been in our family for generations. The route I choose is the orange and blue route. The other routes will reduce the income that I need to live on and will reduce the value of the surrounding lands.

Sincerely,

Patricia Kveen Beaumont

Patricia Kveen Beaumont

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JUL 06 2015
MAILROOM

0145-1
The EIS provides an analysis of residences within the ROW as well as within the route for all alternatives. Also, as discussed in Section 1.3.1.4 of the EIS, once a route is selected and a permit is issued, the Applicant would contact landowners to gather information about their property and their concerns and discuss how the ROW would best proceed across the property.

Barsan Variance On property Blue Route

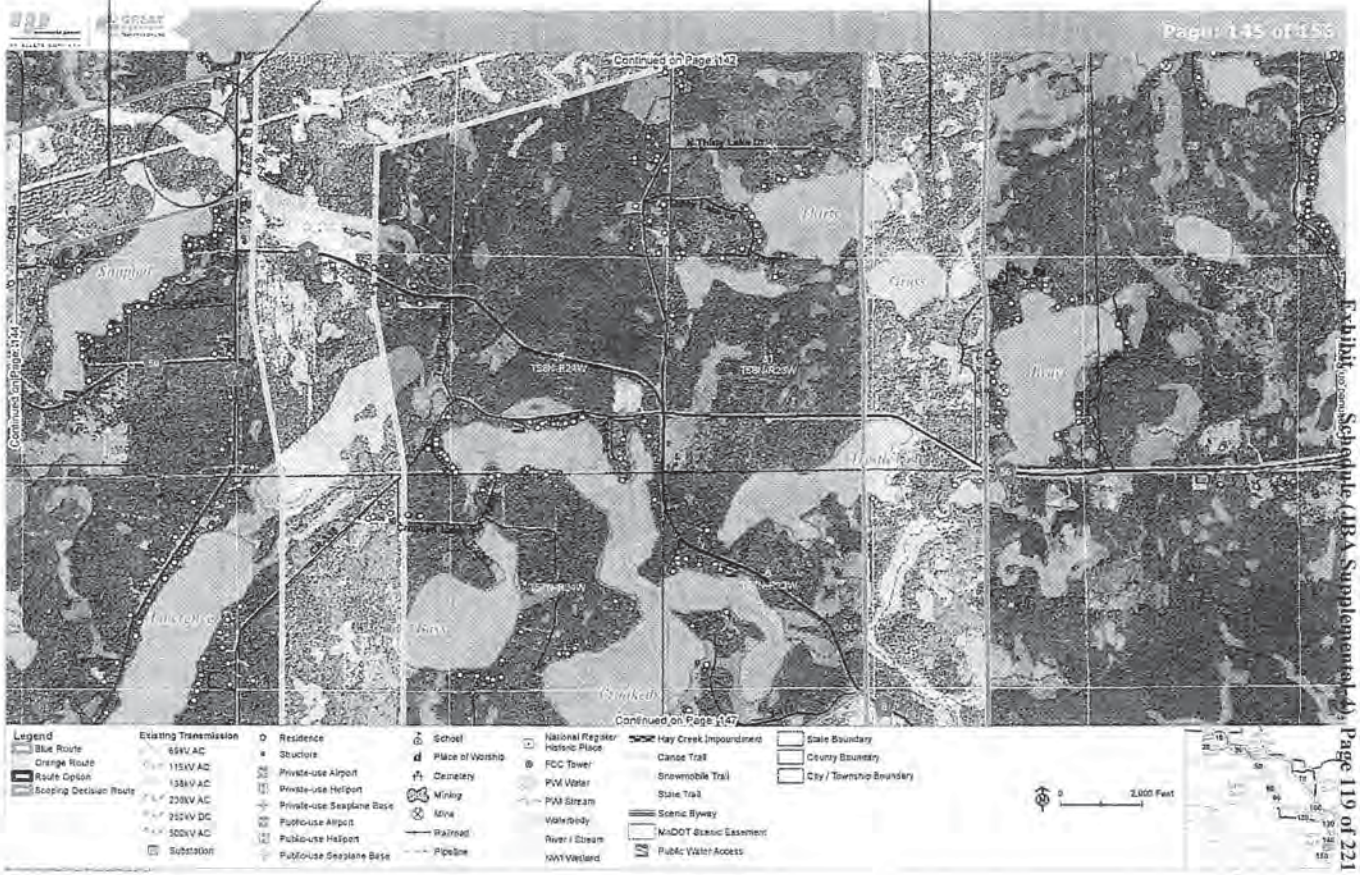

Exhibit Schedule (IBA Supplemental 4), Page 119 of 221

To: Ann O'Reilly, Administrative Law Judge

RECEIVED
2015 JUN -8 AM 7:45
ADMINISTRATIVE HEARINGS

Subject: Great Northern Transmission Line: TL-14-21

Dear Judge O'Reilly:

My name is David Lund. I am a homeowner and landowner having both agricultural and forest-tree plantation land through which one of the Scoping Decision Routes, if chosen, would pass. I actively participated in meetings held in Roseau, MN, that led to our concluding recommendation: Our consensus was that the new transmission line should more or less follow the corridor established by the existing line, that is, the Blue/Orange Route that minimizes the impact on homes and private land use, unlike the Scoping Decision Routes that do just the opposite, at least in some places. I will support and illustrate this claim with that section of the (Scoping Decision) South Route (in the area between Roseau and Warroad) just before it turns north and then soon turns east to subsequently cross the Blue/Orange Route, thereby establishing *Beltrami North Variation 1* as it continues in a south-easterly direction. 0149-1

At the point this Route turns 90 degrees to the north, it could have instead continued east 3.5-4 miles through almost entirely unfarmed and uninhabited public land until it reached the Blue/Orange Route Corridor. After turning, it continues north about 2 miles until it turns 90 degrees to the east, then proceeds about three miles east where it encounters the Blue/Orange Route, crossing farmland and homes all the way. But at this point, instead of proceeding southeast in the Corridor of the existing Line, it simply ignores that Corridor and forms *Beltrami North Variation 1* as it proceeds in a diagonal direction across my entire farm, consisting entirely of farmland, numerous coniferous tree plantations, and managed (deciduous) woodland. This corridor also includes my newly constructed farm home.

These plantations range from about 38 years to 1 year old. I have brought them into existence over the years, replaced sizeable areas when necessary, nurtured, tended, and protected these plantations for about 38 years! Working with them has been one of the abiding passions of my life. I thought of them as part of my legacy -- testimony to the fact that I once lived and to how I lived. But the crossing of the proposed transmission line would destroy much of it and then continuously prevent any such use of it. Such is the enormous cost to the tree planter. I can still farm around the towers and under the lines, however inconveniently, but the right-of-way of the Line creates a permanent death zone for trees.

The reader is now in a position to understand that I was baffled and (I confess) outraged by the proposal to ignore the Blue/Orange Line Corridor in simply sending the Line across it and across my plantations, with no apparent concern for the staggering price I must pay for bearing the burden of the Line. What makes this proposal so outrageous is not only the devastation of my plantations but the realization that it is entirely unnecessary. The two opportunities to take an alternative (more practical) route to the Blue/Orange Corridor were so obvious that they virtually beckoned for attention. Had the first one been taken, this section of the Scoping Decision Route would have avoided the charge that it reversed the priority recommendation it was supposed to heed, instead giving priority to public land. As such it is an affront to that priority agreement, and I recommend that it be given no further consideration.

0149-1
The scoping process provides the opportunity to recommend alternatives to be analyzed in the EIS. The EIS analyzes potential impacts to residences and land use and land ownership for each alternative.
No changes are made to the EIS in response to this comment.

Before closing I will comment on (1) the value this land and the numerous coniferous tree plantations growing on it have for me, (2) the value such areas along with the activity needed to produce them should be deemed to have when viewed as a societal good, and (3) the implications (both specific and general) of sending the Line through this land. In so speaking, I don't mean to suggest that the people entrusted to decide where the line should be located are poised to send it through *Beltrami North Variation 1*. Yet its going through this area is a possibility I must acknowledge.

It is already clear that the location of the proposed line, especially in the area I have been discussing, is a matter of great personal concern to me. As I mentioned, the passage of this line across my farm would destroy much of the (primarily) coniferous forest that I have strived to bring about and then nurtured in an extraordinarily persevering way over the last 38 years; and I still plant 2-5 thousand seedlings each year as I fill in and expand some of the plantations. In addition to planting and replanting as needed, I found that fencing was also necessary to protect the young trees. To minimize the damage caused largely by deer but also by the snowshoe hare, I have fenced all of my recent plantations, despite the great expenditure of time and labor (as well as some money) required to build and then maintain the fences over the years and in all seasons of each year. When I consider the thousands of hours of my life that I have devoted to these living things over the years, in conjunction with my continuing interest in their welfare, my finding so disturbing the possibility of the entirely unnecessary intrusion and destruction brought by a huge transmission line is something the reader is likely to understand.

Of course, I am only one individual, but there are some broader concerns that many others might share. The Scoping Decisions Routes are presented under the auspices of an Environmental Impact Statement. This indicates a concern for the environment; and so I infer that, other things being equal, the selected Route should have less negative effect on the environment than its competitors. But a route for a line that results in devastation of well-tended forest-tree plantations and other areas managed to grow forest-trees incurs a substantial loss of environmental benefit in so doing. To my knowledge, no form of terrestrial plant life provides greater benefits to the environment than does forest-trees. In addition to such well known benefits as holding the soil and preventing wind and water erosion, along with their role in reducing our dependence on fossil fuels, they play the most important role (due to their large size) in replenishing the vital oxygen in the air. Moreover, they are unexcelled in their capacity to capture carbon. But my intention here is not to inform but to remind -- to remind us that these great benefactors of life would have to be destroyed and then kept from existing for as long as the Line is in place, thereby creating a permanent uninhabitable zone for trees.

But there is another societal good that strikes me as substantial yet largely unnoticed. It results from, or is exhibited by, the activity of forest-tree planting. It seems to me that, apart from my passion for these living things, planting forest-tree seedlings and then nurturing them, even after one has grown old, is a somewhat noble activity. In any case, it encourages those who practice it to leave behind the self-centeredness and the short-sightedness that seem so prominent in the culture of our time. If it does so, our society benefits, even if only by a tiny amount. This matter is well expressed by an Ancient Greek Proverb: *A society grows great when old men plant trees in whose shade they know they shall never sit.*

0149-2

0149-2
Potential impacts to forests are discussed in Chapters 5 and 6 of the EIS.

As discussed in Section 1.3.4.4 of the EIS, once a route is selected and a permit is issued, the Applicant would contact landowners to gather information about their property and their concerns and discuss how the ROW would best proceed across the property.

No changes are made to the EIS in response to this comment.

The broader ramifications of running the Line over this land seem to be entirely negative. Of course, this is largely due to the prominence of two better alternative routes that were ignored, each of which upholds the priority directive. I have already spoken of the enormity of the blow this would be to me, the sacrifice I would be expected to make for no good reason whatsoever that I can detect. But I should add that I would have difficulty seeing how this entirely unnecessary action does not amount to a (perhaps unintended) mockery of my prolonged striving to bring about coniferous forest when led to realize that the result of my labors apparently has so little value to the final decision makers that it would be chosen to make the sacrifice required to bear the Line instead of an un-farmed, uninhabited, relatively un-forested and untended public land alternative route.

There are broader ramifications that might be even more unfortunate. Such an action might well serve as a warning to those younger people who have the interest, the energy, and the commitment to embark on a project similar to mine -- a warning that their projects might continuously be in jeopardy, always subject to the invasion of irresistible powers that might be neither rational nor humane in their intent to require the devastation of a significant portion of that for which they have labored, despite the conspicuous presence and availability of better alternatives. And those who didn't engage in such a project, even if never tempted to proceed with it, might congratulate themselves on their wisdom in not doing so. These might well be overstatements, and yet they could describe the extreme reaction some will have to the action they have witnessed.

I will end these lengthy comments on an uplifting note. I don't really believe that the Transmission Line will be crossing my land. I think that the people entrusted with the responsibility of making the final decision will decide, after careful consideration of the numerous factors that must be taken into account, that there are much better alternative locations for the Line. Still, my concern is so great that I wished to think through this highly important issue and to put into high relief what is at stake.

Thank you for reading this letter!

David Lund

David Lund,
56432 County Road 2
Warroad, MN 56763
Telephone: 218-386-9439
Cell: 218-556-2420

minnesota power
an ALLETE company
30 west superior street / duluth, minnesota 55802-2093 / fax: 218-723-3955 /www.allete.com

David R. Moeller
Senior Attorney
218-723-3963
dmoeller@allete.com

May 4, 2015

VIA ELECTRONIC FILING
The Honorable Ann O'Reilly
Office of Administrative Hearings
PO Box 64620
St. Paul, MN 55164-0620

Re: *In the Matter of the Request by Minnesota Power for a Route Permit for the Great Northern Transmission Line*
Midwestern Governors and Manitoba Transmission Siting Protocol
MPUC Docket No. E015/TL-14-21
OAH Case No. 65-2500-31637

Dear Judge O'Reilly:

Please find enclosed to be included for consideration in the above-reference Docket a document entitled "Protocol Among the Midwestern Governors Regarding the Permitting and Siting of Interstate Electric Transmission Lines in the Midwestern United States and Manitoba, Canada" that was executed in July 2005 by Midwestern governors, including Minnesota's, and the Premier of Manitoba. The Protocol includes a commitment in Paragraph 3(D) by each signatory to "support efforts to improve coordination and cooperation on the evaluation and processing of applications for electric transmission projects that cross state and national boundaries." This Protocol came to Minnesota Power's attention when the document and the Great Northern Transmission Line were both cited in the recently issued United States Department of Energy's Quadrennial Energy Review: Energy Transmission, Storage and Distribution Infrastructure, Chapter IX Siting and Permitting of TS&D Infrastructure (April 2015) available at: http://energy.gov/epsa/downloads/quadrennial-energy-review-full-report

Yours truly,

David R. Moeller

David R. Moeller
Senior Attorney
Minnesota Power

DRM:sr
Enc.

PROTOCOL AMONG THE MIDWESTERN GOVERNORS REGARDING THE PERMITTING AND SITING OF INTERSTATE ELECTRIC TRANSMISSION LINES IN THE MIDWESTERN UNITED STATES AND MANITOBA, CANADA

A. Background

1. A reliable and low-cost electric transmission system is the backbone of a strong economy. A robust electric transmission system is necessary for the delivery of electricity from a variety of electric generation sources to customers throughout the Midwestern United States and Manitoba, Canada.
2. Generation capacity has grown significantly since 2000, both nationally and in the Midwest.
3. Transmission investment has not kept pace with increased generation capacity in the Midwest and has remained essentially flat since 2000.
4. As a result, the Midwest transmission grid has become more congested. FERC estimated that transmission constraints cost customers over $1 billion during the summers of 2000 and 2001. Curtailment of scheduled transmission transactions in the Midwest has more than tripled from 2000 to 2004.
5. Since the Manitoba transmission system is interconnected with that of the Midwestern United States, we have a common interest in supporting a reliable, robust electric transmission system.
6. Although transmission projects within each Midwestern state and Manitoba have continued to be permitted and constructed, there is additional need for closer cooperation among the Midwestern states and Manitoba on permitting and siting of transmission projects that cross state and national boundaries.

B. Importance Of Midwest Transmission Infrastructure

1. The Midwestern United States and Manitoba currently have over 200,000 megawatts (MW) of low-cost power generation, including 161,000 MW of coal, 26,000 MW of nuclear, and 13,000 MW of hydro. In addition, the Upper Midwest could become a substantial provider of wind-generated electricity, which is cost-effective and essentially pollution-free.
2. Since this power is not always produced where it is needed, a robust electric transmission grid is particularly important to the Midwest because it is essential for delivery of this low-cost and renewable power to customers.
3. Both short-term and long-term benefits accrue from building transmission infrastructure, including a more reliable electric grid, ability to access low-cost generation, more diverse supplies of

0159-1

0159-1
Thank you for submitting the Protocol Among Midwestern Governors Regarding the Permitting and Siting of Interstate Electric Transmission Lines in the Midwestern United States and Manitoba, Canada.

No changes are made to the EIS in response to this comment.

0159-1 cont'd

0159-1
Continued

electricity leading to lower costs, environmental benefits from improved access to renewable generation, economic and job growth, and an expanded tax base.

C. Existing Work To Coordinate And Cooperate On Regional Transmission Planning And Siting Activities

1. Regional transmission organizations, such as the Midwest Independent Transmission System Operator (MISO), the PJM Interconnection, and the Southwest Power Pool, have begun to plan and operate regional electric transmission systems. Other regional organizations, both existing and in development, also coordinate regional planning and reliability.
2. The Organization of MISO States (OMS), a regional organization of state utility regulators from 14 Midwestern states and Manitoba, is an example of governments working to better coordinate and cooperate on permitting and siting activities related to proposed transmission projects that cross state and national boundaries.
3. Some of these activities include learning about each other's permitting and siting requirements and exploring ways that state and provincial regulators can better coordinate their respective permitting and siting activities when applications for transmission lines crossing state and provincial boundaries are filed.
4. The National Conference of State Legislators (NCSL) has issued sample legislation to give state permitting and siting authorities explicit authority: a) to effectively coordinate and cooperate with other states on permitting and siting activities regarding proposed electric transmission lines that cross state and national boundaries; and b) to consider both state and regional needs and planning when evaluating whether a proposed electric transmission line should be approved.

D. Signatory Commitments

1. Each signatory to this Protocol recognizes the need for a robust, reliable electric transmission system.
2. Each signatory to this Protocol supports additional investment in the electric transmission grid when such investment is needed and in the public interest.
3. To the extent possible under his or her respective state laws and considering the rights of all potential parties to electric transmission line proceedings, each signatory to this Protocol will support efforts to improve coordination of and cooperation on the evaluation and processing of applications for electric transmission projects that cross state and national boundaries.

0159-1 cont'd

0159-1
Continued

4. Each signatory to this Protocol will support legislation to give state permitting and siting authorities explicit authority: a) to effectively coordinate and cooperate with other governmental permitting and siting authorities on permitting and siting activities regarding proposed electric transmission lines that cross state and national boundaries; and b) to consider both state and regional needs and planning when evaluating whether a proposed electric transmission line should be approved.
5. The signatories to this Proposal support a regional, cooperative approach to solving problems associated with improvement of the Midwestern electric transmission grid.

E. **Administrative Provisions**

1. Nothing in this Protocol shall be construed to limit, repeal, or in any manner modify the existing legal authorities, rights, privileges, and duties of the signatories to this protocol.
2. The Governors intend that all the states in the Midwest sign the protocol.
3. The Governors will give a copy of this Protocol to state agencies with responsibilities for the review of transmission proposals.
4. Any party to this Protocol may unilaterally withdraw its participation in the agreement.
5. The Protocol may be amended or modified if all parties agree.
6. Upon signature, the Protocol will be immediately effective and will be posted on the Midwestern Governors Association website.

STATE OF MINNESOTA	)	AFFIDAVIT OF SERVICE VIA
	) ss	ELECTRONIC FILING AND
COUNTY OF ST. LOUIS	)	U.S. MAIL

Susan Romans of the City of Duluth, County of St. Louis, State of Minnesota, says that on the **4th** day of **May, 2015**, she served Minnesota Power's Letter to the ALJ in OAH Case No. 65-2500-31637 and PUC Docket No. E015/TL-14-21 regarding Midwestern Governors and Manitoba Transmission Siting Protocol on the Minnesota Public Utilities Commission and the Energy Resources Division of the Minnesota Department of Commerce via electronic filing. The remaining parties on the attached service list were served as indicated.

Susan Romans

Susan Romans

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Burl W.	Haar	burl.haar@state.mn.us	Public Utilities Commission	Suite 350 121 7th Place East St. Paul, MN 551012147	Electronic Service	Yes	OFF_SL_14-21_Official CC Service List
Linda	Jensen	linda.s.jensen@ag.state.mn.us	Office of the Attorney General-DOC	1600 BRM Tower 445 Minnesota Street St. Paul, MN 551012134	Electronic Service	Yes	OFF_SL_14-21_Official CC Service List
Michael	Kaluzniak	mike.kaluzniak@state.mn.us	Public Utilities Commission	Suite 350 121 Seventh Place East St. Paul, MN 55101	Electronic Service	Yes	OFF_SL_14-21_Official CC Service List
David	Moeller	dmoeller@allete.com	Minnesota Power	30 W Superior St Duluth, MN 558022093	Electronic Service	No	OFF_SL_14-21_Official CC Service List
Ann	O'Reilly	ann.oreilly@state.mn.us	Office of Administrative Hearings	PO Box 64620 St. Paul, MN 55101	Electronic Service	Yes	OFF_SL_14-21_Official CC Service List
Janet	Shaddix Elling	jshaddix@janetshaddix.com	Shaddix And Associates	Ste 122 9100 W Bloomington Frwy Bloomington, MN 55431	Electronic Service	Yes	OFF_SL_14-21_Official CC Service List
Tracy	Smetana	tracy.smetana@state.mn.us	Public Utilities Commission	121 7th Place East Suite 350 St. Paul, MN 55101	Electronic Service	Yes	OFF_SL_14-21_Official CC Service List
William	Storm	bill.storm@state.mn.us	Department of Commerce	Room 500 85 7th Place East St. Paul, MN 551012198	Electronic Service	Yes	OFF_SL_14-21_Official CC Service List
Eric	Swanson	eswanson@winthrop.com	Winthrop Weinstine	225 S 6th St Ste 3500 Capella Tower Minneapolis, MN 554024629	Electronic Service	No	OFF_SL_14-21_Official CC Service List

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Sarah	Beimers	sarah.beimers@mnhs.org	Minnesota Historical Society	345 Kellogg Boulevard West St. Paul, MN 55102	Electronic Service	No	SPL_SL_14-21_Agency Reps 14-21
Tamara	Cameron	tamara.e.cameron@usace.army.mil	U.S.Army Corps of Engineers	180 5th St # 700 Saint Paul, MN 55101	Electronic Service	No	SPL_SL_14-21_Agency Reps 14-21
Travis	Germundson	travis.germundson@state.mn.us		Board of Water & Soil Resources 520 Lafayette Rd Saint Paul, MN 55155	Electronic Service	No	SPL_SL_14-21_Agency Reps 14-21
Brooke	Haworth	Brooke.Haworth@state.mn.us	Department of Natural Resources	500 Lafayette Road Saint Paul, MN 55155	Electronic Service	No	SPL_SL_14-21_Agency Reps 14-21
Susan	Heffron	susan.heffron@state.mn.us	MN Pollution Control Agency	520 Lafayette Rd Saint Paul, MN 55155	Electronic Service	No	SPL_SL_14-21_Agency Reps 14-21
Kari	Howe	kari.howe@state.mn.us	DEED	332 Minnesota St, #E200 1ST National Bank Bldg St. Paul, MN 55101	Electronic Service	No	SPL_SL_14-21_Agency Reps 14-21
Ray	Kirsch	Raymond.Kirsch@state.mn.us	Department of Commerce	85 7th Place E Ste 500 St. Paul, MN 55101	Electronic Service	No	SPL_SL_14-21_Agency Reps 14-21
Stacy	Kotch	Stacy.Kotch@state.mn.us	MINNESOTA DEPARTMENT OF TRANSPORTATION	395 John Ireland Blvd. St. Paul, MN 55155	Electronic Service	No	SPL_SL_14-21_Agency Reps 14-21
Debra	Moynihan	debra.moynihan@state.mn.us	MN Department of Transportation	395 John Ireland Blvd MS 620 St. Paul, MN 55155-1899	Electronic Service	No	SPL_SL_14-21_Agency Reps 14-21
Bob	Patton	bob.patton@state.mn.us	MN Department of Agriculture	625 Robert St N Saint Paul, MN 55155-2538	Electronic Service	No	SPL_SL_14-21_Agency Reps 14-21

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Margaret	Rheude	Margaret_Rheude@fws.gov	U.S. Fish and Wildlife Service	Twin Cities Ecological Services Field Office 4101 American Blvd. E. Bloomington, MN 55425	Electronic Service	No	SPL_SL_14-21_Agency Reps 14-21
Michele	Ross	michele.ross@state.mn.us	Department of Health	625 N Robert St Saint Paul, MN 55101	Electronic Service	No	SPL_SL_14-21_Agency Reps 14-21
Jamie	Schrenzel	jamie.schrenzel@state.mn.us	Minnesota Department of Natural Resources	500 Lafayette Road Saint Paul, MN 55155	Electronic Service	No	SPL_SL_14-21_Agency Reps 14-21
David	Seykora	dave.seykora@state.mn.us	MN Department of Transportation	395 John Ireland Boulevard Mail Stop 130 St. Paul, MN 55155-1899	Electronic Service	No	SPL_SL_14-21_Agency Reps 14-21
Bruce	West	Bruce.West@state.mn.us	Department of Public Safety	Box 145 444 Cedar Street St. Paul, MN 55151	Electronic Service	No	SPL_SL_14-21_Agency Reps 14-21
Jonathan	Wolfgram	Jonathan.Wolfgram@state.mn.us	Department of Public Safety	445 Minnesota Street Suite 147 St. Paul, MN 55101-1547	Electronic Service	No	SPL_SL_14-21_Agency Reps 14-21

From: Doug Shaw [mailto:dshaw@TNC.ORG]
Sent: Monday, August 10, 2015 3:43 PM
To: Storm, Bill (COMM)
Cc: juliea.smith@hq.doe.gov; Meredith Cornett
Subject: RE: Comments from The Nature Conservancy re: Docket Number 14-21

Resending our comments with attachments referred to below, including our March 10, 2014 letter.

Thanks

Doug Shaw

From: Doug Shaw
Sent: Friday, August 07, 2015 3:47 PM
To: 'bill.storm@state.mn.us'
Cc: 'juliea.smith@hq.doe.gov'; Meredith Cornett (mcornett@TNC.ORG)
Subject: Comments from The Nature Conservancy re: Docket Number 14-21

Docket Number 14-21

The Nature Conservancy (TNC) respectfully submits these comments for the public record on the Draft EIS for the Great Northern Transmission Line (GNTL).

TNC's mission is to conserve the lands and waters on which all life depends. Consistent with our letter of March 10, 2014 (on PUC Docket Number E-015/CN-12-1163, attached), our comments are focused on maintaining critical habitats for plants, animals, and natural communities, and are grouped here under the recommendations we provided in that letter:

- Target existing major roads and transmission corridors (Map 1)
  - Overall, TNC favors the Blue Route in the West and Central Sections, as it adheres most closely to the principle of following major roads and transmission corridors, therefore minimizing impacts to critical habitats. In the East Section, neither the Blue nor the Orange Route satisfies this criterion.
    1. West Section. At the northern end, the proposed routes miss the opportunities to make use of existing major corridors, such as State Highway 89 or 310 as border crossings and State Highway 11 to travel East. Even more efficient would be to use the existing Border Crossing 500kV Variation and/or the Border Crossing 230 kV Variation.
    2. East Section. East Bear Lake Variation Area.
       - We support the Effie Variation in that makes use of the State Highway 65 Corridor.
       - We also support the East Bear Lake and Balsam Variations, both of which make use of existing power corridors.
- Avoid TNC Ownerships and Easements (Map 2)
  - West Section: We were pleased to find that Kittson County and Marshall County have been dropped from the possible routes under consideration in the EIS. The Nature Conservancy has selected areas of high biodiversity significance on which to acquire land in fee or place conservation easements. Therefore, routing the line through areas owned by the Conservancy or subject to a conservation easement, as well as areas managed for natural resource value by DNR, will have disproportionate impact on natural resource values and should be avoided.
  - East Section. Unfortunately, both the Orange and Blue Routes traverse significant acreage of conservation easements held by TNC on DNR Forestry land in northeastern Itasca County (Segment E1). Please see Map 1 for our preferred route, which makes use of State Highway 1 to traverse east across the northern side of the easement lands and then South on State Highway 65. This is consistent with the Effie Variation identified above.
- Avoid Areas of Outstanding and High Biodiversity Significance
  - Again, many of the Areas of Outstanding and High Biodiversity Significance are concentrated in Kittson County and Marshall County. We are therefore glad to see that this area is no longer being considered as a possible route due to likely impacts on these natural areas.
  - In addition, we support the Variations that circumvent other ownerships with significant habitats, such as Wildlife Management Areas and other state and federal ownerships identified in the draft EIS.
- Minimize use of TNC conservation portfolio sites; where portfolio sites cannot be avoided, direct the new transmission line to existing major roads and transmission corridors (Maps 1 & 2).
  - We support the C2 Variation option as it does the best job of minimizing impacts to TNC's Black River portfolio site as well as following an existing transmission line corridor.

TNC will continue to coordinate closely with the Minnesota Department of Natural Resources and with the Nature Conservancy of Canada (NCC).

Please consider the environment before printing this email

Douglas T. Shaw, Ph.D
Assistant Chapter Director

dshaw@tnc.org
(612) 331-0705 (Phone)
(651) 900-0652 (Mobile)

nature.org

The Nature Conservancy
in Minnesota, North Dakota & South Dakota
1101 West River Parkway, Suite 200
Minneapolis, MN 55415-0705

The Nature Conservancy
Protecting nature. Preserving life.™

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0160-1

0160-1
Additional border crossing alternatives would not address DOE's Purpose and Need to respond to a Presidential permit application. As stated in Section 1.2.2.1 of the EIS, DOE is considering whether or not to issue a Presidential permit for the proposed border crossing contained in the Applicant's October 2014 amended Presidential permit application. The scoping process provided opportunity to recommend alternatives to be analyzed in the Draft EIS. Alternatives to the proposed border crossing under consideration by DOE are presented in the EIS in response to scoping comments from resource agencies and the public, however, those alternatives are included for the purposes of analyses only.

No changes are made to the EIS in response to this comment.

0160-2

0160-2
Potential impacts to conservation easements, MnDNR Sites of Biodiversity Significance, and Wildlife Management Areas for each alternative variation are evaluated in the discussion of resources in the West and East Sections analyzed in Chapter 6 of the EIS.

No changes are made to the EIS in response to this comment.

0160-3

0160-3
As discussed in Section 1.2.1.4 of the EIS, once a route is selected and a Route Permit is issued by the MN PUC, the Applicant would contact all landowners or those holding an existing easement for conservation purposes, including but not limited to The Nature Conservancy, to gather information about their property, their concerns and to discuss how best to microsite the ROW across any property or conservation easement.

Section 6.3.5 of the EIS in which the C2 Variation is analyzed for comparative environmental consequences, is updated to indicate that the C2 variation has the greatest potential to minimize impacts to The Nature Conservancy's Black River portfolio site of all variations in that area of the proposed Project.

0160-4
Thank you for your comment. Your concerns are addressed throughout Chapter 6 of the EIS. No changes are made to the EIS in response to this comment.

March 10, 2014

Re: PUC Docket Number E-015/CN-12-1163

Bill Storm, Environmental Review Manager
Minnesota Department of Commerce
85 7th Place East, Suite 500
St. Paul, MN 55101
Duluth, MN 55802

Dear Mr. Storm:

On behalf of The Nature Conservancy, thank you for the opportunity to submit comments for the Great Northern Transmission Line (GNTL). We are pleased to provide these comments as part of the public record. 0160-4

The mission of The Nature Conservancy is to conserve the lands and waters on which all life depends. Our comments are therefore focused on maintaining critical habitats for plants, animals, and natural communities while also accommodating the energy needs that the GNTL helps our region to address.

The Nature Conservancy acknowledges that addressing the energy needs of northern Minnesota and Manitoba will call for an "all of the above" solution, and the GNTL project may have a role to play in such a strategy.

The GNTL environmental report should pay particular attention to selecting a route alternative that avoids adverse and unnecessary impacts to critical habitats for plants, animals, and natural communities. The Nature Conservancy has provided detailed comments and data layers on the proposed routing alternatives, and proposed a route that meets both energy and habitat conservation needs (see attached letter and maps dated 6/17/2013 and attached e-mail to Jim Atkinson dated 2/28/2014). We request that the environmental report carefully analyze the ability of the GNTL to: 1) Follow existing major roads and transmission corridors (Map 1); 2) Avoid Conservancy Ownerships and Easements (Map 2); 3) Avoid Areas of Outstanding and High Biodiversity Significance (Map 2); 4) Minimize use of Conservancy conservation portfolio sites; where portfolio sites cannot be avoided, direct the new transmission line to existing major roads and transmission corridors (Maps 1 & 2).

Again, The Nature Conservancy believes that the proposed GNTL can be part of a total energy solution for the region. **The proposed project is not a stand-alone, nor should it be; GNTL is but one of many sources that can contribute to the region's energy needs.** As society moves away from our reliance on coal and fossil fuels and embraces conservation measures as well as a greater number of sources for clean, sustainable energy, projects like the GNTL can help with the transition. However, it is critical to conserve the area's unique natural resources wherever possible; the Conservancy is pleased to offer guidance on how to accomplish both objectives.

We coordinate closely with the Minnesota Department of Natural Resources and with the Nature Conservancy of Canada (NCC). Both partners are therefore copied on this letter. NCC is working with

Manitoba Hydro regarding similar criteria and considerations for routing. We will continue to share and exchange information with the MN DNR and NCC over the course of the project.

Sincerely,

Douglas T. Shaw, Ph.D.
Assistant Chapter Director

C: Peggy Ladner (TNC), Gail Lewellan (TNC), Meredith Cornett (TNC), Cary Hamel (NCC), Jamie Schrenzel (MN DNR), Christina Rolfes (HDR Engineering, Inc.), Jim Atkinson (ALLETE, Inc.)

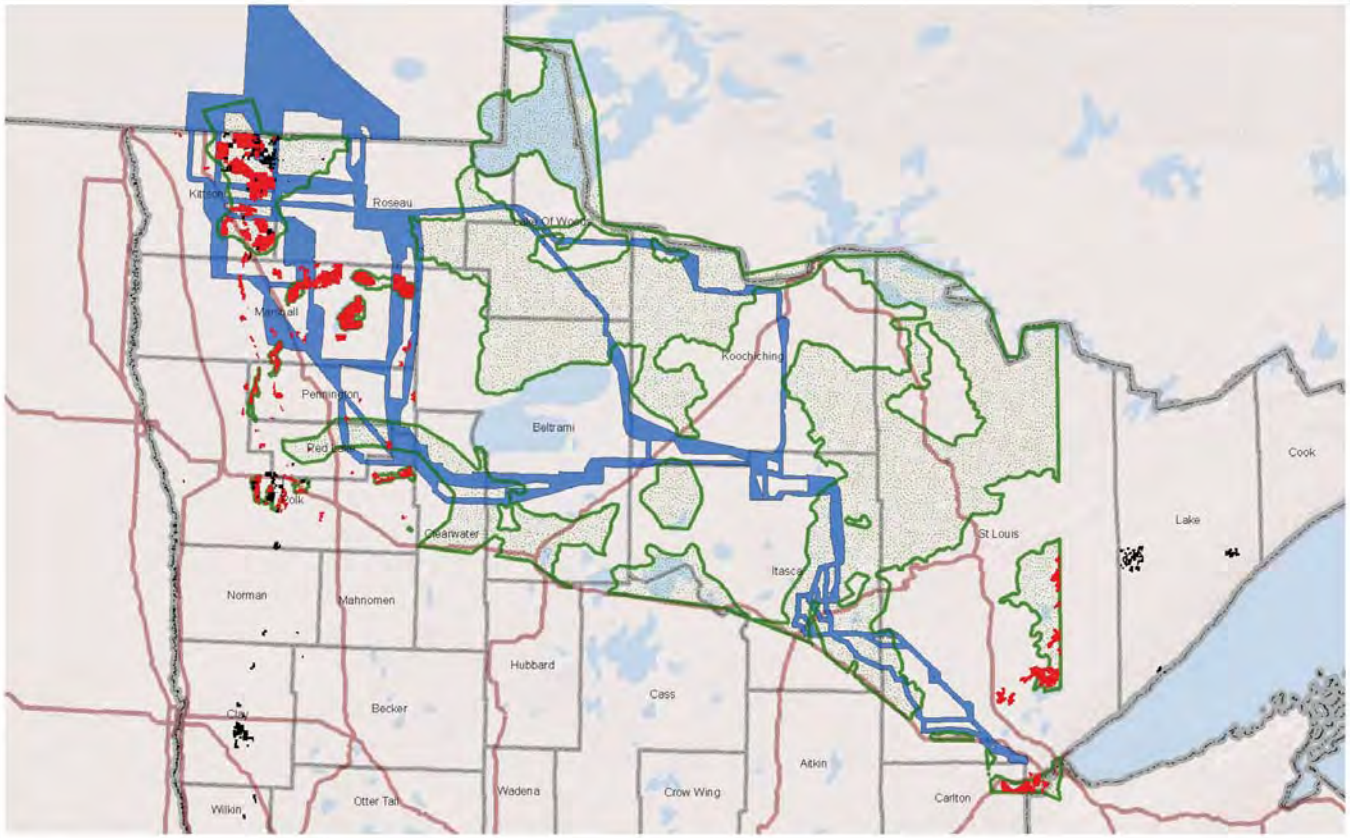
Attachments:
Copy of signed letter from The Nature Conservancy to ALLETE (dated June 17, 2014)
Copies of Map 1, Map 2, shape file for TNC-preferred routing
Copy of e-mail update from The Nature Conservancy to ALLETE (dated February 28, 2014)

Map 1
Existing Road & Transmission Corridors
The Nature Conservancy Routing Recommendations for the Great Northern Transmission Line
Meredith Cornett, Director of Conservation Science
June 17, 2013

Great Northern Transmission Line (GNTL) Recommended Corridors
TNC Recomendation - Within GNTL Corridor
TNC Recommendation - Alternatives to GNTL Recommended Corridors
TNC Recommendation - Added GNTL Corridor if TNC Alternative Route is selected
TNC Conservation Portfolio Sites
Major Highway

The Nature Conservancy

20 10 0 20 Miles
Scale = 1:2,200,000



Map 2
Areas to Avoid and Minimize Impact
The Nature Conservancy Routing Recommendations for the Great Northern Transmission Line
Meredith Cornett, Director of Conservation Science
June 17, 2013

Great Northern Transmission Line (GNTL) Recommended Corridors
TNC Ownerships and Easements
Areas of Outstanding and High Biodiversity Significance
TNC Conservation Portfolio Sites
Major Highway

The Nature Conservancy

20 10 0 20 Miles
Scale = 1:2,200,000

From: Carol
To: Storm, Bill (COMM)
Subject: Great Northern Transmission Line
Date: Thursday, July 16, 2015 11:15:52 AM

It appears from the map that the proposed route that passes through Koochiching County near Northome will go right through my gravel pit near Battle Lake. This is a commercial operation on private property. I object to the route. 0161-1

Will property owners be compensated? 0161-2

Carol Avelsgaard
Northome, Mn

0161-1
Thank you for your comment. No changes are made to the EIS in response to this comment.

0161-2
Section 2.9 discusses the process the applicant would follow to acquire easements for the ROW including compensation.

No changes are made to the EIS in response to this comment.

Dr. Julie Ann Smith, Electricity Policy Analyst 10 August 2015
DOE NEPA Document Manager
National Electricity Delivery Division (OE-20)
U.S. Department of Energy
1000 Independence Avenue SW
Washington, DC 20585

Re: PUC docket number TL-14-21; DOE number EIS-0499

Dear Dr. Smith:

To put it bluntly: Nobody wants a transmission line corridor near them.

I am an owner of 40.27 acres of land that lies near the proposed Great Northern Transmission Line corridor. My location is T61N R23W S32 NWSW, Property ID: 54-032-3200. This parcel has been owned by our family since 1933— 80+ years — and we have accordingly paid all of our property taxes. It is not lake property and, in fact, it is mostly wetland. It is remote and quite secluded relative to even today's standards. It has always been a focus where annually our family gathers for reunions as well as multiple skiing and hunting trips during the year. Appendix S - Map 100 has my cabin listed as "Commercial or Non-Residential Structure". I am sorry, but that is wrong. I pay Itasca County taxes for my seasonal residential cabin on my 40.27 acres of land. A review of the maps show numerous errors in improperly identifying existing structures. One can then surmise how many other errors are in these documents. 0162-1

Northern Minnesota has a strong history in managing its forest resource base for economic well-being of its people and communities. Its boreal forest zone is a southern limit of the great North American boreal forest. The continuity and health of Minnesota's boreal forest zone and associated wildlife is constantly being threatened by development activities. We are proud to have confirmed sightings of mink, otter, weasel, fisher, martin, wolverine, timber wolves, black bear, bobcats, cougar, moose, and other species over the years. The wildlife populations fluctuate with the characteristics of the forest cover which regenerates after intermittent harvests. 0162-2

Power transmission corridors lay waste to vast areas slashing across and destroying the continuity of the boreal habitat. Power transmission corridors do not allow forests to regenerate and remove the area from our renewable resource base. Future right-of-way management activities require constant intervention by mechanical or chemical actions. The boreal forest does not need more physical and chemical impacts.

To reduce the fractionalization of property ownership as well as maintaining continuity of managed forest areas, Minnesota has the Sustainable Forest Incentive Act and a strong forest stewardship program to help, in part, small woodland owners. My forty acres are entered into the SFIA program and I am doing my best to pursue the goals of my forest management plan developed by a consultant forester. I value the extent of our boreal

0162-1
Map S-100 is updated in the EIS to correctly identify your structure as a residence.

0162-2
Potential impacts to forests and wildlife are discussed in Chapters 5 and 6 of the EIS.

No changes are made to the EIS in response to this comment.

forest and appreciate the renewable forest resource. I expect corporate entities to likewise respect and do their best to protect the resource.

It is imperative that these new transmission corridors follow existing power line or highway right-of-ways to preserve the continuity of our forest resource base and it is imperative that the project demonstrates that it has done its absolute best to minimize the need for new corridors -- minor cost savings are not an acceptable excuse.

I do have a couple of additional questions:
1. Has Minnesota Power & Light proven that they have made every effort to incorporate alternative energy sources so they can minimize the magnitude of the transmission lines and corridor?
2. When lakes and large open water wetlands partially or totally fall within the right of way of the project, is all vegetation removed or will there be a riparian zone left intact as is done with responsible logging operations? After all, protection of our water resources has recently been highlighted as an urgent need in Minnesota's natural resource management.

Thank you for considering my concerns.

Sincerely yours,

Dr. Erwin R. Berglund
6565 Pierce Street N.E.
Fridley, MN 55432
763-571-0293
erv.berglund@gmail.com

e-CC: juliea.smith@hq.doe.gov
bill.storm@state.mn.us
overland@legalectric.org

CC: Ron Berglund
Sven Berglund
Ingrid Berglund
Emilie Berglund

0162-3

0162-3
Thank you for your comment. No changes are made to the EIS in response to this comment.

0162-4

0162-4
Utilities are required to consider all their different options for generation, including renewables, as part of developing their integrated resource plan as part of developing the Certificate of Need application (see MN PUC eDocket #12-1163).

No changes are made to the EIS in response to this comment.

0162-5

0162-5
Details of vegetation clearing would likely be documented in a Vegetation Management Plan; however, this document is not available at this time. Once DOE and MN PUC issue permits for the Project, this document would likely be developed by the Applicant, in coordination with the MnDNR and other appropriate agencies, as part of the environmental permitting process.

No changes are made to the EIS in response to this comment.

MINNESOTA DEPARTMENT OF COMMERCE

Comment Form: Draft EIS
Energy Environmental Review and Analysis

Please provide your contact information. This information and your comments will be publicly available.

Name: DAVID S. CHRISTENSON Phone: 218-743-3128
Street Address: 24641 NORTH DEER LAKE ROAD
City: Effie State: MN ZIP: 56639
Email: CREATIVE@BIGFORK.NET

Share your comments on the Draft EIS regarding the Great Northern Transmission Line project. Be as specific as possible.

- What information or analysis needs to be clarified?
- What information or analysis is missing or incomplete?
- Are any specific edits needed to make the document complete and accurate?

Draft EIS section or page number: 5.2.1.4 PROPERTY VALUE Information to be corrected or new information needed: 0163-1

The proposed blue ROUTE That would run along the west shoreline through it's entire length of DEER LAKE would Lower property values in the VIEW watershed along with perceived risks associated with EMF will hurt property values! Along with this, destruction of natural habitat the entire length of DEER LAKE west shoreline plus NOISE transmission from lines across the whole Lake area!

Draft EIS section or page number: 5.0 page 119 Information to be corrected or new information needed:

AFFECTED ENVIRONMENT + Potential Impacts of the proposed blue Route along the west shoreline of DEER Lake will negatively impact water based aircraft that use DEER LAKE as a SEAPLANE TRAINING AREA. The high transmission line would be a hazard for flight operations which use DEER Lake as a water gathering area for fighting Wild Fires with the aerial water bombers.

Draft EIS section or page number: 5.0 page 136 Information to be corrected or new information needed:

The general impact on taxes and county revenue would be negative for the property values if the proposed blue Route is used across the entire length of DEER LAKES WEST SHORE. The negative impact of Lower property values due to the power line would greatly impact CARPENTER TWSP as 70% of the TWSP revenue is directly derived from the DEER LAKE residents. USE the EFFIE VARIATION ROUTE!

Attach additional comments as necessary using the format above. If attaching additional comments, please number the page(s) and tell us how many pages you are including: _____ page(s).

0163-1
Thank you for your comment. Property value impacts from the proposed Project are discussed in Section 5.2.1.4 of the EIS. Impacts to biological resources, including natural habitat, are discussed in Chapters 5 and 6 of the EIS. Section 5.2.1.2 of the EIS addresses potential noise impacts from the proposed Project. The impact of the proposed Project on airports and air traffic are described in Section 5.2.1.6 while socioeconomic impacts from the proposed Project, including impacts on tax revenue, are discussed in Section 5.2.1.8.

No changes are made to the EIS in response to this comment.

Energy Environmental Review and Analysis
MN Department of Commerce
85 7th Place East, Suite 500
Saint Paul, MN 55101-2198

RECEIVED
AUG 07 2015
MAILROOM

WILLIAM COLE STORM
MN DEPARTMENT OF COMMERCE
85 7TH PLACE EAST STE 500
SAINT PAUL MN 55101-2198

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Comment Period: Draft Environmental Impact Statement
Great Northern Transmission Line
Docket Nos. E-015/TL-14-21

An environmental impact statement (EIS) evaluates the potential human and environmental impacts and possible mitigation measures associated with a proposed project. The EIS is issued as a draft so that it can be improved through public comment. The purpose of this comment period is to gather feedback about specific, factual information that needs to be clarified or included in the final EIS. Comments regarding new route alternatives are not considered.

After reading the Draft EIS, you might have developed a preference for a specific route alternative. This will be considered, but preferences are best expressed to an administrative law judge through the public hearing portion of the permitting process, currently scheduled for August 5, 6, 12 and 13, 2015.

Direct your questions regarding commenting or submitting your comments to the Environmental Review Manager, Bill Storm, at: bill.storm@state.mn.us or (651) 539-1844. Information regarding the proposed project is available at: http://mn.gov/commerce/energyfacilities/Docket.html?Id=33847. For information regarding the public hearing contact the public advisor at consumer.puc@state.mn.us.

FOLD HERE

Public Comment Period Closes Monday, August 10, 2015

Comments must be post-marked or received electronically by the comment deadline.

How to comment:

- Submit this form to the Environmental Review Manager at a public meeting
- Mail this form remembering to affix appropriate postage
- Mail comments in a separate envelope using the mailing address on this form
- Fax comments to the Environmental Review Manager: (651) 539-0109
- Email comments to the Environmental Review Manager: bill.storm@state.mn.us
- Use the online comment form at: http://mn.gov/commerce/energyfacilities/#comment

Comments do not need to be on this form to be accepted. We encourage you to provide comments in whatever way is most convenient for you. If commenting by email or fax use "*Public Comment: Great Northern Transmission Line DEIS (E-015/TL-14-21)*" in the subject line.

THANK YOU for commenting on the Draft EIS!

From: apache@web.lmic.state.mn.us
To: Storm, Bill (COMM)
Subject: Fahlman Mon Aug 10 10:56:35 2015 14-21
Date: Monday, August 10, 2015 10:56:36 AM

This public comment has been sent via the form at: mn.gov/commerce/energyfacilities/publicComments.html

You are receiving it because you are listed as the contact for this project.

Project Name: Minnesota Power Great Northern Transmission Line Project (Routing)

Docket number: 14-21

User Name: S Fahlman

County:

City: Sandstone

Email: 10000reasonswhy@gmail.com

Phone:

Impact: As a United States citizen, a resident of Minnesota and a property owner within the corridor of the Scoping Decision Route (Detail Map Page 23 of 153), I have concerns of the Great Northern Transmission Line project. First, it seems crazy that we as a nation keep adding to an already frail electrical grid. Major power lines such as this 500kv are certainly subject to failure from climatical events or an act of terrorism, resulting in large populations without the electrical power we rely on so greatly. Proceeding with this project seems similar to building a house on a flood plain. Maybe the river hasnâ€™t flooded in 50 years and yes, the transmission line towers are designed and built well but, one might learn from history and world events. Would we not be better to focus our time, energy and money on smaller and local energy production and therefore reducing our massive electrical grid? If an electric power company placed solar panels on each residential roof top as well as on business roof tops, enough electricity could be produced for the community. Maybe it is not quite that simple, but large transmission lines are not either.

As a long time Minnesota resident and rural property owner, I value our rural public and private lands and try to be a good steward of our natural environment. Construction of a high voltage power line obviously has an impact on the environment wherever it is located. Once constructed, they are an eye sore to the landscape and they are noisy with buzzing, banging and clanking under different weather conditions. There is also the concern of the electromagnetic forces surrounding the high voltage lines. We know they distort radio waves, affecting communication devices and public broadcasting but, I am not convinced we have thorough knowledge on the effects of human life. I also believe high voltage power lines have a negative effect on property values with the previously listed concerns as many people do not want to and will not live next to them. It can be difficult to sell property with a high voltage power line on or in the vicinity of.

As a property owner within a corridor as stated above, I was disappointed to find my residence was listed as a structure and not a residence in the initial scoping research. And it is still listed that way on the current maps. I used to live at this residence and continue to use it as a seasonal residence. I have kept this property as an investment as well as a possible permanent residence when I retire in a few years. If this high voltage line follows this route, I would not want to live there and I am concerned about being able to sell the property as well as getting a return on my investment.

In closing, I believe it is a poor decision for this project as a whole and I am not in favor of following the Scoping Decision route.

0165-1

0165-2

0165-3

0165-4

0165-1
The MN PUC determined that the proposed Project and its 250 MW capacity is needed by the Applicant in eDocket #12-1163 (Certificate of Need).

No changes are made to the EIS in response to this comment.

0165-2
Thank you for your comment. Section 5.2.1.2 and 5.2.1.5 of the EIS discuss the noise and electronic interference impacts from the proposed Project. Property values are discussed in Section 5.2.1.4 and EMF is discussed in Section 5.2.2.1. Aesthetic impacts from the proposed Project are discussed throughout Sections 5 and 6 of the EIS and visual simulations, provided in Appendix N, Photo Simulations, of the EIS, were prepared for seven viewpoints within the study area to represent typical views of the proposed project.

No changes are made to the EIS in response to this comment.

0165-3
A discussion about the potential effects of transmission lines on property values is included in the EIS in Section 5.2.1.4. This includes a summary of the potential range of property value effects attributed to transmission lines. Further, Appendix J, Property Values Supplement provides a summary of the literature regarding the relationship between transmission lines and property values used to develop the property values analysis in Section 5.2.1.4.

No changes are made to the EIS in response to this comment.

0165-4
Map S-30 in Appendix S in the EIS is updated to show your home as a residence.

Mitigation:

Submission date: Mon Aug 10 10:56:35 2015

This information has also been entered into a centralized database for future analysis.

For questions about the database or the functioning of this tool, contact:

Andrew Koebrick
andrew.koebrick@state.mn.us

From: kepeters
To: Storm, Bill (COMM); juliea.smith@hq.doe.gov
Cc: Anne Marguerite Coyle; Don Peterson; jason Peterson
Subject: DEIS comments
Date: Sunday, August 09, 2015 2:12:28 PM

Hello Mr. Storm and Dr. Smith,

In reference to Docket number TL-14-21 and DOE number EIS-0499.

I have reviewed the DEIS for the Great Northern Transmission Line and offer the following comments:

0167-1 On Summary page 15- There's a statement that says the line is not expected to affect property values and cites a couple of references. I wonder if these studies included recreational property? From my perspective, the value of my property will be greatly diminished if this power line is constructed on or near my property. Things such as solitude and views unobscured by power lines may be hard to put a value on, but affect the things I value about my property nonetheless. I'd like to see more discussion and recognition of the impacts of the proposed power line on these types of values.

0167-2 I am most familiar with the area near my property (T. 63 N. R. 27 W, S. 35, SE of SE) as I have recreated in this area for 20 years. A lot of timber has been harvested in this area in the past 15 years, resulting in large blocks of younger aged forest. Much of the remainder is old-growth cedar which provides thermal protection for deer in the winter and moose in the summer. The proposed route (Orange) goes right through one of the largest such stands of cedar in the area. This stand provided critical habitat for deer during the recent harsh winters, in fact was the only place you could find a deer track during the winter months. The Cutfoot variation would save one of these stands, but would impact another equally important stand located just to the south. The statement in S.10.2.8 "....proposed orange route has less potential impact on critical habitat designated for grey wolf " seems based solely on the fact that the Cutfoot variation is slightly longer. Instead, the amount of critical habitat affected by both routes should be measured (quantified) so that a meaningful comparison between the two routes can be made. Taking this a step further, I'd like to see a similar comparision between the Orange and Blue routes (i.e. which route will have more or less impact on old growth cedar stands which provide critical habitat for many species of wildlife including grey wolf.

0167-3 On summary page 55 S.11.2.4 Natural Resources: In my opinion, the summary understates the localized impacts to wildlife. If critical habitat is lost (e.g. old-growth cedar stands are converted to open right-of-ways which fragment the forest and provide no thermal cover the wildlife that lives there will be negatively impacted. Fewer deer will survive the harsh winters, ultimately resulting in fewer wolves. I'd like more discussion of these potential impacts in the DEIS.

Thank you for the opportunity to comment.

Regards,
Kevin

0167-1
A discussion about the potential effects of transmission lines on property values is included in the EIS in Section 5.2.1.4. Further, Appendix J, Property Values Supplement provides a summary of the literature regarding the relationship between transmission lines and property values used to develop the property values analysis in Section 5.2.1.4. These studies included properties in a variety of settings and are not just limited to properties in urban settings where a transmission line would be less noticeable.

No changes are made to the EIS in response to this comment.

0167-2
Impacts to forests and wildlife are discussed in Chapters 5 and 6 of the EIS. As discussed in Section 1.3.1.4 of the EIS, once a route is selected and a permit is issued, the Applicant would contact landowners to gather information about their property and their concerns and discuss how the ROW would best proceed across the property.

No changes are made to the EIS in response to this comment.

0167-3
Impacts to wildlife are discussed in Chapters 5 and 6 of the EIS. Impacts to federally-listed species (i.e. wolf) and designated critical habitat are discussed in the Biological Assessment in Appendix R.

No changes are made to the EIS in response to this comment.

MINNESOTA DEPARTMENT OF COMMERCE

Comment Form: Draft EIS
Energy Environmental Review and Analysis

Please provide your contact information. This information and your comments will be publicly available.

Name: Kathen Krook Phone: 218-398-2529
Street Address: 23602 Diane Ln
City: Grand Rapids State: MN ZIP: 55744
Email: wallyk377@msn.com

Share your comments on the Draft EIS regarding the Great Northern Transmission Line project. Be as specific as possible.

- What information or analysis needs to be clarified?
- What information or analysis is missing or incomplete?
- Are any specific edits needed to make the document complete and accurate?

Draft EIS section or page number: Map 105 Information to be corrected or new information needed:

Balsam Variation - green route
Cabin on north side of Sucker Lake (parcel # 04-127-4200) is listed as non-residential. This cabin is utilized 52 weeks of the year - summer cabin/deer shack/XC ski warming house. Please make this correction to the Environmental Impact Statement. 0168-1

Draft EIS section or page number: Information to be corrected or new information needed:

Draft EIS section or page number: Information to be corrected or new information needed:

Attach additional comments as necessary using the format above. If attaching additional comments, please number the page(s) and tell us how many pages you are including: _____ page(s).

0168-1
Map 6-61 in the EIS is updated to show your home as a residence.

Energy Environmental Review and Analysis
MN Department of Commerce
85 7th Place East, Suite 500
Saint Paul, MN 55101-2198

SAINT PAUL MN 550
2015 JUL 28 PM 4 1

WILLIAM COLE STORM
MN DEPARTMENT OF COMMERCE
85 7TH PLACE EAST STE 500
SAINT PAUL MN 55101-2198

55101601399

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Comment Period: Draft Environmental Impact Statement
Great Northern Transmission Line
Docket Nos. E-015/TL-14-21

An environmental impact statement (EIS) evaluates the potential human and environmental impacts and possible mitigation measures associated with a proposed project. The EIS is issued as a draft so that it can be improved through public comment. The purpose of this comment period is to gather feedback about specific, factual information that needs to be clarified or included in the final EIS. Comments regarding new route alternatives are not considered.

After reading the Draft EIS, you might have developed a preference for a specific route alternative. This will be considered, but preferences are best expressed to an administrative law judge through the public hearing portion of the permitting process, currently scheduled for August 5, 6, 12 and 13, 2015.

Direct your questions regarding commenting or submitting your comments to the Environmental Review Manager, Bill Storm, at: bill.storm@state.mn.us or (651) 539-1844. Information regarding the proposed project is available at: http://mn.gov/commerce/energyfacilities/Docket.html?Id=33847. For information regarding the public hearing contact the public advisor at consumer.puc@state.mn.us.

FOLD HERE

Public Comment Period Closes Monday, August 10, 2015

Comments must be post-marked or received electronically by the comment deadline.

How to comment:

- Submit this form to the Environmental Review Manager at a public meeting
- Mail this form remembering to affix appropriate postage
- Mail comments in a separate envelope using the mailing address on this form
- Fax comments to the Environmental Review Manager: (651) 539-0109
- Email comments to the Environmental Review Manager: bill.storm@state.mn.us
- Use the online comment form at: http://mn.gov/commerce/energyfacilities/#comment

Comments do not need to be on this form to be accepted. We encourage you to provide comments in whatever way is most convenient for you. If commenting by email or fax use "*Public Comment: Great Northern Transmission Line DEIS (E-015/TL-14-21)*" in the subject line.

THANK YOU for commenting on the Draft EIS!

From: Rich Libbey
To: Kaluzniak, Mike (PUC)
Cc: Rich Libbey; Storm, Bill (COMM)
Subject: Tornado History Project: Minnesota
Date: Monday, August 10, 2015 2:29:05 AM

http://www.tornadohistoryproject.com/tornado/Minnesota

Hi Mike We discussed the web site for tornados history in Minnesota in Grand Rapids last month. I apologize for not sending it earlier. The link above is the interactive web site for all tornados recorded in Minnesota for the last 50 years. It appears there have been none near the Effie Alternative Route for the GNTL. Rich

0169-1
Section 5.3.7.2 of the Draft EIS describes the weather studies that the Applicant would conduct a weather study to address unexpected transmission line outages due to extreme weather events and equipment failures. Based on the results of the weather study, the design criteria for the proposed Project may be adjusted to increase the robustness of the 500 kV transmission line design.

0169-1 No changes are made to the EIS in response to this comment.

From: Mark Meester
To: Storm, Bill (COMM)
Subject: Great Northern Transmission Line Route Selection
Date: Monday, August 10, 2015 10:59:47 AM

Sir:

I was unable to make the website comment form work. Hopefully this gets to the proper recipient(s) to be considered:

Several private aircraft operators in the local area regularly utilize the private airstrip located approximately 5 miles south of Littlefork and a 1 mile west of Highway 65. The easternmost proposed routing of the transmission line appears to put the line directly under a standard traffic pattern to the North-South runway. As such that routing would appear to be an unnecessary hazard to normal-unobstructed approaches to the airstrip.

Mark L. Meester, P.E.
President, Bartlett & Associates, Inc
501 Third Street
International Falls, MN 56649
218 244 1159

0170-1

0170-1
Section 5.2.1.6 Transportation and Public Services discusses airstrips and potential impacts. Please note that the C2 Segment Option Variation Area includes the Airstrip Alignment Modification that was developed in an attempt to minimize impacts to the airstrip (see Section 4.3.2.5 for a description of this alignment modification).

No changes are made to the EIS in response to this comment.

From: Norm
To: Storm, Bill (COMM)
Subject: Great Northern Transmission Line EIS
Date: Sunday, August 09, 2015 12:26:38 PM

Dear Mr. Storm,

I am a homeowner on Wasson Lake in northeast Itasca County in the East Section of the EIS. My concern is the impact of the Great Northern Transmission Line (the blue line route) on the large area noted in the EIS as "High Significance" , which is adjoining and east of Wasson Lake. I am not sure what the difference is between a high significance and an outstanding significance area. However, I am sure that this wetlands area has and will in the future greatly impact the water quality of the lake that I live on and other lakes in the surrounding area, not to mention the overall environmental impact on the area itself. My concern is that the construction and maintenance of the 200' corridor will have a detrimental impact on this area. 0171-1

It appears that this detrimental impact could be in large part mitigated by selecting the orange line alternative route in the east section at a rather modest cost differential, while still being a meaningful distance away from the existing transmission lines. 0171-2

Thank You for your consideration.

Norman Nystrom
51876 North Wasson Lake Road
Bigfork, MN 56628

0171-1
Minnesota Biological Survey Sites of Biodiversity Significance are discussed in Section 5.3.5 of the EIS.

No changes are made to the EIS in response to this comment.

0171-2
Thank you for your comment. No changes are made to the EIS in response to this comment.

UPM
The Biofore Company

Blandin Paper Company
August 4, 2015

William Cole Storm, Environmental Review Manager
Minnesota Department of Commerce
85 7th Place East, Suite 500
St. Paul, Minnesota 55101

Dear Mr. Storm:

After reviewing the DEIS (PUC Docket# ET015/TL-14-21 & DOE # EIS-0499) for the Great Northern transmission line, several items need to be addressed.

1. Maps showing State Conservation Easements are not complete; Molpus' easement shows on the map and the Blandin Paper Company easement does not.
2. On numerous pages (246, 272, 291, 311, 401, 403, 441, 459, 474, 484, 555, 588, 599) a statement is made: "No impacts to county lands, state conservation easements, or USFWS Interest lands would result from any of the alternatives considered". This is not correct. Page 537 and Tables 6-100, 6-117, 6-162, & 6-185 do mention some state conservation easements being affected by the transmission line but the impression is given that state conservation easements are minimally affected. The DEIS understates the effect of the transmission line on conservation easements.
3. In general, state conservation easements are not adequately addressed. There are many different conservation easements as they are individually negotiated between the landowner and the eventual easement holder (in this case, the State). The encumbrances on the land are different in each easement.

Blandin's conservation easement is a legally binding contract between the State of Minnesota and Blandin Paper Company. It is an encumbrance on the deed of every forest land parcel that Blandin owns. As stated in the easement Section 2.2.1: " [The purpose is] to continue management of the Protected Property [Blandin forest land] as a sustainable working forest in a manner that will protect in perpetuity the Conservation Values and to prevent any use of the Protected Property that will significantly impair or interfere with the Conservation Values including conversion of the Protected Property to non-forest uses".

The easement is to prevent fragmentation and provide economic value to the region through the use of forest management to maintain and improve the timber resource for multiple markets and provide wildlife habitat for the public's enjoyment. Non-forested uses, such as this transmission line, do not meet the requirements of the easement or the economic needs of the Paper Company. The transmission line routes will significantly affect Blandin's ability to manage the forest resource and, therefore, Blandin is not in favor of the proposed route locations.

Sincerely,

Cheryl J. Adams

Cheryl J. Adams, Forest Resources Manager

UPM-Kymmene Corporation

Blandin Paper Company-Forestry
115 SW First Street
Grand Rapids, MN 55744-3699
USA

Telephone: 218-327-6482
Fax: 218-327-6387

RECEIVED
AUG 07 2015
MAILROOM

0173-1

0173-1
The EIS is updated with information provided by the MnDNR that shows the location of the conservation easement parcels referenced in your letter. Maps 5-16, 5-23, 6-29, 6-49, 6-54, and 6-64 in the EIS are updated.

Tables 6-100 and 6-117 do not show conservation easement land, they only report state forest land, while Table 6-161 discusses land cover vegetation. Tables 6-162 and 6-185 show conservation easement land and the associated text acknowledges impacts on conservation easement land.

In Section 1.3.3 of the EIS, text is added to explain the purpose and requirements of state conservation easement agreements per your comment.

0174-1

To:
Julie Ann Smith, PhD, Electricity Policy Analyst
DOE NEPA Document Manager
National Electricity Delivery Division (OE-20)
U.S. Department of Energy
1000 Independence Avenue SW
Washington, DC 20585
JulieA.Smith@hq.doe.gov

Date: 8/9/2015

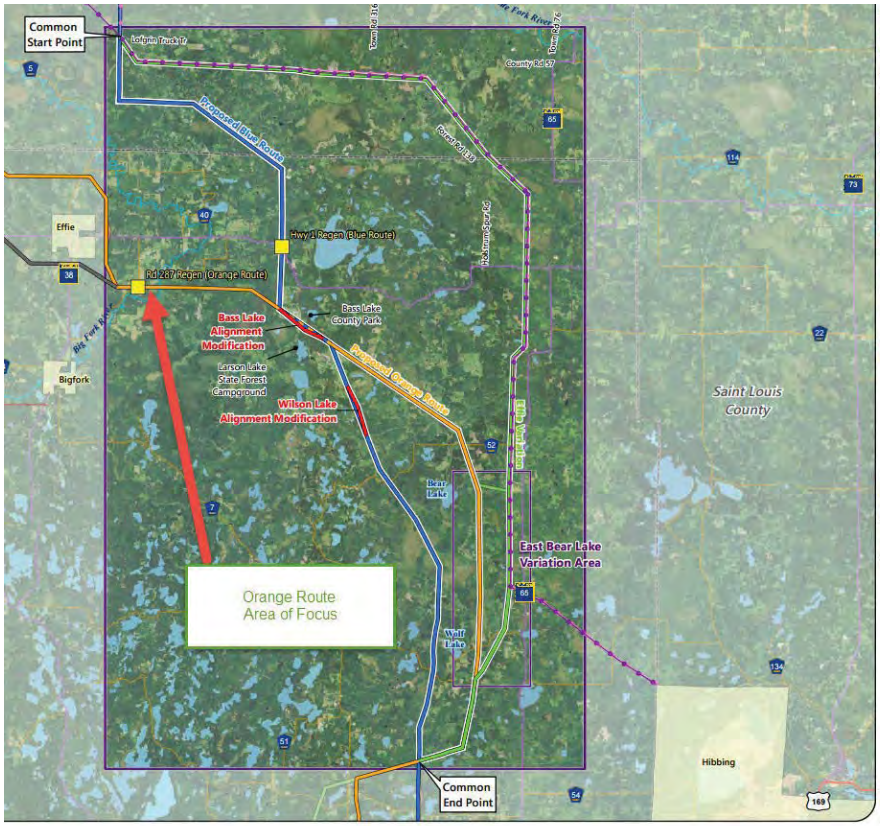
William Cole Storm, Environmental Review Manager
Energy Environmental Review and Analysis
85 7th Place East, Suite 500
Saint Paul, Minnesota 55101
bill.storm@state.mn.us

From:
Chris Viere
6765 Black Duck Drive
Lino Lakes, MN 55014
Chris.Viere@gmal.com
651-253-6507

Regarding: Great Northern Transmission Line Project Draft Environmental Impact Statement (DEIS).

Comment on Effie Variation

The Effie Variation, using an existing corridor, would protect a legacy of cultural and environmental resources by preventing an entirely new utility corridor through a wilderness area which has received significant state, county and environmental organization's resource investment to protect. The comments provided here are intended to add depth to the impacts of constructing a new utility corridor through a section of the proposed orange route. This orange route area of focus is shown in the diagram below and was taken from page 71 of the DEIS. In the next section, I will discuss the impacts should a utility corridor be constructed in this section of the proposed orange route through this area of focus. 0174-1



Proposed Routes
- Blue/Orange Route
- Blue Route
- Orange Route
- J2 Segment Option

Alternatives
- Effie Variation
- Alignment Modification

Existing Transmission Lines
- 69 or 115 kV
- 230 kV
- 500 kV

Streets and Highways
- US Highway
- State Trunk Highway
- County State Aid Highway
- Local Road
- Variation Area
- Municipal Boundary
- County Boundary

Note:
Anticipated alignments are shown offset for display purposes only. Please refer to more detailed maps for precise alignment placement.

The Applicant will be issued a Route Permit with a specific route width. The proposed route widths are shown in Appendix S.

Miles
3.8 0 3.8

Map 4-15

EFFIE VARIATION AREA
Great Northern Transmission Line
Draft Environmental Impact Statement

71

0174-2
The MnDNR provided updated shapefiles that identify conservation easement land in the Project area - including this property. This informaiton is updated on Maps 5-16, 5-23, 6-29, 6-49, 6-54, and 6-64 in the EIS.

Orange Route Impacts
The diagram below will be used to illustrate impacts should the proposed orange route be used.

1. **Cultural Impact**: The residents of the Effie and Bigfork area and beyond are familiar the legacy of the Knight family who originally homestead on the proposed Orange Route and this is a proud part of their scenic and historic wilderness heritage. The book We Homesteaded by James Knight describes this history along with the history of Chief Busticoggan (Bois Forte Band of Chippewa) who lived nearby and whom was a friend of the Knights. The diagram below shows 1. The Original Knight Homestead and 2. The James Knight homestead. Both homesteads are still owned by the Knight family and a rustic log cabin still sits on the original Knight homestead. The proposed orange route would pass through the historical Knight area and would diminish this regional cultural heritage.

   Additional Information see: Knight, J. (1975). We Homesteaded: A First-Hand Account of Pioneer Life in Minnesota's Bigfork River Country. Grand Rapids: Rapids Publishing.

2. **Environmental Impact**: As the proposed Orange route crosses the Bigfork River on the James Knight homestead, it enters a larger forested area that remains mostly intact as result of one of the largest and most successful land conservation efforts in the country. Prior to this utility corridor, the threat to this forest was a mass self-off of Timber Company owned property. Fortunately state, county, and conservation groups worked to together to create a remarkable success story that protected what remains in this forest. For example on the diagram below, Reference point 3 shows a large parcel purchased by the Nature Conservancy in approximately 2007 from Forest Capital Partners. The Nature Conservancy then held the property until Itasca County could fund the purchase of this property. The Nature Conservancy's move protected this forest segment which would have otherwise been sold to private interests and likely divided. The larger surrounding contiguous forest (item 4 on the diagram) was the recipient in 2010 of $36M in public investment to prevent fragmentation of 187,876 acres and curtailed the impact of this sell-off. This remains one of the largest investments from the Clean Water Land and Legacy Amendment. The proposed Orange route would contradict this significant investment by fragmenting this forest and opening up a utility corridor.

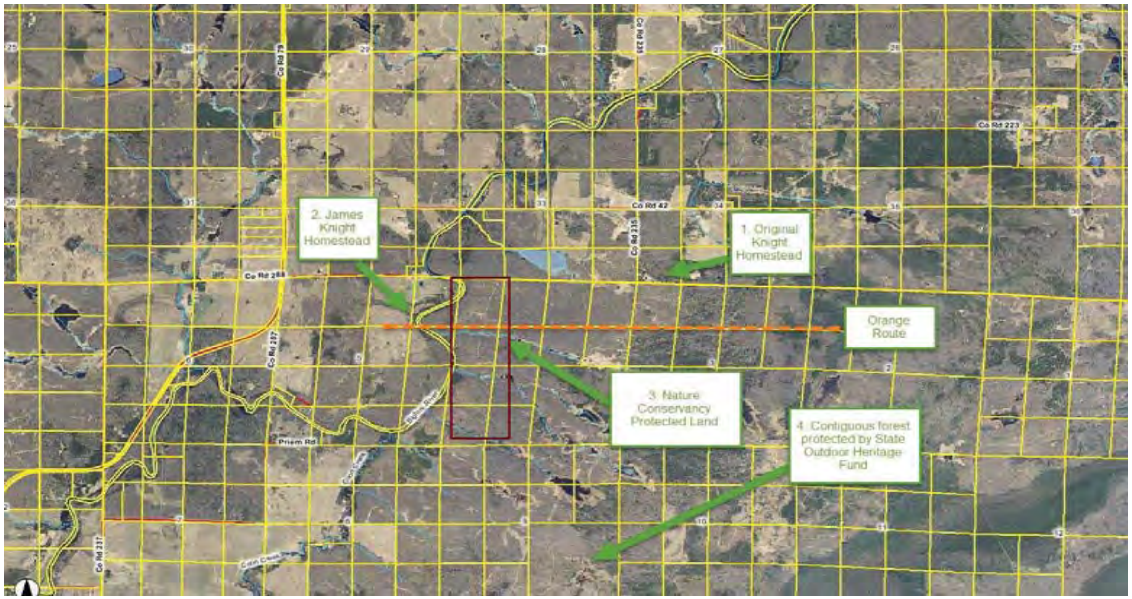
   Additional information: http://www.legacy.leg.mn/projects/mn-forests-future-upper-mississippi-project.

0174-2

0174-3

0174-3
A draft Programmatic Agreement (PA) is developed for the proposed Project in accordance with Section 106 of the National Historic Preservation Act (36 CFR 800.4(b)(2). The draft PA developed for the proposed Project is included in Appendix V of the EIS. The PA will:

Allow for the adjustment of the APE to ensure that direct and indirect effects on the National Register of Historic Places (NRHP)-listed or -eligible cultural resources are properly considered. NRHP-listed or -eligible resources may include, but would not necessarily be limited to, archaeological resources; architectural, built, or aboveground resources; properties of traditional religious and cultural importance to a federally recognized Indian tribe; and/or TCPs. Stipulate the need for additional cultural resources investigations within the APE to identify and evaluate resources for NRHP-eligibility. Such investigations would address the identification of archaeological and architectural, built, or aboveground resources within the APE and evaluate these resources for NRHP-eligibility by qualified consultants. Address the identification and evaluation of TCPs by qualified consultants to identify TCPs, which may include properties of properties of traditional religious and cultural importance to a federally recognized Indian tribe, and evaluate these properties for NRHP-eligibility; Include obtaining background information from written and oral sources on the prehistory and history of the area, such as the accounts of the Knight Family and indigenous Native Americans such as Chief Busticoggan of the Bois Forte Band of Chippewa from such sources as We homesteaded: A first-hand account of pioneer life in Minnesota's Bigfork River country, written by James K. Knight in 1975.


2. James Knight Homestead
1. Original Knight Homestead
Orange Route
3. Nature Conservancy Protected Land
4. Contiguous forest protected by State Outdoor Heritage Fund
Co Rd 42
Co Rd 223
Co Rd 288
Co Rd 237
Co Rd 73
Co Rd 235
Co Rd 237
Priem Rd
Cow Creek

Western Mesabi Mine Planning Board

P.O. Box 166
Bovey, MN 55709

August 6, 2015

Minnesota Department of Commerce
Mr. Bill Storm, Environmental Review Manager
85 7th Place East, Suite 500
St. Paul, Minnesota 55101

Re: Comment on Draft EIS, Great Northern Transmission Line, Docket TL-14-21

Dear Mr. Storm:

The Western Mesabi Mine Planning Board (WMMPB) is a Minnesota joint powers board comprised of most local government units from Keewatin to Cohasset, including Itasca County. Among WMMPB's purposes are formulating a management plan and developing strategies for environmental protection and orderly development of public and private lands; protecting those lands from uncontrolled and unplanned development, pollution or degradation through the preparation and adoption of comprehensive local plans and ordinances; and identifying areas of high future mining potential and preserving these lands for future mining opportunities. The proposed Great Northern Transmission Line is projected to cross the Mesabi Iron Range between Taconite and Marble, Minnesota, an area within the Mesabi corridor which constitutes WMMPB's member focus area.

Upon review of the maps provided with the draft EIS, especially Map 108 which includes the area of primary interest and concern to WMMPB and its objectives, WMMPB feels that the preferred alignment would be the blue-orange route. Major reasons include: 0175-1

1. The blue-orange route closely follows county road 7, which in addition to being a highway is informally already a well established primary utility and infrastructure corridor crossing the Biwabik Iron Formation. The iron formation is of major current and future economic importance to the region and to Minnesota, comprising an estimated 30% of the entire economy of northeastern Minnesota, according to third party studies. Good engineering and public planning, municipal and rural, generally prefers that utilities and infrastructure such as highways/roadways, utility pipelines, electric transmission lines, and other utilities be co-located within corridors so as not to be dispersed over

A Joint Powers Board

Arbo Township
City of Bovey
City of Calumet
City of Cohasset
City of Coleraine
City of Grand Rapids
Greenway Township
Itasca County
City of Keewatin
City of LaPrairie
Lone Pine Township
City of Marble
City of Nashwauk
Trout Lake Township

Officers:
Leo Trunt, Chair
Edward Bolf, Vice Chair
Carter Pettersen, Secretary/Treasurer

Staff:
R.D. Learmont, Coordinator
Deborah Rantala, Recording Secr/Treasurer
e-mail to: dlearmon@2z.net

0175-1
Thank you for your comment. No changes are made to the EIS in response to this comment. Potential issues associated with mining in this region are discussed in Sections 5.5.2, 6.4.1.2, 6.4.2.2, 6.4.3.2, 6.4.4.2, and 6.4.5.2.

large areas, which leads to greater disturbances with potential relatively negative environmental and social impacts;

2. WMMPB suggests not adopting that part of the Balsam Variation as it is shown traversing sections 15, 16 and 17 of T 56 N R 24 W. As shown on map 108 there are indications of substantial iron resources immediately to the south; the three land referred to would be critical ancillary lands needed for future iron ore mining in the area and should not be encumbered by construction of a major and expensive electric power line (Great Northern Transmission) that could more efficiently and less burdensomely be located elsewhere when it is first constructed and would thereby create more efficiencies for the project proponent and its ratepayers and less long term social disturbance and negative economic impact in the area. Map 108 shows numerous drill hole locations immediately south of the Balsam Variation, tending to confirm that substantial iron resources exist in that area, and there are technical reasons to expect that significant iron resources also exist north, west, and east of the mapped drill hole area. These are natural resources that should not be encumbered, hindered, or prevented from development by poor location of the proposed power line when the blue-orange route, a preferred route with less medium and long term negative economic impact, provides a better location along with the other utilities in the same corridor.
3. The blue-orange routing also better fits the Itasca County iron mining overlay zone, a part of the county's long term comprehensive plan and zoning ordinance, the reasons for such overlay zone being established being similar to the reasons provided in points 1 and 2 preceding.

In summary, WMMPB believes that the blue-orange routing would be the preferred routing for crossing of the Mesabi Range by the Great Northern Transmission Line if such line is constructed. It is recommended that the southernmost several miles of the Balsam Variation not be used for this major power line due to encumbrances that would be placed by it upon the iron ore resource and ancillary lands needed for future development of the iron resource and the unnecessary and avoidable related costs and impacts - financial, social, and environmental - that would be created by locating the power line outside of the existing county highway 7 utility corridor as it crosses the iron formation and for several miles both north and south of the known iron formation.

Thank you for providing the opportunity for comment.

Sincerely,

/s/ R. D. Learmont

R. D. Learmont, Coordinator

A Joint Powers Board			Officers:	Staff:
Arbo Township	City of Grand Rapids	Lone Pine Township	Leo Trunt, Chair	R.D. Learmont, Coordinator
City of Bovey	Greenway Township	City of Marble	Edward Bolf, Vice Chair	Deborah Rantala,
City of Calumet	Itasca County	City of Nashwauk	Carter Pettersen,	Recording Secr/Treasurer
City of Cohasset	City of Keewatin	Trout Lake Township	Secretary/Treasurer	e-mail to: dlearmon@2z.net
City of Coleraine	City of LaPrairie			

0175-1 Continued

0175-1 cont'd

Thank you for your comment. No changes are made to the EIS in response to this comment.

From: Rich Libbey
To: Storm, Bill (COMM)
Cc: Kaluzniak, Mike (PUC); Rich Libbey
Subject: Comments on DEIS-PUC Docket # TL-14-21---DOE # EIS-0499
Date: Monday, August 10, 2015 4:23:40 PM

Dear Mr. Storm I would like to submit the Minnesota Tornado History Project for consideration in the Final Draft Environmental Impact Statement for the Great Northern Transmission Line to aid in assessing the potential risk or lack there of to the Effie Alternative corridor sharing .

http://www.tornadohistoryproject.com/tornado/Minnesota

Rich Libbey 18603 Hale Lake Drive,

Grand Rapids Mn. 55744

0177-1

0177-1
Electrical system reliabilty and weather events are discussed in Chapter 5 of the EIS.

No changes are made to the EIS in response to this comment.

From: Rich Libbey
To: Storm, Bill (COMM)
Cc: Kaluzniak, Mike (PUC); Rich Libbey
Subject: Fw: Comments on DEIS-PUC Docket # TL-14-21---DOE # EIS-0499
Date: Monday, August 10, 2015 4:30:46 PM

Dear Mr. Storm

Subject: Comments on DEIS-PUC Docket # TL-14-21---DOE # EIS-0499

Rich--------during my entire career, I knew of three tiny moose clusters (not really populations) that have persisted. One is in the Bear Lake area (just N of Buck Lake), another in the Moose - Willow WMA (S part N of Co. 18), and another in the Moose Wallow WMA SW of Reservoir Lake NE of Outing.

Bill Berg-retired wildlife biologist-MN DNR

Mr. Berg is commenting on known moose clusters in Itasca County. One of which is in the area of the proposed routes in N E Itasca County by the Bear Lake Wasson Lake Bog.

Rich Libbey—18603 Hale Lake Drive, Grand Rapids, MN 55744

Grand Rapids Chapter of the Izaak Walton League

0178-1

0178-1
Thank you for your comment. No changes are made to the EIS in response to this comment.

From: Rich Libbey
To: Storm, Bill (COMM)
Cc: Kaluzniak, Mike (PUC); Rich Libbey
Subject: Comments on DEIS-PUC Docket # TL-14-21---DOE # EIS-0499
Date: Monday, August 10, 2015 4:10:08 PM

Mr. Storm-- Thank you for this opportunity to make some additional comments on the completeness of the Draft EIS-PUC Docket # TL-14-21 and DOE # EIS-0499.

My comments will generally be directed toward the Effie Alternative Route in NE Itasca County and SE Koochiching County.

0179-1 * It would be useful to know the past history of the existing 230KW and 500KW lines that the Effie Alternative would parallel. How often if ever have the lines been out of service for weather related events and were both lines affected simultaneously? If there have been outages were they mechanical failures or weather related? When did these events occur? Where did they occur?

*What are the design options that can mitigate the effects of weather events? Building more robust towers and using non-cascading towers were mentioned. How does tower height and structure spacing affect line integrity?

*What is the historical record of severe storm events in the area that might affect the system reliability?

* http://www.tornadohistoryproject.com/tornado/Minnesota This link to The Minnesota Tornado History Project has a record of all recorded tornados in Minnesota in the past 50 years.

0179-2 *What is the view shed of the proposed Blue and Orange Routes between Bass Lake Park and Larson Lake Camp Ground at various tower heights and spacing?

0179-3 *What is the percentage of cost sharing between Manitoba Hydro and Minnesota Power relative to ownership, line construction and line maintenance. This information was provided in the Certificate of Need but I didn't see it in the Draft EIS. It would be useful in calculating the financial impact for Minnesota Rate payers.

0179-4 *What is the view shed of the lines as they cross the Wolf Lake- Wasson Lake Bog site of high biological diversity and an existing snowmobile trail?

0179-5 *What are the anticipated affects to tourism and the resort business of the three routes as they affect aesthetics and enjoyment of the north woods?

0179-6 *Are there Goshawk Nesting sites along the proposed routes? They are a species of special concern and very sensitive to territorial disturbance and forest fragmentation and power line collisions.

* A small resident population of moose are in the Wolf Lake –Buck lake area. How could this population be affected?

*How will the spread of earthworms and exotics along the route be minimized?

0179-1
Electrical system reliabilty and weather events are discussed in Chapter 5 of the EIS.

No changes are made to the EIS in response to this comment.

0179-2
Viewshed maps for specific areas have not been prepared as part of the EIS. The assessment of visual impacts relies on the idea stated in Section 5.3.1.1 that, "The 1,500 foot ROI for aesthetic resources was identified because the proposed Project is most likely to be visible within this near-foreground distance zone and views of the proposed Project from aesthetic resources within this distance zone have the greatest potential to result in visual impacts for sensitive viewers." Visual simulations, provided in Appendix N, Photo Simulations, of the EIS, were prepared for seven viewpoints within the study area to represent typical views of the proposed project. These simulations are intended to provide reviewers with a sense of what the transmission line would look like from various distances and in various landscape settings within the study area.

Bass Lake Park and Larson Lake Campground are located more than 1,500 feet from the proposed Blue and Orange routes. Although the transmission line may be visible from these locations and surrounding areas, there is less potential for the proposed Project to result in visual impacts for sensitive viewers beyond the near-foreground distance zone.

No changes are made to the EIS in response to this comment.

0179-3
The percentage of cost sharing between Manitoba Hydro and the Applicant and the impact on energy costs is outside of the scope of this EIS. The MN PUC certificate of need process is the appropriate permit mechanism for evaluating and addressing these issues.

No changes are made to the EIS in response to this comment.

0179-4
Comment response 0195-2 discusses visual impacts.

Wolf Lake (at least 3,000 feet) and Wasson Lake (more than 2 miles) are located beyond the near-foreground from the proposed Blue and Orange routes. Although the transmission line may be visible from these locations and surrounding areas, there is less

potential for the proposed Project to result in significant visual impacts for sensitive viewers beyond the near-foreground distance zone. Visual impacts are likely to be significant for snowmobile trails and other visually sensitive resources occurring within the near-foreground distance zone.

No changes are made to the EIS in response to this comment.

0179-5
Recreation and tourism impacts from the proposed Project are discussed in Section 5.2.1.9 of the EIS.

No changes are made to the EIS in response to this comment.

0179-6
Potential impacts to wildlife, including rare species and/or migratory birds are discussed in Chapters 5 and 6 of the EIS.

The invasion of earthworms into forests occurs primarily through dumping of fishing bait. While it is possible construction equipment could transport seeds of invasive plant species, it is unlikely that construction equipment would transport living earthworms along the construction site.

No changes are made to the EIS in response to this comment.

Thank you for this opportunity
to comment, Rich Libbey –18603 Hale Lake Drive—Grand Rapids, Minnesota 55744

Grand Rapids Wes Libbey Chapter of the Izaak Walton League of America

Archived: Tuesday, August 11, 2015 9:30:02 AM
From: Cheryl D. Feigum
Sent: Tuesday, August 11, 2015 9:26:29 AM
To: Wu, Charlene
Cc: Dohoney, Courtney; Jessica L. Butler
Subject: FW: Manitoba Hydro / Minnesota "Not So Great" Transmission Line
Importance: Normal

Cheryl D. Feigum, PhD

Vice President
Senior Environmental Scientist
Minneapolis office: 952.832.2680
cell: 701.412.1301
cfeigum@barr.com
www.barr.com

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From: Smith, Julie A (OE) [mailto:JulieA.Smith@hq.doe.gov]
Sent: Tuesday, August 11, 2015 8:24 AM
To: Cheryl D. Feigum <CFeigum@barr.com>; John N. Wachtler <JWachtler@barr.com>; Mike B. Strong <MStrong@barr.com>; Courtney Dohoney (CDohoney@ene.com) <CDohoney@ene.com>; Belin, Daniel <DBelin@ene.com>; Bill Storm (bill.storm@state.mn.us) <bill.storm@state.mn.us>
Subject: FW: Manitoba Hydro / Minnesota "Not So Great" Transmission Line

Comment in email below. Please add to record. J

From: Ron Berglund [mailto:rhberglund@gmail.com]
Sent: Monday, August 10, 2015 11:33 PM
To: Smith, Julie A (OE) <JulieA.Smith@hq.doe.gov>
Subject: Manitoba Hydro / Minnesota "Not So Great" Transmission Line

Dear Ms. Smith,

As an outdoor recreation enthusiast in Manitoba and North Central Minnesota, I want to voice my opposition to this plan.
The destruction and severe environmental impact on rivers, boreal forests and wetlands is terrible beyond words and the future generations have to endure this impact.

Ron Berglund
41 Magellan Bay
Winnipeg, Manitoba Canada
R3K 0P7

0180-1

0180-1
Thank you for your comment. No changes are made to the EIS in response to this comment.

204 889 2900

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GREAT NORTHERN TRANSMISSION LINE

Connecting Manitoba and Minnesota

Comment on the
Great Northern Transmission Line
Docket Number TL-14-21

Name: JAMES and Patricia SCHAFFRAN
Organization (if any):
Mailing Address: 56196 HORSEHEAD LK RD
City: BIGFORK
State: MN
Zip: 56628
Email: patschaffran@gmail.com

Comment: See attached

0181-1

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0181-1
Thank you for your comment. No changes are made to the EIS in response to this comment.

0181-1 cont'd

0181-1
Continued

Bill Storm

Environmental Review Manager

MN Department of Commerce

85 7th Place East, Suite 500

St. Paul, MN 55101

Re: Great Northern Transmission Line: TL-14-21

August 4, 2015

Dear Bill Storm,

Our names are James and Patricia Schaffran. We are landowners located within the Wilson Lake Alignment Modification. This modification would impact the following residential lakes-Wilson Lake, Blind Pete Lake, Horsehead Lake, Wasson Lake, Scooty Lake, Hartley Lake and Wolf Lake. Besides impacting the residential population in this area, the line would also impact the moose population northwest and north of Horsehead Lake and the wolf population north of Horsehead Lake. This area is critical habitat for these animals, as well as, deer and small game animals.

The route that would have the least impact on residential home owners, the surrounding lakes and wildlife is the Effie variation. The advisory taskforce appointed for this Project has indicated a willingness to minimize the line's impact on residential, lake and wildlife areas. The Wilson Lake Alignment Modification does not satisfy this recommendation.

Please remove the Wilson Lake Alignment Modification from consideration.

Sincerely,

James and Patricia Schaffran

56196 Horsehead Lake Road

Bigfork, MN 56628

From: Yufna Soldier Wolf [mailto:yufnanathpo@gmail.com]
Sent: Thursday, July 09, 2015 1:15 PM
To: Storm, Bill (COMM)
Subject: courteous email

Bill,
I am emailing in regards to this project. Please know I am reviewing
your letter and location's significance to my tribe the Northern Arapaho.
I will follow up with a letter in the next week.

Thanks!

--
Yufna Soldier Wolf
NATHPO-Director
307-840-0837 call or text Cell
307-856-1628 Office call or lv msg

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Minnesota Pollution Control Agency
520 Lafayette Road North | St. Paul, Minnesota 55155-4194 | 651-296-6300
800-657-3864 | 651-282-5332 TTY | www.pca.state.mn.us | Equal Opportunity Employer

August 10, 2015

Ms. Julie Ann Smith, PhD, Federal Document Manager
DOE Office of Electricity Delivery and Energy Reliability
1000 Independence Avenue SW
Washington, DC 20585

Mr. William Cole Storm, Environmental Review Manager
Minnesota Department of Commerce
85 7th Place East, Suite 500
St. Paul, MN 55101

RE: Great Northern Transmission Line Project, Draft Environmental Impact Statement
DOE Number EIS-0499 and MPUC Docket Number TL-14-21

Dear Ms. Smith and Mr. Cole Storm:

Thank you for the opportunity to review and comment on the Draft Environmental Impact Statement (DEIS) for the Great Northern Transmission Line Project (Project). The Project is proposed to be located in Minnesota beginning at the Canadian/United States international border at the Province of Manitoba and Roseau County in Minnesota, extending across the northern portion of Minnesota to the existing Blackberry Substation near Grand Rapids, Minnesota. Regarding matters for which the Minnesota Pollution Control Agency (MPCA) has regulatory responsibility and other interests, the MPCA has the following comments for your consideration.

Construction Stormwater:

The DEIS acknowledges the need to obtain a National Pollutant Discharge Elimination System/State Disposal System (NPDES/SDS) Construction Stormwater Permit prior to beginning construction and outlines the development of a Stormwater Pollution Prevention Plan (SWPPP) to address stormwater erosion and sediment concerns. As with other transmission line projects of this scope, however, there is a potential for disturbing greater than 50 acres of land and triggering an MPCA staff review. The DEIS does not appear to evaluate the potential for meeting this criteria for triggering an MPCA staff review of the SWPPP. There also did not appear to be an evaluation whether the Project was located within one mile of an impaired water or special waters as identified in the NPDES/SDS Construction Stormwater Permit. Information regarding the MPCA's Construction Stormwater Program can be found on the MPCA's website at: http://www.pca.state.mn.us/water/stormwater/stormwater-c.html. Questions regarding Construction Stormwater Permit Requirements should be directed to Scott Fox at 651-757-2368. 0183-1

Wetlands:

In the discussion of needed permits and authorizations, the DEIS discusses the U.S. Army Corps of Engineers Section 404 permit, but does not mention the MPCA's Section 401 Certification Program. The DEIS must also include the Section 401 Certification as a necessary authorization. 0183-2

0183-1
Sections 1.3.3 and 5.3.4.1 of the EIS are updated to include discussion that disturbance of more than 50 acres of land will trigger a MPCA staff review of the project SWPPP.

Several of the proposed routes and alternatives would require crossing impaired waters and special waters (i.e. trout streams, SNAs), as discussed in Chapters 5 and 6 of the document.

0183-2
The EIS states that the project will require Section 401 Water Quality Certification from the MPCA in Section 1.3.3. Text about this approval is added to Section 5.3.4.1 of the EIS.

Specific wetland impacts will be quantified upon selection of a project alignment and project design. A mitigation plan for unavoidable wetland impacts is not available at this time. Once DOE and MN PUC issue permits for the Project, a wetland mitigation plan will be developed by the Applicant in coordination with USACE, BWSR, and appropriate local units of government as part of the environmental permitting process.

The DEIS lists the National Wetlands Inventory wetlands located within the West, Central, and East Section right-of-ways. However, it is not clear if the DEIS lists the total number of wetlands or the actual acreage of wetland impact in each Section. The DEIS should more clearly describe the total wetland impacts that are likely to occur from the Project, both temporary and permanent impacts.

Project applicants are required to first avoid and minimize their wetland impacts, and then mitigate for any wetlands that are lost due to the Project. Although mitigation sites and ratios are determined during permitting, it would be helpful if the DEIS provided available information about both how impacts will be avoided during construction and about possible options for mitigation of wetland impacts.

Minnesota Duty to Report:
Minnesota Statue 115.061 states: "(a) Except as provided in paragraph (b), it is the duty of every person to notify the agency immediately of the discharge, accidental or otherwise, of any substance or material under its control which, if not recovered, may cause pollution of waters of the state, and the responsible person shall recover as rapidly and as thoroughly as possible such substance or material and take immediately such other action as may be reasonably possible to minimize or abate pollution of waters of the state caused thereby. (b) Notification is not required under paragraph (a) for a discharge of five gallons or less of petroleum, as defined in section 115C.02, subdivision 10. This paragraph does not affect the other requirements of paragraph (a)."

The Project Proposer is required to notify the Minnesota Duty Officer in the event of a release to the environment of hazardous substances or more than five gallons of petroleum, and it is the Project Proposer's responsibility to handle solid wastes and contaminated soil and groundwater that may be encountered in accordance with the SWPPP as appropriate, or with a MPCA approved Remedial Action Plan. Once the final route is chosen, MPCA recommends that the Proposer conduct a Phase I Environmental Site Assessment to determine to an extent ahead of time, what kinds of potential contamination issues may be encountered during construction of the Project.

Again, the MPCA appreciates the opportunity to review this project. Please be aware that this letter does not constitute approval by the MPCA of any or all elements of the Project for the purpose of pending or future permit action(s) by the MPCA. Ultimately, it is the responsibility of the Project proposer to secure any required permits and to comply with any requisite permit conditions. If you have any questions concerning MPCA's review of this DEIS, please contact me at 651-757-2465 or by email at Patrice.jensen@state.mn.us.

Sincerely,

Patrice Jensen
Planner Principal
Environmental Review Unit
Resource Management and Assistance Division

PJ:pj
cc: Dan Card, MPCA
William Wilde, MPCA
Scott Fox, MPCA

0183-2 cont'd

0183-3

0183-2 Continued

Section 5.2.2.7 of the EIS describes the immediate actions that the Applicant will implement in the event contamination is identified unexpectedly during construction activities. The Applicant will immediately report the presence of contamination to the property owner so the owner can make an evaluation as to whether the contamination must be reported to the Minnesota Duty Officer per Minnesota Statute, section 115.061.

In addition, the Applicant would develop and implement a SPCC Plan and a SWPPP in compliance with state and federal regulations. The spill and contaminated soils would be collected, treated, and disposed of in accordance with all applicable federal, state, and local requirements.

0183-3

Section 5.2.2.7 identifies the presence of one contaminated site within the proposed routes and variations. To fully address the potential contamination issues that may be encountered during construction of the proposed Project, Section 5.2.2.7 of the EIS will include MPCA's recommendation to conduct a Phase I Environmental Site Assessment once the final route is chosen.

No changes are made to the EIS in response to this comment.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

AUG 10 2015

REPLY TO THE ATTENTION OF

E-19J

Julie Ann Smith, Ph.D.
Office of Electricity Delivery and Energy (OE-20)
U.S. Department of Energy
1000 Independence Avenue SW
Washington, DC 20585

Re: Great Northern Transmission Line Project, U.S. – Canada Border, Northern Minnesota, Draft Environmental Impact Statement (DEIS).
CEQ No.: 20150178

Dear Dr. Smith:

The United States Environmental Protection Agency (EPA), Region 5 reviewed the Draft Environmental Impact Statement (DEIS) prepared by the U.S. Department of Energy (DOE) and Minnesota Department of Commerce – Energy Environmental Review and Analysis (DOC-EERA) for the Great Northern Transmission Line Project (GNTL), pursuant to Section 309 of the Clean Air Act (CAA), Section 102(2)(C) of the National Environmental Policy Act (NEPA), and Council on Environmental Quality regulations (40 CFR Parts 1500-1508). This letter provides our comments.

Minnesota Power (Project Proponent, Applicant), an operating division of ALLETE, Inc., is seeking: 1) a Presidential permit from DOE to construct, operate, maintain and connect a new high voltage electric transmission line across the U.S.-Canada (Manitoba) border in northern Minnesota, and 2) a Route Permit under the Minnesota Power Plant Siting Act from the Minnesota Public Utility Commission. The joint Federal/State DEIS was prepared to avoid duplication in environmental review procedures.

GNTL is proposed as an approximately 220-mile long, 500-kilovolt (kV) overhead, single-circuit, alternating current (AC) electric transmission system in Minnesota, from the Canadian Province of Manitoba to the existing Blackberry Substation near Grand Rapids, Itasca County, Minnesota. The GNTL proposal also includes expansion of the existing Blackberry Substation to accommodate the required 500-kV interconnection and construction of a new 500-kV series compensation station, regeneration stations, permanent access roads, temporary access roads, laydown areas, and fly-in sites. GNTL would carry electricity generated in Canada by hydroelectric facilities operated by Manitoba Hydro, a Canadian electric utility, and would support the regional electric grid, including transmitting approximately 883 megawatt (MW) of additional power in Minnesota.

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The DEIS presents a range of issues and analysis of potential impacts associated with two alternative transmission line routes (Blue route and Orange route) in Minnesota, their associated potential variations/local route alternatives and modifications, and five potential international border crossing locations. A DOE and Minnesota Power preferred alternative for the international crossing location at latitude 49 00 00.00 N and longitude 95 54 50.49 W is identified, roughly 2.9 miles east of Highway 89 in Roseau County, Minnesota. The DEIS also identifies the Blue Route as Minnesota Power's preferred alternative route.

Base on EPA's review of the project, we rate the DEIS Preferred Alternative as Environmental Concerns -Insufficient Information (EC-2). The EC-2 rating indicates that we have concerns that the document does not contain enough information to fully assess the environmental impacts that should be avoided in order to fully protect the environment. See the enclosed Summary of Rating Definitions for a detailed explanations of EPA's ratings.

EPA concerns regard potential impacts to wetlands, upland forest and associated wildlife habitat, federal and state listed species, cultural resources and identification/disclosure of mitigation measures. Enclosed are our detailed comments. We make recommendations for additional information to include in the Final EIS (FEIS).

EPA requests DOE provide two hard copies and three CDs of the FEIS for our review and comment. If you would like to discuss the content of this letter and enclosure in more detail, please contact Virginia Laszewski of my staff at 312/886-7501 or at laszewski.virginia@epa.gov.

Sincerely,

Kenneth A. Westlake,
Chief, NEPA Implementation
Office of Enforcement and Compliance Assurance

Enclosures (2): EPA's DEIS comments, and Summary of Rating Definitions

Cc (email): Bill Storm, Environmental Review Manager, Minnesota Department of Commerce, bill.storm@state.mn.us
Tamara Cameron, Chief Regulatory, U.S. Army Corps of Engineers–St. Paul District, Tamara.E.Cameron@mvp02.usace.army.mil
Bill Baer, U.S. Army Corps of Engineers, William.A.Baer@usace.army.mil
Andrew Horton, U.S. Fish and Wildlife Service, Twin Cities Field Office, Horton.andrew@usfws.gov

EPA Comments on Great Northern Transmission Line (GNTL) Project
Draft Environmental Impact Statement (DEIS)
[U.S. Department of Energy (DOE/EIS-0499) / Minnesota Department of Commerce (E015/TL-14-21)]
(CEQ No.: 20150178)

Alternatives - Preferred Border Crossing Location and Preferred Alternative Route
The DEIS identifies and assesses impacts associated with 5 potential border crossing alternative locations and variations, and identifies a DOE and Minnesota Power preferred alternative for the international crossing location (Proposed Border Crossing-Blue/Orange Route) at latitude 49 00 00.00 N and longitude 95 54 50.49 W, roughly 2.9 miles east of Highway 89 in Roseau County, Minnesota.

In addition, the DEIS identifies and assesses impacts associated with two major alternative routes (Blue Route and Orange Route), segment options and variations thereof from potential border crossing locations to the Blackberry Substation. The DEIS identifies the Blue Route as Minnesota Power's preferred alternative route. The Blue Route originates at the DOE/Minnesota Power DEIS identified preferred international border crossing location.

The DEIS also identifies and discusses proposed locations and potential impacts associated with the compensation station, regeneration stations and expansion area for the Blackberry Substation. However, the DEIS has minimal to no specific information regarding the proposed locations, and type and estimated amount of resources impacted by the proposed permanent access roads, temporary access roads, laydown areas, stringing areas, and fly-in sites.

More than half the length of the GNTL Blue Route utilizes new terrain that is largely wetlands and forest land in a substantially rural area with limited roads. For the Blue Route, the data tables in DEIS *Appendix E* identify 1,976 acres of forested wetland and 2,265 acres of upland forest within the 200-foot ROW. To establish and maintain this ROW, trees in the ROW will need to be cut and prevented from growing in perpetuity. Due to the remote nature of the ROW, there may be additional impacts that have not yet been accounted for in the DEIS.

> Recommendations: EPA recommends the FEIS identify Minnesota Power's proposed locations for permanent and temporary access roads, laydown areas, stringing areas and fly-in sites. We recommend these facility locations along with potential pole locations be identified on all FEIS resources maps/figures depicting the preferred alternative route. In addition, the FEIS should identify the amount and type of each resource impacted by these facilities for each proposed facility location and disclose this information in an FEIS Preferred Alternative Impacts Summary Table. (See additional EPA comments and recommendations later in this enclosure regarding wetland impacts under the headings "Wetlands and Clean Water Act Section 404," and for *Appendices E, F and G* under the heading "*Appendices*.")

0184-1

0184-1
As discussed in Section 2.9.7 of the EIS, once a route is selected, the Applicant will identify the locations for all permanent and temporary access roads, laydown areas, stringing areas, fly-in sites, and structure locations. They will work with the appropriate federal and state agencies to develop survey plans, conduct fieldwork, and determine the wetland and other resource impacts for the project in order to complete federal and state permitting processes. Until a route is selected, the exact locations of these project components cannot be known.

No changes are made to the EIS in response to this comment.

Wetlands and Clean Water Act Section 404

The DEIS identifies avoidance and minimization efforts made, to date, for locating the Blackberry Substation expansion, new compensation station and regeneration sites. However, there is minimal to no information in the DEIS to substantiate that pole placement and other associated GNLT facilities (i.e., permanent and temporary access roads, laydown areas, stringing areas and fly-in sites) would have minimal to no direct wetland impacts.

> Recommendations: The FEIS should specifically identify how many acres of wetland will be directly affected by the discharge of fill material, as well as how many acres will be converted from one wetland type to another. The FEIS should also include specifically what the project proponent proposes as compensatory mitigation to offset wetland losses. We recommend the FEIS include a Wetland Mitigation Plan.

2.0 Proposed Project

2.11 Construction Procedures *(page 34) "The Applicant has indicated that they would retain an environmental inspector during project construction, responsible for understanding all of the conditions of the proposed Project's environmental permits and ensuring that contractors abide by these conditions. These Applicant proposed measures are potential MN PUC Route Permit conditions."*

> Recommendations: We recommend that a third party independent inspector, such as the Minnesota Department of Natural Resources (MnDNR), be utilized as recommended by MnDNR in their August 15, 2014 letter (page 8 of 26), Third Party Independent Monitors, that was addressed to DOC regarding the GNTL Route Permit application. We recommend the FEIS disclose whether or not MnDNR or some other third party independent environmental inspector will be used for GNTL construction.

5.0 Affected Environment and Potential Impacts

Air Quality

Page 106, *Air Quality in the ROI* - The DEIS correctly identifies that all counties in the region of influence (ROI) are in attainment or unclassifiable (to be considered in attainment) for all National Ambient Air Quality Standards (EPA 2015). Therefore, DOE's proposed action is exempt from applicability of the General Conformity Rule requirements of the Clean Air Act.

Construction Impacts

Page 110 - *The Criteria Pollutants* section indicates that the total emissions of criteria pollutants from construction of the proposed Project cannot currently be quantified.

> Recommendation: We recommend the FEIS include an estimate of the total emissions of criteria pollutants from construction of the proposed Project.

Page 109 – *General Impacts* section identifies best management practices (BMPs) which could be included as MN PUC Route Permit conditions, such as: minimizing idling of construction vehicles; utilizing existing power sources or clean fuel generators rather than diesel-powered

0184-2

0184-2 The EIS states that the project will require Section 401 Water Quality Certification from the MPCA in Section 1.3.3. Text about this approval is added to Section 5.3.4.1 of the EIS.

At this time, specific quantities of wetland impact for all alternatives cannot be calculated as there is no associated detailed project design. As such, a mitigation plan for unavoidable wetland impacts is not currently available. Once a project alignment is selected and DOE and MN PUC issue permits for the Project, detailed project design will begin. Wetland impacts will be quantified and an associated mitigation plan will be developed by the Applicant in coordination with USACE, BWSR, and appropriate local units of government as part of the environmental permitting process.

0184-3

0184-3 The Applicant will work with appropriate state and federal agencies to comply with requirements in their permits, including using an environmental inspector. The Applicant will select an environmental inspector after the Route Permit has been issued.

No changes are made to the EIS in response to this comment.

0184-4

Criteria Pollutant and CO2 emissions from construction of the project are estimated and are provided in Section 5.2.1.3 of the EIS.

0184-5

0184-4 Employment of additional emission reduction strategies during construction of the proposed Project will be dependent on the Applicant to implement as the proposed Project is not expected to result in long-term adverse criteria pollutant or climate change and GHG emissions which would allow for regulatory agency enforcement of emission reduction strategies.

0184-5 No changes are made to the EIS in response to this comment.

generators, ensuring that construction equipment is properly tuned and maintained prior to and during on-site operation; and developing a project-specific dust control plan. Page 110 – *The Criteria Pollutants* section refers the reader to Table 2-2 for the project proponent's proposed mitigation measures to reduce construction emissions. However, Table 2-2 (pages 41- 42) identifies only one proposed measure to address air quality during construction: *"Regular, frequent cleaning of construction equipment and vehicles on the ROW."*

Recommendation: We recommend Minnesota Power pursue opportunities to use clean diesel equipment, vehicles, fuels and other emission reduction strategies during project construction. The FEIS should identify additional air quality measures that Minnesota Power proposes to utilize and/or MN PUC intends to include as conditions in the MN PUC Route Permit.

Page 111- *The Climate Change and GHG Emissions* section discusses the 12.01 million metric tons of CO_2 equivalent representing the loss of carbon sink for the Proposed Orange Route.

Recommendation: Please site a reference for this calculation and clarify if the timeframe is for one or four years.

Operation, Maintenance, and Emergency Repair Impacts

Page 111-The *Criteria Pollutants* section states, *"These potential operational emissions are expected to be small and would result in limited impacts to air quality and would not affect the attainment status in the regions"*.

Recommendation: The document should provide an estimated range of emissions.

Forests and Wildlife Habitat, Forest Fragmentation and Invasive/Noxious Species

Wetland and upland forests play an important role in protecting water quality in the immediate watershed, providing wildlife habitat, and acting as a carbon sink. The proposed Blue Route would require the removal of approximately 4,829 acres of forest in the 200-foot ROW (*Air Quality in the ROI, Construction Impacts, Climate Change and GHG Emissions, page 110*), fragmenting existing forestland and providing an opportunity for the introduction and spread of invasive/noxious species. In addition, there may likely be additional wetland and upland forest lost due to construction of GNTL-associated facilities that have not been adequately identified and accounted for in the DEIS.

Recommendations: For forest impacts that do not require compensation under existing federal and/or state regulations, we recommend the project proponent undertake voluntary forest compensation for permanent and temporary tree losses due to construction and operation of the preferred alternative. Mitigation might include, but not be limited to, helping to finance forest restoration projects by local, state and/or federal natural resource agencies.

0184-5 cont'd

0184-5 Continued

Employment of additional emission reduction strategies during construction of the proposed Project will be dependent on the Applicant to implement as the proposed Project is not expected to result in long-term adverse criteria pollutant or climate change and GHG emissions.

No changes are made to the EIS in response to this comment.

0184-6

0184-6

As described earlier in the section regarding Construction Impacts on Climate Change and GHG Emissions, the estimates of carbon sink losses are calculated using the following reference:

Methods for Calculating Forest Ecosystem and Harvested Carbon with Standard Estimates for Forest Types of the United States. United States Department of Agriculture, Forest Service, Northeastern Research Station. General Technical Report NE-343. Smith, James E., Linda S. Heath, Kenneth E. Skog, and Richard A. Birdsey. 2006.

0184-7

0184-7

The EIS text in Section 5.2.1.3 regarding Construction Impacts on Climate Change and GHG Emissions is revised to state that the total loss of sink for the four years of construction is attributed to the final year of the proposed Project.

0184-7

Criteria pollutant and CO2 emissions from construction of the proposed Project are estimated and provided in Section 5.2.1.3 of the EIS. Since maintenance emissions would be considerably less than construction related emissions, there would be no expected impact to air quality from on-going maintenance activities.

0184-8

0184-8

The concerns of this comment relate to voluntary recommendations the applicant can take, which is outside of DOE's scope of authority. At the federal level, mitigation discussions related to forest resources will fall under USFWS's authority pursuant to the MBTA.

No changes are made to the EIS in response to this comment.

EPA also recommends the project proponent prepare, in coordination with MnDNR and the U.S. Fish and Wildlife Service (USFWS), a vegetation management plan to address control of invasive/noxious species plant intrusions. The plan should list the noxious weeds and exotic plants that occur in the resource area. In cases where noxious weeds are a threat, the plan should detail a strategy for prevention, early detection of invasion, and control procedures for each species. We recommend the vegetation management plan be included in the FEIS. (This recommendation is reiterated later in this enclosure for *Appendix B*, under the heading "Appendices.")

Cultural Resources/Tribal Interests and National Historic Preservation Act, Section 106

7.3.4 Archaeology and Historic Resources *(page 666) "As discussed in Section 5.3.3.2, transmission line construction can result in damage, destruction, or alteration of historic buildings and buried archaeological resources. A Programmatic Agreement (PA) is under development by Department of Energy (DOE), Tribes, Minnesota State Historical and Preservation Office (SHPO), Advisory Council on Historic Preservation (ACHP), the Applicant, and other consulting parties to avoid and minimize impacts to cultural resources."*

5.3.3.3 General Impacts to Cultural Resources *(page 175) "The PA that DOE intends to execute for the proposed Project will include stipulated measures to address the potential operation, maintenance, and emergency repair impacts on cultural resources and historic properties. Stipulations would be developed to identify cultural resources and historic properties, determine the effects of the proposed Project on historic properties, and determine measures that would be implemented to avoid, minimize, and mitigate adverse effects on historic properties."*

Recommendation: We recommend that the signed/dated PA be included in the FEIS, if feasible. If not feasible, we recommend a draft of the PA be included in the FEIS and the final PA included as part of DOE's Record of Decision (ROD) for GNTL. (See our recommendation for *Appendix P* later in this enclosure under "*Appendices*.")

Listed Species, Candidate Species, and Species of Concern/Rare Species

1.2.4.2 Section 7 of the Endangered Species Act *(page 6) "The USFWS oversees compliance with the ESA (16U.SC. Section 1536), which requires that federal agencies 'insure that any action authorized, funded, or carried out by such agency is not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of critical habitat of such species.' DOE, as the lead federal agency for the proposed Project, prepared a Biological Assessment in accordance with the ESA to analyze potential Project related impacts on federally-listed threatened and endangered species, candidate species, and species proposed for listing, and their designated critical habitats. Consultation under Section 7 of ESA is on-going. USFWS will issue a Biological Opinion and Incidental Taking Permit statement if necessary."*

0184-9

0184-9
Chapter 6 of the EIS identifies that the MN PUC Route Permit could also require the development of a Vegetation Management Plan as a permit condition, which could include plant surveys along the permitted ROW, incorporate vegetation clearing, and management of invasive species. The MN PUC typically requires the Applicant to prepare a plan in coordination with the MnDNR as a condition of the Route Permit.

No changes are made to the EIS in response to this comment.

0184-10

0184-10
A draft Section 106 Programmatic Agreement (PA) is included in Appendix V of the EIS. DOE is conducting its NEPA analysis in coordination with its Section 106 consultation requirements of the NHPA. Once a final PA for the proposed Project is executed, it will be posted on DOE's EIS website (http://www.greatnortherneis.org). The executed PA will be incorporated by reference into DOE's REcord of Decision for the proposed Project.

Recommendation: We recommend the FEIS update the status of DOE's Section 7 consultation with USFWS since the DEIS. Include DOE / USFWS communication/correspondence in FEIS Appendix Q.

5.3.5.2 General Impacts *(page 192) – "The proposed Project may affect, but is not likely to adversely affect these federally-listed species or designated critical habitat; the draft Biological Assessment (Appendix R) provides discussion on potential impacts of the proposed Project on Federally-listed species and designated critical habitat."*

DEIS *Appendix R* does not contain a draft Biological Opinion. (See additional EPA comments regarding DEIS *Appendix R* later in this enclosure under the heading "Appendices.")

Recommendation: We recommend the final Biological Assessment (BA) and the USFWS Biological Opinion (BO) be included in the FEIS. (This recommendation is reiterated later in this enclosure for *Appendix R* under the heading "Appendices.")

6.2.1.4 Natural Environment, Wildlife *(page 262) – "The Applicant's proposed measures to avoid, minimize, or mitigate impacts on wildlife resources are summarized in Section 2.13 and in the Applicant's Route Permit Application. These measures, are primarily focused on birds (Minnesota Power 2014, reference (1)). Additional measures should include development of an Avian Protection Plan (APP), which would include an avian impact risk mitigation strategy, as suggested by the MnDNR (MnDNR 2014, reference (110)). The MN PUC Route Permit could require that an APP be developed and implemented as a permit condition. The Applicant should also work with the USFWS and MnDNR to include broader measures to avoid, minimize, or mitigate potential impacts to all wildlife species and associated habitats."*

Recommendation: We recommend the FEIS include Minnesota Power's GNTL Avian Protection Plan (APP). (Also see EPA recommendation for *Appendix B*, later in this enclosure under the heading "*Appendices*.")

8.0 List of Preparers
8.1 Federal and State Agencies
Page 673 - *Table 8-1 List of Preparers – Federal and State Organization.* The *title of* Table 8-1 and presentation of the information in this table implies that the Federal cooperating agencies along with DOE and DOC-EERA prepared the DOE/DOC-ERRA DEIS.

Recommendation: To accurately reflect the roles of DOE and DOC-ERRA as lead federal and state agencies, respectively; and, EPA as a cooperating federal agency in DOE's EIS process, we recommend that Table 8-1 be re-titled: *"Table 8-1 List of the Lead Federal and State Agencies, and Federal Cooperating Agencies.*

0184-11

0184-12

0184-13

0184-14

0184-11
The Biological Assessment in Appendix R provides an update of DOE's Section 7 of the ESA consultation with USFWS. Section 1.1.4.2 of the EIS is updated with a sentence indicating that a BA is included in the Appendices of the EIS, as well as a statement of the status of DOE's Section 7 consultations for the proposed Project.

0184-12
The Biological Assessment is included in Appendix R of the EIS.

0184-13
Thank you for your comment. As discussed in Section 6.2.1.4 of the EIS, an Avian Protection Plan (APP) may be a special condition of the Route Permit and would be developed in coordination with USFWS and MnDNR, as required. No changes are made to the EIS in response to this comment.

0184-14
The title of Table 8-1 is updated in the Final EIS.

Appendices
Appendix A
Tribal Consultations

Recommendation: We recommend the FEIS include additional correspondence/communications between DOE and the tribes since the DEIS.

0184-15

0184-15
As recommended, the Appendix A, Tribal Consultation, the EIS includes any additional documentation of conversations between DOE and the tribes that occurred after publication of the Draft EIS.

Appendix B
Route Permit Generic Template and Example – The generic Route Permit *Section 4.10 Special Conditions* states: "*The Permittee shall provide a report to the Commission as part of the plan and profile submission that describes the actions taken and mitigative measures developed regarding the project and the following special conditions.*
[*Describe any special conditions*]
Examples of special conditions included in permits:

- *Avian Mitigation Plan*
- *Environmental Control Plan*
- *Agriculture Mitigation Plan*
- *Vegetation Management Plan*
- *Property Restrictions*
- *Minnesota Department of Natural Resources Requirements*
- *Minnesota Pollution Control Requirements*
- *Minnesota State Historical Preservation Office Requirements*
- *Minnesota Department of Transportation Requirements*"

Recommendations: EPA recommends the FEIS include the draft version of MN PUC Route Permit for GNTL, if available. We also recommend the FEIS include, but need not be limited to, an Aviation Mitigation Plan, Vegetation Management Plan, Erosion and Sediment Control Plan, and Stormwater Pollution Prevention Plan (SWPPP), Minnesota Department of Natural Resources Requirements, Minnesota Pollution Control Requirements, and Minnesota State Historical Preservation Office Requirements.

0184-16

0184-16
Once the MN PUC issues the Route Permit, the Applicant will need to work with the appropriate agencies to develop the plans required as permit conditions. An example of a MN PUC Route Permit is provided in Appendix B.

No changes are made to the EIS in response to this comment.

Appendix E - Route Analysis Data Tables, Appendix F – Rare Species Data Tables, and Appendix G – Rare Communities Data Tables. EPA appreciates the inclusion of these data tables in the DEIS.

Recommendations: We recommend these DEIS data tables be updated for the FEIS with any new information identified/developed since the DEIS. In addition, the FEIS should include a **Preferred Alternative Impacts Summary Table** with updated

0184-17

0184-17
Chapters 5 and 6 (Rare and Unique Natural Resources) and Appendix F of the Final EIS are updated with the most current information available (MnDNR NHIS database) to assess presence and potential impacts on rare species.

information since the DEIS. This summary table should provide total amounts of estimated impacts for each resource for the entire 220-mile long GNTL preferred alternative.

Appendix O
Agricultural Impact Mitigation Plan (AIMP) Example

Recommendation: We recommend the specific Agricultural Impact Mitigation Plan for GNTL be included in the FEIS.

Appendix P
Cultural Resources Report

Recommendation: We recommend that the signed/dated Programmatic Agreement (PA) be included in the FEIS, if available. If not available, we recommend a draft of the PA be included in the FEIS and the final PA included as part of DOE's EIS Record of Decision (ROD) for GNTL.

Appendix Q
USFWS and DOE Section 7 Consultation

Recommendation: We recommend the FEIS update the status of the USFWS-DOE Section 7 consultation. DOE / USFWS communication/correspondence should be included in FEIS Appendix Q since the DEIS.

Appendix R
Biological Assessment - The only information included in DEIS Appendix R is following statement: *"The preparation of the draft Biological Assessment (BA) is underway, however it is not available for this EIS. The draft BA is being prepared in order to determine the impacts of the proposed Project on federally-listed species and to facilitate ESA Section 7 consultation."*

Recommendation: The FEIS should include the final Biological Assessment (BA) and the USFWS Biological Opinion (BO) or most recent documentation updating the status of coordination with the USFWS regarding the GNTL proposal.

Appendix S
Detailed Map Books

Recommendation: We recommend the DEIS maps/figures that pertain to the preferred border crossing location and preferred alternative route be updated for the FEIS, to depict Minnesota Power's proposed locations for GNTL permanent and temporary access roads, laydown areas, fly-in sites, stringing areas, and pole locations.

0184-18

0184-18
An Agricultural Impact Mitigation Plan (AIMP) specific to this project is not available at this time. The MN PUC permit conditions will require the Applicant to coordinate with the MnDNR and other applicable agencies to develop an AIMP.

No changes are made to the EIS in response to this comment.

0184-19

0184-19
A draft Section 106 Programmatic Agreement (PA) is included in Appendix V of the EIS. DOE is conducting its NEPA analysis in coordination with its Section 106 consultation requirements of the NHPA. Once a final PA for the proposed Project is executed, it will be made public on DOE's EIS website (http://www.greatnortherneis.org). The executed PA will be incorporated by reference into DOE's Record of Decision for the proposed Project.

0184-20

0184-20
The Biological Assessment in Appendix R provides an update of DOE's Section 7 consultation with USFWS.

0184-21

0184-21
The Biological Assessment is included in Appendix R of the Final EIS.

0184-22

0184-22
As discussed in Section 2.9.7 of the EIS, once a route is selected the Applicant will identify the locations for all permanent and temporary access roads, laydown areas, stringing areas, fly-in sites, and structure locations. They will work with the federal and state agencies to develop survey plans, conduct fieldwork, and determine the wetland and other resource impacts for the project. This information will be needed in order to complete the federal and state permitting processes. Until a route is selected, the exact locations of these project components cannot be known.

No changes are made to the EIS in response to this comment.

SUMMARY OF RATING DEFINITIONS AND FOLLOWUP ACTIONS*

ENVIRONMENTAL IMPACT OF THE ACTION

LO——Lack of Objections

The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

EC—Environmental Concerns

The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impact. EPA would like to work with the lead agency to reduce these impacts.

EO——Environmental Objections

The EPA review has identified significant environmental impacts that must be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

EU——Environmentally Unsatisfactory

The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the CEQ.

ADEQUACY OF THE IMPACT STATEMENT

Category 1——Adequate

EPA believes the draft EIS adequately sets forth the environmental impart(s) of the preferred alternative and those of the alternatives reasonably avail able to the project or action. No further analysis or data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

Category 2—Insufficient Information

The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses, or discussion should be included in the final EIS.

Category 3—Inadequate

EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the NEPA and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

**From EPA Manual 1640 Policy and Procedures for the Review of Federal Actions Impacting the Environment.*

Laura Imax
1418 Como Avenue, St. Paul, MN 55104

Date: August 6, 2015

William Cole Storm

Environmental Review Manager Minnesota Department of Commerce
85 7th Place East, Suite 500
St. Paul, Minnesota, 55101

bill.storm@state.mn.us

PUC Docket TL-14-21 and DOE number EIS-0499

Dear Mr. Storm

I have attached a letter I submitted on the certificate of need for this project that makes an argument that the Environmental Report in that process was inadequate for the reasons stated. I now attach that letter as a comment on this docket. Please simply replace the term "Environmental Report" with "EIS." I maintain that the EIS is inadequate on its face on both the federal and state level for the reasons stated in my earlier letter, comments which were never addressed by the ALJ or the PUC in the certificate of need. Apparently, the ALJ and the PUC are not familiar with basic MERA, MEPA, and NEPA case law that supports my assertion of inadequacy. The scope of route alternatives simply does not cover a range of reasonable alternatives and therefore the EIS is inadequate. I am baffled as to why environmental groups, the Minnesota DNR and the federal EPA wish to move forward allowing this precedent, which will come to haunt them in the future. 0185-1

Sincerely,

Sincerely once again

L

RECEIVED
AUG 10 2015
MAILROOM

0185-1
The alternatives analyzed in the EIS represent what DOE determines to be a reasonable range of alternatives based on comments received during scoping and comment periods. Additional routes presented in these comments have been considered and eliminated from detailed analysis because they do not present a resource issue significant enough to warrant a complete alternative.

No changes are made to the EIS in response to this comment.

Laura Imax

1418 Como Avenue
St. Paul, MN 55103
E-Mail: Limax@gmail

January 19, 2105

The Honorable Ann O'Reilly
OAH
P.O. Box 64620
600 North Robert Street,
St. Paul, MN 55164-0620

RECEIVED
2015 JAN 20 AM 7:39
HEARINGS

RE:

Great Northern Transmission Line Certificate of Need and Route Permit
PUC Docket E-015/CN-12-1163
OAH 65-2500-31196 and E-015/TL-14-21

Dear Judge O'Reilly:

I provided earlier (November 24 or so) comments regarding the *inadequacy* of the environmental report for this project--comments which no one seems to have paid any attention to--based on my review of briefs and proposed findings today. 0185-2

I am an older person, a now rusty environmental activist who grew up in the Roseau area. I write for environmental groups like MCEA that don't seem to be paying any attention, either. The issue you're faced with is simple. Not easy to resolve perhaps, but simple to understand:

This is about **trees and wetlands** versus **farms and homes**.

Therefore, I will try again. You will have to deal with it one-way or the other, and I'm thinking you would be better dealing with it earlier rather than later. The issue will almost certainly come up again later, particularly if the Minnesota DNR (and the Corps of Engineers) wakes up at some point.

Minnesota Power in their route permit shows that they evaluated potential routes from Canada to their substation near Grand Rapids in a large study area (good), but then they chose two routes that both go through wooded, pristine natural areas instead of along roads through the farming areas to the west. *According to their application, they did this primarily because they had more opposition from farmers and people along roads than from the trees and birds.* I'm glad they held a lot of open houses to figure that out. 0185-3

Plus, they state that it would take too long to route through this farming area because the route would create so much more opposition and require dealing with many more different landowners such that they would never meet their contract deadlines. That may be true, but it is largely irrelevant given the legal framework for state decisions summarized below.

As the utility points out, it is true that there are more opportunities to parallel existing transmission lines along their proposed routes that in the farming areas, and their proposed routes are shorter. However, paralleling these existing lines actually reduces impacts very little, since their routes seem to share very little actual right of way with the existing transmission lines, and don't parallel them all that much (30% or so). As a result, their proposed routes require cutting down about 2000 acres of trees and converting these forested wetlands into less valuable wetland. 0185-4

Apparently, the utility is claiming that this public opposition to the routes in the farming area to the west (which are along roads; also a form of right-of-way sharing) is so strong, and the difficulty and time involved would be so great that not only are these routes bad, but so bad they are not feasible—and therefore, these routes do not meet their underlying "purpose and need." Route permit application in Section 4.11.4, page 4-24. Thus, the utility opens this odd route-related "need" issue for you to resolve in findings in the certificate of need then, I assume.

0185-2
Thank you for your comment. No changes are made to the EIS in response to this comment.

0185-3
No alternatives are proposed by the Applicant in Western Minnesota and nor were any proposed during scoping, therefore no western alternatives are included and/or analyzed in the EIS.

No changes are made to the EIS in response to this comment.

0185-4
Thank you for your comment. No changes are made to the EIS in response to this comment.

Although apparently no person put forward a specific enough route in the primarily farming area to the west during route permit scoping, there were plenty of hints. For example, the Minnesota DNR scoping letter on page 7 :"Alternatives Screening" states that Minn. Stat. 116D.04(6) in effect means that neither the PUC nor the DNR can issue a permit that allows these trees to be cleared if there is a feasible and prudent alternative.

The DNR letter specifically quotes Minn. Stat. 116D.04(6) *"No state action significantly affecting the quality of the environment shall be allowed, nor shall any permit for natural resources management or development be granted, where such action or permit has caused or is likely to cause pollution, impairment, or destruction of the air, water, land or other natural resources located within the state, so long as there is a feasible and prudent alternative consistent with the reasonable requirements of the public health, safety, and welfare and the state's paramount concern for the protection of its air, water, land and other natural resources from pollution, impairment, or destruction. Economic considerations alone shall not justify such conduct."*

The EPA says something similar in their comments regarding wetlands and federal law.

There is of course a prudent and feasible alternative shown on the attached map. Claiming that such an alternative route along roads in the primarily farming areas *is not* a "feasible and prudent alternative consistent with reasonable requirements, etc." is preposterous on its face. A quick review of the PUC website reveals that at least four major transmission lines have been permitted through largely farming areas along roadway right-of-way in Minnesota over the last five or so years. The route through the farming areas certainly would meet more public opposition and take more time, but it is certainly and obviously feasible (and I think more prudent) route.

Next, the Minnesota Supreme Court agrees. The old *PEER* case clearly holds that 116D.04 applies to transmission lines, and that farmland is generally compensable. *PEER* says that the point of 116D is to protect natural resources that can't speak for themselves and to protect that shrinking resource. Here, the utility weighed its options and found trees and birds of less value than farmland along roads. I understand its no fun to deal with angry people, but the law is the law (unless that statute is changed, or the Supreme Court changes its mind.) Until then, the State of Minnesota values protection of natural resources more than compensable damage to private landowners including farms, unless there is some very good reason not to do so. Routing a high-voltage transmission line through natural areas to avoid angry farmers is not a good enough reason to do so under the law. Even if a route through the farming areas wasn't proposed yet, without closer examination of the issue and an open, reasoned analysis you will end up with a legally flawed process.

The environmental report for this docket does not, I don't think; even mention this issue or the farmland alternatives rejected by the utility, including the obvious one on the attached map. Therefore, the environmental report is an inadequate document on its face. I am wound up about this not just because of this project but also because of the precedent it would set, and environmental groups who care about natural resources should be concerned, too.

Therefore, I encourage you to make a finding in this docket or the route permit docket that the route shown on the attached map is a reasonable alternative that must be included in the environmental report before for it to be adequate, and a detailed review of this route must be included in the EIS or the ER so this issue can at least be brought to light.

Also, and finally, I would like to request a chance to address the issue in person at the PUC if not addressed in your recommendations.

Sincerely again,

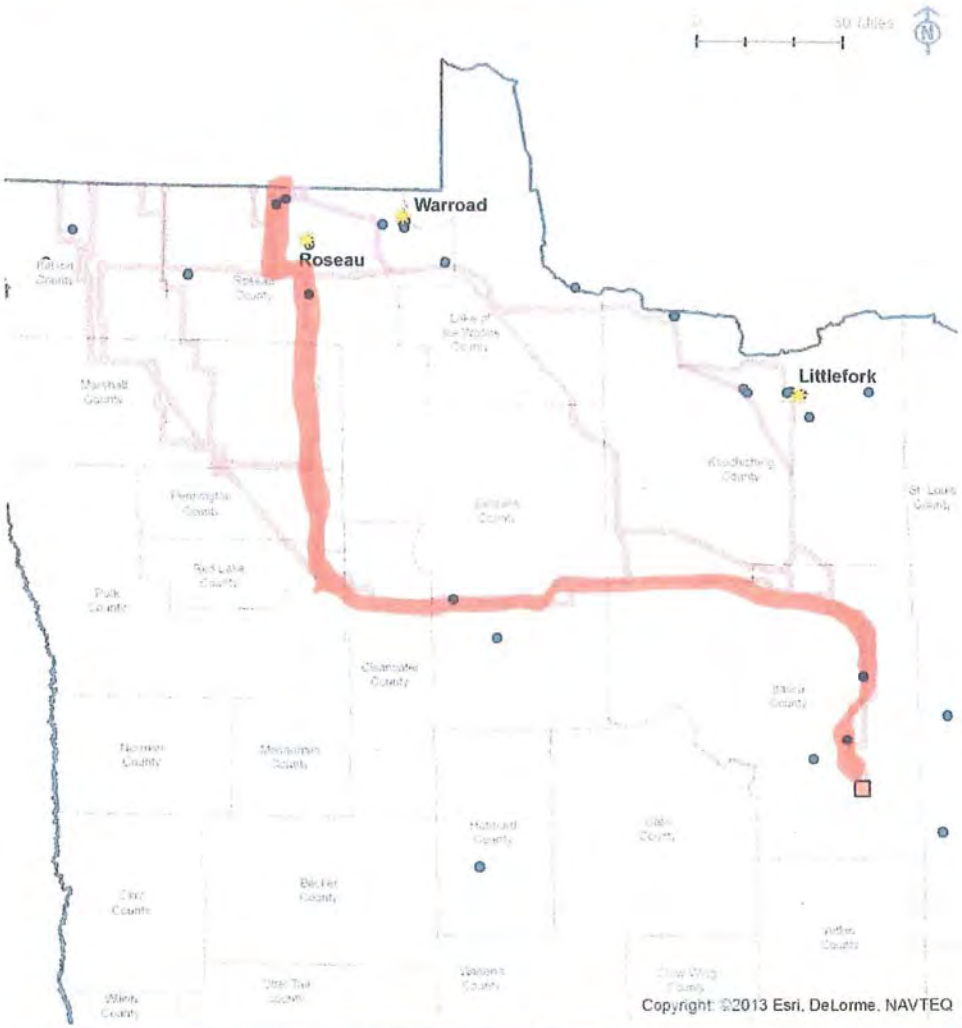
L

0185-5

0185-5
The alternatives analyzed in the EIS represent what DOE determines to be a reasonable range of alternatives based on comments received during scoping and comment periods. Additional routes presented in these comments have been considered and eliminated from detailed analysis because they do not present a resource issue significant enough to warrant a complete alternative.

No changes are made to the EIS in response to this comment.

Additional Route Segments Figure 4-13



Legend

- Open House Location
- Blackberry 500 kV Substation
- Additional Route Segments
- Refined Route Alternative
- Comment Point
- State Boundary
- County Boundary

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August 9, 2015

Dr. Julie Ann Smith Via email: Juliea.Smith@hq.doe.gov
Office of Electricity Delivery and Energy Reliability
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Bill Storm Via email: bill.storm@state.mn.us
Environmental Review Manager
Department of Commerce
85 – 7th Place East, Suite 500
St. Paul, MN 55101-2198

RE: Comment regarding Draft Environmental Impact Statement
Not-so-Great Northern Transmission Line
DOE Docket No. EIS-0499; MN PUC Docket No. TL-14-21

Dear Dr. Smith and Mr. Storm:

Thank you for the opportunity to comment on the DEIS in the above-entitled matter. I am filing these Comments as an individual, and not in the course of representation of any party.

PROCEDURAL MATTERS

- **ROD Schedule:** The DOE Key EIS Schedule dated July 15, 2015, when hearings were held in Littlefork and International Falls, Minnesota, notes that the FEIS is due out in October, yet the ROD schedule is "uncertain."[1] 0186-1
  - Has this changed?
  - When is ROD scheduled?
  - Why is this "uncertain" when Plains & Eastern Clean Line, with FEIS due out a month later than Great Northern Transmission Line, shows ROD in January?

- **NEPA review:** NEPA review is one of the topics taken on by the Council for Environmental Quality. **NEPA** (selected sections more relevant to transmission):

[1] See KeyEISSchedule_July2015.pdf .

0186-1
Anticipated schedules for all DOE Key EISs are publicly available on DOE's Office of NEPA Policy and Compliance website at: http://energy.gov/nepa/office-nepa-policy-and-compliance. The future milestones represent anticipated activity and not commitments. Once a schedule for a ROD is developed for the Great Northern Transmission Line project it will be made available to the public via this website.

No changes are made to the EIS in response to this comment.

- **Steps to Modernize and Reinvigorate NEPA**
  - Guidance for Programmatic NEPA Reviews
  - Guidance for Mitigation and Monitoring
  - NEPA Handbooks
  - NEPA Pilot Program
- Retrospective Regulatory Review Plan

- **Consultant – Lauren Azar, Azar Law, LLC:** Lauren Azar, as "NEPA Advisor, is a primary contractor for this DEIS. DEIS, §8.2 EIS Preparation Team, p. 673, Table 8-2 p. 674. Upon information and belief, Azar executed a conflict of interest statement attesting that they did not have a conflict of interest in this matter. Id. In 1999, Ms. Azar represented utilities, and also American Transmission Company, as it became the first transmission-only company in the Midwest. The focus of her work was to **advocate for the transmission company and transmission projects**. Ms. Azar was appointed to the Wisconsin Public Service Commission in 2007, and approved many transmission projects in Wisconsin. She served until May, 2011, when she resigned to join the Department of Energy, initially as senior adviser to U.S. Energy Secretary Steven Chu. In October, 2011, Ms. Azar was chosen to co-lead the Rapid Response Team for Transmission (RRTT) to oversee transmission projects nationally, establish schedules for permitting, and monitor and promote swift permitting of the projects. Azar is again in private practice. Her career has been one of promotion and permitting transmission and other utility infrastructure projects. In her words:

> I bring to this panel three perspectives: state, federal and the private sector. From 2007 to 2011, I was a Commissioner at the PSC of Wisconsin. While a state commissioner, I chaired both the state and RTO processes for cost-allocation over MISO's MVPs. I also co-founded and was the first President of the Eastern Interconnection States Planning Council (EISPC). Through that endeavor, we represented most of the states and Canadian provinces east of the Rockies in the interconnection-wide transmission planning.
>
> From 2011 to 2013, I was senior advisor to U.S. DOE Secretary Chu focusing on, among other things, transmission infrastructure. While at DOE, I co-led the RRTT and was the DOE's representative to the President's steering committee on streamlining federal permitting.
>
> I have returned to the private sector, which is where I started my 21-year career. I am currently representing utilities, including transmission companies, both incumbent and merchants. Not only am I working on permitting new transmission infrastructure, but I am also assisting utilities in how to address the challenges created by new emerging technologies and low natural gas prices. I am also co-leading a non-profit initiative aimed at required changes in our regulatory frameworks.

Comments of Azar to FERC.[2]

0186-2

0186-2
In accordance with 40 CFR §1506.5(c), a disclosure statement to avoid conflict of interest was executed by Ms. Azar and is available in Appendix T of the EIS. No changes have been made to the EIS in response to this comment.

[2] www.ferc.gov/CalendarFiles/20150327132712-Azar,%2520Azar%2520Law.pdf+&cd=1&hl=en&ct=clnk&gl=us

- EISPC was a DOE funded program to facilitate transmission planning and expansion – the presumption was that transmission infrastructure should be built. See **Transmission Planning for the Future & *More*** L Mansueti (May 18, 2012).[3]

≠ **Azar's promotional focus:** From a March 2015 statement, where she referred to this Great Northern project as a great example of transmission development, presumes a need for "significant infrastructure buildout," and did not disclose her involvement with this Great Northern Transmission Line project:

> For example, DOE is currently preparing a joint EIS with the State of Minnesota and is piloting a pre-application process that is expected to result in dramatically shorter permitting times. DOE and Minnesota are on track to publish the Final EIS for the Great Northern Transmission Line – a 220-mile 500 kV line – within 16 months of the issuance of DOE's Notice of Intent. This pilot project is not only proving that NEPA and infrastructure development can co-exist, it demonstrates that electric transmission can be used as a compliance tool for § 111(d).

Comments of Azar to FERC.[4] Unless Azar is revealing something not publicly declared or disclosed, this GNTL EIS and transmission line have zero relation to use "as a compliance tool for § 111(d).)

≠ **Great Northern Transmission Line and §111(d).** As an aside to the above, based on Azar's comments, the EIS should clearly state if and how this project would or could be directly used as a compliance tool for §111(d), and identify coal plants or other burning technology shuttered as a direct result of this project.

≠ **Azar's Promotional Focus:**

> Fourth, as part of the RRTT, agencies' "front offices" convened weekly conference calls with its project managers for transmission projects, which sent a strong signal to field staff about the need to streamline. FERC "front office" staff could participate in these calls.

Id., p. 5.

≠ **Alternatives considered:** The alternatives considered by the DOE was not sufficiently robust in range or depth.

0186-2 cont'd

0186-2 Continued

0186-3

The EIS analyzes potential impacts to land use and land ownership for each alternative. DOE and DOC-EERA determined that the DEIS covered a range of reasonable alternatives and none of the alternatives presented warranted expanding that range. Non-transmission alternatives were considered but eliminated from detailed analysis because they are outside the scope of the purpose of and need for DOE's federal action, which is to decide whether to issue a Presidential permit. Non-transmission alternatives that are out of scope for this EIS were handled under the state's certificate of need process.

0186-3

[3] www.ncsl.org/documents/Energy/LMansueti052012.pdf+&cd=1&hl=en&ct=clnk&gl=us
[4] www.ferc.gov/CalendarFiles/20150327132712-Azar,%2520Azar%2520Law.pdf+&cd=1&hl=en&ct=clnk&gl=us

- ≠ **No Action Alternative:** The request for action is a Presidential Permit The "No Action Alternative" in this EIS should logically focus on the DOE not taking the action requested, which is, simply, not granting the Presidential Permit request.

- ≠ **No Action Alternative:** The "No Action Alternative" can make no presumptions about whether the project would be built or not, although that could be presented as one option under the "No Action Alternative."

- ≠ **No Action Alternative:** The treatment of the "no action alternative" stated several conclusory reasons why the authors believed the "no action alternative" should be rejected. These conclusory statements require support and explanation.

- ≠ **No Action Alternative:** The "No Action Alternative" analysis consists of just six paragraphs and less than one page of narrative. This is inadequate on its face.

- ≠ **No Action Alternative:** The "No Action Alternative" was rejected based on three conclusory presumptions and a flawed interpretation of Minnesota law.

    - The first reason the "no build alternative" is rejected is that "not constructing the proposed Project would inhibit the Applicant's ability to connect Manitoba Hydro energy to Minnesota Power consumers and force the Applicant to obtain other energy and capacity purchases to meet the region's long term energy needs.

        - There are no citations provided for the assertions in this paragraph.

        - There is no substantiation of the assumption that if the DOE did not take action the project would not go forward, nor is there discussion of the role of the DOE and impact of not taking the action requested.

        - There is no discussion of the nominal nature of the PPA, at 250 MW, nor its relation or comparison to the capacity of the project that explains or supports the statements in this 3rd paragraph on p. 45.

        - The EIS should contain discussion of the 250 MW options available to Minnesota Power and whether this project is a cost effective means of addressing a 250 MW need.

- ≠ The Second reason the "no build alternative" is rejected is a claim that to not build the project "would leave the existing 500 kV transmission tie line from Manitoba to Forbes as the second largest contingency in the entire Midcontinent Independent System Operator (MISO) footprint." So what…

    - There are no citations provided for the assertions in this paragraph.

0186-4

0186-4
The No Action Alternative is discussed in full in Chapter 3 of the EIS. Chapter 3 is revised with "Under the No Action Alternative, DOE would not issue a Presidential permit and the proposed Project would not be built.". The No Action Alternative is consistent with DOE's Purpose and Need for agency action and proposed Federal action. DOE's Federal Action is to determine whether to permit the international border crossing that is a part of the proposed Project. DOE does not assess the entire realm of potential alternatives to a proposed transmission line and international border crossing, rather DOE's responsibility is to consider the alternative(s) put forth by an Applicant for a Presidential permit. DOE does not have a role in reviewing an applicant utility's resource planning process.

0186-4 cont'd

0186-4
Continued

- NERC standards, adopted by FERC, require that the system be reliable in the event of contingencies.
- This is not a reliability project as defined by NERC, FERC, or even MISO.
- This project is not required for system reliability, whether defined as system security or system adequacy.
- "Therefore, not building the proposed Project would result in less-than-optimal transmission reliability" is a false statement. Transmission reliability in the project area is sufficient under NERC standards.
- The statement that "Therefore, not building the proposed Project would result in less-than-optimal transmission reliability" should be deleted.
- This paragraph should be deleted, it is mischaracterizing system reliability.

≠ The third reason given for rejection of the "No Action Alternative" is the most bizarre. It states that to not build the project "would negatively affect future North Dakota wind generation options because there would not be enough transmission capacity, and wind farms would continue to be required to shut down their turbines when the wind energy produced exceeds the transmission capacity."

- There are no citations provided for the assertions in this paragraph. The EIS must provide citations for such a statement.
- For at least a decade, wind generation from Buffalo Ridge has done a "frolic and detour" from Buffalo Ridge north through the Dorsey substation. Attachment, NM SPG presentation 9/28/2005. The EIS must address the presence of wind energy in the area and the impact of this existing wind generation on the GNTL project, and vice versa, the impact of the GNTL project on wind generation outlet.
- Nothing in the electrical system and/or contracts prohibits transmission of fossil generated energy – in fact, FERC rules prohibit discrimination among generation.

The final paragraph on p. 45 misinterprets Minnesota statute regarding "need" and consideration of need in routing permit.

≠ The EIS, p. 45, states that "Under the Minnesota Power Plant Siting Act (PPSA), the determination of need, including size, type, timing and other considerations are statutorily prohibited" and the foot note references Minn. Stat. §216E.02, Subd. 2, which states:

Minn. Stat. 216E.02, Subd. 2. Jurisdiction.

The commission is hereby given the authority to provide for site and route selection for large electric power facilities. The commission shall issue permits for large electric power facilities in a timely fashion and in a manner consistent with the overall determination of need for the project under section 216B.243 or 216B.2425. **Questions of need, including size, type, and timing; alternative system configurations; and voltage must not be included in the scope of environmental review conducted under this chapter.**

Minn. Stat. §216E.02, Subd. 2 (emphasis added).

- The DOE's environmental review is NOT environmental review conducted under this chapter. It is NEPA environmental review, parallel tracks, but something very different from PPSA Environmental Review.

- The state has no jurisdiction to limit the scope of the DOE's NEPA review.

≠ That paragraph goes on to say that "… and "need" is not to be evaluated in the Environmental Impact Statement (EIS)., and the footnote references Minn. Stat. §216E.03, Subd. 5, which states:

Minn. Stat. §216E.03, Subd. 5. Environmental review.

The commissioner of the Department of Commerce shall prepare for the commission an environmental impact statement on each proposed large electric generating plant or high-voltage transmission line for which a complete application has been submitted. **The commissioner shall not consider whether or not the project is needed.** No other state environmental review documents shall be required. The commissioner shall study and evaluate any site or route proposed by an applicant and any other site or route the commission deems necessary that was proposed in a manner consistent with rules concerning the form, content, and timeliness of proposals for alternate sites or routes.

Minn. Stat. §216E.03, Subd. 5 (emphasis added). The DOE's environmental review is NOT consideration by the Commissioner.

- This is a limitation on the commissioner of the Department of Commerce.
- The state has no jurisdiction to limit the scope of the DOE's NEPA review.

≠ In the footnotes accompanying the text of the last paragraph on p. 45 regarding the Power Plant Siting Act, the footnotes should state the text referenced.

≠ In the text in the last paragraph of p. 45, the text should be rewritten to reflect the meaning and limitations conveyed in the statute.

0186-5

0186-5
Thank you for your comment. DOE's decision-making authority, Purpose and Need for agency action, proposed Federal action and Presidential permit program authority are discussed in Section 1.2 of the EIS. The issue of need for the proposed transmission line in the state of Minnesota has been determined by the MN PUC in the associated certificate of need process for the proposed Project (MN PUC e-Docket 12-1163).

No changes are made to the EIS in response to this comment.

≠ NEPA review that does not consider need for the project is insufficient and inadequate under NEPA.

SUBSTANTIVE ISSUES

Below are substantive issues regarding the DEIS in no particular order:

Obvious Errors Easily Corrected

0186-6

≠ The DEIS shows many wells in the Taconite area (and perhaps others). These don't seem to be wells, and perhaps are drilling sites for mineral exploration? This was brought to the attention of Barr Engineering representatives, and should be corrected.

0186-7

≠ Homes, particularly lake cabins, are represented as commercial and/or non-residential structure. In my experience with transmission EIS labeling, this is often wrong, and the EIS should review all "commercial" and "non-residential structure" claims for accuracy.

Need

0186-8

≠ **Need:** Need for the project is raised in Section 2.2.2 Northeast Minnesota and Regional Energy Demand. The EIS should address the need claim of 883 MW compared with the cost and capacity of this project.

≠ **Need:** The EIS should consider whether the benefits of this project, primarily the ability of the Applicant to meet its contractual obligations to purchase power, is sufficient to justify the costs and impacts.

≠ **Need:** The DEIS, p. 19, Section 2.2.2 states that "Both MISO and the Applicant believe that a new 500 kV transmission line – which can carry a total of up to 883 MW of electric power – is needed to meet long-term regional needs, especially as industrial load in Minnesota's Iron Range continues to increase.

- **Multiple** mines on the range have closed since this application was provided. The statements should be removed:
  - "is needed to meet long-term regional needs;" and
  - **"**especially as industrial load in Minnesota's Iron Range continues to increase.**"**
- The FEIS should address historical demand, current demand, and updated projections.
- MISO has not addressed need for the project, and this project was only added to the MTEP report because of a financing agreement.
- MISO is not a regulator and has no regulatory authority in a need determination.

0186-6
The EIS presents several public data sources, such as the County Well Index (CWI) data layer. This data sources contains different categories of wells. Many of the CWI wells present in the Taconite area are classified asexploratory drill holes (mining).

0186-7
A couple of commenters expressed concern about their cabins not being represented as residences in the Draft EIS. The Final EIS is updated to indicate that those cabins are residences and not commercial or non-residential structures.

0186-8
The proposed Project is designed to be able to transmit enough capacity to meet the Applicant's 383 MW requirements as well as an additional 500 MW - up to a total of 883 MW - in order to accommodate the Applicant's agreements with Manitoba Hydro and other projected requirements in the MISO region. The capacity was approved by the MN PUC in the certificate of need process, with the determination provided on June 30, 2015 to the Applicant. The MVA rating is a transmission line capacity estimatethat is used for planning and other purposes but it is not relevant to a Presidential permit or route permit decision.

No changes are made to the EIS in response to this comment.

0186-8 cont'd

0186-8
Continued

- MISO reviewed this project in the Northern Area Study which was to extend over the UP into Michigan, and not terminate at Blackberry. See GNTL Application.

Figure E-2: Northern Area Study Transmission Options

- A statement that this project has anything to do with regional need is false as the line as proposed in the application terminates in Blackberry, Minnesota, and any reference to regional need should be removed.

- The project is listed in MISO MTEP Appendix A as project 3831, and that includes extension to the Arrowhead substation. The EIS should explain this discrepancy between the Application and the MISO Appendix A listed project 3831. Attached MISO Appendix A 3831 line items.

- The 883MW number used repeatedly in the DEIS should not be used as it is a paper number only, representing a 250 MW PPA, a 133 MW transfer of energy agreement that is not electrically related to this line, only to the parties, and 500 MW of planned, but not yet contracted, Manitoba Hydro sales.

- The 883 MW number used repeatedly in the DEIS should be used only with the explanatory words “883MW as requested for authorization by the Presidential Permit” or similar description of the origin and limitations of the Presidential Permit.

- The MTEP Appendix A list this project as a 1732 MVA project, not 883MW, and the FEIS should reflect this 1732 MVA rather than the 883 MW.

- The DEIS states this would help meet long-term reliability needs, but it is not needed – the system as it is must comply with NERC/FERC reliability issues or it

cannot be built – the system as it is IS in compliance with NERC/FERC reliability rules. This is NOT a reliability project.

Bees

≠ **Bees:** On the way to the hearing in International Falls from the Big Bog campground, I saw at least 12 bee colonies alongside the road, plainly visible, most hives of the Wilmer Honey Farm. I'd guess that there were also hives that were not directly adjacent to the roadway. Bees are dying off everywhere. A search of the DEIS does not reveal any instances of "bee" or "bee keeping" or "honey" in the narrative, nor is there any analysis of impacts of transmission on bee populations. Transmission lines have an impact on bees, for example, "[e]xposure of bees in conductive (e.g., wet) tunnels produces bee disturbance, increased mortality, abnormal propolization, and possible impairment of colony growth."[5]

≠ **Impact of electric fields on bees**: Dr. Peter Valberg, paid mouthpiece for utilities, states that electric fields have no impact on bees, yet recommends Faraday cages for bees under transmission lines to avoid adverse effects of electric fields:

> At elevated ELF electric field levels, adverse effects can be avoided by either keeping surfaces dry or by shielding the hives from the ELF electric field with an open-mesh conductive screen, *i.e.*, a screen having a mesh size large enough not to hinder the flight of bees to and from the hive. Moreover, honeybee colonies not located directly underneath a high transmission power-line are not expected to be impacted, because the electric-field strength drops off rapidly as one moves laterally away from the right-of-way (ROW) location directly below the maximum sag point of the conductors.

Summary of Potential Effects of 345-kV Power-Line Electric and Magnetic Fields (EMFs) on Honeybee Hives and Honeybee Behavior, p. 4.[6]

≠ **Impact of magnetic fields on bees:** Dr. Valberg also notes potential impacts on bees of magnetic fields, and again recommends simple faraday cage to minimize impacts:

> The sensitivity of bees to changes in steady magnetic fields appears to be at about a level that is one percent of the earth's field, and honeybees may use a memorized "map" of the geomagnetic field to assist in foraging activities (Walker and Bitterman, 1989; Hsu *et al.*, 2007). The magnetic component of power-line ELF-EMF could potentially exert some torque on tiny ferromagnetic particles contained within honeybees or single-molecule magnetic moments (*e.g.* "free-radical" molecules). Although magnetite particles in living organisms are plausible geomagnetic field sensors (Adair 1994; Kirschvink *et al.* 1992, 2001), functional biogenic ferromagnetic material has been established only in a limited number of organisms (for example, magnetotactic bacteria), although suspected in a variety of species (*e.g.*, honeybees). In these organisms, the magnetic interaction is believed to provide sensory guidance, and is not likely to lead to physiological malfunction or disease.

Summary of Potential Effects of 345-kV Power-Line Electric and Magnetic Fields (EMFs) on Honeybee Hives and Honeybee Behavior, p. 5.

[5] See e.g., Mechanism of biological effects observed in honey bees (Apis mellifera, L.) hived under extra-high-voltage transmission lines: implications derived from bee exposure to simulated intense electric fields and shocks (www.ncbi.nlm.nih.gov/pubmed/3178903).
[6] Online at www.nocapx2020.info/wp-content/uploads/2010/02/attachment5.pdf

0186-8 cont'd

0186-8 Continued

0186-9
Section 5.3.2.1 of the EIS now includes a discussion of potential impact to bees from the proposed Project.

0186-9 As discussed in Section 1.3.1.4 of the EIS, once a route is selected and a permit is issued, the Applicant would contact landowners to gather information about their property and their concerns and discuss how the ROW would best proceed across the property.

≠ **Reduction of Greenhouse Gas Emissions:** Implied that this project would reduce GHG emissions by enabling use of less fossil fuel, but there weren't even any rough numbers to substantiate that. The EIS must provide specifics and citations for these claims.

Cost/Benefit Analysis

≠ **Cost/benefit analysis must be more specific and cite to support in the record:** In light of Michigan v. EPA decided earlier this month, any agency doing analysis that includes benefit claims, and where a cost/benefit analysis is part of the analysis, the cost and benefit claims must be sufficiently specific. These "benefit" claims are not benefits.

Capacity

≠ **Capacity of the project as designed:** This is a 500 kV triple bundled transmission line, the largest configuration in the state. MISO lists the rating of this line as 1732 MVA. See Attached (selected) MISO Appendix A. The range of capacity should be reported.

≠ **Capacity of a triple-bundled 500 kV transmission line**: It is not clear that at 1732 MVA the MISO rating addresses the triple-bundled configuration of the project. The EIS should verify and state the capacity of the line as designed, and identify normal and emergency rating for single, double and triple bundled configurations.

≠ **Capacity of a triple-bundled 500 kV transmission line:** The capacity of a triple-bundled 500 kV transmission line is not accurately represented in this proceeding. For example, in the Susquehanna-Roseland transmission proceeding before the New Jersey Board of Public Utilities (BPU), the project proposed, and permitted, was initially a quad-bundled 500 kV transmission line, later reduced to a triple-bundled transmission line. From the Stop the Lines brief in that docket, the thermal limit of that 500kV line, the amperage and capacity for that line if there were no other limiting factors is 1838 amps per wire, in the quad-bundled configuration, a total of 7,532 amps, and in the tri-bundled configuration, 5,414 amps and 4,795MVA, essentially 4,795 MW. Attachment, Susquehanna-Roseland Transcript (selected), Testimony of Couch, Tr. p. 318; Testimony of King, Tr. p. 1254-1255.

≠ **Quantification of planned use of capacity:** It is unclear what the rating of the line is, which sets the capacity limits of the project. Various numbers appear in the DEIS (see e.g., § S.3 883 MW; § 2.2.2 383 MW + 500 MW = 883 MW; § 2.2.3 250 MW PPA + 133 MW Optimization Agreement"). The EIS should specifically note the normal and emergency rating of the line, the Presidential Permit MWs, and the expected capacity of the line. Impacts, including transmission system impacts, should be reviewed for all these MW levels, EMF calculations be performed for all these levels, and cost/benefit analysis for the various MW levels.

≠ **Capacity of project:** DEIS "capacity" is not consistent with MISO MTEP, which shows a rating of 1732 MVA, far less than potential of a tri-bundled 500 kV line, but far more than the PPA levels or that requested for the Presidential permit.

0186-10

0186-11

0186-12

0186-10
The Applicant's EnergyForward plan (discussed in Section 2.2) is designed to reduce greenhouse gas and criteria pollutant emissions through the reduction in the use of coal and the increase in the use of renewable energy. The Applicant has stated that the proposed Project is part of that plan, for that purpose. The addition of 250 megawatts of capacity from renewable sources will reduce the average emissions per megawatt-hour generated in the region. The exact value by which emissions would be reduced from this 250 MW of renewable energy would depend on many variables, from growth in demand to the addition or closure of other new sources to the implementation of state and federal greenhouse gas emission restrictions. Therefore, it was determined that a qualitative discussion was adequate for this analysis in Section 5.2.1.3.

No changes are made to the EIS in response to this comment.

0186-11
The EIS does not provide a cost/benefit analysis. The estimated jobs and economic benefits, both direct and indirect, are specified in the Socioeconomics discussion (Section 5.2.1.8) under subheadings related to Employment and Taxes and Revenues. Benefits in this context are defined as jobs generated locally and taxes and revenues that would accrue to the local and state jurisdictions during construction and operation. No changes are made to the EIS in response to this comment.

0186-12
DOE and DOC-EERA determined that the DEIS covered a range of reasonable alternatives and none of the alternatives presented warranted expanding that range. Non-transmission alternatives were considered but eliminated from detailed analysis because they are outside the scope of the purpose of and need for DOE's federal action, which is to decide whether to issue a Presidential permit. Non-transmission alternatives that are out of scope for this EIS were handled under the state's certificate of need process.

No changes are made to the EIS in response to this comment.

- ≠ **Capacity of project:** If the DOE is defining the capacity of project as the Presidential Permit level of MW, without respect to the potential capacity of the project as expressed in normal and emergency ratings, the DOE should 1) state the normal and emergency ratings in MVA; and then 2) state expressly that the DOE is defining the capacity of project as the Presidential Permit level of MW and identify that level of MW.

Public Interest

- ≠ **Public Interest:** The EIS should set forth the criteria that serves as the basis for a public interest determination.
- ≠ **Public Interest:** The EIS should address whether a project with a predominantly private purpose of importing and selling power, far beyond the 250 MW PPA, can be in the public interest.
- ≠ **Public Interest:** The EIS should address the scope of Section 1222 and whether it is in the scope of Section 1222 for the DOE to participate in a private interest project.
- ≠ **Public Interest:** The EIS should address the purpose of a Presidential Permit for 883 MW in light of the 250 MW PPA from Manitoba Hydro to Minnesota Power, the 133 MW agreement sending energy in the other direction, and analyze whether building this large transmission line for that small amount of energy is in the public interest.
- ≠ **Public Interest:** The EIS should address whether a project with a predominantly private purpose of importing and selling power, far beyond the 250 MW PPA, can be in the public interest.

Alternatives Analysis

- ≠ **Alternatives:** The only alternatives considered, other than the non-substantive consideration of "no action," were ones that required granting a Presidential Permit. A wider range of alternatives must be considered.
- ≠ **Alternatives:** Any alternative would have to focus on failure to grant a Presidential Permit, to mirror the request for approval of a Presidential Permit.
- ≠ **Alternatives:** Alternatives considered were not sufficient – only the "preferred alternative" of granting of the permit, four alternative border crossings, 22 route segment alternatives, and nine alignment modifications were considered. These are not alternatives to the project, but are a number of different ways to move the project forward. This is inadequate on its face.
- ≠ **Alternatives:** There were no system alternatives considered, such as cogeneration at a large customer location. The EIS should include system alternatives.

0186-12 cont'd

0186-12 Continued

0186-13

Section 1.2.1.1 of the EIS discusses what factors and elements DOE considers in determining consistency with the public interest in accordance with DOE's Presidential permit implementing regulations at 10 CFR Part 205.

Section 1.2 discusses DOE's Presidential permit authority and program. As discussed in the EIS, DOE is responding to an application for a Presidential permit that would allow a transmission line project to cross the international border between the U.S. and Canada. DOE and DOC-EERA determined that the DEIS covered a range of reasonable alternatives and none of the alternatives presented warranted expanding that range. Non-transmission alternatives were considered but eliminated from detailed analysis because they are outside the scope of the purpose of and need for DOE's federal action, which is to decide whether to issue a Presidential permit. Non-transmission alternatives that are out of scope for this EIS were handled under the state's certificate of nNeed process.

No changes are made to the EIS in response to this comment.

0186-14

The Mesaba Project has an existing MN PUC site permit transmission line route permit and pipeline route permit. This project is unrelated to the proposed Project and does not address DOE's purpose and need.

Please refer to Section S.7 which explains that NEPA does not require an analysis of environmental impacts that occur within another sovereign nation that result from actions approved by that sovereign nation. For that reason, potential environmental impacts in Canada are not address in this EIS.

No changes are made to the EIS in response to this comment.

0186-14 cont'd

0186-14
Continued

- **Alternatives:** There were no non-transmission alternatives considered. The EIS should include non-transmission alternatives.

- **Alternatives:** There were no financial or contractual alternatives considered, such as Power Purchase Agreements from other more local sources, distributed generation, or purchasing the power on the open market. The EIS should include financial and contractual alternatives to this financial/contractual project.

- **Alternatives:** The only alternatives were various border crossings, and route segment and alignment alternatives, all transmission alternatives to build and operate the project.

- **Alternatives:** The alternatives should include consideration of a Presidential Permit for the full normal and emergency rating of the transmission line.

- **Alternatives:** The alternatives should include consideration of selling energy and capacity, beyond the PPA 250 MW, up to the full normal and emergency rating of the transmission line on the energy market.

- **Alternatives:** Because the transmission project is designed with greater normal and emergency rating than will be used, the alternatives should consider building a smaller capacity line, including lower voltage, different conductor and transformers, that would limit the capacity of the transmission line to 1) the PPA amount, and 2) the Presidential Permit request amount.

- **Alternatives:** As a reasonable alternative, The EIS should consider amendment of the Mesaba Project siting permit.

- **Alternatives:** The EIS should evaluate use of the Mesaba Project site permit, which would inject up to 600 MW at the Blackberry substation. (this is in no way an endorsement for Mesaba Project or generation under a PPA with Excelsior Energy).

- **Alternatives:** As a reasonable alternative, the EIS should consider use of a PPA for Mesaba Project generation to meet their projected need for power (this is in no way an endorsement for Mesaba Project or generation under a PPA with Excelsior Energy).

- **Alternatives:** As a reasonable alternative, the EIS should consider use of the Mesaba Project site Hoyt Lakes site for a generation site:

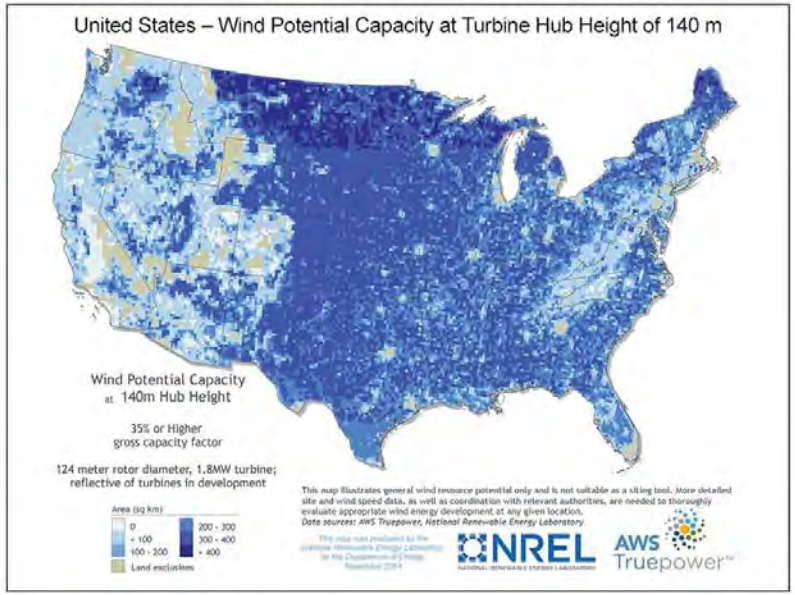
    - Hoyt Lakes is closer to projected load.
    - Mesaba permit could likely be amended without much difficulty.
    - Hoyt Lakes use of Mesaba Permit would not require transmission.
    - Hoyt Lakes site for generation would create jobs on Range.

- **Alternatives:** Energy efficiency and conservation could easily meet their projected need for 250 MW.

0186-14 cont'd

0186-14
Continued

≠ **Alternatives:** Minnesota Power can generate its own renewable energy. NREL's current wind resource maps show increased potential in the Minnesota Power service territory. [7]



≠ **Alternatives:** These suggestions of use of Mesaba site permit is in no way an endorsement for Mesaba Project or generation under a PPA with Excelsior Energy.

≠ **Alternatives:** The only alternatives considered were those of the DOE-EERA scoping document. This is not a broad enough range of alternatives to comply with NEPA.[8]

≠ **Alternatives:** The DEIS notes that "[t]he purpose and need for DOE action is to decide whether to or not to grant the Applicant a Presidential permit." DEIS, p. S-3. As a "connected action" the DEIS analyzes "the proposed construction, operation, maintenance, and connection of the portion of the transmission line within the United States." Because the transmission line facilitates both construction of a new hydro dam and transmission from that dam to the U.S./Canada border, these are also connected actions and their impacts should be analyzed in the EIS.

≠ Alternatives: In section S.2.1 and 1.2.2 the DEIS states that the "DOE's Purpose and Need for Agency Action" includes to "connect" – as above, due to the stated purpose, the DEIS should consider the full extent of the connected actions.

[7] Enabling Windpower Nationwide, NREL: http://energy.gov/eere/wind/wind-resource-assessment-and-characterization
[8] 40 CFR 1502.14.

All 22 Mesaba Energy Project references that presume it will be built should be removed from the DEIS

- ≠ The Mesaba Project is NOT moving forward. Statements that it is moving forward, that it is expected to be built, whether express or implied, should be deleted.
- ≠ The Mesaba Project Generation Interconnection Request, MISO G-519, has been withdrawn. See MISO Active Queue.
- ≠ The Mesaba Project EIS has not been and is not planned to be completed. For years release of the ROD was "uncertain" and some time ago, it disappeared from DOE "Key EIS Schedule" releases. Attachment, August 15, 2011 Key EIS Schedule and July 15, 2015 Key EIS Schedule.

Inherent inefficiency of transmission

- ≠ Transmission lines are more unstable the longer they are. This project is 220 miles, and requires series compensation,[9] which is necessary to assure stability of the line.
- ≠ This line is in need of a separate "structure which will house the 500 kV series capacitor banks necessary for reliable operation and performance of the proposed transmission line." The EIS should address the impact of a project on the grid where performance and reliable operation is so compromised that it requires a separate series compensation site.
- ≠ Noise is typically expected for series compensation equipment.[10] The EIS should specify both the range of noise levels expected by the equipment at various locations and specify in the narrative and cite the Minnesota noise standards.
- ≠ The EIS should specify whether the Minnesota noise standards cover the range and character of noises expected at series compensation, regeneration, substation and line noise (i.e., MPCA's noise standards do not cover infra-sound, or most impulsive sounds), and whether B weighted or other weighted modeling is necessary.

Carbon Dioxide and Carbon Sink

- ≠ **Carbon Sink**: The DEIS raises "loss of carbon sink" due to clearing and removal of forested areas in the ROW as an issue. DEIS, p. 1.10. The EIS should address what will occur after these trees are removed, i.e., whether left to rot, burned, etc., and carbon impact of that treatment.
- ≠ **Mitigation of Carbon Sink:** The DEIS should address various means of mitigation of loss of carbon sink through clearing RoW, and the cost of mitigation.

[9] DEIS, p. CSA-1 Abstract,, and noted 129 additional times in DEIS.
[10] DEIS, p. S-15, §S.8.1.

0186-15

0186-15
The Mesaba Project has not been formally withdrawn and it has an existing MN PUC site permit, transmission line route permit and a pipeline route permit.

No changes are made to the EIS in response to this comment.

0186-16

0186-16
An analysis of the impact of a series compensation station to system reliability is outside the scope of the EIS.

No changes are made to the EIS on this issue.

0186-16

0186-17
Noise levels for the 500 kV series compensation station cannot be determined for the proposed Project as the location and equipment necessary for the 500 kV series compensation station are dependent on the length of the transmission line and final location. As stated in Section 5.2.1.2 of the EIS, regardless of the equipment and location of the 500 kV series compensation station, noise levels will be below that of the proposed Iron Range 500 kV Substation. The EIS analysis shows that operation of the Iron Range 500 kV Substation will be below Minnesota noise standards, therefore so will the 500 kV series compensation station.

0186-17

Minnesota noise standards do not include standards for infrasound (low-frequency noise) but do include impulsive sounds for certain businesses and industries such as shooting ranges (Minnesota rule 7030 - Noise Pollution Control). A-weighted sound levels are typically used for assessing community noise impacts, as they mimic the sensitivity of the human ear and are the most applicable measurement to capture the noise emissions from the proposed Project.

0186-18

No changes are made to the EIS in response to this comment.

0186-18

0186-18
The carbon sink values conservatively assume that all carbon is released by decomposition or burning.

The total carbon sink within 1,500 feet of the anticipated alignment is used as a reasonably scaled reference to demonstrate that only

a small percentage of the carbon sink is being removed from the region. Therefore, no mitigation is recommended.

No changes are made to the EIS in response to this comment.

- ≠ **Carbon Impacts:** The DEIS should evaluate impacts of carbon emissions due to clearing trees for the dam at the source of this project, and emissions if they are left in the water or if burned.

- ≠ **Carbon Impacts:** The DEIS gives a hat tip to historical generation via coal on p. 20, but does not address whether coal generation will be reduced as a result of this project. If the EIS links this transmission project to decrease of coal generation by Minnesota Power, the EIS must document specifics and timeline of decreased coal generation. Increase of non-coal generation does not necessarily equal decrease of coal generation – there is no direct link.

North Dakota Wind Energy Renewable Optimization Opportunity

- ≠ **Renewable Optimization:** Renewable Optimization is not physically related to this project. The EIS should include a map of the transmission system in the area.

- ≠ **Renewable Optimization:** The EIS should show expected power flows for the North Dakota wind, whether it would flow over Minnesota Power's DC line from Fargo, or whether it would use the same route to Manitoba as Buffalo Ridge wind in its "Loop Flow" problem where Buffalo Ridge wind frolics and detours through the Dorsey substation on its way to Forbes substation and further south. Attached §9.10, p. 5, NMSPG Meeting Minutes, 9/28/2005.[11]

Property Values

- ≠ Conclusions on DEIS p. 113 are not reasonable:

  - "Proximity to a transmission line does not always cause property values to go down." This is misleading, and should be removed. The EIS should be objective and consistent.

  - Impact on property values should address compensation for land condemned for transmission line.

  - Impact on property values should address compensation for decreased value of remaining land in parcel where land is condemned for transmission line.

  - Impact on property values should address compensation for decreased value of land in proximity to transmission line.

  - If property values go down, potential reduction is in range of 1 to 14%. This is misleading, a wide range and should be narrowed down. A cited study on same

[11] See also post about Buffalo Ridge to Manitoba Loop Flow: http://legalectric.org/weblog/194/

0186-19

0186-19
As explained in the EIS, an environmental review of potential impacts from the portion of the proposed Project in Manitoba (the dam) will be developed and submitted as part of Canada's authorization process. NEPA does not require an analysis o f environmental impacts that occur within another sovereign nation that result from actions approved by that sovereign nation.

Although the comment is correct that there is not necessarily a direct, verifiable link between increased hydropower due to the proposed Project and a reduction in coal use in Minnesota, as Section 5.2.1.3 generally states, the proposed Project could allow the reduction of coal-fired electricity in Minnesota.

No changes are made to the EIS in response to this comment.

0186-20

0186-20
The MN PUC Certificate of Need docket for this project, which is available at http://mn.gov/commerce/energyfacilities/Docket.html?Id=33608#edocketFiles, contains extensive testimony regarding the Renewable Optimization agreement and its relationship to this project as well as maps of the transmission system in the area. The same docket contains an extensive explanation of how the proposed Project would reduce the "Loop Flow" problem referred to in the comment.

0186-21

The power flow issue raised in the comment will be considered as part of the DOE reliability determination, which is part of the Presidential permit process. However, the DOE reliability decision is separate from DOE”s NEPA responsibilities. Since these power flow issues are not relevant to the DOE Presidential permit or the MN PUC route permit, no changes are made to the EIS in response to this comment.

0186-21
The statements pertaining to property values in Section 5.2.1.4 are supported by the documentation provided in Appendix J, Property Values Supplement. The range of property value changes cited in the EIS (e.g. 0-20% decrease on ag lands; 0-14% on properties in general; etc.) reflect the variation of effects that are recorded from actual sales transactions and from individuals' perceptions.

Compensation for individually condemned properties will be valued on a case-by-case basis during final route alignment aftter the overall route corridor has been approved. At this stage, estimating payments on condemned lands is not possible. Minnesota's Power

0186

Plant Siting Act "Buy the Farm" Provision gives property owners the option of requiring the utility to condemn a fee interest in land contiguous to a proposed high voltage transmission line easement. See Section 2.9.2 for more information. The Applicant will work with individual land owners to determine the appropriate compensation.

No changes are made to the EIS in response to this comment.

pages says 0-20% for ag land based on disruption of farm operation. The EIS should be objective and consistent.

Electric Fields and Magnetic Fields

- ≠ The section on electric and magnetic fields should calculate the full range of potential levels based on the line specifications. The line specifications should be disclosed.
- ≠ The tables for electric fields do not state the current used for the calculations.
- ≠ The tables for magnetic fields do not state the current used for the calculations.
- ≠ The tables for magnetic fields should also include a column for "Distance from Centerline at which mG level is 2 mG" and disclose that distance.

Forestry

- ≠ Impacts on forestry and state and federally sanctioned forestry programs should be addressed in EIS.
- ≠ Identification of and impacts on land in forestry programs such as Tree Farm Association or Sustainable Forest initiatives must be disclosed in EIS.

Thank you for your consideration of these Comments. Please let me know if you have any questions or require anything further.

Very truly yours,

Carol A. Overland
Attorney at Law

Enclosures

cc: David Moeller, Minnesota Power dmoeller@allete.com
Eric Swanson, Winthrop & Weinstein eswanson@winthrop.com

0186-21 cont'd

0186-21 Continued

0186-22

0186-22 Section 5.2.2.1 and Appendix I of the EIS are revised to contain information regarding the proposed line specifications and distance from centerline used to model EMF.

0186-23

0186-23 Potential impacts on forestry, such as state and federal programs, Tree Farm Association, and sustainable forest initiatives would be comparable to the potential forestry impacts discussed in the EIS. Current forestry practices and potential impacts on forestry as result of the proposed Project are discussed in Section 5.3.2, "Land-Based Economies," and 5.3.2.2, "Forestry."

No changes are made to the EIS in response to this comment.

Written Comments of Lauren Azar
Attorney and Advisor, Azar Law LLC
Former Public Service Commissioner of Wisconsin
Former Senior Advisor to the Secretary of U.S. DOE

***

FERC Docket No. AD15-4-000

Technical Conference on Environmental Regulations and Electric Reliability, Wholesale Electricity Markets and Energy Infrastructure

St. Louis, Missouri, March 31, 2015

***

Thank you for the opportunity to speak on the infrastructure needs to comply with the Clean Power Plan (CPP)

Regional Planning for the Necessary Infrastructure:

While the final § 111(d) rule is not yet released, we know that states will be well positioned to comply if they bolster energy efficiency and increase the generation of low- and no-carbon electricity. Not surprisingly, several studies have shown that regional approaches will be the most cost-effective method of compliance.

As is apparent from the draft rule, some states are closer to compliance than other states. The rule's differential impact on states must be addressed if states are to pursue regional compliance. States have successfully navigated regional approaches in the past, even when the states were not similarly situated. The Mid-continental Independent System Operator's (MISO) Multi-Value Projects (MVPs)

are a perfect example.

The states in the upper Midwest were faced with renewable portfolio standards or goals (RPS) and realized that a regional approach to compliance would be most cost-effective. Those states identified geographic areas where they wanted to develop renewable generation and asked MISO to develop a transmission plan around those areas. The remaining states in MISO replicated this process.

In the end, MISO developed a number of MVPs that allowed all of the states within the MISO footprint to comply with their respective RPSs. The states and MISO stakeholders then developed a cost-allocation proposal that shared the costs of the MVPs.

The MISO MVP process succeeded because of the following three factors:

(1) Legal mandates or goals – the states were required to comply with their own various RPSs;
(2) MISO developed a portfolio of transmission projects that allowed all of the states to benefit. Even though some states benefited more than others, all of the states were able to comply with their legal mandates; and
(3) The transmission owners coalesced around the final product, both the transmission plan and cost allocation, because their state commissioners were not only supportive of the effort, but leading it.

The similarities between complying with § 111(d) and the RPSs are striking. The MISO states have already demonstrated the ability to comply with legal mandates through regional cooperation. It can be done again.

FERC's Role in Interregional Planning

The United States has a plethora of low- and no-carbon fuels to generate electricity. But those fuels are not evenly distributed throughout the states. To fully utilize all of our low- and no-carbon fuels, the RTOs must conduct meaningful interregional planning.

As we discovered during the Eastern Interconnection Planning effort, the planning authorities and RTOs use different metrics and different planning assumptions. Consequently, it is difficult to identify where interregional transmission projects would be most beneficial.

FERC can solve this problem by requiring adjacent planning authorities and RTOs to use the same metrics and planning assumptions when conducting interregional planning. Only by comparing apples-to-apples, will we be able to identify infrastructure needed at the seams, which will result in the most cost-effective compliance of § 111(d).

Building Infrastructure Quickly Enough to Aid Compliance

The United States needs new infrastructure for many reasons: to remain globally competitive; to address aging infrastructure; to meet public policy goals; and to respond to changes in the generation fleet prompted by emerging technologies, low natural gas prices and struggling nuclear plants. Both the electric industries and natural gas industries are already responding to this call to action. The nation's transmission and natural gas industries have been in build cycles for years. To comply with § 111(d), these build cycles must and can continue.

While federal and state permitting has improved during the current build cycle, we can do better. While at the DOE, I worked with nine federal agencies, including FERC, on the Rapid Response Team for Transmission (RRTT). The Secretaries of Interior, Agriculture, and Energy along with the Chairs of FERC and Council on Environmental Quality (collectively the Transmission Cabinet) held quarterly meetings on the federal permitting process. Streamlining efforts continue to this day.

For example, DOE is currently preparing a joint EIS with the State of Minnesota and is piloting a pre-application process that is expected to result in dramatically shorter permitting times. DOE and Minnesota are on track to publish the Final EIS for the Great Northern Transmission Line – a 220-mile 500 kV line – within 16 months of the issuance of DOE's Notice of Intent. This pilot project is not only proving that NEPA and infrastructure development can co-exist, it demonstrates that electric transmission can be used as a compliance tool for § 111(d).

Federal and state agencies are not the only ones working on shorter development timelines. The private sector is as well. For example, a class one railway is currently working on a project to install a high capacity HVDC line underground on its railroad right-of-way (ROW). The developer does not anticipate needing eminent domain since it already owns the ROW. Of course, already owning the ROW, not needing eminent domain and having lines underground will help to speed the federal and state approval processes. Projects like this could certainly be used as a compliance tool for § 111(d).

In sum, while the permitting time for transmission remains a challenge, at least one federal agency and one state are proving that it can be done quickly. The private sector is also developing creative solutions to simplify and shorten the permitting process. Though both of these efforts are encouraging, more must be done to ensure transmission is permitted in a timely manner.

FERC's Role in Transmission Permitting:

FERC can play a role in streamlining the federal permitting. First, the Chair of FERC could convene quarterly meetings with the Transmission Cabinet to discuss the progress in evaluating applications for transmission lines that are required for compliance with the CPP ("Compliance Projects").

Second the Transmission Cabinet could announce an "all hands on deck" approach to Compliance Projects. The Principals could ensure that pertinent field staff understands the importance of prompt evaluation of these applications. (DOE is demonstrating that the evaluation can be completed within a two-year period.) The call for "all hands on deck" should come from the Principals and should be repeated often.

Agency field staff is currently implementing rules and guidances that were created before the need for significant infrastructure build-out. Staff is making decisions today that are based on how things were done yesterday. But today differs from yesterday. Accordingly, the management of federal agencies, both career and political, must ensure that current policies are infused into the staff-level decisions. Equally importantly, agency management must create feedback loops to obtain confidence that field staff is implementing their duties in light of current policies.

Fourth, as part of the RRTT, agencies' "front offices" convened weekly conference calls with its project managers for transmission projects, which sent a strong signal to field staff about the need to streamline. FERC "front office" staff could participate in these calls.

Fifth, FERC could develop an informal appeal process for applicants of Compliance Projects who believe the vetting of their applications

are stalled or not being handled according to current policies. The appeals would be done within the confines of the Transmission Cabinet.

Sixth, during the Transmission Cabinet's quarterly meetings, FERC could ensure that Principals receive an accurate status report on how their agency staff is performing on the Compliance Projects. FERC, as an independent agency, could play an important role in providing this accurate assessment.

Where there is a Will, there is a Way

The federal government has an important role in assisting the states to comply with § 111(d), including FERC. Federal permitting of transmission need not be an impediment to § 111(d) compliance; indeed, with sufficient dedication, federal agencies can facilitate compliance.

Today, the states have all of the tools that they need to comply with § 111(d). My hope is that states invest significant resources to create State Implementation Plans (SIP) that adopt regional approaches. The current mantra in some corners of "just say no", will likely result in those states having insufficient time to develop a cost-effective SIP, i.e. those states are painting themselves into the proverbial corner. Instead, states can use the MISO MVP model to develop a plan where all states benefit.

Where there is a will, there is a way.

My background:

I bring to this panel three perspectives: state, federal and the private sector. From 2007 to 2011, I was a Commissioner at the PSC of Wisconsin. While a state commissioner, I chaired both the state and RTO processes for cost-allocation over MISO's MVPs. I also co-founded and was the first President of the Eastern Interconnection States Planning Council (EISPC). Through that endeavor, we represented most of the states and Canadian provinces east of the Rockies in the interconnection-wide transmission planning.

From 2011 to 2013, I was senior advisor to U.S. DOE Secretary Chu focusing on, among other things, transmission infrastructure. While at DOE, I co-led the RRTT and was the DOE's representative to the President's steering committee on streamlining federal permitting.

I have returned to the private sector, which is where I started my 21-year career. I am currently representing utilities, including transmission companies, both incumbent and merchants. Not only am I working on permitting new transmission infrastructure, but I am also assisting utilities in how to address the challenges created by new emerging technologies and low natural gas prices. I am also co-leading a non-profit initiative aimed at required changes in our regulatory frameworks.

http://blogs.platts.com/2011/05/31/smart_grid_is_a/

The Barrel The essential perspective on global energy

Smart grid is all fine, but just get transmission built, group tells DOE

By Kathy Larsen | May 31, 2011 05:58 PM Comments (0)

A transmission-interest group lamented the other day that the Department of Energy didn't specifically put upgrading and expanding the high-voltage transmission grid in the Strategic Plan it released earlier this month.

True, expanding the grid is not in there. "Modernizing" the grid is, and unsurprisingly, DOE focuses on new technology to make what amounts to a "smarter grid," to integrate renewables better and get to a more "actively controlled distribution network" (must be longhand for "smart meters").

But to the group known as Wires, building more transmission is essential, and DOE's championing of "policies that remove barriers to grid expansion and upgrades" is critical. DOE's Strategic Plan may not say so, but maybe Energy Secretary Steven Chu's new hire, Wisconsin utility regulator Lauren Azar, will focus on that as well as on the technology and innovation.

Azar has made a name for herself in the transmission planning and policy arena. As president of the Organization of MISO States, she dealt with thorny fights among transmission owners and customer groups about where transmission should go and who should pay for it (not that these battles are necessarily resolved.) MISO is the Midwest Independent Transmission System Operator.

She was president of the Eastern Interconnection States' Planning Council, companion group to the Eastern Interconnection Planning Collaborative. She was engaged there in what could be the transmission planning challenge of the century: herding local, regional and commercial interests from everywhere roughly east of the Rockies to try getting some kind of coordination.

Before Azar was at the PSC, she did electricity law and, among other things, worked on creation of American Transmission Co., which put together various systems in Wisconsin to form the country's first stand-alone transmission company.

Announcing her appointment as senior adviser to Chu, the PSC said Azar would "work with industry, states and other federal agencies to facilitate the development of our nation's electrical infrastructure." Initial work would focus on "the transmission grid, transmission-related technologies (such as energy storage) and on the federal power marketing administrations."

Now, getting back to the Wires group, which calls itself "voice of the electric transmission industry" and whose full name used to be Working Group for Investment in Reliable and Economic Electric Systems. In a letter to Chu, President Jolly Hayden of NexEra Energy Resources says of the Strategic Plan that because doubling renewables deployment by next year is a DOE goal, "the absence of any mention of upgrading and expanding the high-voltage transmission system is inexplicable."

The industry and financiers are ready to put themselves into building transmission, Hayden says, and a Brattle Group study done earlier this month "confirms the tremendous potential that transmission manufacturing and construction hold for job creation and economic stimulus." DOE shouldn't take those benefits for granted, Wires says.

"Many barriers and challenges to future transmission improvements remain," the group says, and DOE must lead policy development to get rid of transmission-building barriers.

Transmission siting is a state issue, and Congress hasn't succeeded in making that any different. Transmission cost sharing is basically a federal issue (the Federal Energy Regulatory Commission) but given the power industry's structure — more state and local authorities than you can shake a stick at — DOE will have to get creative to get far on this one.

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http://www.eenews.net/stories/1059992057

DOE: Chu's grid guru came in 'like gangbusters,' left quietly

Hannah Northey, E&E reporter

Greenwire: Thursday, December 19, 2013

In 2011, then-Energy Secretary Steven Chu brought in an ambitious Wisconsin state utility commissioner to advance the Obama administration effort to site and build critical power lines and transmission technologies.

Lauren Azar was seen as the person who could help Chu's Department of Energy navigate a maze of local opposition, permitting delays and lengthy reviews to get transmission projects going.

But it’s unclear whether Azar's two-year run that ended in September will bring about clear game-changing transmission breakthroughs.

Former Department of Energy senior adviser Lauren Azar. Photo courtesy of DOE.

That's not to say she didn't try. Saying she came in "like gangbusters," Azar focused on overhauling government-owned chunks of the power grid that outraged lawmakers, utility groups and four politically wired entities known as power marketing administrations, or PMAs.

Azar's time at DOE was marked by a big blowup over a memo that Chu sent last year to the PMAs, ordering them to leverage partnerships, rate-making power and financing to spur upgrades to their collective 33,700 miles of transmission and boost reliability and access for renewable energy sources.

While little known to the public at large, PMAs are a big deal. Their transmission overlaps power lines across almost half the country.

PMA customers that enjoy the country's cheapest electricity said they were blind-sided. Republicans flagging the cost of energy as a campaign issue attacked the memo as a "top-down" approach that favored renewables and threatened to disrupt the PMAs' statutory authority. Eventually, 166 House and Senate members from both parties expressed concern, and the House Natural Resources Committee, which oversees the PMAs, launched an investigation.

Fingers pointed to Azar. The American Public Power Association blamed the Chu adviser for failing to collaborate with industry in her pursuit of a pro-renewable energy agenda.

"The perception was that had she collaborated and consulted with folks more at the outset in developing the agenda she wanted to pursue, and then worked with customers to prioritize and implement those things, that would have been much more effective," said Joe Nipper, the trade group's senior vice president of government affairs.

The memo hit a nerve with members of Congress protecting regional PMA customers. Azar, one source said, was the latest in a line of DOE senior officials who have tried and failed to make similar reforms.

Azar, 52, who has moved back to her hometown of Madison, Wis., and launched a law firm, Azar Law LLC, maintains that her DOE stint was a success.

Given the short amount of time to make big changes at DOE -- Azar was, after all, picked by Chu, who himself resigned last February -- she said she mapped a timeline for tapping into existing transmission siting authorities and helping critical projects get started.

"I'm much more about where the rubber meets the road than high-level policy debates," Azar said.

She rejected the notion the controversial memo was all her doing or representative of a top-down approach. Both DOE and PMA officials, she said, helped implement the order. Chu asked the PMAs to take a leadership role, she added.

"Folks who were critical of the memo were pulling up very specific sentences or words ... which I understand if you didn't like the memo, that's exactly what you do to attack it," Azar said. "But if you do look at the overall thrust of the memo, it was quite simply, 'Let's ensure we have a robust, resilient, modern grid.'"

Others who fought strayed too close to the PMAs and faced similar problems.

Jimmy Glotfelty, founder of Clean Line Energy Partners and a former senior electricity adviser for President George W. Bush, said Azar should be remembered for trying to build infrastructure and integrate renewables in a thoughtful and cooperative manner.

"The customers of PMAs are pretty protective, and if you ask a lot of people who have been in her shoes -- including myself -- it's not uncommon to get into debates with customers of PMAs," he said. "They're tough negotiators."

'Visible transmission advocate'

Chu's selection of Azar was largely seen as a sign of the Obama administration's intense interest in expanding the grid to support renewables and tackle climate change, sources said.

"The DOE should always have a visible transmission advocate, and she served that role," said Rob Gramlich, the American Wind Energy Association's senior vice president of public policy.

Whether the department will take the same approach under Chu's successor, MIT nuclear physicist Ernest Moniz, remains unclear. Following Azar's departure, Skila Harris, who served as the Tennessee Valley Authority's first female director and as a special assistant to former Vice President Al Gore, began serving as senior adviser for the PMAs (*E&E Daily*, Sept. 11).

Expanding transmission is seen as a difficult task considering the projects can intersect environmentally sensitive areas, require years of review and often face stiff opposition from landowners who don't want hulking infrastructure in their backyards or sightlines.

Transmission siting is also where federal and state interests often clash.

Azar was picked in no small part because of her extensive state-level experience.

Before joining DOE, she was a member of the Public Service Commission of Wisconsin, which is responsible for overseeing electricity, natural gas, telecommunications and water industries. Former Gov. Jim Doyle (D) appointed Azar to serve on the commission in March 2007 for a six-year term.

A law school graduate of the University of Wisconsin, Madison, Azar specialized in electric and water utility issues before joining the state agency. She also helped create the country's first stand-alone transmission company.

Azar also served as president of the Organization of Midwest Independent Transmission System Operator States, a nonprofit organization of 13 states and a Canadian province overseen by the Midwest grid operator.

She was also the first president and co-founder of the Eastern Interconnection States' Planning Council, where she co-led efforts to organize states east of the Rockies in interconnectionwide planning.

Azar brought that same spirit to DOE. She helped bring together the "federal family" in 2011 -- nine agencies key to streamlining federal permitting of major new power lines that could have taken up to 15 years to garner approval (*Greenwire*, Oct. 5, 2011). DOE already had existing authority to do so under 216(h) of the Energy Policy Act of 2005, language that allows the agency to coordinate federal and environmental reviews.

"DOE, until I got there, implemented [the rule] in somewhat of a tepid manner," she said. "I came in like gangbusters as I always do and not only helped to lead the rapid respond team for transmission but helped DOE draft some rules for 216(h), negotiate with the nine agencies."

PMA memo

As for the memo, Azar characterized her work as a "huge success" that complemented Chu's recognition of the PMAs' importance.

"As the Energy secretary, you're the CEO of the largest transmission utility in the United States," Azar said. "Secretary Chu, one of his primary priorities was to make sure we had a safe, reliable, resilient transmission grid. He took that quite seriously, and he asked the PMAs to take a leadership role in doing that."

She rejects assertions from lawmakers and industry groups that the memo was a Washington directive.

"I know part of the controversy was that this was a 'top-down approach,'" Azar said. "On the contrary, if you ask the [WAPA] staff, they'll tell you the recommendations came from them."

The endeavor started with the 15-state Western Area Power Administration, or WAPA.

Chu set out his goals in the memo and asked the PMAs to work with customers to lay out a plan. A joint team of WAPA and DOE officials -- after numerous meetings, workshops, webinars, telephone conferences and written comments -- crafted recommendations that Chu later adopted, she said.

"Indeed, I was told that the opportunity for feedback here far exceeded what WAPA normally uses for its normal initiatives," she said.

Azar noted the effort led to proposed changes to streamline WAPA's authority to borrow up to $3.25 million from the U.S. Treasury to build critical transmission. As laid out in the memo, she also championed Texas-based Clean Line Energy's application to partner with DOE through its never-before-used authority under Section 1222 of the Energy Policy Act, which would allow a PMA with federal authority to site the line and overcome state opposition.

But sources said it's unclear whether other provisions in the memo will be implemented outside WAPA -- or even inside WAPA.

WAPA spokesman Randy Wilkerson said not all initiatives laid out in the original memo made it to the drawing board.

In the original memo, for example, Chu said WAPA had decided to take part in an "energy imbalance market," a tool that allows grid operators to balance load over a larger footprint while integrating wind and solar in real time.

But Wilkerson noted that the memo may have been misleading and WAPA is still considering such a move, one that's drawn concerns about cost from customers receiving historically cheap power. "I think that some people got the impression that ... we were doing more than we were at the time," he said.

WAPA also isn't implementing the memo's call for new rates to support the deployment of electric vehicles because such retail issues aren't handled by WAPA, Wilkerson noted.

Other sources said the kerfuffle fizzled as quickly as it began.

"[WAPA] is looking at it as an issue that we're moving on from," Wilkerson said.

http://www.theenergydaily.com/events/azar_bio/

Energy Daily – Lauren Azar Biography

Ms. Lauren Azar
Commissioner
Wisconsin Public Service Commission

Governor Jim Doyle appointed Lauren Azar Commissioner of the Public Service Commission (PSCW) in March 2007 for a term that expires in March 2013. Aside from her duties as a Wisconsin Commissioner, Azar is currently the President of the Organization of MISO states (OMS). The OMS is a non-profit organization of representatives from each state that is included in the Midwest Independent System Operator (Midwest ISO). As president of the OMS, Commissioner Azar is leading a regional planning and cost allocation effort for developing electric transmission over the Midwest ISO region, which includes 13 states and one Canadian province. Commissioner Azar also sits on the Electricity Committee and the Nuclear Issues – Waste Disposal Subcommittee of the National Association of Regulatory Utility Commissioners (NARUC). At the state level, Commissioner Azar led an initial investigation into the development of wind generation on Lakes Michigan and Superior resulting in an extensive report, which may be found at: http://psc.wi.gov/globalWarming/05EI144/index-WindonWater.htm.

Prior to her appointment to the PSCW, Commissioner Azar worked as an attorney and practiced extensively in the area of electric and water utilities, representing both ratepayers and utilities. As a representative for ratepayers, Commissioner Azar negotiated power purchase agreements and resolved disputes with utilities. While representing utilities, Commissioner Azar helped to create the nation's first stand-alone transmission company and helped to site a 210-mile extra-high voltage line in Wisconsin and Minnesota. In addition to public utility law, among others, she also practiced environmental law focusing on water law and on contaminated properties.

Commissioner Azar has been recognized by Madison Magazine as a leading lawyer in environmental law, and was also named as one of the Best Lawyers in America for 2007 in the area of energy law. Commissioner Azar has authored several articles for the National Business Institute. She co-edited and co-authored the Wisconsin Environmental Law Handbook, Fourth Edition, July 2007.

Commissioner Azar received her Bachelor of Arts Degree from Rutgers College and a Master of Arts in Philosophy from Northwestern University. She also has a Master of Science in Water Resources Management and a law degree from the University of Wisconsin-Madison.

Transmission Planning for the Future *& More*

NCSL Task Force on Energy Supply

May 18, 2012

Denver, CO

Larry Mansueti
Director, State & Regional Assistance
Office of Electricity Delivery and Energy Reliability
U.S. Department of Energy

Presentation Overview

I. Overview of DOE Office of Electricity
II. Interconnection-Wide Planning Efforts
III. DOE Transmission Congestion Study
IV. Federal Transmission Permitting Coordination
V. And *More*

Office of Electricity Delivery and Energy Reliability

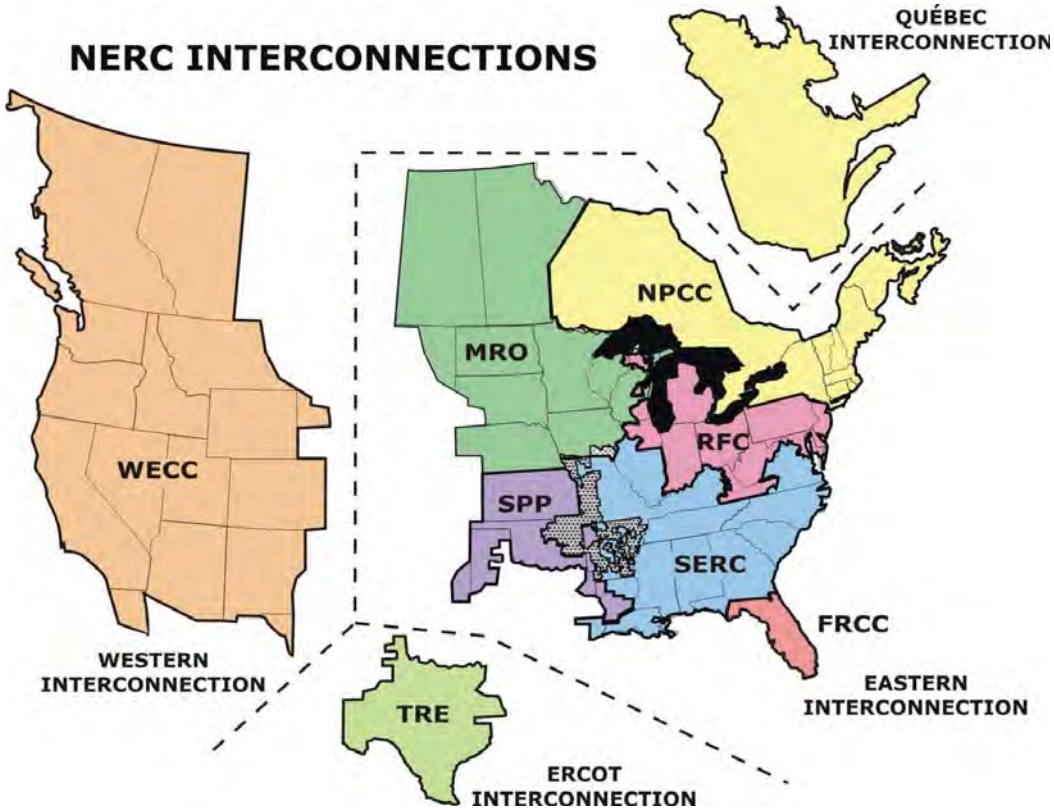
THE MISSION of the Office of Electricity Delivery and Energy Reliability is to lead national efforts to modernize the electric grid; enhance security and reliability of the energy infrastructure; and facilitate recovery from disruptions to energy supply.

- Three Divisions
  - Permitting, Siting and Analysis
  - Infrastructure Security and Energy Restoration
  - Research and Development

Permitting, Siting and Analysis Division

- Interconnection-Wide Transmission & Planning (& Related Resource Planning)
- National Transmission Congestion Study
- Cross-Border Transmission Line Permits and Electricity Exports Authorizations
- Required Coordination of Federal Transmission Permits & Authorizations
- State and Regional Policy Assistance

Three Electricity Interconnections Serve the U.S.



Interconnection-Wide Transmission Planning

- DOE called for open, transparent interconnection-level planning as early as 2006 (in its first *National Electric Transmission Congestion Study*)
- DOE has supported such work in the West for over 10 years
- The westerners and ERCOT had experience and relevant institutions to build on in responding to the initiative DOE launched in 2009. By comparison, the East faced a much greater challenge in responding to DOE.
- Broader than just “transmission planning”

Interconnection-Wide Transmission Planning

- Grants awarded under Recovery Act to planning entities in Eastern and Western Interconnections, and ERCOT
- Relevant organizations already existed in the West and ERCOT. No such organizations existed in the East, and had to be created.
- Major purpose was to aid the establishment of institutional capabilities to analyze long-term utility system expansion options at a large geographic scale.* Using alternative scenarios. Plus related "resource planning"-type work outside of transmission
- **The Real Benefit: new relationships & dialogues that did not exist before*

Total Funding: $80M (Recovery Act)

• Eastern Interconnection Planning Collaborative - EIPC(industry experts)	$16 M
• Eastern Interconnection States Planning Council – EISPC (state officials)	$14 M
• Western Electricity Coordinating Council – WECC (industry experts)	$14.5 M
• Western Governors Association - WGA (state officials)	$12 M
• ERCOT A (industry experts)	$2.5 M
• ERCOT B (state officials)	$1.0 M
• National Labs (supporting all above)	$20 M

Eastern Interconnection – Accomplishments to Date

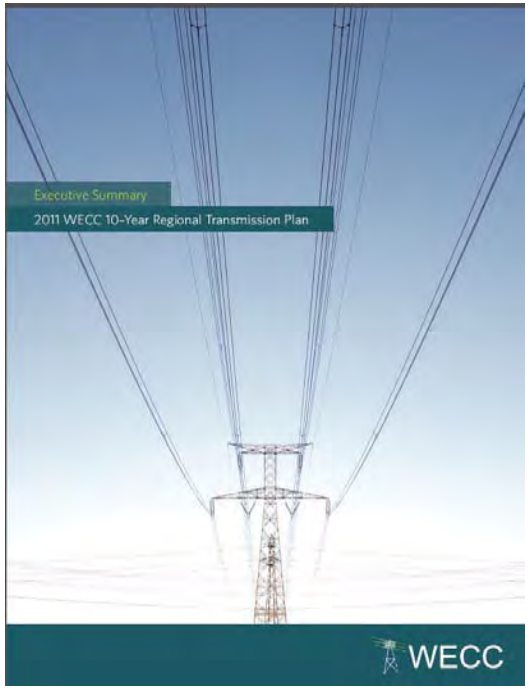
- Formation of the two eastern organizations – industry & states (not assured would happen)
- EIPC's Phase I report delivered 12/16/11 – details eight 20-year macroeconomic futures (72 sensitivities)
- EIPC's Phase II analysis launched – will develop 3 "bookend" 20-year transmission expansion scenarios (ie. BAU, medium, high buildouts)
- EISPC state participants have provided key leadership in EIPC work
- EISPC has initiated an eastern Clean Energy Zone study

Eastern Interconnection – Addt'l Supporting Work

- Future outlook of coal & other traditional resources over the next 25-30 years
- Review of nuclear resources
- Economic ramifications of resource adequacy requirements & an updated assessment of the "one-day-in-ten-year Loss of Load Probability" criterion that underlies current generation reserve margin requirements;
- An overview of state laws, regulations and rules and orders relevant to identification of energy zones in the Eastern Interconnection;
- Extensive review of co-optimizing methodology and techniques for the planning of both generation, in particular resources that are remote from load, and transmission
- Desire to look at electricity – natural gas interdepencies

Western Interconnection – Accomplishments to Date

- WECC delivered 10-year Regional Transmission Expansion Plan on 9/30/11 – plan focuses on new lines and upgrades needed to meet state RPS requirements
- 20-year plan now being developed
- Development of new planning techniques and tools, including inclusion of environmental data and concerns in planning process
- Multiple insights on adequacy of transmission investments over next 10 yrs; lots more



Western Interconnection – Accomplishments to Date

- Input to WECC planning to ensure planning reflects state policies
  - Ex: Reduced WECC 2020 demand projections by 2,000 MW
- Sponsored several utility resource planners forum – "what are they planning to buy and build"
- Moving the west to better integrate growing variable generation (i.e wind and solar)
- State Wildlife Decision Support Tools
  - -- Ex: Southern Great Plains
  Crucial Habitat Assessment Tool

Western Interconnection – Analyses Gave Major Insight

"WECC's first 10-year plan indicated that no new major transmission is needed by 2020 to meet demand and state policy objectives (e.g., Renewable Portfolio Standards) beyond the "foundational" projects already under development are [sic] energized by 2020, as expected."

-- WA UTC Comm. Phil Jones, Oct. 12, 2011 Congressional Testimony

Coordination of Federal Transmission Permitting

- *Federal law requires*: Section 216(h) of the Federal Power Act, created by EPACT 2005, designated DOE as the lead agency to coordinate transmission lines requiring multiple Federal permits
- MOUs signed by 9 Federal Agencies to execute section 216(h)
- State RPS's in West driving transmission buildout

Rapid Response Team for Transmission

- Announced June 2011
- Builds off Energy Policy Act of 2005 requirements for better Federal coordination on transmission permitting
- Co-lead by CEQ and Depts of Energy & Interior

Rapid Response Team Pilot Projects

Transmission Lines

Project Name

- Boardman-Hemingway
- CAPX 2020 Hampton-Lacrosse
- Cascade Crossing
- Gateway West
- SunZia
- Susquehanna-Roseland
- TransWest Express

0 175 350 Miles

Last updated 9/20/2011

N

RRTT Site Visits
Tease Out Process Reforms

- RRTT has to date conducted a series of site visits for five of the seven RRTT pilot projects
- Site visit participants included Federal, state, and local agencies; Tribal representatives; project proponents and contractors
- During the site visits, participants identified project-specific challenges and potential solutions that could improve the agencies' processes

The *And More*

- The game changer that shale gas is for the electric industry and the U.S.
  - -- Low prices, domestic jobs boom, foreign policy implications
- DOE's announcement of first-ever methane hydrate extraction
- DOE's Announcement of small modular nuclear support
- Watching reliability as EPA rules are rolled out (30-40 GW out of 310 GW coal retirement announcements so far)
- What is the post-2020 future?

Draft Meeting Minutes
Joint Meeting of
Northern MAPP (NM-SPG) Sub Regional Planning Group
And
Missouri Basin (MB-SPG) Sub Regional Planning Group
Missouri River Energy Services Office
Sioux Falls, S.D.
9:00 a.m., September 28, 2005

1. Introductions

COMPANY	ATTENDEE Name	COMPANY	ATTENDEE NAME
BEPC	Del Galagher (phone)	SD PUC	Martin Bettman
DPC	Jerry Iverson (phone)	OTP	Jason Weiers
GRE	Mike Steckelberg	OTP	Michael Kawlewski
MHEB	Hilmi Turanli	WAPA	Ed Weber
MISO	Todd ?? (phone)	WAPA	Gayle Nansel
MISO	Yaming Zhu (phone)	Xcel	Angela Maiko
MN PUC	Ken Wolf	Xcel	Bill Raihala
Excelsior	Steve Sherner (phone)	Xcel	Dean Schiro
MP	Mike Klopp	Xcel	Jason Standing
MRES	Brian Zavesky	Sharbakka Eng	Glen Sharbakka (phone)
MRES	John Weber	WAPA	Daniel Olson
MRES	Richard Dahl		
MP	Mike Klopp		

2. Assign Minute Taker: Hilmi T. volunteered to take the minutes.

3. Review Minutes

   3.1 August 2, 2005 NM-SPG meeting minutes: Mike K. questioned the statement where it says “NW Exploratory Study was superseded by Cap X 20/20 Study” in the minutes. This will be discussed further in today’s meeting. The minutes were approved.

   3.2 August 3, 2005 MB-SPG meeting minutes: No Comments; Approved without opposition.

4. Review agenda

5. General NM/MB SPG Business

6. Transmission Planning:

   6.1 Follow-up work on 2003 report-PUC order: Mike S. gave an update; Certificate of Need for the Mille Lacs project will be completed in first quarter of 2006.

MP is coordinating the Certificate of Need (CON). October 30 is the deadline for other updates.

Minnesota 2005 Biennial Transmission Planning Report: The report is being put together by Lindquist & Vennum Company. A draft will be issued by October 1, 2005. The complete report will be submitted by November 1, 2005. Ed W. suggested that SPG's should receive a draft copy of the report before submission so that others have a change to review and comment.

Mike S. stated that zone meetings have been ineffective and changes are being sought in the public participation process.

7. MAPP 10-Year Plan Update

7.1 TPSC 10 Year Report Updates (Forms 1-3): MISO is creating the database to help with the model building and study efforts. Dave Duebner (MISO) is leading the project and is populating the database with MTEP 06 information. The goal is to use this as the main list of planned and proposed projects. Dave has included this year a list of equipment already in service.

Del G. has sent the MB SPG portion of the MAPP 10 year plan update to the members for review. It will be sent to the TPSC in a week or two. Ed W. will contact MDU to check if they any projects that should be listed. Projects by MISO member companies will automatically be incorporated to Forms 1-3 by Dave D. Steve Sherner questioned if Mesaba project items have been listed in Forms 1-3. Mike S. will check into this. Mike will also e-mail the Forms 1-3 in Excel form rather than PDF. This year only the text part of 10 year plan updates or any recent changes to the 2004 plan would have to be submitted.

The TPSC will finalize the update to the 2004 10-year plan at their October 26, 2005 meeting and forward it to RTC before their December 1, 2005 meeting.

8. Transmission Project Updates:

8.1 Mille Lacs area transmission: The project was identified in MTEP 03 for voltage support and load serving. GRE will file a CON application by the first quarter of the 2006.

8.2 Lakefield—Wilmarth 345 kV series compensation: Angela M. reported that project is on schedule. The series compensation station will be about mid way on the line near Fieldon Township, with in-service in 2007.

8.3 SW Minnesota Wind: Angela M. reported that all of projects are on track.

8.4 Pequot Lakes – Badoura 115 kV line: Mike K. has presented the highlights of this project and also distributed a public information newsletter. This project

will upgrade the load served (growth 2.8%) in the area by construction of a 115 kV line.

8.5 Tower - Babbitt 115 kV line: Mike K. presented the highlights of this project and also distributed a public information newsletter. This project will upgrade the load served (growth 2.3%) in the area by construction of three sections of 115 kV lines. This project and the Pequot Lakes—Badoura project will both be in the Minnesota state plan to be submitted this year. Approval is sought by June 2006 with construction in 2007 and 2008.

8.6 Arrowhead – Weston 345 kV line: Mike K. reported that Minnesota portion of the line is built. Construction has started in the Wisconsin. The issues with all the counties have been resolved. A 800 MVA PST (phase-shifting-transformer) has been ordered from VA Tech (Siemens) to be delivered in fall of 2006 and to be moved to the site by winter 2006/07.

8.7 Watertown – Brookings 115 kV loop: Ed W. reported that there is significant load growth in the Brookings and Flandreau areas. Some of the crossarms and poles on the lines in this loop are in need of repairs. Western has considered re-building the entire line at 230 kV but, for now, they are replacing the damaged poles with 115 kV poles.

8.8 Chisago – Apple River 115/161 kV line: Angela M. reported that the certificate of need is to be submitted soon, possibly by the end of 2005.

8.9 North West Public Service: Ed W. reported that there is considerable load growth in the Mitchell area. One possibility is to tap into Ft. Thompson – Sioux Falls 230 kV lines. There is also potential wind development in this area only with aninterconnection request so far.

8.10 Jackson Area Transmission: Brian Z. reported that the plan was for Jackson to be served from the new Xcel 161 kV line between Fox Lake and Lakefield Junction. This line would be owned by Xcel with both terminals owned by Alliant. Hence the Jackson load would switch to Xcel control area and Xcel pricing zone, but line would be operated by Alliant. However the change in control areas will require a transmission service request to be filed under MISO rules. In a letter sent to MISO, MRES made a formal request to address this issue urgently. SPG's resolve that MISO finalize this issue so that Jackson load could be served from 161 kV supply.

9. Transmission Studies

9.1 Iowa-Southern Minnesota Exploratory Study: Yaming Z. reported the results will be incorporated to the MTEP 06 report, plus it will be published as a separate report. A Lakefield Junction – Winnebago 345 kV line is one of the options being studied.

9.2 Northwest MAPP Exploratory: Mike S. reported that Glen Sharbakka gave a presentation to Upper Great Plains Group ?? (UGPTC). Walt Grivna also presented the results from this study to the same group. There are two proposed transmission routes. The first one is a Belfield—Fargo—St. Cloud 345 kV line and the second alternative is Belfield—Granite Falls—Twin Cities 345 kV line.

The study team has concluded its efforts. The alternatives and economic studies will now be incorporated into the CapX2020 effort. Big Stone II development has also been incorporated into the CapX2020 study due to its location.

9.3 Coordinated Generator Studies (Group 4): There is no update on this study.

9.4 Buffalo City/Lake Pulaski: Low voltage at Buffalo (Minnesota) (20 MW load) has prompted the need for this study. Angela M. reported that there are two alternatives being considered: A new Buffalo—Dickinson line 115 kV line, initially operated at 69 kV, and a Buffalo—Lake Pulaski 115 kV line.

9.5 Worthington Load Serving Study: Study work is continuing.

9.6 Big Stone II generation: Jason W. gave an update. The interconnection and delivery studies have been on-going. Stability studies have just been completed. A certificate of need document is being drafted for the Big Canby – Granite falls (Hazel) 345 kV line which is the common component for two proposed alternatives. The interconnections facility study would be conducted next.

9.7 CapX2020 load serving: Mike K. gave a presentation on the study. His presentation, the Cap X2020 report and other relevant information are all posted at CapX2020 website. Within the next 15 years 8000 MW of new generation to is needed to supply 6300 MW of new load growth. The CapX area is primarily in Minnesota and partially in Dakotas, northern Iowa and western Wisconsin. Transmission development to connect these generation resources to load centers are divided into scenarios; each scenario depending on a particular generation pattern. The total cost of transmission facilities by year 2020 amount to about $2.3 billion. A first group of facilities, call Group 1 facilities, are planned to be completed by the year 2012 and are estimated to cost $600 million. A memorandum of understanding is being prepared in between eight Transmission Development Partners to facilitate the financing and construction of the CapX2020 projects. MISO's tariffs for cost recovery for transmission services would be a back up plan. Ken W. stated that routing and siting, which used to be the responsibility of EQB, is now being transferred to MnPUC as part of June 2005 legislation.

9.8 Mesaba Generation: Steve S. reported that the last update on this project was given on May 5, 2005 meeting. The ad-hoc committee for the studies consists of AEP, MP, GRE, XEL and MH. For the first unit (MISO project no G477)

rated 530 MW located at Hoyt Lake (near LTD Taconite) the designated point of interconnection is Forbes 230 kV bus. The plant was designated as network resource. Last March, screening and stability results were completed. This project assumes that Arrowhead – Weston project is in place. Some 230 kV breakers at the Forbes bus would need to be replaced. The Phase II study, which is the system impact study, started on May 11, 2005 by PTI. It uses summer peak load flow cases. One 115 kV MP line is overloaded (including in the base case as well). MP is completing the short circuit studies. There were some problems with the 2005 stability model, as a result stability studies were delayed, but they are now under way. The results will be reviewed at an October 7, 2005 meeting.

For Unit 2, rated up to 600 MW (Project no G519), an alternate location north of the taconite plant was proposed. The in-service date is one year later at 2011. The point of interconnection is the Blackberry 230 kV bus. It is assumed that the Boswell – Wilson 230 kV (in-service 2010) will be built by this date, but the Maple River – Benton 345 kV line will not likely be completed (in-service 2012). This unit will require conversion of existing Blackberry – Benton and Blackberry – Arrowhead from 230 kV to 345 kV and construction of a new Blackberry – Riverton 230 kV line.

9.9 Buffalo Ridge Incremental Generator Outlet: *(This item was incorporated in the next agenda item)*

9.10 SW Minn-Twin Cities EHV Development: Mike S. reported that a study review meeting was held with Rick G. (Excel Engineering) yesterday (9/27/05) at the MRES offices. The base case plan proposes a 345 kV line from White (near Brookings) to Lyon County (near Marshall) to Franklin (near Redwood Falls) to Helena to Hampton (southeast TC metro). An alternate to this would be a 345 kV line from Hazel (near Granite Falls) to Blue Lake (southwest Metro). Both options assume a 345 kV line between Big Stone - Canby – Hazel – Lyon Co.

Construction of these west-east 345 KV corridors does not eliminate the loop flow north through Manitoba, however it does reduce the loop flow amounts from 8-10% to 3.6-4.0%. The analysis also included a double-circuit cost/benefit estimate.

Another study team meeting is scheduled for October 10, 2005, at the OTP offices in Fergus Falls.

9.11 C-BED Transmission Study for Distributed Generation: Jason W reported that a conference call was held with himself and George Crocker, Mike Michaud., and Mike K. It is proposed to develop transmission infrastructure for up to 2500 MW of distributed generation in Minnesota.

9.12 West Central Minnesota: GRE is completing a load serving study for near Willmar area with projects that have an in-service date of 2009.

9.13 MECA Load Serving Study: Jeremy S. of BEPC sent a draft report to MB and NM SPGs without the attachments. The study used 2004 MAPP series models for 2014 model. The base case has a number of impacted facilities. Comments should be sent to Jeremy S. A presentation o this study will be made at the next SPG meeting.

9.14 Rugby Wind Farm Study: Jason W. has sent the report to MISO. Steady state results appear to be acceptable, 500 kV line loop flow appears to be existing. However for dynamic performance a 5 Mvar capacitor bank needs to be added at Paynesville. Deliverability study will be completed by MISO. MISO assumes 20 % wind availability and system peak conditions, hence simultaneous transfer levels are not tested at their maximum levels.

10. Other

10.1 Next Meeting will be held on November 30, 2005, in Elk River at the GRE office starting at 9:00 am[1].

Respectfully submitted
by H.M. Turanli, Manitoba Hydro.

[1] This meeting is now scheduled to take place at the MAPP/MISO St. Paul offices.

Appendices AB: Project Facility Table 12/02/2014

Target Appendix	App AB	Region	Geographic Location by TO Member System	PrjID	Facility ID	Expected ISD	From Sub	To Sub	Ckt	Max kV	Min kV	Facility Rating	Facility Description	State	Miles Upg.	Miles New	Plan Status	Estimated Cost	Cost Shared	Postage Stamp	MISO Facility
A in MTEP14	B>A	West	MP, MH	3831	7200	6/1/2020	Dorsey	US/MB Border	1	500		1732	Dorsey-US/Manitoba Border 500 kV Line	MH		160			N	N	Y
A in MTEP14	B>A	West	MP, MH	3831	7201	6/1/2020	US/MB Border	Iron Range	1	500		1732	US/Manitoba Border-Iron Range 500 kV Line	MN		220		$573,207,005.00	N	N	Y
A in MTEP14	B>A	West	MP, MH	3831	7202	6/1/2020	Iron Range			500	230	1200	New Iron Range 500/230 kV Substation adjacent to existing Blackberry 230/115 kV Substation	MN		0	Planned	$46,023,004.00	N	N	Y
A in MTEP14	B>A	West	MP, MH	3831	7622	6/1/2020	Warroad River			500		1732	New midpoint series compensation station on Dorsey - Iron Range 500 kV Line	MN		0	Planned	$52,433,712.00	N	N	Y
A in MTEP14	B>A	West	MP, MH	3831	20289	6/1/2020	Iron Range	various		230			Modifications to and reroutes of existing 230 kV and 115 kV lines at Iron Range Substation site	MN		2	Planned	$3,891,711.00	N	N	Y
A in MTEP14	B>A	West	MP, MH	3831	20290	6/1/2020	Blackberry			230			Two 230 kV panel replacements at Blackberry to facilitate interconnection of Iron Range 500/230 kV Substation	MN		0	Planned	$275,000.00	N	N	Y
A in MTEP14	B>A	West	MP, MH	3831	20292	6/1/2020	Arrowhead			230			One 230 kV panel replacement at Arrowhead to facilitate interconnection of Iron Range 500/230 kV Substation	MN		0	Planned	$137,500.00	N	N	Y
A in MTEP14	B>A	West	MP, MH	3831	20291	6/1/2020	Forbes			230			One 230 kV panel replacement at Forbes to facilitate interconnection of Iron Range 500/230 kV Substation	MN		0	Planned	$137,500.00	N	N	Y
A in MTEP14	B>A	West	MP, MH	3831	20293	6/1/2020	Hilltop			230			One 230 kV panel replacement at Hilltop to facilitate interconnection of Iron Range 500/230 kV Substation	MN		0	Planned	$137,500.00	N	N	Y

COMMISSIONER FIORDALISO: All right, let's continue.

MS. TAMASIC: May I make a statement on the record?

COMMISSIONER FIORDALISO: Yes.

MS. TAMASIC: It is difficult enough for us Intervenors representing these very interested parties here to deal with the myriads of discovery.

I just want to put on the record what I said, what we all said, in our motion: This petition is not ready for prime time, this petition should be suspended until it is complete.

The notion that we are coming in with

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drawings six weeks from now, where is the public interest and public notice on that?. It is so unfair.

COMMISSIONER FIORDALISO: Well taken. Let's proceed at this point.

CROSS-EXAMINATION BY MS. OVERLAND:

Q Mr. Crouch, there were some changes that I would like to talk to you about. First there was a change to the quad bundled 500 kV line. Can you explain what that change is?

MR. CROUCH: We reduced bundle size from quad-bundle to tri-bundle.

Q Why was that?

MR. CROUCH: We were pushing the manufacturing limits of monopoles so it took those out of consideration, and there was a a very large interest from the public about the use of monopoles for aesthetic reasons, and in order to consider those we took a look at whether or not we could reduce the bundle size so that it would be less impact on the structure and we could consider using monopoles; that's why we did that.

Q How would that affect opacity?

MR. CROUCH: Since the quad bundle was

0319

not primarily being designed for opacity, it really is not a change in the opacity of the line.

The line is designed to carry the same amount it would have carried if it had four, it is not an opacity issue.

Q What about the MVA issue?

MR. CROUCH: No, it's the same, the amperage of the line actually feeds the A portion of the MVA.

Q Megavolt amperes?

A Yes.

Q Since we're on that line, why don't you explain what a megavolt ampere is?

MR. CROUCH: There are different ways to categorize power, so two things that make up the power happen to be voltage and amperage.

When you talk about overall power of the circuit, what is it capable of carrying, you essentially multiply the voltage times the amperage and come up with the MVA rating.

Q And you are saying this is mostly a change based on amperage, correct? I mean the change is -- let me--that the design of the line was based on

amperage so that a change would not have an impact
on that; is that correct?

0320

MR. CROUCH: Not necessarily.
One of the considerations in desiging the
line would be to carry a certain amount of power, in
this particular case I believe it was 3,005 MVA.
Q That would be the entire package of
conductors that would carry 3,005 MVA?
A Correct.
Q And for the 280 line, what would that MVA
be for that?
MR. JACOBER: I think you meant 230.
Q I'm sorry, 230, thank you.
MR. JACOBER: The single conductor I
believe is designed to carry 730, approximately 734
MVA.
Q And as I understand, that would be
reconductered and then bundled, but you are changing
that.
MR. CROUCH: We are simply replacing the
existing 230 kV in kind, except in a different
cofiguration.
Q What are you replacing it with?
MR. CROUCH: The same, with a 1590 ACSR
single conductor.
Q Are you familiar with ACSRs?
MR. CROUCH: Yes.

0321

Q What is it?
A It's a different type of conductor, it's an
aluminum conductor steel supported as opposed to
ACSR which is an aluminum conductor steel
reinforced.
Q Why do you use ACSR instead of ACSS?
A In certain cases it has to do with braided
breaking strength, and we do use in certain instance
ACSS.
Q Is there a capacity different between ACSR
and ACSS?
A Depending on how you construct the line, yes,
the ACSS conductor can operate at a higher
temperature.
Q When you say depending on how you
construct the line, does that mean things like
transformers on either end, or what do you mean by
that?
MR. CROUCH: Just speaking about the
line, it would depend on how you sag and tension the
line.
Q What about the transformers?
MR. CROUCH: They are circuit components,
so that affects the circuit rating as opposed to the
line rating.

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Q And what was the circuit rating of the old
configuration and the circuit rating of the new
configuration?
MR. CROUCH: They are still the same.
Q Now, you were talking about impacting the,
just a minute, pushing the manufacturing limits of
monopoles.
What do you mean by that?

MR. CROUCH: Well, once we had gotten into the detailed design, the Phase II design, you then have an opportunity to go to pole manufacturers with the engineering data.

Once we did that, some manufacturers had indicated that they would not be able to manufacture a single monopole and some questioned whether they would be able to do it.

At that point we decided to consider changing the conductor.

Q Was it a weight issue, a tension issue?

MR. CROUCH: It happens to be the size of the pole and it has to do with tension primarily.

Q So essentially the pole could not handle having that much on it?

MR. CROUCH: We were pushing the limits of manufacturing, we weren't quite sure whether they

0323

could make them or not.

As I indicated, some said they could, some said that they could not.

Q So is it correct that if you have that 3,005 MVA and four, and then you reduce it to 3,005 MVA on three, doesn't that change then the amps for those particular conductors?

MR. CROUCH: Each individual conductor would carry a little bit more amperage in the tri-bundled configuration as opposed to the quad bundled configuration.

Q Doesn't that also change all your EMF modeling?

MR. CROUCH: Not necessarily. It does affect somewhat the audible noise, but we would still be able to meet all of the requirements at the edge of the right-of-way.

Q What I am considering is, what Amp rating was used for the modeling and how that changes for the EMF modeling, because what it would do logically -- Is it correct that what it would do logically is raise the amperage of that three lines as opposed to four, so it would raise it by --

MR. CROUCH: I prefer to let Kyle speak to your concern in the EMF.

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Q What is different in the construction aspect of it which is when you have four and you reduce it to three, what kind of percentage does it raise that three by?

MR. CROUCH: As far as raise by?

Q Okay.

You have got Amps, you have 3,005 spread across four, so then what does it take then, take a quarter of that and spread it between the three.

MR. CROUCH: It would take three, if it's in the tri-bundle it is essentially a third of the 3,005.

In the quad bundle it would have been a fourth of 3,005.

Q 3,005 and that's MVA, so what Amps do you have for that 3,005; is there a direct correlation between the Amps and MVA?

MR. CROUCH: Yes.

Q Okay.

So then if you have the 3,005 MVA how many Amps is that?
MR. CROUCH: Just off the top of my head, for a tri-bundle it's a little over a thousand.
Q And that's for conductors?
MR. CROUCH: Yes.

0325

Q So you have a little over a thousand, in the quad bundle would it be around a thousand?
MR. CROUCH: No, it would be 3,005 divided by four, a little over seven hundred.
Q So then you are saying with the three it would be around a thousand, ballpark?
MR. CROUCH: Yes, that's correct.
Q Who would be the witness that would have the specifics on that?
MR. CROUCH: Which specifics?
Q To go from ballpark figures to specifics.
MR. CROUCH: Which specifics are you speaking of?
Q MVA and Amp?
MR. CROUCH: I can actually come up with that. Specifically speaking, the design of the line is 3,005 MVA, so for the conductor itself it is a little over a thousand MVA.
And then on the quad bundle it would have been 3,005 divided by four.
So that's the specific answer.
Q We can do the math, but we have on the record what the formula is.
MR. CROUCH: Yes.
Q You are saying that has an impact on the

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conductor noise?
MR. CROUCH: Primarily the quad bundled configuration was to address audible noise requirements at the edge of the right-of-way.
Q I may have to think about this.
(Pause.)
Q That would have an impact, too, though, on substation design?
MR. CROUCH: Not necessarily, because it's the same amount of power that you are carrying in the line.
Q But would it mean that there are fewer transformers?
MR. CROUCH: No, you are still requiring the same amount of power to flow so you are not reducing the amount of current by reducing the conductor.
In this case because the conductors that we were putting up were to address audible noise it would still be able to meet audible noise with a tri-bundle.
Q When you have bundles, doesn't one bundle go to a transformer and another bundle go to a different, you know, phase --
MR. CROUCH: Yes.

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Q And they are divided up?
MR. CROUCH: Yes.
Q So doesn't that mean there is three, not four, no?

MR. JACOBER: If I can answer that question, no, it does not.
Basically you have three phases, and in each phase you either have four conductors or three conductors, but the transformers still, you would still have three transformers for that transformer bank either way.
Q They are set up by phase rather than by bundle?
MR. JACOBER: Yes.
Q Does that mean then that you have -- then if the MVA would be the same, the transformers would be the same; is that correct?
MR. JACOBER: That's correct.
Q Thank you.
MS. OVERLAND: And given this is a new change, is this a change that we could also take some time to look at and address again when we deal with the changes of substations.
MR. RICHTER: No objection from PSE&G.
COMMISSIONER FIORDALISO: Yes.

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MS. OVERLAND: Because this is an important, this is a big change.
Q Mr. Jacober, you say you are licensed in seven states?
MR. JACOBER: Yes.
Q That's all electrical?
MR. JACOBER: Yes.
Q Now, I want to clarify, because I am from the Midwest, we call them substations but you call them switching stations, and can you address the distinction between them, if there is one?
MR. JACOBER: Basically a switching station and substitution in the matter of this case can be used interchangeably.
Basically as the definition goes, it's a location where lines come in to interconnect with the system, so we can say that they are used interchangeably as to this subject.
Q In your direct--just one moment--in your direct on page 7 you are describing the equipment, and although the locations may change of the East Hanover switching station, will the equipment change, or will that still be the same?
MR. JACOBER: Where is that?
Q Page 6 starting at line 16, where you are

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describing the equipment in the East Hanover switching station, will that still be the same?
MR. JACOBER: Can I read through it?
Q Sure.
(Pause.)
MR. JACOBER: The movement of the proposed alternative that's feasible on the Roseland site would still maintain a GIS switchyard, that is presently would utilize in this case nine breakers and a breaker and-a-half substation rather than six breakers that would be installed in a GIS building very similar to the East Hanover.
Q Nine instead of six, why?
MR. JACOBER: The new, the alternative, the feasible alternative, would include similar to

MS. MOSKOWITZ: Right. He was at least going to attempt to answer.
COMMISSIONER FIORDALISO: He was going to attempt to answer the question you had.
MS. OVERLAND: It had something to do with a number.
COMMISSIONER FIORDALISO: Thank you very much. I told you I was getting stoonad because I did try to remember that and I didn't.
If you could repeat the question so --
Do you remember it?
MR. KHADR: Yes, I remember it.
COMMISSIONER FIORDALISO: You remember it.
Maybe you could ask the question and then give us the answer.

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Unless you know the question.
MS. OVERLAND: Well, that would help me interpret the answer if he give the question too but maybe rather --
COMMISSIONER FIORDALISO: It's sounds like a Laurel and Hardy routine.
MS. OVERLAND: How about if I restate it?
COMMISSIONER FIORDALISO: Please.
CROSS-EXAMINATION OF MR. KHADR BY MS. OVERLAND:
Q. I want to be clear what number it is that I'm looking for, because, as I understand it, in the configuration now with the four down to three conductors on the 500 kV side, the limiting factor is in substation, be it GIS, switched gears, transformers, it is not the line.
So what I wanted to know is what the ultimate rating for the line is if all things are good and glorious and best of all worlds?
A. The circuit rating is limited by its connect switch. And 2007, 2008, and 2009 we had modelled the line rating as 2,650 MVA, normal and 340 MVA emergency for our --
Q. Is that three --
A. I'm sorry. 3,040 MVA emergency, four-hour emergency rating. As you know, PJM study is a 15-year

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analysis. That rating has gone through the 15 years and it did not show that we going to need anymore than that rating for the full 15 years.
If you look at the existing 500 kV circuits that we have, they are all dual conductor per phase, and a rating of I believe 3,005 and 300 -- 3,400 MVA for emergency.
PJM -- and we don't see any need for higher rating on a conductor than what we -- than what I just mentioned right now. The reason we are doing -- going with tri and before with quadruple is to limit the noise level at the edge of the right-of-way, not for higher capacity on the line, higher capability on the line.
We need to recognize that we cannot force flow on that line alone. If things change, not only the flow going to go on that line but also going to go on the parallel 230 kV circuits that line, as well as the parallel 500 kV circuits which all have much lower rating than this line would.
Q. I want a number.
A. All I'm saying is that we studied it for 15

22 years. We don't need any additional capability on that
23 line. That line we design it for triple conductors per
24 phase for noise levels.
25 Q. But that does not answer the question of what if
1251
1 all things were great and good and you did not need to
2 worry about substation limitations, noise limitations,
3 what the capacity would be --
4 A. It's much more --
5 Q. If may I finish, please?
6 -- if I had the conductors -- the conductor
7 manufacturer's spec sheet, what would that say?
8 A. It's much more than just the transformers on the
9 line or the disconnect switches on the station.
10 Q. Correct.
11 A. It's all the parallel lines that we have, it's
12 the 500 kV. When you use that line -- number one, okay,
13 based on Kirchoff's law (phonetic) -- it's a network
14 analysis -- network analysis which shows that that line
15 would have flow similar to the other 500 kV lines within
16 the same thing -- same limitations. You cannot push
17 huge amount of flow on that line for the simple reason
18 that if you lose that line that flow is going to go back
19 on the 230 kV panel circuits and cause severe overloads.
20 Q. There is an RTEP with a network of backbone lines
21 which is only the beginning of the regional expansion
22 plan. And what I want to know again is the number or if
23 you will provide a spec sheet for the conductors for
24 that line because I want -- with all changes coming up,
25 a lot of things will change. The noise restriction may
1252
1 not change, but substations can change and your planning
2 for expansion. There's new lines being build all over.
3 And when the new RTEP comes out, there will be more.
4 And when the next RTEP comes out, there will be more,
5 and so all of this will build up the 500 kV network.
6 So I want to know the number, if all those
7 limitations were removed, what the total potential
8 capacity for that line would be according to the
9 manufacturer, that number.
10 COMMISSIONER FIORDALISO: Maybe I can cut
11 through the chase here. Does a number exist?
12 MR. KHADR: I do not have that number.
13 COMMISSIONER FIORDALISO: Are we able to
14 calculate that number? Is that possible?
15 I don't know. I'm asking you. I just want
16 to get to a point where we continue here so we can get
17 to leakage so we can get done here.
18 MS. MOSKOWITZ: So you are --
19 COMMISSIONER FIORDALISO: Is there a number
20 or is that number able to be calculated that you're
21 aware of?
22 MR. KHADR: I do not do the calculation for
23 the line ratings. I'm not sure what's really involved
24 in calculating that number. I would presume that that
25 number could be calculated.
1253
1 COMMISSIONER FIORDALISO: Ms. Moskowitz, I'm
2 sorry, I didn't mean to cut you off, but I'm just trying
3 to move this along.
4 MS. MOSKOWITZ: I know. And I'm trying to
5 as well.
6 I'm being told that Mr. King knows the

number. I know we're sort of going from witness to witness here, but if we can have your indulgence, perhaps he can --

COMMISSIONER FIORDALISO: Mr. King, come up to the microphone.

MS. OVERLAND: Wasn't he just the witness who didn't know just a minute ago.

MR. KING: I was this morning.

MS. MOSKOWITZ: No. No.

COMMISSIONER FIORDALISO: I don't think that's correct.

You're still under oath, sir.

If you could just give us a number that Ms. Overland is looking for.

CROSS-EXAMINATION OF MR. KING BY MS. OVERLAND:

MR. KING: Can I just take a second to calculate?

MS. OVERLAND: Yes.

MR. KING: The current that I think you're

1254

interested in is the amount of current you can push through a particular conductor before it exceeds a certain temperature.

MS. OVERLAND: It's own rating all by itself in a vacuum all by itself.

MR. KING: All by itself. And the limiting component is whatever you say the maximum temperature is. That's the only thing would --

MS. OVERLAND: Correct. Thermal limits.

MR. KING: Thermal limit of a conductor. If you chose the number to be 140 degrees celsius for a 1590 ACSR Falcon conductor, the number -- the amount of current you'd have to push through based on the PJM summer normal rating conditions with no wires and a high temperature, variably no wind and a high temperature would be 1,838 amps per wire. So if we had four of those it would be 7,352 amps and would go to down to three, three times that 1,800 would be 5,514 amps.

MS. OVERLAND: 5,514 amps.

MR. KING: That would be the current required to raise the conductor temperature to 140 degrees based on the PJM summer --

MS. OVERLAND: Rating conditions.

MR. KING: -- conditions.

MS. OVERLAND: And then do you have an MVA

1255

number for each of those.

MR. KING: If I can calculate it for you.

MS. OVERLAND: And then I will shut up on this topic.

COMMISSIONER FIORDALISO: And you have very few leakage questions. Correct?

I'm sorry?

MS. OVERLAND: Not many. A couple.

COMMISSIONER FIORDALISO: A couple is good. I'll take it.

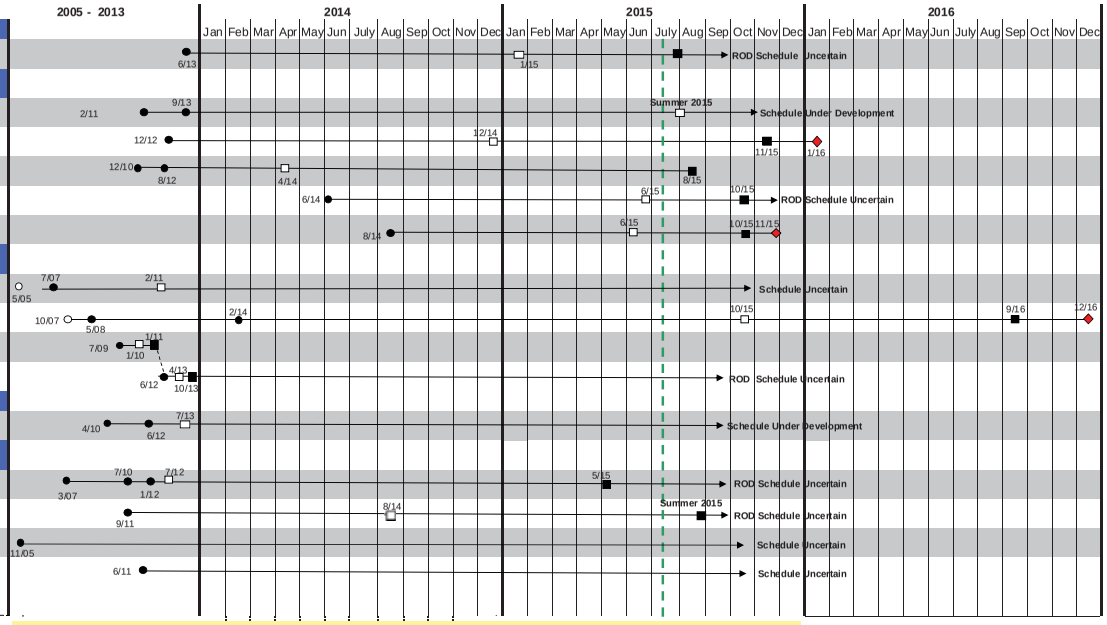
MS. OVERLAND: This was only one.

MR. KING: If I did my square roots correctly, 5,514 amps per phase would correspond to 4,795 MVA at 500 kV, if did my square roots correctly.

MS. OVERLAND: Okay. And -- okay. That will do it. I am happy.

COMMISSIONER FIORDALISO: Ms. Overland, if

SCHEDULES OF KEY ENVIRONMENTAL IMPACT STATEMENTS*

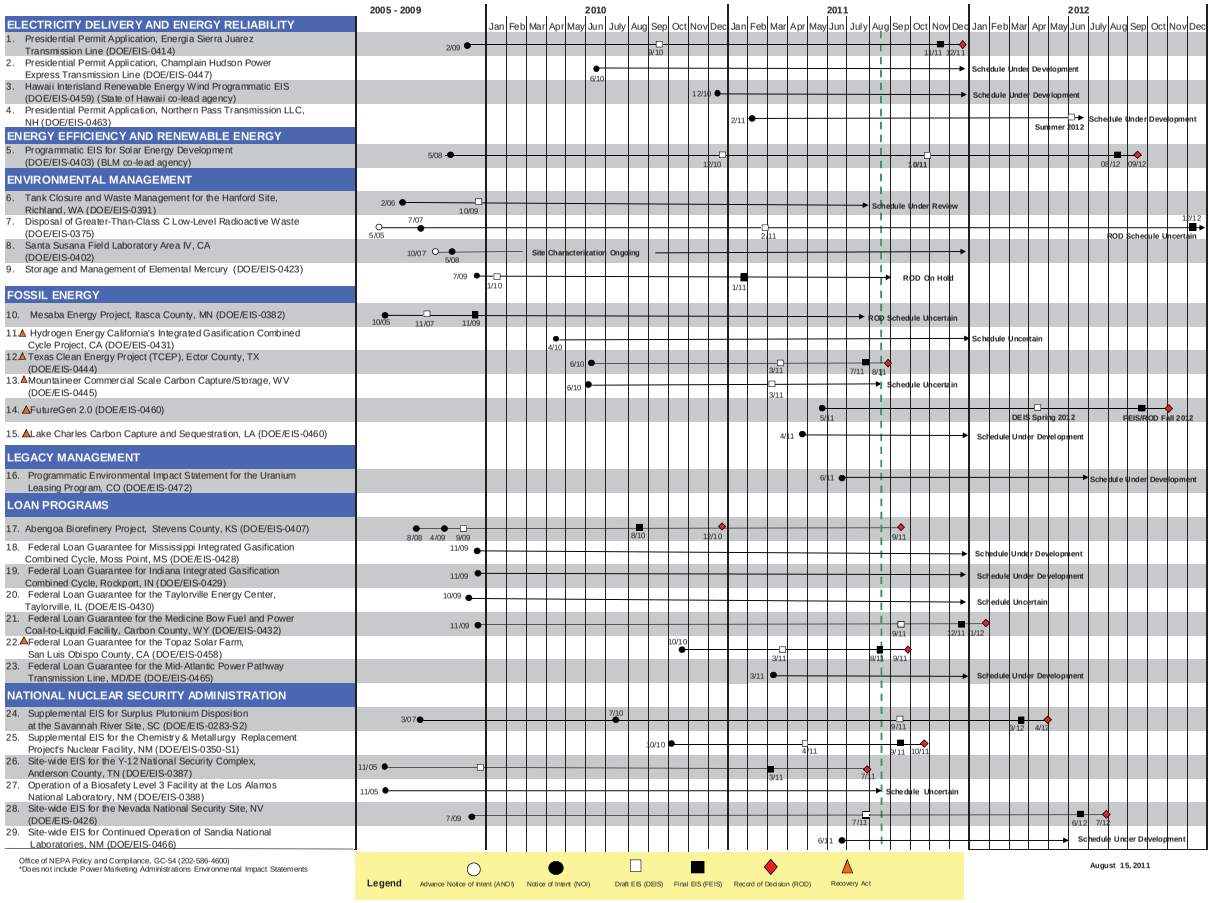


Office of NEPA Policy and Compliance, GC-54 (202-586-4600)

*Chart represents anticipated activity and is not a commitment for documentation or date. Does not include Power Marketing Administrations Environmental Impact Statements.

July 15, 2015

SCHEDULES OF KEY ENVIRONMENTAL IMPACT STATEMENTS*



Office of NEPA Policy and Compliance, GC-54 (202-586-4600)
*Does not include Power Marketing Administrations Environmental Impact Statements

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August 10, 2015

William Cole Storm, Environmental Review Manager
Minnesota Department of Commerce
85 7th Place East, Suite 500
St. Paul, Minnesota, 55101

Re: Great Northern Transmission Line Project and Associated Facilities
PUC Docket Nos. ET015/TL-14-21
DOE/EIS 0499

Dear Mr. Cole,

On June 19, 2015, the Minnesota Department of Commerce (DOC) issued a Notice of Availability of Draft Environmental Impact Statement and request for public comments on the Draft Environmental Impact Statement (DEIS) relating to the route permit application by Minnesota Power for the Great Northern Transmission Line Project and Associated Facilities in Beltrami, Itasca, Koochiching, Lake of the Woods, and Roseau Counties Minnesota. The Minnesota Department of Transportation (MnDOT) has reviewed the DEIS regarding the proposed transmission line project and submits the following comments in response to the Notice.

Both the Blue, Orange, Blue/Orange routes and route segment options evaluated in the DEIS have a number of locations that either cross or run parallel to highways that are part of the state trunk highway system and the National Highway System. As previously stated in MnDOT's Scoping Letter dated August 14, 2014, MnDOT's policy seeks to permit utilities to occupy portions of the highway rights of way where such occupation would not put the safety of the traveling public or highway workers at risk or unduly impair the public's investment in the transportation system. The enclosed comments also provide input on specific impacts associated with the proposed project discussed in the DEIS.

MnDOT appreciates the opportunity to comment and commends the Applicants and the DOC for their communication efforts throughout this process. MnDOT wishes to participate in the development of the EIS so that it will contain a thorough evaluation of the effects various route proposals may have on the state transportation system. MnDOT's fundamental interest is to ensure that the EIS identifies and quantifies, to the extent possible, any impacts the proposed high voltage transmission line (HVTL) may have on the safety of the transportation system, the effectiveness of the operations or maintenance of the state trunk highway system, and any additional costs that may be imposed on the state trunk highway fund as a result of the location of the proposed HVTL.

MnDOT has adopted a formal policy and procedures for accommodation of utilities on the highway rights-of-way ("Utility Accommodation Policy"). A copy of MnDOT's policy can be found at http://www.dot.state.mn.us/policy/operations/op002.html.

MnDOT's approach to the high voltage transmission lines ("HVTL") involved in the Applicants' proposal is to work to accommodate these HVTLs within or as near as feasible to the trunk highway rights of way, based on an evaluation of the specific locations to ensure that appropriate clearance is maintained to preserve the safety of the traveling public and highway workers and the effective operation of the highway system now and in the foreseeable future. MnDOT's Utility Accommodation Policy seeks to guide the balance between accommodation of utility operations in the highway rights of way and preserving the safe and efficient operation of the transportation system.

The provisions of the Utility Accommodation Policy are based on the framework of several interrelated state and federal laws that led to its creation. These comments will outline the legal and regulatory structure under which the Policy was adopted, and will then discuss the types of circumstances and concerns that must be considered when applying the Utility Accommodation Policy to a specific situation as MnDOT works to accommodate a utility in a highway right of way while preserving the safe and efficient operation of the highway. The comments will provide as much specific information as is possible at this time on locations where the HVTL routes proposed by Applicants in this application either cross or run parallel to the trunk highway system. Finally, these comments will discuss a few specific portions of the DEIS.

I. Legal Framework Applicable to MnDOT's Utility Accommodation Policy

MnDOT's policy regarding accommodation of utilities is governed by both federal and state statutes and regulations. These comments will first describe the primary federal laws and then the state laws

A. Applicable Federal Laws

Certain highways in Minnesota are part of the National Highway System, which is established under 23.U.S.C. §103. The National Highway System and the Dwight D Eisenhower National System of Interstate and Defense Highways (Interstate System) are together known as the Federal-aid System. 23 U.S.C. §103(a). See also 23 CFR Part 470. In addition to the highways on the National Highway System, other highways also receive federal funding. Together, the highways in the National Highway System, the Interstate System, plus the other highways that receive federal funding are known as "Federal-aid highways." 23 CFR §470.103. Any of the highways in Minnesota that are potentially impacted by the Great Northern Transmission Line route proposal could be Federal-aid highways.

Congress articulated the transportation policy of the United States in 23 U.S.C. §101(b). Among other things, Congress noted that "it is in the national interest to preserve and enhance the surface transportation system to meet the needs of the United States for the 21st Century," that "the current urban and long distance personal travel and freight movement demands have surpassed the original forecasts and travel demand patterns are expected to continue to change," and that "special emphasis should be devoted to providing safe and efficient access for the type and size of commercial and military vehicles that access designated National Highway System intermodal freight terminals." 23 U.S.C. §101(b)(3)(A), (B) and (E).

Federal law requires that "The real property interest acquired for all Federal-aid projects . . . shall be adequate for the construction, operation, and maintenance of the resulting facility and for the protection of both the facility and the traveling public." 23 C.F.R. §710.201(e). In

addition, all real property that is part of the Federal-aid highway system must be devoted exclusively to highway purposes unless an alternative use is permitted by federal regulation or the Federal Highway Administration ("FHWA"). This basic proposition is stated in 23 C.F.R. §710.403, which provides:

> "(a) The [State Transportation Department] must assure that all real property within the boundaries of a federally-aided facility is devoted exclusively to the purposes of that facility and is preserved free of all other public or private alternative uses, unless such alternative uses are permitted by Federal regulation or the FHWA. An alternative use must be consistent with the continued operation, maintenance, and safety of the facility, and such use shall not result in the exposure of the facility's users or others to hazards."

Similarly, 23 C.F.R §1.23 restricts use of the highway right of way unless otherwise permitted. This section provides:

> "(a) Interest to be acquired. The State shall acquire rights-of-way of such nature and extent as are adequate for the construction, operation and maintenance of a project.
> (b) Use for highway purposes. Except as provided under paragraph (c) of this section, all real property, including air space, within the right of way boundaries of a project shall be devoted exclusively to public highway purposes. No project shall be accepted as complete until this requirement has been satisfied. The State highway department shall be responsible for preserving such right of way free of all public and private installations, facilities or encroachments, except (1) those approved under paragraph (c) of this section; (2) those which the Administrator approves as constituting a part of a highway or as necessary for its operation, use or maintenance for public highway purposes and (3) informational sites established and maintained in accordance with Sec. 1.35 of the regulations in this part.
> (c) Other use or occupancy. Subject to 23 U.S.C. 111, the temporary or permanent occupancy or use of right of way, including air space, for nonhighway purposes and the reservation of subsurface mineral rights within the boundaries of the rights of way of Federal-aid highways, may be approved by the Administrator, if he determines that such occupancy, use or reservation is in the public interest and will not impair the highway or interfere with the free and safe flow of traffic thereon."

(Emphasis added.)

Federal law recognizes accommodating the placement of utility facilities as a permissible exception to the general mandate that all of a highway right of way, including the air space above the right of way, must be used solely for highway purposes. Section 109(l) of Title 23 of the U. S. Code provides:

> "(1) In determining whether any right of way on any Federal-aid highway should be used for accommodating any utility facility, the Secretary shall—
> (A) first ascertain the effect such use will have on highway and traffic safety, since in no case shall any use be authorized or otherwise permitted, under this or any other provision of law, which would adversely affect safety;
> (B) evaluate the direct and indirect environmental and economic effects of any loss of productive agricultural land or any impairment of the productivity of any

agricultural land which would result from the disapproval of the use of such right of way for the accommodation of such utility facility; and
(C) consider such environmental and economic effects together with any interference with or impairment of the use of the highway in such right of way which would result from the use of such right of way for the accommodation of such utility facility."

The U.S. DOT has implemented this statutory directive by adopting the rules relating to accommodation of utilities found at 23 C.F.R. Part 645, Subpart B. These regulations require that each state transportation department submit its policies for accommodating utilities within highway rights of way to the FHWA. 23 C.F.R §645.215(a). See also 23 C.F.R §645.209(c). The FHWA will approve the policy upon determination that it is consistent with federal statutes and regulations, and any changes to the policy are also subject to FHWA approval. 23 C.F.R §645.215(b) and (c). Once a state's policy has been approved by the FHWA, the state transportation department can approve requests by a utility to use or occupy part of the right of way of a highway that is part of the Federal-aid highway system if the request is encompassed by that policy. Exceptions to the policy can be granted, but if a state proposes to grant to a utility an exception to its utility accommodation policy, the exception is subject to review and approval by the FHWA. 23 C.F.R § 645.215(d). This may be considered a federal action which would need to meet all requirements of the National Environmental Policy Act (NEPA), 42 U.S.C. §4321 et seq., to be in conformance with federal regulations.

B. Applicable Minnesota Laws

In addition to these federal laws, MnDOT's policy on utility accommodation must also conform to laws of the State of Minnesota. Article 14 of the Minnesota Constitution establishes the state trunk highway system. It also establishes "a trunk highway fund which shall be used solely for the purposes [of constructing, improving and maintaining the trunk highway system]." Minn. Const. Art. 14, §5. Under Minn. Stat. §161.20, the Commissioner of the Department of Transportation is charged with the responsibility to carry out the directive of Article 14 to construct, improve and maintain the trunk highway system, subject to the directive that trunk highway funds may be used only for trunk highway purposes.

Minnesota has several statutes relating to use of highway rights of way by utilities. Minn. Stat. §222.37, Subd. 1, provides in part:

> "Any . . . power company . . . may use public roads for the purpose of constructing, using, operating, and maintaining lines . . . for their business, but such lines shall be so located as in no way to interfere with the safety and convenience of ordinary travel along or over the same; and in the construction and maintenance of such line . . . the company shall be subject to all reasonable regulations imposed by the governing body of any county, town or city in which such public road may be."

Minn. Stat. § 161.45 provides additional obligations for utility facilities occupying portions of a trunk highway right of way. Section 161.45, Subd. 1 provides in part:

> "Electric transmission . . . lines . . . which, under the laws of this state or the ordinance of any city, may be constructed, placed or maintained across or along any trunk highway . . . may be so maintained or hereafter constructed only in accordance with such rules as

may be prescribed by the commissioner who shall have power to prescribe and enforce reasonable rules with reference to the placing and maintaining along, across, or in any such trunk highway of any of the utilities hereinbefore set forth."

Subdivision 2 of §161.45 specifies the general rule that if the relocation of a utility placed in a trunk highway right of way is necessitated by a construction project on the trunk highway, the utility bears the costs associated with the relocation of its facility. However, if a utility facility is located on the Interstate System, then the cost of relocation of such facility is to be paid out of the state Trunk Highway Fund. See Minn. Stat. § 161.46.

Minnesota Rules part 8810.3100 through 8810.3600 contain rules relating to placement of utility facilities in trunk highway rights of way. Under part 8810.3300, a utility must obtain a permit for any construction or maintenance work in a trunk highway right of way. In addition, Subp. 6 of part 8810.3300 requires that, except for the negligent acts of the state, its agents and employees, the utility shall assume all liability for and save the state harmless from any and all claims arising out of the utility's work and occupation of a portion of the trunk highway right of way.

C. MnDOT's Utility Accommodation Policy

MnDOT has adopted a policy statement regarding the circumstances and methods under which it will grant permits to utilities to occupy a portion of a trunk highway right of way. MnDOT's Utility Accommodation Policy is in conformance with the federal and state statutes and regulations described above, and is also consistent with the American Association of State Highway and Transportation Officials (AASHTO) publications, A Guide for Accommodating Utilities Within Highway Right of way and A Policy on the Accommodation of Utilities Within Freeway Right of way. MnDOT's Utility Accommodation Policy has been reviewed and approved by FHWA under 23 CFR §645.215(b). Therefore, with respect to Federal-aid highways, further review and approval by the FHWA is required for MnDOT to grant an exception to the general application of the Policy, but FHWA review and approval is not necessary for permits granted within the scope of the Policy.

MnDOT's Utility Accommodation Policy recognizes that it is in the public interest for utility facilities to be accommodated on highway rights-of-way when such use would not interfere with the flow of traffic and safe operation of vehicles or otherwise conflict with applicable laws or impair the function of the highway. The Policy applies to all utilities, both public and private. Therefore it speaks in somewhat generic terms to cover as many anticipated situations as possible.

II. Overview of Transportation-Related Impacts of HVTLs on Trunk Highways

0187-1

The preferred and alternate routes proposed by the Applicants in this matter either cross over or run parallel to trunk highways in a number of locations. When a route is ultimately selected by the Minnesota Public Utilities Commission (MPUC), the Applicants will need to obtain a valid permit from MnDOT in any location where the HVTL will occupy any portion of the highway right of way. It is acknowledged that the Applicant states multiple times that the potential impacts to the state transportation system will be limited, short-term and localized.

0187-1
As discussed in Section 1.3.3, the Applicant will work with MnDOT to obtain necessary permits once a final route is selected.

No changes are made to the EIS in response to this comment.

In anticipation of the time when the Applicants will submit applications for permits after a final route is selected, MnDOT has engaged in an ongoing dialogue with representatives of the Applicants and the DOC in an effort to identify information that will be needed to assess the permit applications and, to the degree that specificity is possible at this stage of the proceedings, areas where specific concerns will need to be addressed along various potential route/alignment scenarios. MnDOT believes these discussions have been beneficial for all participants. The discussions have been challenging due to the large number of locations where the proposed HVTL routes and the trunk highways potentially intersect, the variety of unique circumstances that exist along each of these potential locations, and the number of unknowns and uncertainties surrounding the selection of the actual locations where the Applicants will eventually apply for permits from MnDOT.

One of the concepts that has been discussed with the Applicants and the DOC is the importance of recognizing that highway rights of way do not have a uniform width. The width of the right of way, and the distance from the centerline of the roadway to the boundary of the right of way, varies from highway to highway, and even from mile to mile along a given highway. The reasons for this variability are many, and include considerations such as the time when the right of way was purchased, the topography and geology of the area, the negotiations with the individual landowners from whom the right of way was acquired, and the timing and nature of changes and upgrades to the highway that have occurred over the years.

Therefore, a uniform policy that an HVTL can safely be located "X" feet or "Y" feet outside the highway right of way boundary line generally does not work well. A two-dimensional map does not provide sufficient information to determine a suitable alignment for a HVTL. Rather, MnDOT's approach is to evaluate the type of activities that regularly occur on and along highways. These activities can be evaluated in three groups – (a) traffic that uses a highway, (b) maintenance, repair and related activities and structures associated with the ongoing operation of the highway, and (c) construction activities that are likely to occur in the foreseeable future. These functions or uses of the highway each have a zone – i.e., a height and width – in which they take place either along the roadway surface or in the ditches, near bridges, intersections or interchanges where the maintenance and construction activities take place.

Once the zones of these recurring highway activities are identified, a safety buffer zone from the location of the energized wires of the HVTLs must be applied. The Occupational Safety and Health Administration (OSHA) and the National Electric Safety Code (NESC) can provide guidance on the safety clearances for activities near various voltages of HVTLs. The OSHA or NESC safety buffer should be applied between the zones of transportation activities and the location of the energized lines.

1. Traffic That Uses a Highway

Minnesota's trunk highways are designed to facilitate both personal travel and the distribution of freight throughout the state. Pursuant to Minn. Stat. §§169.80 and169.81, vehicles that do not exceed 13 feet 6 inches in height and 8 feet 6 inches in width can be operated on Minnesota's highways without a permit. Vehicles with larger dimensions, excluding farm vehicles, must obtain a permit. On average, MnDOT has issued tens of thousands of permits each year for oversize vehicles to operate on state trunk highways. These do not include oversize farm machinery (which do not require a permit) nor movements of houses or other buildings such as

0187-1 Continued

0187-1 cont'd

0187-2

0187-2
As discussed in Section 2.13 and Section 5.2.1.6, the Applicant will work with MnDOT to obtain necessary oversize permits.

No changes are made to the EIS in response to this comment.

grain bins. The number of building moves varies between 400 and 600 per year. Of the oversize vehicle permits issued, some were for vehicles over 18 feet 5 inches high. An example of the type of oversize loads frequently transported over trunk highways are the blades, base sections and nacelles used in constructing wind turbines.

In addition to freight and building moves, other traffic on the roadway portion of trunk highways includes such activities as snowplows, which operate on both the roadway and the shoulder. Snowplows are about 13 feet tall, and when their boxes are raised to distribute sand and salt, their height can reach as high as 18 feet.

2. Maintenance, Repair and Operational Activities

In addition to the zone associated with traffic traveling on a highway, there is another zone associated with maintenance and operational activities alongside the roadways. Examples of maintenance activities performed by highway workers, and the types of equipment commonly associated with those activities, include the following:

- guardrail and fence installation and repairs, using augers, loaders and skidsteers (which commonly have raised buckets for pulling posts, etc.).
- vegetation control, using mowers, bucket trucks for tree trimming, and equipment for applying herbicides.
- cleaning ditches, culverts and drains, using backhoes and excavators of various sizes that have boom arms that are used to scoop dirt and vegetation and deposit it into a dump truck that will be parked alongside the highway. MnDOT's larger ditch dredging equipment has a horizontal reach as long as 60 feet and a vertical operating dimension of up to 47 feet.
- vehicular accidents on highways often require special equipment to retrieve vehicles and repair damage. For example, when large vehicles such as trucks or buses run off the road or go down large ditches or into wetlands, large equipment with booms or winches may be used to pull them out.
- bridge inspections, using snoopers which have articulating arms that can lift a worker out over the side and then underneath the bridge structure.

Occasionally there is a need for immediate medical transport from roadside locations due to accidents and illnesses. For these situations there are a number of air medical helicopters stationed throughout Minnesota that will land in the roadside environment. These aircraft require clear approach and departure paths as well as an area large enough for the helicopter to land. Given the dimensions of the helicopters used in Minnesota, an area with a diameter of 90 feet should be considered the minimum requirement for landing. There should be two approaches to this area from different directions separated by an arc of at least 90° so that the aircraft can land and take off without a tailwind. Powerlines can be a particularly difficult obstruction for helicopter landings at night. The lines themselves are nearly invisible to the pilot, who must use the presence of poles as evidence that the lines exist. Most helicopters operating in this environment have line cutters installed on the aircraft to cut powerlines they encounter.

Even so, helicopter crashes occur when powerlines get entangled in their rotor system or landing gear.

0187-2 cont'd

0187-2 Continued

0187-3
Thank you for providing information on the MnDOT maintenance and operational activities along roadways. Once a route is selected, the Applicant will work with MnDOT to ensure that medical helicopters are able to safely land in the vicinity of the proposed Project and that physical structures maintained by MnDOT are not affected.

0187-3 No changes are made to the EIS in response to this comment.

0187-3 cont'd

MnDOT also maintains a number of structures alongside highways necessary for the safe and efficient operation of the highway, each of which requires periodic installation, maintenance and repair work. Examples of these structures include:

- road signs. The largest signs tend to be on freeways. Signs that extend out over the travel portion of a freeway must have 17.33 feet of clearance to the bottom of the sign, and the top of such signs can be 30.5 feet tall and may require boom trucks, bucket trucks or cranes to install or maintain such signs. Roadside guide signs along freeways can reach 13 feet tall and tend to be located as far out in the clear zone as practical.
- light posts, traffic control signals and poles for traffic monitoring cameras exist at various locations along highways, and range in height from 20 to 50 feet.
- high mast light towers are used along some freeways, and range in height from 100 to 140 feet.
- noise walls, which can be up to 20 feet high, are becoming increasingly common along freeways.

Another type of physical item located along highways is snow fences, either structural or living. Some snow fences are in the highway right of way, and others are placed by agreement with adjoining landowners and may be 150 feet off the highway right of way. MnDOT is usually able to work out arrangements with a utility owner regarding height and placement of vegetation used as a living snow fence in locations where a utility is placed. If living snow fences owned by MnDOT need to be removed or relocated to accommodate a utility placement, compensation for the removed vegetation is usually required as a condition for issuance of the permit.

0187-3 Continued

3. Future Construction Activities

MnDOT continually evaluates the future needs for the trunk highway system and has construction projects in varying stages of development. Some have been designed and funded and are ready for construction. Others have been identified as needed or are anticipated due to development trends but have not yet been funded. The types of construction projects MnDOT performs that could be impacted by the location of a HVTL range from relatively minor changes to the width of a highway to major reconstruction projects. Examples of such construction projects might include:

- widening a roadway by addition of travel lanes or turn lanes, installation of a roundabout, or widening a shoulder area;
- rebuilding a highway in a way that changes the location or grade of a roadway; and
- addition of an overpass or interchange on a freeway or other highway.

In addition to changes in the configuration of a highway, consideration must be given to the equipment used during the construction process. Construction projects often involve the use of large excavators and cranes similar in size to the equipment described above which MnDOT uses for its maintenance activities. The equipment used in bridge work is especially large, usually requiring cranes with long booms to lift material into place. The equipment used on construction projects also needs to be refueled at the job site, which requires consideration of the safety precautions necessary for this procedure.

0187-4

0187-4

Should MnDOT construction activities be necessary in the future that would require relocation of transmission line structures from the proposed Project, the Applicant would be responsible for the costs associated with the relocation (See Section 5.2.1.6). Identifying potential costs for future relocation activities are beyond the scope of this EIS.

No changes are made to the EIS in response to this comment.

The activities associated with vehicular traffic using the roadway surface have a zone in which they typically occur. In addition to evaluating these zones of activity, MnDOT will also consider factors such as the width of the right of way, the topography of the land and the geometry of the roadway in a specific location when assessing the suitability of that location for an HVTL to occupy a portion of a highway right of way.

Location of a HVTL in close proximity to a highway right of way limits future expansion or reconstruction of highways due to the complex and extremely costly nature of either moving the transmission lines or moving the path of the highway. In order for the Minnesota Public Utilities Commission to make a fully-informed selection of a route based on all the pros and cons of the various alternatives, these costs should be recognized and evaluated in the EIS evaluation of the impacts of the proposed routes. The EIS should include an evaluation of the risk of trunk highway funding liabilities, and the potential magnitude of such liabilities, that may be imposed on the Trunk Highway Fund resulting from various proposed alignments along trunk highway rights-of-way.

III. Routes, Route Segment and Route Variation Proposals

In applying its Utility Accommodation Policy to a permit application, MnDOT must evaluate each proposed pole location individually in relation to the topography of the land, the geometry of the roadway, the width of the highway right of way, the design of the HVTL structures, and other factors. Given the variability of these factors and the large number of potential locations, MnDOT is not able to provide specific answers at this time about whether it can grant permits for the potential locations where the various route proposals intersect with highway rights of way. As referenced earlier, MnDOT's approach to the Applicants' proposal is to work to accommodate these HVTLs within or as near as feasible to the highway rights of way, based on an evaluation of the specific locations to ensure that appropriate clearance is maintained to preserve the safety of the traveling public and highway workers and the effective operation of the highway system now and in the foreseeable future.

To the degree that specificity is possible at this stage in the process, MnDOT will provide additional information about the locations proposed in the routes involved in the Applicant's proposals.

A. Highway Crossing Locations Proposed by the Applicants

The Applicant's preferred and alternate route proposals contain over 15 locations where the proposed HVTLs would cross over a trunk highway, as distinguished from circumstances where it would run parallel to the highway.

Highway crossings generally do not pose insurmountable difficulties in issuing a permit. MnDOT routinely grants such permits to a variety of types of utilities. These permits usually have conditions associated with them, such as placement of the poles so that they do not become a physical obstruction that might be struck by an errant vehicle or block the visibility of traffic. MnDOT also does not permit utilities to run diagonally across intersections, and prefers that crossings occur as close to right angles as possible. Special handling may be required for crossings of scenic byways. MnDOT has a long history of working with utilities, including the Applicants, to establish appropriate conditions in locations where the utility seeks to cross a trunk highway. With the locations proposed by the Applicants in this matter, MnDOT does not

0187-4 Continued 0187-4 cont'd

0187-5
The Applicant will work with MnDOT to ensure the proposed Project complies with the Utility Accommodation on Highway Right of Way requirements set forth in the MnDOT Utility Accomodation and Coordination Manual.

No changes are made to the EIS in response to this comment.

0187-5

anticipate encountering such difficulties that there would be locations where it would be unable to grant permits, with appropriate conditions, for the highway crossings proposed in this matter.

B. Locations Parallel to Highway Rights of Way Proposed by the Applicants

Section 5.2.1.6 of the DEIS identifies the locations where each of the various potential routes under consideration run parallel to or cross highways and roads. Some of the locations identified are roads or streets maintained by local highway authorities and are not part of the trunk highway system for which MnDOT is the responsible highway authority. The highway locations identified in the DEIS that are part of the trunk highway system over which MnDOT has jurisdiction include MN 1, MN 6, MN 11, MN 38, MN 46, MN 65, MN 72, MN 89, MN 217, MN 308, MN 310, MN 313, US 2, US 71 and US 169.

IV. Specific Comments on Matters Discussed in the DEIS

Although MnDOT cannot at this time state with specificity where permits might be granted for each of the locations listed above, there are a few situations where some additional information can be provided that would assist in the development of the EIS.

Section 2.12.1 Transmission Line Maintenance and Operation. On page 40, the DEIS discusses the maintenance and inspection of the transmission line that will be necessary during the life of the structures. The EIS should note that in any locations were the Applicants seek to gain access to the HVTL from a trunk highway for these purposes, or trim vegetation in a trunk highway right of way; they will need to coordinate these activities with MnDOT's Roadside Vegetation Management Unit and obtain any necessary approvals for these activities.

Section 5. 2.1.6 –
Roadways and Railways in the ROI. Railroads that could be affected by a HVTL route application should be part of the discussions to identify impacts of the proposed routes. Where a proposed HVTL may parallel highway rights of way and there is an existing freight railroad right of way adjacent to the highway, there may not be enough room for construction of the transmission lines outside of the clear zones for both the railroad and the highway. The clear zone is an area that must be free from obstructions or other hazards. The railroads may also have concerns with overhead crossings in their right of way, gate clearances, foundations, and electrical buildup on the rails.

General Impacts, Construction Impacts and Operation, Maintenance, and Emergency Repair Impacts. PUC route permit conditions should include mitigation measures relating to any short term impacts to roadways including but not limited to; temporary closing of roadways, traffic delays, halting of construction for traffic and train accommodation, physical damage to roadways, right of way restoration, temporary MnDOT land access and proper Oversized/Overweight permitting.

Section 5.2.1.9 Recreation and Tourism. On page 140, the DEIS identifies the scenic byways impacted by the routes under considerations – i.e., MN 11, MN 38, and MN 46. Scenic byways are designated because they possess one or more of six intrinsic qualities, including scenic, cultural, recreational, natural, historic and archaeological. An analysis of the physical and visual impact on these intrinsic qualities should be conducted at each proposed crossing location to determine the route with the least adverse impact on the byway routes and corridors. Mitigation

0187-5 Continued

0187-5 cont'd

0187-6

0187-6
Thank you for the clarification regarding trunk highways that are under MnDOT's jurisdiction, as discussed in Section 5.2.1.6.

No changes are made to the EIS in response to this comment.

0187-7
Information regarding coordination between the Applicant and MnDOT for access to the transmission line from a trunk highway is included in Section 2.12.1 of the EIS.

0187-7

0187-8
Coordination with rail operators is discussed in Section 5.2.1.6. The Applicant will ensure that the proposed Project does not affect the clear zones or any railway operations.

No changes are made to the EIS in response to this comment.

0187-8

0187-9
Applicant Proposed Measures to minimize impacts would be potential MN PUC permit conditions and are discussed in Section 2.13. Further, MN PUC permit conditions will require the Applicant to coordiate with the MnDOT to ensure the proposed Project complies with the Utility Accommodation on Highway Right of Way requirements set forth in the MnDOT Utility Accomodation and Coordination Manual.

0187-9

No changes are made to the EIS in response to this comment.

0187-10

0187-10
Proposed routes and variations cross three scenic byways at a total of five locations for the proposed Project. Detailed analyses of the visual impacts at all five locations where a route variation crosses a scenic byway have not been prepared as part of the Draft EIS. However, detailed analyses and visual simulations were prepared for three route crossings at two scenic byways: Waters of the Dancing Sky Scenic Byway (State Route 11) and Edge of the Wilderness Scenic Byway (State Route 38). Theses analyses are

included in Sections 6.2.2.1 and 6.3.6.1 respectively, and visual simulations for these crossings are included in Appendix N, Photo Simulations. The EIS analyzes the contrast produced by the transmission line crossing at these locations. For the two viewpoints for the Waters of the Dancing Sky Scenic Byway (State Route 11), the Draft EIS concludes that the transmission line "would not substantially diminish the visual character or quality of views in this area of the scenic byway." For the viewpoint for the Edge of the Wilderness Scenic Byway (State Route 38), the EIS concludes that the transmission line "would interrupt views of the otherwise natural character of the forest landscape in this area of the scenic highway and diminish the aesthetic quality for viewers with high viewer sensitivity." These analyses and visual simulations are intended to describe and illustrate typical views of the transmission line crossings of scenic byways to provide reviewers with representative examples of what the proposed project would look like at these and the other two locations.

For locations where a proposed route or variation crossing of a scenic byway results in a visual impact, it may be possible to minimize or mitigate the impact by adjusting the alignment to cross perpendicular to the scenic byway (as is currently proposed by the Applicant), micro-siting structure positions to locate them as far as possible away from the edges of the highway, darkening the finish on structures to reduce color contrast, using non-specular conductors, and/or feathering vegetation edges of cleared rights-of-way in the vicinity of the highway to reduce contrast.

Once the proposed Project route is selected, the Applicant will coordinate with the affected scenic byway leaders' group and/or stakeholder group in order to identify any specific measures that may be employed to minimize visual impacts and identify any prohibitions or limitations associated with scenic easements in the vicinity of scenic byway crossings.

No changes are made to the EIS in response to this comment.

measures should be recommended for unavoidable impacts on intrinsic qualities within the byway corridors. Each scenic byway has a leaders' group and/or stakeholder group which should be contacted as part of the environmental review process. Scenic easements should be investigated to identify any prohibitions or limitations that apply to land uses in the vicinity of the scenic byway.

Finally, MnDOT wishes to underscore the importance of preserving sufficient flexibility for MnDOT to work with the applicant to determine an appropriate specific location for each pole to be placed along a trunk highway right of way. As the selection of the final route is made, in all locations where the route will cross or run parallel to a trunk highway it is imperative that the designated route be sufficiently wide so that MnDOT and the applicant can work collaboratively to address the circumstances at each location and determine a specific alignment that can be permitted consistent with the considerations described in this letter.

MnDOT has a continuing interest in working with the DOC to ensure that possible impacts to highways and other transportation infrastructure are adequately addressed. We appreciate the opportunity to provide these comments. Please feel free to contact me if you have any questions regarding the information provided.

Sincerely,

Stacy Kotch
Utility Transmission Route Coordinator
Minnesota Department of Transportation

cc: Stephen Frisco – MnDOT District 2A Permits
Darren Laesch – MnDOT District 2 Planning Director
Earl Hill – MnDOT District 2B Permits
Wayne Scheer – MnDOT District 1 Permits

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0187-10 Continued

0187-10 cont'd

0187-11

0187-11
Applicant Proposed Measures to minimize impacts would be potential MN PUC permit conditions and are discussed in Section 2.13. Further, MN PUC permit conditions will require the Applicant to coordiate with the MnDOT to ensure the proposed Project complies with the Utility Accommodation on Highway Right of Way requirements set forth in the MnDOT Utility Accomodation and Coordination Manual.

No changes are made to the EIS in response to this comment.

United States Department of the Interior

FISH AND WILDLIFE SERVICE

5600 American Boulevard West, Suite 990
Bloomington, Minnesota 55437-1458

IN REPLY REFER TO:

AUG 10 2015

FWS/R3/ER15-306

Ms. Julie Ann Smith, Environmental Protection Specialist
Office of Electricity Delivery and Energy Reliability (OE–20)
U.S. Department of Energy
1000 Independence Avenue S.W.
Washington, D.C. 20585

Dear Ms. Smith,

The Fish and Wildlife Service (Service) thanks the Department of Energy (DOE) for the opportunity to comment on the Draft Environmental Impact Statement for the Great Northern Transmission Line (GNTL, DOE/EIS 0499). The Service has been closely involved in this project for several years providing technical assistance regarding impacts of this project on important wildlife, resources, and habitat. The Service has submitted four letters to date on this project:

- March 4, 2014: From the Service to the Minnesota Department of Commerce.
- July 1, 2014: From the Service to Minnesota Power (the Applicant).
- August 11, 2014: From Department of Interior (Office of Environmental Policy and Compliance) to DOE (electronically submitted as a draft letter by the Service to DOE November 20, 2014 and again as a signed letter by the Service to DOE July 22, 2015 due to a clerical error).
- August 14, 2014: From the Service to DOE.

In all of these letters, the Service has stated that the GNTL (both construction and long-term use) has the potential to impact Service interest lands, threatened, endangered, or species of concern, migratory birds, bald and golden eagles, wetlands, and wildlife habitat. The Service has emphasized avoidance and minimization of impacts to these resources, as well as appropriate mitigation for impacts that cannot be practicably avoided. The Service continues to stand by these previous comments and recommendations. This letter serves to outline the Service's recommendations on route selection, alignment modification, and additional comments on avoiding and minimizing impacts to migratory birds, listed species, and wetland/vegetation resources. The Service has additionally included a path forward for minimization and mitigation of potential impacts to Service interest lands. The Service makes these recommendations pursuant to the National Wildlife Refuge

0188-1

0188-1
Potential impacts to these resources are discussed in Chapter 6 of the EIS.

No changes are made to the EIS in response to this comment.

Administration Act (NWRA), Endangered Species Act (ESA), Migratory Bird Treaty Act (MBTA), Executive Order (E.O.) 13186, Department of Energy's Migratory Bird Program Partnership Agreement, Bald and Golden Eagle Protection Act (BGEPA), Federal Aid in Wildlife Restoration Act (Pittman-Robertson Act), Federal Aid in Sport Fish Restoration Act (Dingell-Johnson Act), and Fish and Wildlife Act of 1956.

Route Recommendation and Avoidance of Service Interest Lands

0188-2

The Service administers numerous tracts within the proposed GNTL routing options as part of the National Wildlife Refuge System (NWRS). Service administered and managed lands are acquired for the preservation of wildlife and their habitats. As stated in previous letters (see above), preservation and avoidance of impact to Service interest lands is one of the Service's highest priorities. The Service is supportive of both route alternatives and alignment modifications that maximize avoidance of Service interest lands. The Service favors a weighted tiered approach of avoidance, minimization, and mitigation of impacts.

The Service recommends the following routes and alignments be chosen for the final route selection:

- In the West section of the project, the Service recommends the selection of the Cedar Bend WMA variation, Hop 2 and the Beltrami North Central Variation 4. The Service believes the combination of these variations is the least impactful option with respect to wildlife, wetland, and forestry resources, as compared to the Applicant's preferred route outlined in the DEIS. Additionally, these variations will completely avoid all refuge impacts in the Western Section of this project. Our reasoning is as follows:
  - The Service prefers the Cedar Bend WMA Variation because:
    - It completely avoids Service interest lands and state Wildlife Management Areas (the Applicant-proposed route impacts 6 acres of Service Lands).
    - It impacts less state forest land and wetlands, fewer sites identified by the Minnesota Department of Natural Resources (MN DNR) as having Biodiversity Significance, High Conservation Value Forests, or Native Plant Communities, and fewer wildlife resources.
    - The impacts to listed species are similar to the Applicant's preferred route.
    - This variation will result in an overall shorter route and can be built within an existing ROW.
  - The Service prefers the Beltrami North Central Variation Routes 4 because:
    - It completely avoids Service interest lands (the Applicant-proposed route impacts 18 acres).
    - It impacts fewer rare (plant) species, fewer sites of Biodiversity Significance, fewer overall impacts to forestry, vegetation, wildlife, shrub wetlands, and rare features.

0188-2
Sections 1.1 and 1.4.3 are revised to indicate that the USFWS has identified its agency preferred alternative, and directs the reader to a new Appendix (Appendix U) of the EIS.

0188-2 cont'd

0188-2 cont'd

0188-2 Continued

- It impacts less State Forest and State Fee lands.
- It impacts a similar (but slightly higher) acreage of National Wetland Inventory (NWI) Wetlands (305 vs. 272 acres of the Applicant-proposed route).
- It can be built within the existing ROW (except for <1 mile stretch).
- Impacts to federally listed wildlife resources are similar.
- The Service acknowledges these variations will result in a slightly longer transmission line and will have a greater impact to water resources. Additionally, slightly more emergent and forested wetlands will be impacted (28 and 169 vs. 23 and 119 acres respectively).

- The Service then recommends adoption of the blue route (where Beltrami North Central Variation 4 connects to the Blue Route).
- In the Central Section of the project the Service recommends utilization of the Silver Creek WMA Alignment Modification to avoid Service interest lands (specifically the parcel located T-160, R-30, S-27)). The Service acknowledges this would create a new ROW and possible habitat fragmentation, but prefers this option to expanding the existing ROW on Service lands.
- The Service then recommends the Blue Route be followed to the terminus of the project.

These recommendations by the Service should be considered our strongest recommendation and highest priority; not just one in a series of equally weighted options.

0188-2 Continued

Should the above recommendations not be chosen for the final route selection, the Service recommends the following:

- In the West Section: Should the Cedar Bend WMA variation and the Beltrami North Central Variation 4 not be selected, the Service recommends examining the side-by-side comparison of the preferred route with the Beltrami North Variations 1&2, and the preferred route with the Beltrami North Central Variations 1, 2, 3, and 5 (detailed in the DEIS) to determine the least environmentally impactful alternative. Consideration should be given to existing ROW corridors as well as minimization of impact to wetland and forest resources.
- In the Central Section: If the Orange Route is selected as the final route, the Service recommends examining the side-by-side comparison of the proposed Orange Route and the Beltrami South Central and Beltrami South variations to determine the least environmentally impactful alternative. Consideration should be given to existing ROW corridors as well as minimization of impact to wetland and forest resources.
- In the Central Section: If the Orange Route (with the J2 Segment Option) is selected as the final route, the Service recommends the adoption of the Northolm Variation to avoid impacts to Service interest lands. Because neither the J2 Segment nor the Northolm variation parallel existing corridors, the Service would prefer the Service lands not be impacted.

If it is determined that the Applicant's preferred alternative is the least environmentally impactful option, the Service expects continued coordination with the Applicant to avoid refuge lands within the larger corridor (alignment modifications). If alignment modification within the larger corridor still results in impacts to refuge resources, the Service expects continued coordination with the Applicant to identify, avoid, and minimize impacts to the most sensitive resources within refuge properties through construction and maintenance measures.

As stated in previous letters, any impact to Service interest lands must be mitigated. Please note that mitigation of impacts to Service interest lands will be separate from any mitigation for impacts to listed species, important wildlife resources, and migratory bird resources. The Service lays out the following timeframe, expectations, and requirements for mitigation of impacts to Service interest lands.

Mitigation must result in a net benefit with regard to resources impacted. The Service expects that off-site converted habitat (i.e., wetlands, forests, and grassland that have been converted into agricultural areas) be purchased, restored, and donated (or set into a perpetual easement). These lands will become part of the Service's National Wildlife Refuge System upon acceptance by the Service. Restored parcels must be off-site of areas where impact occurs, but should be in close proximity to existing Service properties. Additionally, mitigation should be in the form of large, contiguous parcels rather than many small isolated parcels. The Service can assist in locating suitable properties. The Service recommends the Applicant closely coordinate with refuge staff on the evaluation of suitable mitigation sites with potential to meet habitat mitigation requirements, before proceeding with acquisition and restoration efforts.

The Service understands that mitigation of impacts to Service interest lands (including assessing impacts and location, acquisition, restoration, and donation of land for mitigation) may take additional time and may lag behind the construction schedule of the GNTL. However, the Service expects that mitigation efforts will closely parallel other construction efforts and be completed in a timely manner. Therefore, should the applicant's preferred final route of the GNTL affect Service interest lands, the Service is prepared to grant a provisional special use permit to authorize construction and accommodate the GNTL's schedule. A final ROW permit will be granted after mitigation for impacts to Service interest lands has been completed and accepted by the Service. Please be aware that issuance of the special use permit authorizes construction activities only. Approval of additional special use permits by the refuge will be required by the Applicant for all activities that occur after the initial construction period or until the ROW is granted. A compatibility determination (by the Service) and dedication of the funds (by the Applicant) must be completed before the provisional special use permit is granted. The ROW request process was laid out in the Service's letter on July 1, 2014, as well as in an email dated March 26, 2015. Additionally, the Service is available to help the Applicant begin this process.

0188-3

0188-3
The Applicant will work with USFWS to determine the mitigation necessary for the route that will be selected by the MN PUC.

No changes are made to the EIS in response to this comment.

Migratory Bird Impacts

The Migratory Bird Treaty Act (MBTA) prohibits taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when specifically authorized by the Department of the Interior. Bald and golden eagles are afforded additional legal protection under the Bald and Golden Eagle Protection Act (BGEPA, 16 U .S .C. 668-668d). Executive Order (E.O) 13186 ("Responsibilities of Federal Agencies to Protect Migratory Birds") was signed in January of 2001. Its purpose is to further the purposes of the migratory bird conventions, the MBTA, the BGEPA, the Fish and Wildlife Coordination Act, the Endangered Species Act (ESA), the National Environmental Policy Act (NEPA), and other pertinent statutes.

As called for in E.O. 13186, a Memorandum of Understanding (MOU) between DOE and the Service was signed in 2013. Its purpose is to strengthen migratory bird conservation through enhanced collaboration between DOE and the Service, in coordination with state, tribal, and local governments. Under the MOU, DOE agreed to "Protect, enhance, and manage habitats of migratory birds, to the extent practicable," including the following example: "When designing new projects, ensuring that they avoid important migratory bird habitats and otherwise avoid or minimize direct and indirect effects of new projects on migratory birds and their habitats, and when practicable and appropriate, restore and enhance bird habitat."(Section E(1)).

The Service recommends avoidance, minimization, and mitigation of impacts to migratory birds and eagles. These impacts may include, but are not limited to: habitat alternation and destruction, take and disturbance, indirect impacts and collisions and electrocution. Where impacts cannot be avoided or fully minimized, the Service will seek compensatory mitigation for removed habitat which was used by either migratory birds (under E.O. 13186 and the 2013 MOU between DOE and the Service) or by listed species (under the ESA). The Service definition for mitigation is taken from NEPA regulations which includes, "e) compensating for the impact by replacing or providing substitute resources or environments" (40 CFR, Section 1508.20).

The Service calculates mitigation for impacts to habitat for listed species and migratory birds using Habitat Equivalency Analysis (HEA). For a specific parcel of impacted habitat, the Service will only seek compensatory mitigation for listed species or migratory birds (i.e, there is no "double-dipping"). The Service strongly suggests the Applicant initiate contact to discuss the HEA analysis and mitigation for listed species and migratory birds as soon as possible to avoid construction delays. The Service also believes this issue needs to be resolved before a Final EIS can be completed and a permit issued.

The Service wishes to make the following specific comments on the DEIS with regards to migratory bird impacts:

0188-4
Section 5.3.4.3 of the EIS is updated to include information on Executive Order 13186 and the MOU between USFWS and DOE.

0188-4 As discussed in Section 2.11.1 of the EIS, the Applicant would incorporate industry best practices to minimize impacts to migratory birds, which are consistent with the Avian Powerline Interaction Committee (APLIC's) 2012 guidelines. In addition, the MN PUC Route Permit could require that the Applicant develop and implement an Avian Protection Plan. The Applicant would coordinate with the MnDNR and other appropriate agencies in the development of an Avian Protection Plan.

The Service has noted several contradictory statements in the DEIS regarding the protection and conservation of migratory birds:

> 1.2.4.3. *Although not formally subject to or part of an agency consultation process, take permits are not available under the MBTA.*
> 5.3.4.3 *The MBTA requires Federal agencies to consult with the USFWS to determine if an agency's proposed action would have, or is likely to have, measurable negative effects on migratory bird populations, and if so, to develop measures intended to avoid any negative effects on migratory birds.*
> and
> 5.3.4.3 *The Federal Bald and Golden Eagle Protection Act require consultation with the USFWS to determine if a proposed project may have potential impacts on bald and golden eagles and, if applicable, to develop habitat conservation plans intended to avoid and minimize the project's impacts on the bald and golden eagles.*

Please note that responsibilities of federal agencies regarding the protection of Migratory Birds (including Bald and Golden Eagles) are outlined in E.O. 13186; and the implementation of this act is detailed in the MOU between DOE and the Service (2013).

> 1.2.4.3: *The Applicant, therefore, has proposed mitigation measures to minimize impacts on migratory birds.*

As discussed above, there exists a MOU between FWS and DOE to help protect migratory bird resources and to mitigate for impacts to those resources. The Service would like more information on the proposed mitigation measures the applicant has proposed, and strongly encourages the Applicant to initiate contact to discuss mitigation.

> 2.11.1.4. *Surveys would be conducted prior to vegetation removal to avoid impacts on nesting birds and to avoid active nest sites of sensitive species.*

The Service recommends conducting any clearing that may impact migratory birds outside of the breeding season. The Service can help with determination of these dates and applicable habitats.

> 2.11.1.4. *Appropriate construction windows would be incorporated into the construction schedule to minimize impacts on species such as bald eagle and goshawk in areas where these species are found to be present.*

The Service recommends the applicant incorporate distance buffers and daylight/temperature restrictions to avoid impacts to nesting raptors. Eagle disturbance permits may be available in cases where avoidance and minimization measures have been implemented and take is still unavoidable. Permits are available for eagle nest removal. However, the following conditions must be met:

1. The applicant must demonstrate that there is no practicable way to leave the eagle nest.
2. The applicant must more than offset the loss of the nest.

Eagle nest removal permits (other than for emergency reasons) often require additional time for pre-permit coordination (including tribal coordination) and processing.

0188-4 Continued

0188-5

0188-4 cont'd

0188-5
The Applicant will follow the APLIC guidance as possible during design and construction of the Project, as discussed in Section 2.11.1 of the EIS.

No changes are made to the EIS in response to this comment.

0188-5
Continued

2.11.1.4. *With regard to rare and unique species, USFWS first preference is to only allow the ROW to be cleared or mowed in the fall or winter before the breeding season. If this is not possible, under limited circumstances the Applicant would have a qualified biologist conduct surveys for active nesting birds and bats prior to construction. If active nesting locations are identified during the surveys, the Applicant proposes to avoid nest sites during the breeding season and to identify construction restraints that would avoid disturbance to nesting birds.*

The Service recommends conducting any clearing that may impact migratory birds outside of the breeding season. The Service can help with determination of these dates and applicable habitats. Because bird nests may be concealed and difficult to detect, the Service does not believe that surveys are sufficient to prevent take of bird nests if trees were cleared during the breeding season.

The Service recommends conducting any tree clearing that may impact bats listed under ESA outside of the active season. The Service can help with determination of these dates and applicable habitats. To determine occupancy of habitat by listed bats, the Service recommends the Applicant follow the Range-wide Indiana Bat Summer Survey Guidelines (see enclosure).

Avoiding Collisions

The Service recommends the GNTL follow Avian Power Line Interaction Committee (APLIC)[1] guidance and recommends transmission lines be bundled and in as few planes as possible. Static wires should be shielded to be made visible, bundled with other wires, or have visual markings (flight diverters) to prevent avian collisions with the lines. The Service can work with both the MN DNR and the Applicant to determine most appropriate places for markers once final route is chosen.

2.5.4: *Typical Supporting Structures*

The Service supports the use of self-supporting suspension towers (those without guy-wires). If guy-wires are needed at points along the route, the Service recommends line markings.[1] The Service can work with both the MN DNR and the applicant to determine most appropriate places for markers once final route is chosen.

Lighting

Security lighting for on-ground facilities, equipment and infrastructure should be motion- or heat-sensitive, down-shielded, and of a minimum intensity to reduce nighttime bird attraction and eliminate constant nighttime illumination, but still allow safe nighttime access to the site.[1]

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[1] 2013 U.S. Fish and Wildlife Service (USFWS) Revised Voluntary Guidelines for Communication Tower Design, Siting, Construction, Operation, Retrofitting, and Decommissioning (http://www.fws.gov/midwest/es/planning/pdf/USFWS2013RevisedGuidanceCommTowers27Sept13.pdf) and Reducing Avian Collisions with Power Lines -- the State of the Art in 2012. Edison Electric Institute and APLIC.

2.11.1.4: *The Applicant would select a transmission line alignment during detailed design to avoid bird concentration sites, nesting areas, migratory pathways, and geographic features that act as a funnel, and avoiding habitats that act as breeding grounds or feeding areas to the extent practical.*

Please note that alignment modifications will likely not be enough to avoid the above impacts. These issues will likely be best avoided and minimized by route selection. Please see the Service's recommendations above in "*Route Recommendation and Avoidance of Service Interest Lands*".

Bald Eagle Impacts

2.11.1.4. *Appropriate construction windows would be incorporated into the construction schedule to minimize impacts on species such as bald eagle and goshawk in areas where these species are found to be present.*

Please see comments above regarding clearing near nests of eagles and other migratory birds. Please note also that the MN DNR eagle nest database is not up-to-date. The Service recommends rigorous eagle nest and roost surveys be conducted once the final route is determined, preferably the season before clearing is to begin. The Service can assist with developing an eagle survey protocol.

Avoiding Wetland Impacts

The Service recommends route selection and alignment modification be utilized to minimize impacts to wetland resources. Transmission towers should span wetlands where possible. Please see exact recommendations above in "*Route Recommendation and Avoidance of Service Interest Lands*".

Avoidance of Vegetation Impacts

Preservation and enhancement of native plant communities should be conducted in order to support the recovery of listed species, such as the Poweshiek skipperling (*Oarisma Poweshiek*). On June 20, 2014, President Obama signed a Presidential Memorandum, "Creating a Federal Strategy to Promote the Health of Honey Bees and Other Pollinators," outlining an expedited agenda to address the devastating declines in honey bees and native pollinators, including the monarch butterfly (*Danaus plexippus*). Recent research has showed dramatic declines in monarchs and their habitats leading conservation groups to petition the Service to list the species under ESA. Ensuring adequate and sustainable habitats that meet all their life history needs would be key to conserving the monarch and other pollinator species. The success of both initiatives requires immediate actions to replace and restore monarch and pollinator habitat on both public and private lands across the U.S. landscape. The Service recommends that revegetation of disturbed areas with native plant species include species of nectar-producing plants and milkweed endemic to the area where the mix is applied. Consultation with state botanists is highly recommended.

0188-6

0188-6
The Applicant will follow previously made recommendations from the USFWS and the APLIC guidance as possible during design and construction of the Project.

No changes are made to the EIS in response to this comment.

0188-7

0188-7
Section 2.13 of the EIS summarizes Applicant-proposed measures to minimize impacts, including potential impacts to rare species. The Applicant has indicated that preconstruction field surveys for rare species, including identification of nest sites during the breeding season, would be conducted and measures to avoid disturbance to nesting birds would be implemented.

No changes are made to the EIS in response to this comment.

0188-8

0188-8
The EIS discusses potential impacts and avoidance, minimization, or mitigation measures to wetlands in Chapter 5 and 6. DOE and DOC-EERA continue to work with USFWS as a cooperating agency in the development of this EIS.

No changes are made to the EIS in response to this comment.

0188-9

0188-9
Chapter 6 of the EIS identifies that the MN PUC Route Permit could require the development of a Vegetation Management Plan as a permit condition, which could include plant surveys along the permitted ROW, incorporate vegetation clearing, and management of invasive species; this plan could also outline restoration strategies for the proposed Project. The MN PUC typically requires the Applicant to prepare a plan in coordination with the MnDNR as a condition of the Route Permit. The MnDNR typically requires the use of native plant community seed mixes for restoration, which would likely ultimately encourage a healthy population of pollinator species.

Section 5.3.2.1 of the EIS now includes a discussion of potential impact to bees from the proposed Project.

Listed Species

The Service is tasked with the protection and recovery of species listed under the ESA. The following are listed, proposed, or candidate species occurring in one or more counties where the GNTL is proposed: Gray Wolf (*Canis lupus*), Canada lynx *(Lynx canadensis)*, Piping plover *(Charadrius melodus)*, Western prairie fringed orchid *(Platanthera praeclara)*, Poweshiek skipperling *(Oarisma poweshiek)*, Northern long-eared bat *(Myotis septentrionalis)*, and Sprague's pipit *(Anthus spragueii)*. The Service recommends this project employ all potential avoidance and minimization measures to reduce impact to these species. The Service will seek compensatory mitigation for removal of habitat that is occupied by a listed species. Please see "Migratory Bird Impacts" above for information on compensatory mitigation. Consultation with the Service under Section 7 of the ESA may be required for this project as described below.

General Wildlife Comments

In order to minimize wildlife impacts to the fullest degree practicable, the applicant should examine any potential alignment modifications and micrositing of towers in order to lessen the impact to wildlife resources. The applicant should avoid impacts to managed wildlife habitats (WMAs, WPAs, Important Bird Areas, and Grassland Bird Conservation Areas).

Please note that the absence of critical habitat for listed species with the proposed route does not relieve the Applicant of avoidance and minimization measures. Listed species may be present outside of critical habitat designations. The Service recommends examining records of species occurrence near the proposed line to determine the most appropriate route option, as well as alignment within the chosen line corridor. These records can be accessed from the MN DNR Natural Heritage Information System (NHIS) database as well as coordination with the Service. Once the route decision is made, the Service requests further coordination with the Applicant to determine if additional wildlife surveys are necessary. If surveys are necessary to determine the occupancy of habitat by listed bats, the Service recommends the Applicant follow the Range-wide Indiana Bat Summer Survey Guidelines (see enclosure).

> 5.3.5.2 *General Impacts: "The proposed Project may affect, but is not likely to adversely affect these federally-listed species or designated critical habitat".*

Because the Service has not had the opportunity to review the Biological Assessment (BA) for impacts of this project on listed species, the Service is unable to agree or disagree with this statement.

Northern Long Eared Bat

> 2.11.1.4. *With regard to rare and unique species, USFWS first preference is to only allow the ROW to be cleared or mowed in the fall or winter before the breeding season. If this is not possible, under limited circumstances the Applicant would have a qualified biologist conduct surveys for active nesting birds and bats prior to construction. If active nesting locations are identified during the surveys, the Applicant proposes to avoid nest sites during the breeding season and to identify construction restraints that would avoid disturbance to nesting birds.*

0188-10

0188-10
Chapters 5 and 6 (Rare and Unique Natural Resources) of the Final EIS are updated with the most current information available (MnDNR NHIS database) to assess presence and potential impacts on rare species.

Chapter 6 of the EIS assess impacts to wildlife resources (i.e. WMAs) for all alternatives.

A Biological Assessment is included in Appendix R of the Final EIS.

0188-11

0188-11
As discussed in the Biological Assessment (included in Appendix R of the EIS), the Applicant will work with USFWS to minimize impacts to the northern long-eared bat.

0188-11 cont'd

0188-11
Continued

The Service will work with the Applicant to develop a Biological Opinion (BO) on the impact of the project to listed bat species. In order for take to be avoided, the Service recommends conducting any clearing outside of the breeding season. If clearing is to be done in the bat active season, the Service recommends the Applicant follow the Range-wide Indiana Bat Summer Survey Guidelines (see enclosure). Please note that due to anticipated clearing, indirect impacts to bats may occur through loss of available habitat. This component should also be addressed in the BA. Additional conservation measures to minimize bat impacts will be a component of the Service's BO.

Biological Assessment/Opinion

The Service appreciates the upcoming opportunity to review the draft Biological Assessment in the DEIS. However, the Service will not issue a Biological Opinion and associated Incidental Take Statement (if one is needed) until a final route has been chosen.

Thank you for your consideration of our comments on the Draft EIS for the Great Northern Transmission Line. Please direct any comments or questions to Mags Rheude at our Twin Cities Field Office: 612-725-3548 x2202, Margaret_rheude@fws.gov.

Sincerely,

Lynn Lewis

Lynn Lewis
Assistance Regional Director
Ecological Services
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Enclosures

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2014
RANGE-WIDE INDIANA BAT SUMMER SURVEY GUIDELINES
January 2014

INTRODUCTION

The Indiana bat (*Myotis sodalis*) was originally listed as being in danger of extinction under the Endangered Species Preservation Act of 1966 (32 FR 4001, March 11, 1967), and is currently listed as endangered under the Endangered Species Act (ESA) of 1973, as amended. This survey protocol provides the U.S. Fish and Wildlife Service's (USFWS) recommended guidance on survey methodology and outlines additional reporting requirements for surveyors.

The following guidance is designed to determine whether Indiana bats are present[1] or likely absent at a given site during the summer (May 15 to August 15). The phased-approach, which includes coordination with the USFWS[2], habitat assessments, and acoustic, mist-net, radio-tracking, and emergence surveys, supersedes the 2007 and 2013 Indiana Bat Mist-Netting Guidelines. Future changes to this guidance may occur and will be posted on the USFWS Indiana bat survey guidance website (http://www.fws.gov/midwest/endangered/mammals/inba/inbasummersurveyguidance.html). Please check this website to ensure use of the most current version of the guidance.

OBJECTIVES

The objectives of Indiana bat summer survey guidelines are to (1) standardize range-wide survey procedures; (2) maximize the potential for detection/capture of Indiana bats at a minimum acceptable level of effort;(3) make accurate presence/absence determinations; and (4) aid in conservation efforts for the species by identifying areas where the species is present.

BACKGROUND

In 2011, the USFWS developed a multi-agency team to determine whether improvements could be made to the 2007 Indiana Bat Mist-Net Protocols. The team included members of the four USFWS regions (Midwest, Northeast, Southeast, and Southwest) where Indiana bats are known to occur, representatives of state natural resource agencies from three of those four regions (Midwest, Northeast, and Southeast), and representatives from three federal agencies (U.S. Geological Survey, Department of Defense, and U.S. Forest Service). We obtained informal peer review of the draft guidelines in February 2012, gathered additional information in 2012, and made a revised version available for public comment in 2013 [78 FR 1879, January 9, 2013, and 78 FR 9409, February 8, 2013].

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[1] The guidance are not intended to be rigorous enough to provide sufficient data to fully determine population size or structure.

[2] Coordinate with the appropriate state natural resource agencies and any involved federal agency(ies) whenever "USFWS" coordination is listed. USFWS FO(s) may direct project sponsors to state agencies for existing occurrence information. Coordinate with your local USFWS FO(s) to understand the process for their area of jurisdiction.

We considered the best available information for all aspects of the guidance. For example, please see our white paper[3] outlining the methodologies used to determine the minimum level of survey effort. The USFWS continues to work with local, State, and Federal biologists; scientific and academic institutions; commercial organizations; and other interested parties to collect additional data on the distribution, ecology, and biology of the Indiana bat and looks forward to receiving any additional pertinent information.

GENERAL PROCESS

Indiana bat surveys for some proposed projects will require modification (or clarification) of this guidance through coordination with the USFWS FO(s) responsible for the state(s) in which the project occurs[4]. If not already required by federal permit, we encourage federal action agencies and surveyors to develop a proposed survey work plan in coordination with the USFWS FO(s) so that all parties fully understand which methods will be deployed, what assumptions will be made, and what the various outcomes would be based on the results of each step. Project proponents may stop survey work at any point once an assumption or documentation of Indiana bat presence occurs. Pre-survey coordination typically will preclude the need for subsequent reviews of intermediate steps by USFWS FO(s) during the busy field season. An online directory of USFWS FO(s) is available at http://www.fws.gov/offices/. Unless otherwise agreed to by the USFWS, negative presence/probable absence survey results obtained using this guidance are valid for a minimum of two years[5] from the completion of the survey. If not already required by federal permit, please submit all results (negative or positive) from any phase to the USFWS FO(s). We strongly encourage this coordination as it improves the USFWS' understanding of (1) the level of survey effort underway and (2) the distribution of the species. A single report can be submitted at the end of all phases conducted for a given project.

USFWS FO(s) level coordination is also important during the survey planning process. The USFWS recognizes that there may be project-specific habitat conditions that do not lend themselves to surveying with either acoustic detectors or mist-nets even though it met the definition of suitable Indiana bat summer habitat. The guidelines that are described in this document are designed to be implemented in habitats conducive to each technique described. We strongly encourage coordination with the FO(s) prior to implementation of methodologies that may not be appropriate for site-specific habitat conditions.

[3] Available at http://www.fws.gov/midwest/endangered/mammals/inba/inbasummersurveyguidance.html

[4] For example, project sponsors for large acreage and/or landscape-scale projects that do not result in permanent habitat loss and would not pose an ongoing threat of lethal take, especially those proposed by land management agencies, may work with local USFWS FOs to apply different scales of surveys (broad vs. project-level) or different types of surveys, such as long-term monitoring results (e.g., forest-wide acoustic transect data) and/or targeted survey efforts (e.g., sub-sampling of large project areas), to address P/A concerns.

[5] The timeframe may be reduced if significant habitat changes have occurred in the area or increased based on local information.

Because Indiana bat surveys may result in take, such surveys should only be conducted by a qualified biologist[6]. Generally, a recovery permit for the Indiana bat authorizes the capture of bats for identification, and handling of bats for measurements, photography, and radio transmitter attachment. Following this guidance will meet standard USFWS requirements; however, surveyors also need to ensure they meet all applicable state permitting and reporting requirements. Failure to follow the survey guidance, as written, or failure to follow a study plan which has received concurrence from the local USFWS FO(s), may result in USFWS FO recommendations for additional survey effort.

The following provides a step-by-step outline of how Indiana bat summer surveys should be conducted in 2014. Some of these steps can occur concurrently.

PHASE 1 – INITIAL PROJECT SCREENING

Step 1. Coordinate with the U.S. Fish and Wildlife Service Field Office(s)[7] regarding existing Indiana bat summer occurrence information.
[Projects located within known Indiana bat summer habitat will not proceed to Phase 2 of this process.]

a) If a project (located within or outside of a known maternity colony home range) is already covered under an existing Endangered Species Act (ESA) incidental take authorization (e.g., HCP, BO), then no further summer surveys are needed, follow the procedures previously authorized by the USFWS FO(s).

b) If there are known Indiana bat summer occurrences (e.g., known roost trees, capture locations, foraging locations) within the project action area[8]; **OR**

if there are no known Indiana bat summer occurrences within the proposed project area itself, but the project area is located within a known maternity colony home range[9]; **OR**

if the project is located outside a known maternity colony home range, but is within the range of the Indiana bat (note this can change over time), then proceed to Step 2.

[6] A qualified biologist is an individual who holds a USFWS Recovery Permit (Federal Fish and Wildlife Permit) for Indiana bats in the state/region in which they are surveying and/or has been authorized by the appropriate state agency to net and handle Indiana bats. Several USFWS offices maintain lists of qualified bat surveyors, and if working in one of those states with authorizations in lieu of a Recovery Permits, the individual will either need to be on that list or submit qualifications to receive USFWS approval prior to conducting any field work.
[7] Coordinate with the appropriate state natural resource agencies and any involved Federal Action agencies whenever "USFWS" coordination is listed. USFWS FO(s) may direct project sponsors to state agencies for existing occurrence information. Coordinate with your local USFWS FO(s) to understand the process for their area of jurisdiction.
[8] The "action area" is defined as all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action. [50 CFR Section 402.02]
[9] See USFWS Indiana Bat Section 7 and Section 10 Guidance for Wind Energy Projects (Questions 4 & 5) http://www.fws.gov/midwest/endangered/mammals/inba/WindEnergyGuidance.html

Step 2. Conduct Habitat Assessment (Desktop or Field-based; see Appendix A).

a) If suitable summer habitat is present within the action area, then proceed to Step 3.

b) If suitable summer habitat is absent within the action area, then no further summer surveys are necessary; however, additional coordination with the USFWS FO(s) will be necessary if Indiana bats may be present during any other season and may be affected by the proposed project.

Step 3. Assess potential for adverse effects to Indiana bats.

a) If the project is not anticipated to result in adverse effects to Indiana bats (as proposed), then no further summer surveys are necessary, coordinate with the USFWS FO(s).

b) If the project may result in adverse effects to Indiana bats but the impacts can be adequately assessed and conservation measures can be designed to minimize those effects without additional presence/absence information (this includes **all** proposed projects within known maternity colony home ranges, but may include other areas as well), then no further summer surveys are necessary, coordinate with the USFWS FO(s) regarding an assessment of the project's potential effects, development of conservation measures, and determination of the need for any ESA incidental take authorization.

c) If the project does not meet the conditions of 3a or 3b, then proceed to **Phase 2**.

PHASE 2 - PRESENCE/ABSENCE SURVEYS (NETTING OR ACOUSTIC SURVEYS)[10]

During the summer of 2014, presence/probable absence (P/A) of Indiana bats may be determined by conducting either Step 4 (mist-netting; see Appendix B) or Step 5 (acoustics; see Appendix C) as outlined below. It is the project proponent's choice as to which option to use. The summer survey season is from 15 May through 15 August for either survey option. If netting is chosen as the preferred P/A method and an Indiana bat(s) is captured, then surveyors may immediately begin Phase 4/radio-tracking. Project proponents must decide whether they will proceed to Phase 4 in coordination with the USFWS FO before any mist netting occurs.

[10] Note: acoustic and/or mist-net surveys should be conducted in the best suitable habitat possible for each survey type to increase the likelihood of detecting/capturing Indiana bats. In some cases, the most suitable habitat for effectively conducting surveys may occur outside a project site boundary and may be sampled if landowner permission is available. For projects with multiple survey areas (e.g., >123 acres or >1 km), survey methods may be interchanged. For example, acoustics could be used for one 123-acre survey area and netting could be used for another 123-acre area.

Step 4. Conduct Mist-Netting Surveys following Recovery Unit-based Protocols[11] (see Appendix B)

Northeast and Appalachian Recovery Units (CT, DE, MA, MD, NC, NJ, NY, PA, eastern TN, WV, VA, VT):

Linear projects: a minimum of 6 net nights per km (0.6 miles) of suitable summer habitat.

Non-linear projects: a minimum of 42 net nights per 123 acres (0.5 km^2) of suitable summer habitat.

For example:

- 7 sites, 2 nets/site for 3 calendar nights = 42 net nights
- 7 sites, 3 nets/site for 2 calendar nights = 42 net nights
- 3 sites, 2 nets/site for 7 calendar nights* = 42 net nights

*Maximum of 3 nights of consecutive netting at any given net location. After 3 consecutive nights of netting at the same location, you must change net locations or wait at least 2 calendar nights before resuming netting at the same location.

a) If no capture of Indiana bats, then no further summer surveys are necessary[12].
b) If capture of Indiana bat(s), then stop or proceed to **Phase 4** as previously decided in coordination with the FO.

Midwest and Ozark-Central Recovery Units (AL, AR, IA, IL, IN, GA, KY, MI, MO, MS, OH, OK, central & western TN, and Lee County, VA):

Linear projects: a minimum of 4 net nights per km (0.6 miles) of suitable summer habitat.

Non-linear projects: a minimum of 9 net nights per 123 acres (0.5 km^2) of suitable summer habitat.

For Example:

[11] The Indiana bat populations in the Northeast and Appalachian Recovery Units have been most heavily impacted by white-nose syndrome to date; therefore, we recommend higher survey effort when compared to the Midwest and Ozark-Central Recovery Units. We have no recommendations for reducing the minimum level of effort required to demonstrate probable absence for projects <123 acres in size. Level of effort is based on detection probabilities and occupancy estimates that were derived from past survey efforts that used the same acreage threshold. Level of effort is designed to reach 90% confidence in negative survey results (see Niver et al. 2013).

[12] NOTE: For Phase 2 Presence/Absence Surveys, wherever the phrase "no further summer surveys are necessary" occurs within this document, the USFWS FO(s) is in affect assuming probable absence of Indiana bats.

- 3 sites, 1 nets/site for 3 calendar nights = 9 net nights
- 1 sites, 3 nets/site for 3 calendar nights = 9 net nights

The sampling period for each net shall begin at sunset and continue for at least 5 hours (longer survey periods may also improve success).

*Maximum of 3 nights of consecutive netting at any given net location. After 3 consecutive nights of netting at the same location, you must change net locations or wait at least 2 calendar nights before resuming netting at the same location.

a) If no capture of Indiana bats, then no further summer surveys are necessary.
b) If capture of Indiana bat(s), then stop or proceed to **Phase 4** as previously decided in coordination with the FO.

OR

Step 5. Conduct Acoustic Surveys[13] (see Appendix C)

Linear projects: a minimum of 2 detector nights per km (0.6 miles) of suitable summer habitat.

Non-linear projects: a minimum of 4 detector nights per 123 acres (0.5 km^2) of suitable summer habitat.

2 detector locations per 123 acre "site" shall be sampled until at least 4 detector nights has been completed over the course of at least 2 calendar nights (may be consecutive).

For example:

- 2 detectors for 2 nights each (can sample the same location or move within the site)
- 1 detector for 4 nights (must sample at least 2 locations)

The acoustic sampling period for each site must begin at sunset[14] and ends at sunrise each night of sampling.

a) Optional coarse screening - for high frequency (HF) or myotid calls (depending on available filters) or Proceed to Step 6

[13] Acoustic surveys are available as a Presence/Absence option throughout the range (i.e., Northeast, Appalachian, Midwest, and Ozark-Central Recovery Units).
[14] Surveys may need to start a little earlier or later than official sunset times (i.e., at "dusk") in some settings such as a deep/dark forested valleys or ridge tops to avoid missing early-flying bats or capturing late-flying birds, respectively. Sunset tables for the location of survey can be found at: http://aa.usno.navy.mil/data/docs/RS_OneYear.php

ii) If no positive detection of HF calls (≥35 kHz) or myotid calls, no further summer surveys necessary.

iii) If positive detection of HF or myotid calls, then
(a) proceed to Step 6 for further acoustic analysis; **OR**
(b) assume presence of Indiana bats and coordinate with the USFWS FO(s); **OR**
(c) assume presence and proceed to **Phase 3**.

Step 6. Conduct Additional Acoustic Analyses for each site that had HF or Myotid calls from Step 5 or ALL sites if Step 5 was not conducted.

Two or more of the currently available 'candidate' acoustic bat ID programs[15] must be used (should use most recent versions). Beginning with acoustic data from night one at each acoustic site, run each night's data for each site through a minimum of two candidate acoustic ID programs. Review results by site by night from each acoustic ID program used[16].

a) If Indiana bat presence is considered unlikely by all candidate programs used in analysis, then no further summer surveys necessary.

b) If Indiana bat presence is considered likely at one or more sites on one or more nights by any candidate programs used in analysis, then
i) proceed to Step 7 for qualitative ID; **OR**
ii) assume presence of Indiana bats and coordinate with the USFWS FO(s); **OR**
iii) assume presence and proceed to **Phase 3**.

Step 7. Conduct Qualitative Analysis of probable Indiana bat calls from Step 6.

At a minimum, for each site/night a program considered Indiana presence likely, review all files from that site/night. Qualitative analysis[17] must also include a comparison of the results of each acoustic ID program by site and night (including: number of call files flagged as probable Indiana bats by each tool used; an evaluation of other species identified by the acoustic ID program; individual file level agreements and disagreements on Indiana bats between programs; and a qualitative analysis of ALL probable Indiana bat call sequences to further evaluate that the correct ID has been recommended by the

[15] Candidate programs are listed at http://www.fws.gov/midwest/Endangered/mammals/inba/surveys/inbaAcousticSoftware.html
[16] The candidate acoustic identification programs all have implemented a maximum likelihood estimator (MLE) at this time. If the analysis of collected calls at a given site on a given night results in the probable presence of Indiana bats with high levels of certainty ($P<0.05$), then select one of the options available in Step 6b.
[17] Qualitative analysis of each acoustic site and night with probable detections of Indiana bats during Step 6 must include the entire night's call data and not just those files making it through the acoustic analysis tools as probable Indiana bats.

program used).

a) If no visual confirmation of probable Indiana bats, then no further summer surveys necessary.

b) If visual confirmation of probable Indiana bats, then

i) assume presence of Indiana bats and coordinate with the USFWS FO(s); **OR**
ii) assume presence and proceed to **Phase 3**.

PHASE 3. CONDUCT MIST-NETTING SURVEYS TO CAPTURE INDIANA BATS.

If netting was not conducted as the P/A method, then netting may be conducted in Phase 3 to capture and characterize (e.g., sex, age, reproductive condition) the Indiana bats that are present in an area and to facilitate Phase 4 efforts. We encourage working with the FOs to develop Phase 3 netting plans based on best available information (e.g., positive acoustic locations). There are no minimum requirements for this phase as this is not a P/A phase.

a) If no Indiana bats are captured, then coordinate with the USFWS FO.

b) If Indiana bats are captured, then proceed to **Phase 4**.

PHASE 4. CONDUCT RADIO-TRACKING AND EMERGENCE SURVEYS (See Appendices D and E).

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APPENDIX A
PHASE 1 SUMMER HABITAT ASSESSMENTS

Summer habitat assessments are Step 2 of Phase 1- Initial Project Screening. The information below is provided to assist applicants, consultants, and/or project proponents (hereinafter termed the "applicant") in establishing whether summer surveys for Indiana bats should be conducted. As a reminder, the first step for determining presence of Indiana bats at a given site is to determine whether there is any existing occurrence data available for the vicinity of the project from the local USFWS FO. This step can be conducted remotely via a desktop analysis (e.g., use of aerial photography to assess the potential presence of suitable habitat). The applicant is responsible for developing and providing sufficient information as to whether potentially suitable summer Indiana bat habitat exists within a proposed project area. If suitable habitat is present, the applicant should calculate the amount and submit this to the USFWS FO(s) and determine the need for any presence/absence surveys (Phase 2). Note: if Indiana bats are present or assumed to be present during any phase, more detailed habitat information may be necessary to adequately assess the potential for impacts (see attached example Indiana Bat Habitat Assessment Datasheet). If no suitable habitat is present, no surveys are needed to assess risk during the summer. Habitat assessments for Indiana bats can be completed any time of year and applicants are encouraged to submit results and proposed Phase 2 study plans well in advance of the summer survey season.

PERSONNEL

Habitat assessments should be completed by individuals with a natural resource degree or equivalent work experience.

DEFINITION FOR POTENTIALLY SUITABLE SUMMER HABITAT

Suitable summer habitat for Indiana bats consists of a wide variety of forested/wooded habitats where they roost, forage, and travel and may also include some adjacent and interspersed non-forested habitats[18] such as emergent wetlands and adjacent edges of agricultural fields, old fields and pastures. This includes forests and woodlots containing potential roosts (i.e., live trees and/or snags ≥5 inches dbh[19] (12.7 centimeter) that have exfoliating bark, cracks, crevices, and/or hollows), as well as linear features such as fencerows, riparian forests, and other wooded corridors. These wooded areas may be dense or loose aggregates of trees with variable amounts of canopy closure. Individual trees may be considered suitable habitat when they exhibit the characteristics of a potential roost tree and are located within 1,000 feet (305 meters) of other forested/wooded habitat. We recommend that project proponents or their representatives

[18] Non-forested habitats typically should be excluded from acreages used to establish a minimum level of survey effort for Phase 2 surveys.

[19] While trees <5 inches (<12.7 cm) dbh that have exfoliating bark, cracks, crevices, and/or hollows may have some potential to be male Indiana bat summer roosting habitat, the USFWS does not consider early-successional, even-aged stands of trees <5 inches dbh to be suitable roosting habitat for the purposes of this guidance. Suitable *roosting* habitat is defined as forest patches with trees of 5-inch (12.7 cm) dbh or larger. However, early successional habitat with small diameter trees may be used as foraging habitat by Indiana bats. Therefore, a project that would remove or otherwise adversely affect ≥20 acres of early successional habitat containing trees between 3 and 5 inches (7.6-12.7 cm) dbh would require coordination/consultation with the USFWS FO to ensure that associated impacts would not rise to the level of take. The USFWS may request P/A surveys if >20 acres of early successional habitat were proposed for removal.

coordinate with the appropriate USFWS Field Office to more clearly define suitable habitat for their particular region as some differences in state/regional suitability criteria may be warranted (e.g., high-elevation areas may be excluded as suitable habitat in some states).

SUBMISSION OF HABITAT ASSESSMENT AND PHASE 2 STUDY PLAN (IF NEEDED)

If a proposed project may affect (positively or negatively) Indiana bats and the conditions outlined in Step 3 a or b are not met, a habitat assessment report should be submitted to the appropriate USFWS FO(s) (and/or to the lead Federal Action Agency, such as the USACE, as appropriate) along with a draft study plan for the Phase 2 (acoustic or netting) survey (if suitable habitat is present). Complete reports will include the following:

1. Full names and relevant titles/qualifications of individuals (e.g., John E. Smith, Biologist II, State University, B.S. Wildlife Science 2007) completing the habitat assessment and when the assessment was conducted
2. A map and latitude/longitude or UTM clearly identifying the project location (or approximate center point) and boundaries
3. A detailed project description (if available)
4. Documentation of any known/occupied spring staging, summer, fall swarming, and/or winter habitat for Indiana bats within or near the project area
5. A description of methods used during the habitat assessment
6. A summary of the assessment findings and a completed Indiana Bat Habitat Assessment Datasheet (see attached below; use of this particular datasheet is optional)
7. Other information that may have a bearing on Indiana bat use of the project area (e.g., presence of fall or winter habitat [caves, crevices, fissures, or sinkholes, or abandoned mines of any kind], bridges and other non-tree potential summer roosts.)
8. Any other information requested by the local USFWS FO(s) related to the project

In addition, Phase 2 Study Plans should contain the following:

1. A statement as to which type of P/A surveys will be conducted (i.e., mist netting or acoustic surveys) and how the proposed survey level of effort (i.e., total # of net nights or detector nights) was calculated/determined;
2. A map depicting the proposed number of survey sites (mist netting or acoustic) and their tentative distribution throughout the project area;
3. A tentative list of surveyors names and copies of relevant federal permits (if required in the project State); and
4. A tentative survey schedule (e.g., start date, duration, end date).

APPENDIX A
PHASE 1 SUMMER HABITAT ASSESSMENTS

INDIANA BAT HABITAT ASSESSMENT DATASHEET

Project Name: _____ Date: _____

Township/Range/Section: _____

Lat Long/UTM/ Zone _____ Surveyor: _____

Brief Project Description

Project Area

	Total Acres	Forest Acres		Open Acres
Project				
Proposed Tree Removal (ac)	Completely cleared	Partially cleared (will leave trees)	Preserve acres- no clearing	

Vegetation Cover Types

Pre-Project	Post-Project

Landscape within 5 mile radius

Flight corridors to other forested areas?
Describe Adjacent Properties (e.g. forested, grassland, commercial or residencial development, water sources)

Proximity to Public Land

What is the distance (mi.) from the project area to forested public lands (e.g., national or state forests, national or state parks, conservation areas, wildlife management areas)?

APPENDIX A
PHASE 1 SUMMER HABITAT ASSESSMENTS

Use additional sheets to assess discrete habitat types at multiple sites in a project area
Include a map depicting locations of sample sites if assessing discrete habitats at multiple sites in a project area
A single sheet can be used for multiple sample sites if habitat is the same

Sample Site Description
Sample Site No.(s): _____

Water Resources at Sample Site				
Stream Type (# and length)	Ephemeral	Intermittent	Perennial	Describe existing condition of water sources:
Pools/Ponds (# and size)		Open and accessible to bats?		
Wetlands (approx. ac.)	Permanent	Seasonal		

Forest Resources at Sample Site				
Closure/Density	Canopy (> 50')	Midstory (20-50')	Understory (<20')	1=1-10%, 2=11-20%, 3=21-40%, 4=41-60%, 5=61-80%, 6=81=100%
Dominant Species of Mature Trees				
% Trees w/ Exfoliating Bark				
Size Composition of Live Trees (%)	Small (3-8 in)	Med (9-15 in)	Large (>15 in)	
No. of Suitable Snags				

Standing dead trees with exfoliating bark, cracks, crevices, or hollows. Snags without these characteristics are not considered suitable.

IS THE HABITAT SUITABLE FOR INDIANA BATS? _____

Additional Comments:

Attach aerial photo of project site with all forested areas labeled and a general description of the habitat

Photographic Documentation: habitat shots at edge and interior from multiple locations; understory/midstory/canopy, examples of potential suitable snags and live trees; water sources

APPENDIX B
PHASE 2 or 3 MIST-NETTING

Mist-netting can be used as a presence/probable absence method (Phase 2 surveys) or it can be conducted for the purpose of attempting to capture Indiana bats after detection during acoustic presence/probable absence surveys (Phase 3 surveys). The same recommendations (e.g., season, personnel, equipment, net placement, checking nets) apply for either use of mist-netting surveys.

SUMMER MIST-NETTING SEASON: May 15[20] – August 15

Capture of reproductive adult females (i.e., pregnant, lactating, or post-lactating) and/or young of the year during May 15 – August 15 confirms the presence of a maternity colony in the area. Since adult males and non-reproductive females have commonly been found summering with maternity colonies, radio-tracking results will be relied upon to help determine the presence or absence of a maternity colony or large concentrations of bats in the area when only males and/or non-reproductive females are captured.

PERSONNEL

A qualified biologist(s)[21] must (1) select/approve mist-net set-ups in areas that are most suitable for capturing Indiana bats, (2) be physically present at each mist-net site throughout the survey period, and (3) confirm all bat species identifications. This biologist may oversee other biological technicians and manage mist-net set-ups in close proximity to one another as long as the net-check timing (i.e., every 10 minutes) can be maintained while **walking** between nets.

COORDINATION WITH USFWS FO(s)

If not already required by federal permit, we recommend that applicants submit a draft study plan for all survey phases to the USFWS FO(s) for review and approval. Study plans should include a map/aerial photo identifying the proposed project area boundaries, suitable bat habitats and acreages within the project area, and the proposed number and tentative locations of net sites.

EQUIPMENT

Use the finest, lowest visibility mesh mist-nets commercially available, as practicable. Currently, the finest net on the market is 75 denier, 2 ply, denoted 75/2 (Arndt and Schaetz 2009); however, the 50 denier nets are still acceptable for use at this time. The finest mesh size available is approximately 1½ inches (38 millimeters).

[20] Due to concerns with transmission of white-nose syndrome, some USFWS FO(s) and state natural resource agencies have delayed the start of the Indiana bat summer field survey season/mist-netting until June 1. Surveyors/applicants should always coordinate with local USFWS FO(s) and state natural resource agencies before beginning surveys.

[21] A qualified biologist is an individual who holds a USFWS Recovery Permit (Federal Fish and Wildlife Permit) for Indiana bats in the state/region in which they are surveying and/or has been authorized by the appropriate state agency to net and handle Indiana bats. Several USFWS offices maintain lists of qualified bat surveyors, and if working in one of those states with authorizations in lieu of a Recovery Permits, the individual will either need to be on that list or submit qualifications to receive USFWS approval prior to conducting any field work.

APPENDIX B
PHASE 2 or 3 MIST-NETTING

No specific hardware is required. There are many suitable systems of ropes and/or poles to hold nets. The system of Gardner et al. (1989) has been widely used. See NET PLACEMENT for minimum net heights, habitats, and other netting requirements that affect the choice of hardware.

To minimize potential for disease transmission, any equipment that comes in contact with bats should be kept clean and disinfected, following approved protocols; this is particularly a concern relative to white-nose syndrome (WNS). Disinfection of equipment to avoid disease transmission (e.g., WNS) is required; protocols are posted at http://www.whitenosesyndrome.org/. Federal and state permits may also have specific equipment restrictions and disinfection requirements.

MINIMUM PRESENCE/ABSENCE MIST-NETTING LEVEL OF EFFORT (PHASE 2)

Conduct Mist-Netting Surveys following Recovery Unit-based protocols[22]

Northeast and Appalachian Recovery Units (CT, DE, MA, MD, NC, NJ, NY, PA, eastern TN, WV, VA, VT):

Linear projects: a minimum of 6 net nights per km (0.6 miles) of suitable summer habitat.

Non-linear projects: a minimum of 42 net nights per 123 acres[23] (0.5 km^2) of suitable summer habitat.

For example:

- 7 sites[24], 2 nets[25]/site for 3 calendar nights = 42 net nights
- 7 sites, 3 nets/site for 2 calendar nights = 42 net nights
- 3 sites, 2 nets/site for 7 calendar nights* = 42 net nights

Maximum of 3 nights of consecutive netting at any given net location. After 3 consecutive nights of netting at the same location, you must change net locations or wait at least 2 calendar nights before resuming netting at the same location.

a) If no capture of Indiana bats, then no further summer surveys are

[22] The Indiana bat populations in the Northeast and Appalachian Recovery Units have been most heavily impacted by white-nose syndrome; therefore, we recommend higher survey effort when compared to the Midwest and Ozark-Central Recovery Units.
[23] We have no recommendations for reducing the minimum level of effort required to demonstrate probable absence for projects <123 acres in size. Detection probabilities and occupancy estimates were derived from past survey efforts that used the same acreage threshold (see Niver et al. 2013).
[24] A site is defined as a geographic area to be sampled. It can include one or more nets that can be managed by one Qualified Biologist.
[25] A net is defined as any combination of individual panels and poles (e.g., single, double, triple high) to fill the area (e.g., corridor) being sampled.

necessary[29].

b) If capture of Indiana bat(s), then stop or proceed to **Phase 4** as previously decided in coordination with the FO(s).

Midwest and Ozark-Central Recovery Units (AL, AR, GA, IA, IL, IN, KY, MI, MO, MS, OH, OK, and central & western TN):

Linear projects: a minimum of 4 net nights per km (0.6 miles) of suitable summer habitat.

Non-linear projects: a minimum of 9 net nights per 123 acres (0.5 km^2) of suitable summer habitat.

- 3 sites, 1 nets/site for 3 calendar nights = 9 net nights
- 1 sites, 3 nets/site for 3 calendar nights = 9 net nights

Maximum of 3 nights of consecutive netting at any given net location. After 3 consecutive nights of netting at the same location, you must change net locations or wait at least 2 calendar nights before resuming netting at the same location.

a) If no capture of Indiana bats, then no further summer surveys are necessary.
b) If capture of Indiana bat(s), then stop or proceed to **Phase 4** as previously decided in coordination with the FO(s).

MIST-NETTING SURVEYS TO CAPTURE INDIANA BATS AFTER ACOUSTICS WERE USED AS P/A METHOD (PHASE 3)

If netting was not conducted as the P/A method, then netting may be conducted to capture and characterize (e.g., sex, age, reproductive condition) the Indiana bats (documented through the Phase 2 acoustic P/A survey) present in an area and to facilitate Radio-tracking (Phase 4) efforts. We encourage working with the FO(s) to develop Phase 3 netting plans based on best available information (e.g., positive acoustic locations). There are no minimum requirements for this phase as this is not a P/A phase.

a) If no Indiana bats are captured, then coordinate with the USFWS FO.
b) If Indiana bats are captured, then proceed to **Phase 4** as previously decided in coordination with the FO(s).

[29] NOTE: For Phase 2 Presence/Absence Surveys, wherever the phrase "no further summer surveys are necessary" occurs within this document, the USFWS FO(s) is in affect assuming probable absence of Indiana bats during the summer.

APPENDIX B
PHASE 2 or 3 MIST-NETTING

NET PLACEMENT

Potential travel corridors (e.g., streams, logging trails) typically are the most effective places to net (although other places may also be productive; see Carroll et al. 2002). Place nets approximately perpendicular across the corridor. Nets should fill the corridor from side to side, extending beyond the corridor boundaries when possible, and from stream (or ground) level up to the overhanging canopy. Nets of varying widths and heights may be used as the situation dictates. A typical set is at least 5 m to 9 m high consisting of two or more nets stacked on top one another and from 6 m to 18 m wide. If netting over water, ensure there is enough space between the net and the water so that captured bats will not get wet.

Occasionally it may be necessary or desirable to net where a suitable corridor is lacking. The typical equipment described in the section above may be inadequate for these situations, requiring innovation on the part of the surveyor (see Humphrey et al. 1968). See Kiser and MacGregor (2005) for additional discussion about net placement.

Although no minimum spacing between mist-nets is being specified, surveyors should distribute net set-ups throughout suitable habitat. Net set-ups can be repeatedly sampled throughout the project, but generally no more than 2-3 nights at a single location is recommended. In addition, changing locations within a project area may improve capture success (see Robbins et al. 2008; Winhold and Kurta 2008). Photo-document placement of nets.

SURVEY PERIOD

The survey period for each net shall begin at sunset[27] and continue for at least 5 hours (longer survey periods may also improve success).

CHECKING NETS

Each net set-up should be checked approximately every 10 minutes, never exceeding 15 minutes (Gannon et al. 2007). If surveyors monitor nets continuously, take care to minimize noise, lights and movement near the nets. Monitoring the net set-up continuously with a bat detector (ideally using ear phones to avoid alerting bats) can be beneficial: (a) bats can be detected immediately when they are captured, (b) prompt removal from the net decreases stress on the bat and potential for the bat to escape (MacCarthy et al. 2006), and (c) monitoring with a bat detector also allows the biologist to assess the effectiveness of each net placement (i.e., if bats are active near the net set-up but avoiding capture), which may allow for adjustments that will increase netting success on subsequent nights. There should be no other disturbance near the nets, other than to check nets and remove bats. Biologists should be prepared to cut the net if a bat is severely entangled and cannot be safely extracted within 3 or 4 minutes (CCAC 2003; Kunz et al. 2009).

[27] Surveys may need to start a little earlier or later than official sunset times (i.e., at "dusk") in some settings such as a deep/dark forested valleys or ridge tops to avoid missing early-flying bats or capturing late-flying birds, respectively. Sunset tables for the location of survey can be found at: http://aa.usno.navy.mil/data/docs/RS_OneYear.php.

APPENDIX B
PHASE 2 or 3 MIST-NETTING

Capture and handling are stressful for bats. Emphasis should be on minimizing handling and holding bats to as short a time as possible to achieve field study objectives. Indiana bats should not be held for more than 30 minutes after capture, unless the individual is targeted for radio-tracking. Bats targeted for radio-tracking should be released as quickly as possible, but no longer than 45 minutes after capture, or as allowed in federal and state permits. See Kunz and Kurta (1988) for general recommendations for holding bats.

WEATHER AND LIGHT CONDITIONS

Severe weather adversely affects capture of bats. Some Indiana bats may remain active despite inclement weather and may still be captured while others in the same area become inactive. Therefore, negative surveys combined with any of the following weather conditions throughout all or most of a sampling period are likely to require an additional night of mist-netting: (a) temperatures that fall below 50°F (10°C); (b) precipitation, including rain and/or heavy fog, that exceeds 30 minutes or continues intermittently during the survey period; and (c) sustained wind speeds greater than 9 miles/hour (4 meters/seconds; 3 on Beaufort scale).

NOTE: Provided that nets are not dripping wet, surveyors can resume netting to meet the minimum 5-hour requirement after short periods of adverse weather. If nets are under good cover, light rain may not alter bat behavior. However, if no bats are being captured during marginal weather, coordinate with the USFWS FO(s).

It is typically best to place net set-ups under the canopy where they are out of moonlight, particularly when the moon is half-full or greater. Net set-ups illuminated by artificial light sources should also be avoided.

DOCUMENTATION OF *MYOTIS SODALIS* CAPTURES

If an Indiana bat(s) is captured during mist-netting, protocols for radio-tracking and emergence survey requirements, as provided in Appendix D and E, respectively, should be followed. In addition, the appropriate USFWS FO(s) must be notified of the capture within 48 hours (or in accordance with permit conditions), and the sex and reproductive condition of the bat and GPS coordinates of the capture site should be provided.

Several species of bats from the genus *Myotis* share common features which can make identification difficult; Indiana bats and little brown bats (*Myotis lucifugus)* can be particularly difficult to distinguish. Photo-documentation of all bats captured and identified as Indiana bats and the first 10 little brown bats per project are requested to verify the identifications made in the field.

Photo-documentation should include diagnostic characteristics:

- a ¾-view of face showing ear, tragus, and muzzle
- view of calcar showing presence/absence of keel
- a transverse view of toes showing extent of toe hairs

APPENDIX B
PHASE 2 or 3 MIST-NETTING

If a bat from the genus *Myotis* is captured during mist netting that cannot be readily identified to the species level, then species verification may be attempted through fecal DNA analysis. Collect one or more fecal pellets (i.e., guano) from the bat in question by placing it temporarily in a holding bag (15 minutes is usually sufficient, no more than 30 minutes is recommended). The pellet (or pellets) collected should be placed in a small vial (e.g., 1.5 ml) with silica gel desiccant; pellets from each individual bat should be stored in separate vials and out of direct light. Fees charged by independent laboratories for sequencing fecal DNA samples is generally inexpensive (approx. $50 per guano sample), however, it has been challenging to identify labs willing to consistently conduct these analyses. Any additional information and a list of available laboratories will be made available on the Indiana bat webpage on the USFWS's Region 3 website (http://www.fws.gov/midwest/Endangered/mammals/inba/index.html).

SUBMISSION OF MIST-NETTING RESULTS

Provide results of netting surveys to the appropriate USFWS FO(s) in accordance with previously agreed upon[28] timeframes. If Indiana bats are captured, this report should also include the results of subsequent radio-tracking and emergence counts. Reports should include the following:

1. Copy of prior phase reports (if not previously provided).
2. Explanation of any modifications from original survey plan (e.g., altered net locations).[29]
3. Description of net locations (including site diagrams), net set-ups (include net heights), survey dates, duration of surveys, weather conditions, and a summary of findings.
4. Map identifying netting locations and information regarding net set-ups, including lat/long or UTM, individual net placement, and net spacing (i.e., include mist-netting equipment in photographs of net locations).
5. Full names of mist-netting personnel attending each mist-net site during an operation, including the federally-permitted/qualified biologist present at each mist-net site. Indicate on the field data sheet the full name of person who identified bats each night at each site.
6. Legible copies of all original mist-netting datasheets (see example datasheet below) and a summary table with information on all bats captured during the survey including, but not limited to: capture site, date of capture, time of capture, sex, reproductive condition, age, weight, right forearm measurement, band number and type (if applicable), and Reichard's wing damage index score (Reichard and Kunz. 2009).

[28] As discussed in the Introduction, we encourage coordination with USFWS FO(s) prior to implementation of any surveys to ensure that all parties agree upon the need for surveys, the methods proposed, and the decisions from various survey results.
[29] If the USFWS previously agreed upon the study plan we need to understand whether the revised work still accomplished the agreed upon methods

7. Photographs of all net set-ups, as well as **all** Indiana bats and the first 10 little brown bats captured from each project, so that the placement of netting equipment and identification of species can be verified. Photographs of bats should include all diagnostic characteristics that resulted in the identification of the bat to the species level.
8. Any other information requested by the local USFWS FO(s) related to the project.

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APPENDIX C
PHASE 2 ACOUSTIC SURVEYS

SUBMISSION OF ACOUSTIC SURVEY RESULTS

Provide results of acoustic surveys to the appropriate USFWS FO(s) in accordance with previously agreed upon[37] timeframes. Each acoustic survey report should include the following:

1. Copy of habitat assessment (if not previously provided)
2. Explanation of any modifications from original survey plan (e.g., altered site locations)[38]
3. Description of acoustic monitoring sites, survey dates, duration of survey, weather conditions, and a summary of findings
4. Map identifying acoustic monitoring locations and a corresponding table including the GPS coordinates
5. Full names of all personnel conducting acoustic surveys, including those that selected acoustic sites and deployed detectors, and include copies of state and federal permits (if applicable)
6. Full name and resume of individual(s) conducting qualitative acoustic analyses
7. Table with information on acoustic monitoring and resulting data, including but not limited to: detector GPS coordinates, survey dates, survey hours
8. Description of acoustic detector brand(s) and model(s) used, microphone type, use of weatherproofing, acoustic monitoring equipment settings (e.g., sensitivity, audio and data division ratios), deployment data (i.e., deployment site, habitat, date, time started, time stopped, orientation), and call analysis methods used
9. Acoustic analysis software program output/summary results by site by night (i.e., number of calls detected, species composition, MLE results)
10. Detailed analysis and results of any qualitative acoustic analysis conducted on those projects where a program(s) considered Indiana bat presence likely, including justification for rejecting any program MLE results (if applicable).
11. Photographs of each acoustic site documenting the location of the detector, the orientation of the detector, and the detection cone (i.e., what the detector sampled.
12. A description of how proper functioning of bat detectors was verified
13. Any other information requested by the local USFWS FO(s) related to the project

[37] As discussed in the Introduction, we encourage coordination with USFWS FO(s) prior to implementation of any surveys to ensure that all parties agree upon the need for surveys, the methods proposed, and the decisions from various survey results.
[38] If the USFWS previously agreed upon the study plan we need to understand whether the revised work still accomplished the agreed upon methods.

APPENDIX C
PHASE 2 ACOUSTIC SURVEYS

Two or more of the currently available 'candidate' acoustic bat ID programs[34] must be used (should use most current software versions available). Beginning with acoustic data from night one at each acoustic site, run each night's data for each site through a minimum of two candidate acoustic ID programs. Review results by site by night from each acoustic ID program used[35].

a) If Indiana bat presence is considered unlikely by all candidate programs used in analysis, then no further summer surveys necessary.

b) If Indiana bat presence is considered likely at one or more sites on one or more nights by any candidate programs used in analysis, then
   i) proceed to Step 7 for qualitative ID; **OR**
   ii) assume presence of Indiana bats and coordinate with the USFWS FO(s); **OR**
   iii) assume presence and proceed to **Phase 3**.

Step 7. Conduct Qualitative Analysis of probable Indiana bat calls from Step 6.

At a minimum, for each site/night a program considered Indiana presence likely, review all files from that site/night. Qualitative analysis[36] must also include and present within a written report a comparison of the results of each acoustic ID program by site and night (including: number of call files flagged as probable Indiana bats by each tool used; an evaluation of other species identified by the acoustic ID program; individual file level agreements and disagreements on Indiana bats between programs; and a qualitative analysis of ALL probable Indiana bat call sequences to further evaluate whether the correct ID has been made by the program(s) used).

a) If no visual confirmation of probable Indiana bats, then no further summer surveys necessary.

b) If visual confirmation of probable Indiana bats, then

   i) assume presence of Indiana bats and coordinate with the USFWS FO(s); **OR**
   ii) assume presence and proceed to **Phase 3**.

[34] Candidate programs are listed at http://www.fws.gov/midwest/Endangered/mammals/inba/surveys/inbaAcousticSoftware.html

[35] The candidate acoustic identification programs all have implemented a maximum likelihood estimator (MLE) at this time. If the analysis of collected calls at a given site on a given night results in the probable presence of Indiana bats with high levels of certainty ($P < 0.05$), then select one of the options available in Step 6b.

[36] Qualitative analysis of each acoustic site and night with probable detections of Indiana bats during Step 6 should include the entire night's call data and not just those files making it through the acoustic analysis tools as probable Indiana bats in Step 6.

APPENDIX C
PHASE 2 ACOUSTIC SURVEYS

MINIMUM LEVEL OF EFFORT

The number of acoustic survey sites required for a project will be dependent upon the overall acreage of suitable habitat proposed to be impacted by the action. To determine the acoustic survey effort, quantify the amount of suitable summer habitat within the project area.

Linear projects: a minimum of 2 detector nights per km (0.6 miles) of suitable summer habitat.

Non-linear projects: a minimum of 4 detector nights per 123 acres (0.5 km^2) of suitable summer habitat.

2 detector locations per 123 acre "site" shall be sampled until at least 4 detector nights has been completed over the course of at least 2 calendar nights (may be consecutive).

For example:

- 2 detectors for 2 nights each (can sample the same location or move within the site)
- 1 detector for 4 nights (must sample at least 2 locations)

The acoustic sampling period for each site must begin at sunset[33] and ends at sunrise each night of sampling.

ANALYSIS OF RECORDED ECHOLOCATION CALLS

Step 5. Optional coarse screening - for high frequency (HF) or myotid calls (depending on available filters) or Proceed to Step 6.

a) If no positive detection of HF calls (≥35 kHz) or myotid calls, no further summer surveys necessary.

b) If positive detection of HF or myotid calls, then
   i) proceed to Step 6 for further acoustic analysis; **OR**
   ii) assume presence of Indiana bats and coordinate with the USFWS FO(s); **OR**
   iii) assume presence and proceed to **Phase 3**.

Step 6. Conduct Additional Acoustic Analyses for each site that had HF or Myotid calls from Step 5 or ALL sites if Step 5 was not conducted.

[33] Surveys may need to start a little earlier or later than official sunset times (i.e., at "dusk") in some settings such as a deep/dark forested valleys or ridge tops to avoid missing early-flying bats or capturing late-flying birds, respectively. Sunset tables for the location of survey can be found at: http://aa.usno.navy.mil/data/docs/RS_OneYear.php

APPENDIX C
PHASE 2 ACOUSTIC SURVEYS

Orientation

Detectors deployed near the ground (e.g., on a tripod) should be aimed 45 degrees or more above horizontal. Microphones deployed higher within the flight path/zone (e.g., on a pole) should be oriented horizontally. In some circumstances (e.g., forest openings), it might be desirable to aim a detector's microphone vertically. This has shown to record high-quality calls but precludes the use of weatherproofing for protection of the microphone, since no currently-approved weatherproofing system will adequately protect the microphone of a detector aimed vertically.

Deploy detectors at or below the lowest expected flight height of the bats but high enough above ground vegetation to avoid interference within the detection cone. Once acoustic sites are identified, photographs documenting the orientation, detection cone (i.e., "what the detector is sampling"), and relative position of the microphone should be taken for later submittal to the USFWS FO(s) as part of the acoustic survey report.

Weather Conditions

If any of the following weather conditions exist at a survey site during acoustic sampling, note the time and duration of such conditions, and repeat the acoustic sampling effort for that night: (a) temperatures fall below 50°F (10°C) during the first 5 hours of survey period; (b) precipitation, including rain and/or fog, that exceeds 30 minutes or continues intermittently during the first 5 hours of the survey period; and (c) sustained wind speeds greater than 9 miles/hour (4 meters/second; 3 on Beaufort scale) during the first 5 hours of the survey period. At a minimum, nightly weather conditions for survey sites should be checked using the nearest NOAA National Weather Service station and summarized in the survey reports.

Weatherproofing

Most bat detectors are not weatherproof when delivered from the factory. Recording without after-market weatherproofing is preferred as the addition of these systems may result in some signal degradation. **The decision to weatherproof detectors or not should be determined nightly based on the likelihood of precipitation in the survey area.**

For directional microphones, the use of a polyvinyl chloride (PVC) tube[32], generally in the form of a 45-degree elbow the same diameter as the microphone (Britzke et al. 2010) is acceptable, if the situation requires the use of after-market weatherproofing. Attach the elbow to a weatherproof box that houses the main portion of the detector. Point the microphone into one end of the elbow and point the open end of the elbow in the direction to be monitored (generally 45 degrees to horizontal). Another option for weatherproofing detectors is to detach the microphone from the detector so that the detector can be placed in a weatherproof container but the microphone (tethered by a cable) remains unobstructed.

Other after-market weatherproofing systems may become available and approved by the USFWS provided they show that call quality and the number of calls recorded are comparable to those without weatherproofing.

[32] The PVC option has only been tested with AnaBat detectors and directional microphones. It may not perform as well with other detector microphone combinations.

APPENDIX C
PHASE 2 ACOUSTIC SURVEYS

Verification of Deployment Location

It is recommended to temporarily attach GPS units to each detector (according to manufacturer's instructions) to directly record accurate location coordinates for each acoustic site that is paired with the acoustic data files. Regardless of technique used, accurate GPS coordinates must be generated and reported for each acoustic survey site.

Verification of Proper Functioning

It is highly recommended that surveyors ensure acoustic detectors are functioning properly through a periodic verification of performance to factory specifications (a service currently offered or in development by several manufacturers). It may be possible that independent service bureaus would be willing to perform this service, providing that a standard test/adjustment procedure can be developed.

It is also recommended to ensure equipment is working during set-up in the field. This can be done simply by producing ultrasound (e.g., finger rubs, calibrator, or follow the equipment manufacturer's testing recommendations) in front of the microphone at survey start and survey finish. This documents that the equipment was working when deployed and when picked up (and by assumption throughout the entire period). Detector field settings (e.g., sensitivity, frequency, etc.) should follow the recommendations provided by the manufacturer. Surveyors should also save files produced by detectors (e.g., log files, status files, sensor files) as an excellent way to provide documentation when equipment was functioning within the survey period. Many types of detectors allow for setting timers that initiate and end recording sessions. This saves battery life as well as reducing the number of extraneous noise files recorded. However, if the units are visited when the timer is off, the surveyor cannot verify that the unit is functioning properly. This is particularly important in areas where no bat activity is recorded for the entire night or during the last portion of the night. In these cases, if the surveyor cannot demonstrate that the detector was indeed functioning properly throughout the survey period then the site will need to be re-sampled, unless adequate justification can be provided to the USFWS FO(s).

Selection of acoustic sites is similarly important. Suitable set-up of the equipment should result in high-quality call sequences that are adequate for species identification. Nights of sampling at individual sites that produce no bat calls may need to be re-sampled unless adequate justification (e.g., areas with significant bat population declines due to WNS) can be provided to the USFWS FO(s). Modifications of the equipment (e.g., changing the orientation) at the same location on subsequent nights may improve quantity and quality of call sequences recorded, which can be determined through daily data downloads. If modifications of the equipment do not improve call identification, then the detectors will need to be moved to a new location.

APPENDIX C
PHASE 2 ACOUSTIC SURVEYS

ACOUSTIC SAMPLING PROTOCOL

Detector/Microphone Placement

Detector/Microphone placement is critical to the successful isolation of high-quality bat call sequences for later analysis. The following locations are likely to be suitable sites for detectors/microphones, including, but not limited to: (a) forest-canopy openings; (b) near water sources; (c) wooded fence lines that are adjacent to large openings or connect two larger blocks of suitable habitat; (d) blocks of recently logged forest where some potential roost trees remain; (e) road and/or stream corridors with open tree canopies or canopy height of more than 33 feet (10 meters); and (f) woodland edges (Britzke et al. 2010). It is also important to assess the volume and area of highest sensitivity within the zone of detection around the microphone to ensure the best detector/microphone placement and orientation. If detectors/microphones are placed in unsuitable locations, effective data analysis may be impossible, and the results of the sampling effort will likely be invalid.

Many features (e.g., vegetation, water, wind turbines, high-tensile power-lines, micro-wave towers) can reduce the quality of call sequences recorded in the field and impact the surveyor's ability to record high-quality bat call sequences by causing calls to reflect off of these surfaces. The following recommendations are provided to aid surveyors in their selection of acoustic sites. If surveyors choose acoustic sites outside of these recommendations, then adequate justification for doing so should be provided with the acoustic survey report provided to the USFWS FO(s); otherwise, results from these sites will not be accepted. Surveyors should deploy detectors/microphones: (a) at least 5 feet (1.5 meters) in any direction from vegetation or other obstructions (Hayes 2000; Weller and Zabel 2002); (b) in areas without, or with minimal[30], vegetation within 33 feet (10 meters) in front of the microphone; (c) parallel to woodland edges; and (d) at least 49 feet (15 meters) from known or suitable roosts[31] (e.g., trees/snags, buildings, bridges, bat houses, cave or mine portal entrances).

Elevating a detector greater than 1.5 meters above ground level vegetation can dramatically improve recording quality. For example, microphones can be attached horizontally to a pole to listen out into flight space, rather than just listening up from the ground. This will serve to increase the volume of airspace sampled and avoid the distortion effect of recording near the ground.

Surveyors should distribute acoustic sites throughout the project area or adjacent habitats. In most cases, acoustic sites should be at least 656 feet (200 meters) apart. If closer spacing is determined to be necessary or beneficial (e.g., multiple suitable habitats and acoustic sites immediately adjacent to each other), sufficient justification must be provided in the acoustic survey report submitted to USFWS FO(s).

[30] If necessary, surveyors can remove small amounts of vegetation (e.g., small limbs, saplings) from the estimated detection cone at a site, much like what is done while setting up mist-nets. Deployment of detectors/microphones in closed-canopy locations that typically are good for mist-netting are acceptable as long as the area sampled below the canopy does not restrict the ability of the equipment's detection cone to record high-quality calls (i.e., the vegetation is outside of the detection cone).

[31] If the surveyor discovers a potential roost and wishes to document bat use, please refer to Appendix E for guidance on conducting emergence surveys and contact the USFWS FO(s).

APPENDIX C
PHASE 2 ACOUSTIC SURVEYS

SUMMER ACOUSTIC SURVEY SEASON: May 15 – August 15

PERSONNEL

Overall: Acoustic surveyors should have either completed one or more of the available bat acoustic courses/workshops (e.g., BCI, BCM, AnaBat) or be able to show similar on-the-job or academic experience.

Detector Deployment: Acoustic surveyors should have a working knowledge of the acoustic equipment and Indiana bat ecology. Surveyors should be able to identify appropriate detector placement sites and establish those sites in the areas that are most suitable for recording high-quality Indiana bat calls. Thus, it is highly recommended that all potential acoustic surveyors attend appropriate training and have experience in the proper placement of their field equipment.

Acoustic Analysis: Acoustic surveyors should have a working knowledge of the candidate acoustic analysis programs. Thus, it is highly recommended that all potential acoustic surveyors attend appropriate training and have experience in the analysis of acoustic recordings.

Qualitative Analysis: Individuals qualified to conduct qualitative analysis of acoustic bat calls typically have experience: (1) gathering known calls. This provides a valuable resource in understanding how bat calls change and the variation present in them; (2) identifying bat calls recorded in numerous habitat types; (3) familiarity with the species likely to be encountered within the project area; and (4) individuals must have multiple years of experience and must have stayed current with qualitative ID skills. A resume (or similar documentation) must be submitted along with final acoustic survey reports for anyone making final qualitative identifications.

COORDINATION WITH USFWS FO(s)

If not already required by federal permit, we recommend that applicants submit a draft study plan for all survey phases to the USFWS FO(s) for review and approval. Study plans should include a map/aerial photo identifying the proposed project area boundaries, suitable bat habitats and acreages within the project area, and the proposed number and tentative locations of acoustic monitoring sites.

DETECTOR AND MICROPHONE REQUIRED CHARACTERISTICS

Full-spectrum and/or zero-crossing detectors are suitable for use in this survey protocol.

Directional microphones are the only microphone type accepted for acoustic surveys at this time, although omni-directional microphones that have been converted to directional microphones are also acceptable. Microphones attached to detectors via a cable are also acceptable.

Sample Data Sheets for Indiana Bat Surveys

Net Site Diagram	Dominant Vegetation
	1
	2
	3
	4
	5

Net Site(s) by Habitat				
Habitat	A	B	C	
River				
Stream				
Pond				
Road Rut				
Corridor				
Cave/mine				
Total				

No. of Poles X Net length				
A	=		X	
B	=		X	
C	=		X	
D	=		X	

Other Species:

Comments:

APPENDIX B
PHASE 2 or 3 MIST-NETTING

Sample Data Sheets for Indiana Bat Surveys

Site No.		Project/Firm:			Date:
Location:					
County:		State:	Quad:		Quadrant:
Lat/Long (DMS):	N	W	Zone:		Surveyors:

#	Time	Species	Age	Sex	Repro. Cond.*	RFA (mm)	Mass (g)	Net/ Hit	Guano/ Hair	Wing Score	Band # Type
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											
21											
22											
23											
24											
25											
26											
27											
28											
29											
30											

*Repro. Cond (Reproductive Condition): (P) pregnant; (L) lactating; (PL) post-lactating; (NR) non-reproductive, (TD) testes descended

Moon Phase:		%
	Rise	Set
Moon:		
Sun:		

Time	Temp	Sky	Wind	# Bats
Avg				

Sky Code	
0	Clear
1	Few Clouds
2	Partly Cloudy
3	Cloudy or overcast
4	Smoke or fog
5	Drizzle or light rain
6	Thunderstorm

Beauford Wind Code	
0	Calm (0 mph)
1	Light wind (1-3 mph)
2	Light breeze (4-7 mph)
3	Gentle breeze (8-12 mph)
4	Moderate breeze (13-18 mph)

APPENDIX B
PHASE 2 or 3 MIST-NETTING

Kunz, T.H., R. Hodgkison, and C.D. Weise. 2009. Methods of capturing and handling bats. Pp. 3-35 *in* T.H. Kunz and S. Parsons (eds.), Ecological and behavioral methods for the study of bats, second edition. The Johns Hopkins University Press, Baltimore, Maryland.

MacCarthy, K.A., T.C. Carter, B.J. Steffen, and G.A. Feldhamer. 2006. Efficacy of the mist-net protocol for Indiana bats: A video analysis. Northeastern Naturalist 13:25-28.

Reichard, J.D., and T.H. Kunz. 2009. White-nose syndrome inflicts lasting injuries to the wings of little brown myotis (Myotis lucifugus). Acta Chiropterologica 11: 457-464.

Robbins, L.W., K.L. Murray, and P.M. McKenzie. 2008. Evaluating the effectiveness of the standard mist-netting protocol for the endangered Indiana bat (*Myotis sodalis*). Northeastern Naturalist 15:275-282.

Winhold, L. and A. Kurta. 2008. Netting surveys for bats in the Northeast: differences associated with habitat, duration of netting, and use of consecutive nights. Northeastern Naturalist 15:263-274.

APPENDIX C
PHASE 2 ACOUSTIC SURVEYS

REFERENCES

Britzke, E.R, B.A. Slack, M.P. Armstrong, and S.C. Loeb. 2010. Effects of orientation and weatherproofing on the detection of bat echolocation calls. Journal of Fish and Wildlife Management 1(2):136-141.

Hayes, J. P. 2000. Assumption and practical considerations in the design and interpretation of echolocation-monitoring studies. Acta Chiropterologica 2:225-236.

MacKenzie, D.I., and J.A Royle. 2005. Designing occupancy studies: general advice and allocating survey effort. Journal of Applied Ecology 42:1105-1114.

Weller, T. J., and C. J. Zabel. 2002. Variation in bat detections due to detector orientation in a forest. Wildlife Society Bulletin 30:922-930.

APPENDIX D
PHASE 4 RADIO-TRACKING

PERSONNEL

Transmitter Attachment: A qualified biologist[39] who is experienced in handling Indiana bats and attaching radio transmitters must perform transmitter attachments, as further explained in the protocol below.

Tracking: Biological technicians and/or a qualified biologist who is experienced in tracking transmittered bats must be present and actively involved in all tracking activities for Indiana bats as further explained in the protocol below.

METHODS

If one or more Indiana bats are captured, the following radio-tracking protocols will be applicable:

1. Biologists should coordinate in advance with USFWS FO(s) regarding recommendations for the number and distribution of transmitters (e.g., prioritization of sex/age, maximum number per site) and whether foraging data would be beneficial to collect. Also, professional judgment should be used to determine whether attachment of transmitters could compromise the health of a bat. Since the maximum holding times for Indiana bats targeted for radio-tracking is 45 minutes, or as allowed in federal and state permits, surveyors should be prepared to place transmitters on bats immediately following their capture to minimize holding times.

2. The radio transmitter, adhesive, and any other markings (e.g., wing bands) should weigh less than 5% of pre-attachment body weight (Aldridge and Brigham 1988, American Society of Mammalogists 1998), but must not weigh more than 10% of a bat's total body weight (Kurta and Murray 2002) and must comply with any USFWS and state permits. In all cases, the lightest transmitters capable of the required task should be used, particularly with pregnant females and volant juveniles. With pregnant bats, biologists should always use the lightest transmitter possible but no more than 5% of their expected non-pregnant weight.

3. Proposed radio telemetry equipment (e.g., receivers, antennas, and transmitters) and frequencies should be coordinated with the appropriate state natural resource agency and USFWS FO(s).

4. The qualified biologist or biological technician(s) should track all radio-tagged bats captured to diurnal roosts in accordance with permit requirements. We generally recommend tracking until the transmitter fails, fall off, or cannot be located for at least 7

[39] A qualified biologist is an individual who holds a USFWS Recovery Permit (Federal Fish and Wildlife Permit) for federally-listed bats in the state/region in which they are surveying and/or has been authorized by the appropriate state agency to mist-net for Indiana bats. Several USFWS offices maintain lists of qualified bat surveyors, and if working in one of those states with authorizations in lieu of a Recovery Permits, the individual will either need to be on that list or submit qualifications to receive USFWS approval prior to conducting any field work.

days and should conduct a minimum of 2 evening emergence counts at each identified roost (See Appendix F for Emergence Survey Protocols). However, biologists are encouraged to continue radio-tracking efforts for the life of the transmitter. Biologists should contact the USFWS FO(s) immediately if they plan to cease tracking efforts before the 7-day tracking period ends. If landowner access is denied, approximate roost locations (i.e., coordinates) should be determined using triangulation.

5. Daily radio telemetry searches for roosts must be conducted during daylight hours and should be conducted until the bat(s) is located or for a minimum of 4 hours of ground or 1 hour of aerial-searching effort per tagged bat per day for 7 days. However, multiple bats captured at the same net location or nearby may be tracked simultaneously. Once a signal is detected, tracking should continue until the roost is located. At a minimum, biologists should document all ground and aerial-searching effort for all bats not recovered during radio-tracking for submittal with the survey report. For each roost identified during tracking, the biologist should complete a "USFWS Indiana Bat Roost Datasheet" (Appendix D).

6. To minimize potential for disease transmission, any equipment that comes in contact with bats should be kept clean and disinfected, following approved protocols; this is particularly a concern relative to WNS. Protocols are posted at http://www.whitenosesyndrome.org/. Federal and state permits may also have specific equipment restrictions and disinfection requirements.

SUBMISSION OF RADIO-TRACKING RESULTS

Phase 4 radio-tracking results should be included with the Phase 2 or 3 mist-netting report and submitted to the appropriate USFWS FO(s). Each report should include the following information related to radio-tracking efforts:

1. Copy of prior phase reports (if not previously provided)
2. Explanation of any modifications from original survey plan (e.g., number of transmitters used, frequency of transmitters changed)[40]
3. Map and narrative detailing all ground and aerial searching effort for all bats not recovered during radio-tracking and relative to the negotiated or agreed effort as determined by the appropriate USFWS FO(s)
4. Map summarizing Indiana bat data collected from summer surveys for the proposed project (e.g., project area boundary and results from the site habitat assessment, acoustic survey, mist-net survey, radio-tracking, and emergence surveys)
5. Full names and permit numbers of personnel who attached transmitters to Indiana bats and full names of all personnel conducting radio-tracking efforts
6. Photographs of all roosts identified during radio-tracking
7. Legible copies of all original USFWS Indiana Bat Roost Datasheets
8. Any other information requested by the local USFWS FO(s) where work was conducted

[40] If the USFWS previously agreed upon the study plan we need to understand whether the revised work still accomplished the agreed upon methods

APPENDIX D
PHASE 4 RADIO-TRACKING

REFERENCES

Aldridge, H., and R.M. Brigham. 1988. Load carrying and maneuverability in an insectivorous bat: a test of the 5% "rule." Journal of Mammalogy 69:379-382.

American Society of Mammalogists. 1998. Guidelines for the capture, handling and care of mammals. Journal of Mammalogy 79:1416-1431.

Kurta, A., and S. Murray. 2002. Philopatry and migration of banded Indiana Bats (*Myotis sodalis*) and effects of radio transmitters. Journal of Mammalogy 83:585-589.

APPENDIX D
PHASE 4 RADIO-TRACKING

USFWS INDIANA BAT ROOST DATASHEET

Biologists (Full Name):_____ **Date:**_____

UTM: Zone_____ **Easting** _____ **Northing**_____ ***OR***

LAT_____ **LONG**_____

Property Owner:_____ **Phone#**_____

State_____ **County**_____ **Site #**_____

Roost #_____ **Roost Name:**_____

Roost Tree Data

Species: _____ **Live** __ **Snag** __ **Other** __

(if other, explain) _____

DBH (in or cm)_____ **Total Height (ft or m)**_____

Height of roost area (if known)_____**Dist. from capture site**_____

Roost position aspect (deg)_____

Exfoliating bark on bole (%)_____ **Describe: sloughing** __ **platy**__ **tight**__

Cavities present? ____ **If so, describe:**_____

Roost Decay State: 1 2 3 4 5 6 7 8 9 Other

APPENDIX D
PHASE 4 RADIO-TRACKING

Roost tree or snag canopy position: Dominant __ Co-Dominant __ Suppressed __

Surrounding Habitat Condition

Canopy closure at roost (%) _____

Approximate woodlot size (ac or ha)_____ Distance to non-forest (ft or m)_____

Describe forest/woodlot current condition (mature, partially cut-over, burned, insect damage, etc.)

_____

_____

_____

_____

_____

_____

Additional Comments_____

_____

_____

_____

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APPENDIX E
PHASE 4 EMERGENCE SURVEYS

PERSONNEL

Qualified biologists[41], biological technicians, and any other individuals deemed qualified by a local USFWS FO may conduct emergence surveys for Indiana bats by following the protocols below.

EMERGENCE SURVEYS FOR KNOWN INDIANA BAT ROOSTS

The following protocols should begin as soon as feasible after identification of a diurnal roost (ideally that night):

1. Bat emergence surveys should begin one half hour before sunset[42] and continue until at least one hour after sunset or until it is otherwise too dark to see emerging bats. The surveyor(s) should be positioned so that emerging bats will be silhouetted against the sky as they exit the roost. Tallies of emerging bats should be recorded every few minutes or as natural breaks in bat activity allow. There should be at least one surveyor per roost. Surveyors must be close enough to the roost to observe all exiting bats but not close enough to influence emergence. That is, do not stand directly beneath the roost, do not make noise or carry on a conversation, and minimize use of lights (use a small flashlight or similar to record data, if necessary). Do not shine a light on the roost as this may prevent or delay bats from emerging. Use of an infra-red, night vision, or thermal-imaging video camera or spotting scope is encouraged but not required. Likewise, use of an ultrasonic bat detector may aid in identifying the exact timing of bats emerging and may be used to help differentiate between low- and high-frequency bats species, and therefore, is strongly recommended. If multiple roosts are known within a colony, then simultaneous emergence surveys are encouraged to estimate population size. [Note: If a roost cannot be adequately silhouetted, then the local USFWS FO(s) should be contacted to discuss alternative survey methods].

2. Bat activity is affected by weather; therefore emergence surveys should not be conducted when the following conditions exist: (a) temperatures that fall below 50°F (10°C); (b) precipitation, including rain and/or fog, that exceeds 30 minutes or continues intermittently during the survey period; and (c) sustained wind speeds greater than 9 miles/hour (4 meters/second; 3 on Beaufort scale).

3. Surveyors should use the attached (or similar) "Bat Emergence Survey Datasheet".

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[41] A qualified biologist is an individual who holds a USFWS Recovery Permit (Federal Fish and Wildlife Permit) for federally-listed bats in the state/region in which they are surveying and/or has been authorized by the appropriate state agency to mist-net for Indiana bats. Several USFWS offices maintain lists of qualified bat surveyors, and if working in one of those states with authorizations in lieu of a Recovery Permits, the individual will either need to be on that list or submit qualifications to receive USFWS approval prior to conducting any field work.

[42] Surveys may need to start a little earlier or later than one half hour before official sunset times (i.e., before "dusk") in some settings such as deep/dark forested valleys or ridge tops, respectively. Sunset tables for the location of survey can be found at: http://aa.usno.navy.mil/data/docs/RS_OneYear.php

4. Surveyors should also complete an "Indiana Bat Roost Datasheet" for each roost known to be used by one or more Indiana bats (see Appendix D for an example).

5. Completed datasheets should be included in reports prepared for the USFWS.

EMERGENCE SURVEYS FOR POTENTIAL INDIANA BAT ROOSTS

In some limited cases (e.g., individual hazard tree removal during the active season), surveyors may have the option of conducting emergence surveys for individual potential Indiana bat roosts to determine use prior to removal. The following protocol applies to these surveys:

1. Consult with the local USFWS FO(s) to determine whether a tree(s) that needs to be felled/ cleared may be potential roosting habitat for Indiana bats and whether conducting an emergence survey is an appropriate means of avoiding take of Indiana bats[43]. In general, the USFWS only approves of conducting emergence surveys as a means of avoiding direct take of bats for projects that only affect a very small number of potential roosts (e.g., less than or equal to 10)[44] in relatively small project areas. An online directory of USFWS offices is available at http://www.fws.gov/offices/.

2. If the USFWS FO(s) approves/concurs with Step 1, then follow the emergence guidelines for Emergence Surveys for Known Indiana Bat Roosts (above) to determine if any bats are roosting in the tree(s).

3. At the conclusion of the emergence survey:

   a. If **no** bats were observed emerging from the potential roost(s), then it maybe felled immediately. If safety concerns dictate that a tree cannot be felled immediately (i.e., in the dark), then the tree(s) should be felled as soon as possible after sunrise on the following day. If a tree is not felled during the daytime immediately following an emergence survey, then the survey has to be repeated, because bats may switch roosts on a nightly basis. Immediately after the tree is felled, a visual inspection of the downed tree must be completed to ensure that no bats were present, injured, or killed. The USFWS FO(s) should be contacted immediately, if bats are discovered during this inspection.

   b. If **1 or more** bats (regardless of species, because species identification cannot reliably be made during visual emergence counts alone) are observed emerging from the roost, then it should **not** be felled, and the USFWS FO(s) should be contacted the next working day for further guidance.

[43] If a potential bat roost tree poses an imminent threat to human safety or property, then emergency consultation procedures should be followed as appropriate. (50 CFR §402.05). If a hazard tree does not pose an imminent threat, then the USFWS requests that it be felled during the bat's inactive season (i.e., generally from October – March, but contact the FO for specific dates for your area.) When possible, felling of potential roost/hazard trees should be avoided during the primary maternity period (June – July) to avoid potential adverse effects to non-volant pups.
[44] Areas containing >10 hazard trees will be assessed by the USFWS on a case-by-case basis with the project proponent.

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

SUBMISSION OF EMERGENCE SURVEY RESULTS

Emergence survey results should be included with the mist-netting survey report, unless the survey was completed as an evaluation of potential roosts, and should be submitted to the appropriate USFWS FO(s) for review. Each survey report should include the following information related to emergence survey efforts:

1. Copy of prior phase reports (if not previously provided)
2. Explanation of any modifications from the Phase 4 emergence count study plan (e.g., number of potential roosts surveyed), if applicable
3. Summary of roost emergence data
4. Map identifying location of roost(s) identified during radio-tracking and/or emergence surveys for Indiana bat(s) including GPS coordinates
5. Full names of personnel present during emergence survey efforts and who conducted emergence surveys of roosts
6. Photographs of each identified roost
7. Copies of all "Emergence Survey" and "Indiana Bat Roost" datasheets
8. Any other information requested by the local USFWS FO(s) where work was conducted
9. Copy of the pre-approved site-specific written authorization from USFWS and/or state natural resource agency (if required)

APPENDIX E
PHASE 4 (CONT) EMERGENCE SURVEYS

USFWS BAT EMERGENCE SURVEY DATASHEET

Date: _____ **Surveyor(s) Full Name:** _____

State: ____ **County:** _____ **Project Name:** _____

Site Name/#: _____ **Roost Name/#** _____ **Bat #:** _____

Lat/Long or UTM of Roost: _____

Description of Roost/Habitat Feature Surveyed: _____

_____

Bat Species Known to be using this Roost/Feature (if not known, leave blank):

_____

Other Suspected Bat Species (explain): _____

Weather Conditions during Survey (temperature, precipitation, wind speed):

_____

Survey Start Time: _____ **Time of Sunset:** _____ **Survey End Time:** _____

NOTE: Emergence surveys should begin ½ hour before sunset and continue for a minimum of 1 hour or until it is otherwise too dark to see emerging bats. The surveyor(s) should position him or herself so that emerging bats will be silhouetted against the sky as they exit the roost. Tallies of emerging bats should be recorded every few minutes or as natural breaks in bat activity allow. Please ensure that surveyor(s) are close enough to the roost to observe all exiting/returning bats, but not close enough to influence emergence (i.e., do not stand directly beneath the roost and do not make unnecessary noise and/or conversation, and minimize use of lights other than a small flashlight to record data, if necessary). Do not shine a light on the roost tree crevice/cave/mine entrance itself as this may prevent or delay bats from emerging. If available, use of an infra-red, night vision, or thermal-imaging video camera or spotting scope and an ultrasonic bat detector are strongly recommended but not required.

Time	Number of Bats Leaving Roost*	Comments / Notes

APPENDIX E
PHASE 4 EMERGENCE SURVEYS

Site Name/#: _____ **Roost Name/#:** _____

Time	Number of Bats Leaving Roost*	Comments / Notes
Total Number of Bats Observed Emerging from the Roost/Feature During the Survey:		

* If any bats return to the roost during the survey, then they should be subtracted from the tally.

Describe Emergence: Did bats emerge simultaneously, fly off in the same direction, loiter, circle, disperse, etc. If a radio-tagged bat was roosting in the tree, at what time did it emerge?

_____

_____

_____

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August 10, 2015

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Re: *In the Matter of the Request by Minnesota Power for a Route Permit for the Great Northern Transmission Line*
MPUC Docket No. E015/TL-14-21
DoE No. EIS-0499

Dear Mr. Storm and Ms. Smith,

Please find enclosed Minnesota Power's response to the Great Northern Transmission Line Draft Environmental Impact Statement released on June 19, 2015. Parts of this response have previously been included in supplemental testimony submitted on July 31, 2015 in MPUC Docket E015/TL-14-21. This response includes the following documents:

- Minnesota Power DEIS Comments Summary;
- Minnesota Power's Comments on the Draft Environmental Impact Statement;
- Minnesota Power's DEIS Cost Comments;
- Map of Potential Displacements – Cedar Bend WMA Variation;
- Magnetic Field Simulation Results: Projected Peak Loading;
- Magnetic Field Simulation Results: Max Continuous Rating;
- Audible Noise Simulation Results;
- Response to Request for Information dated April 6, 2015 – Substation Noise;

- Manitoba Justice Letter dated June 2, 2015;
- Manitoba Hydro Letter dated July 30, 2015; and
- Great Northern Transmission Line Draft EIS Errata Table.

Please feel free to contact me at the number above if you should have any questions.

Yours truly,

David R. Moeller

DRM:sr
Enc.

0190

Minnesota Power
DEIS Comments Summary

Purpose and Need and Alternatives

- The statement of purpose from Minnesota Power's Application should appear, word-for-word, in the FEIS.
- The FEIS should clearly state that the "alternative border crossings" are infeasible.
    - Routes leading to border crossings not being considered for a Presidential permit are infeasible because they are outside of the MN PUC's jurisdiction to approve.
    - DOE's preferred alternative must be the endpoint for the project, and routes that do not reach that endpoint should be declared infeasible.
    - Routes that would require Minnesota Power and Manitoba Hydro to restart their regulatory processes are infeasible because they would not fulfill the region's established need for more energy and transmission capacity by 2020.
- The FEIS should recognize in Sections 6.2.2 and 6.2.3 that Roseau WMA Variation 1 and the Cedar Bend Variations would provoke significant public opposition, and that such opposition would violate Minnesota Power's purposes for the project.

Human Settlement Effects

- All tables titled "Land Ownership within the Anticipated ROW" and all figures titled "Land Ownership within the ROI" should be revised to include privately owned land.
- Section 5.3.1.1 should emphasize that aesthetic effects will be greater in agricultural areas, where structures will be visible well outside of the ROI for aesthetic effects.
- Section 5.2.1.1 should clearly explain that displacement of homes and other structures is possible anywhere within the route, not just within the anticipated ROW.
- Chapter 6 should not include state forests in discussions or calculations of effects on aesthetics, vegetation, or wildlife; state forests are relevant only to forestry and land ownership effects.
- Sections 5.3.2.1, 5.4.2.1, and 5.5.2.1 should include language clearly recognizing the potential for permanent adverse agricultural effects outside of the ROW, particularly in the West Section.

Corridor Sharing

- Because corridor sharing only has a significant environmental benefit if it involves paralleling the existing 230 kV or 500 kV lines, the FEIS text and tables should not account for corridor sharing in other circumstances.

0190-1

0190-1
Thank you for providing your DEIS Comments Summary. Responses to all issues identified in the Comments Summary are included as part of the detailed comment responses.

No changes are made to the EIS in response to this comment.

0190-1 cont'd

0190-1
Continued

- Because paralleling the abandoned corridor has no environmental benefits, Section 6.4.3 should not describe it in text or tables as an opportunity for corridor sharing.

- The FEIS should clearly state that paralleling existing transmission lines does not reduce the amount of forest land or vegetation that must be cleared within the 200-foot ROW, and should remove all statements suggesting that corridor sharing offers forestry or vegetation benefits.

- Section 6.4.1.7 should explain that the consequences of an outage are significantly greater for the Effie and East Bear Lake Variations, which would place three Manitoba tie lines (two 500 kV and one 230 kV) the same corridor and require the new line to cross both of those tie lines.

Environmental Effects

- Because there is an active mine permit within the Balsam Variation ROW, that route should be considered infeasible in the FEIS.

- Chapters 5 and 6 should acknowledge that selection of routes other than the Proposed Blue or Orange Routes would likely require relocation of the Series Compensation Station, and that any new location would likely require several acres of wetland fill.

- Because the FEIS did not include the necessary 250-foot separation between HVTL centerlines, it failed to capture the displacement of four residences within the Cedar Bend WMA Variation ROW.

- The DEIS should acknowledge in Chapter 6 that the Cedar Bend WMA Variation cannot be built as drawn because it passes through an infeasibly narrow pathway between two existing substations.

Costs

- The FEIS should not compare costs on a per-mile basis, because that is irrelevant to both cost recovery and the Applicant's decision of whether to build the Project.

- The FEIS should recognize that route variations or permit conditions that increase Project costs will have an effect on ratepayers.

Relative Merits Tables

- The "stoplight motif" relative merits tables in Chapter 6 are unhelpful and misleading. Minnesota Power has prepared updated tables that include both numbers and colors, and the FEIS should either replace the graphics in Chapter 6 with those provided by Minnesota Power, or include Minnesota Power's tables in an appendix.

Minnesota Power's Comments on the Draft Environmental Impact Statement

On the whole, the Draft Environmental Impact Statement (DEIS) for the Great Northern Transmission Line (GNTL) presents an accurate picture of the Project's potential environmental effects. Minnesota Power commends the U.S. Department of Energy (DOE) and the Minnesota Department of Commerce Energy, Environmental Review and Analysis unit (EERA) for their thoroughness in documenting these effects. Minnesota Power is further pleased that the public has now had the opportunity to see that the Project's overall effects are relatively small, and differ little among the various route alternatives.

That said, Minnesota Power believes that the Final EIS can improve on several important aspects of the DEIS's analysis. Those issues are discussed in detail below.[1]

I. The DEIS should accurately reflect Minnesota Power's objectives.

A. The EIS must contain a statement of purpose and need that is shaped by the Application at issue.

The Council on Environmental Quality (CEQ) regulations implementing NEPA require that an EIS "briefly specify the underlying purpose and need to which the agency is responding . . . ."[2] That statement of purpose and need naturally derives from, and depends on, the circumstances that trigger the agency action. When an agency is responding to a private applicant's request, as EERA and PUC are here, its purpose and need must account for that request.[3] Indeed, the agency should specify a purpose and need that allows the alternatives studied in the EIS to be "shaped by the application at issue and by the function the agency plays in the decisional process."[4]

Section 1.2.2. of the DEIS states that "[t]he purpose of and need for DOE action is to decide whether . . . to grant the Applicant a Presidential permit." Minnesota Power does not object to that characterization, as far as it goes. But "[w]here a private party's proposal triggers a project," the EIS statement of purpose and need must also "give substantial weight to the goals and objectives of that private actor."[5] In that regard, the DEIS is deficient.

B. The DEIS's discussion of "Minnesota Power's Objectives" should include the statement of purpose contained in Minnesota Power's Application.

Section 2.2—entitled "Applicant's Objectives"—purports to identify "three factors" that are driving Minnesota Power's decision to construct the GNTL. That discussion, however, fails to account for Chapter 2 of Minnesota Power's Application, which carefully describes the

[1] Minnesota Power's comments focus on the body of the DEIS. Presumably any changes that are made in the Final EIS will also be reflected in the Executive Summary, which is not specifically addressed below.
[2] 40 C.F.R. § 1502.13. The Rules implementing Minnesota Environmental Policy Act (MEPA) similarly require that the project description in the EIS "allow the public to identify the purpose of the project." Minn. R. 4410.2300(E).
[3] *City of Angoon v. Hodel*, 803 F.2d 1016, 1021 (9th Cir. 1986); *Citizens Against Burlington, Inc. v. Busey*, 938 F.2d 190, 196 (D.C. Cir. 1991).
[4] *Citizens Against Burlington*, 938 F.3d at 199.
[5] *BioDiversity Conservation Alliance v. Bureau of Land Mgm't*, 608 F.3d 709, 715 (10th Cir. 2010).

0190-2
With regard to purpose and need, DOE has determined the purpose and need is adequate, per program goals and objectives and no changes are made to the purpose and need or alternatives analyzed in the EIS.

Section 2.2 of the EIS is modified to include the Applicant's purpose for the proposed Great Northern Transmission Line Project by adding the following:

0190-2 "The Applicant's federal and state permit applications states that the purpose of the proposed Project is to efficiently provide the Applicant's customers and the region with energy that will: (a) help meet the region's growing energy demands; (b) advance Minnesota Power's *EnergyForward* strategy of increasing its generation diversity and renewable portfolio; (c) strengthen electric system reliability; and (d) fulfill the Applicant's obligations under its power purchase agreements with Manitoba Hydro, all in a manner that is consistent with the Applicant's commitment to making a positive impact on communities."

The EIS is updated with accurate information about the status of the MN PUC's certificate of need process and related written order issued by the MN PUC on June 30, 2015.

company's purpose in proposing the GNTL Project. Specifically, the Application states that the purpose of the GNTL is:

> To efficiently provide the Applicant's customers and the region with clean, emission-free energy that will
> (a) help meet the region's growing energy demands
> (b) advance the Applicant's *Energy**Forward*** strategy of increasing its generation diversity and renewable portfolio
> (c) strengthen system reliability
> (d) fulfill the Applicant's obligations under its power purchase agreements with Manitoba Hydro
> all in a manner that is consistent with the Applicant's commitment to making a positive impact on communities.

An EIS that studies the potential environmental effects of a private applicant's proposed project should never attempt to "redefine the goals of the proposal,"[6] as the DEIS does in Section 2.2. Indeed, an agency has a responsibility to consider "private goals, especially when the agency is determining whether to issue a permit or license."[7]

To the extent that the DEIS omits information from the Application on the grounds that "the need for the transmission line is the central issue of the MPUC's ongoing certificate of need proceeding," it is both outdated and incorrect. As the DEIS itself acknowledges elsewhere, the MPUC approved at its May 14, 2015 agenda hearing granting a Certificate of Need for the GNTL Project and subsequently on June 30, 2015 issued a written order, for which no party requested reconsideration.[8] Consequently, the need for the GNTL Project can no longer be questioned.[9] At the same time, federal law requires the EIS to account for Minnesota Power's "private goals" as it evaluates alternatives.[10] The DEIS as written does not fulfill this requirement.

Minnesota Power's statement of purpose should appear, word-for-word, in the EIS. Only then can the EIS's evaluation of alternatives be properly "shaped by" both the Application at issue and DOE's responsibility to consider whether to issue a Presidential permit.

II. The Department of Energy's preferred border crossing is the only feasible border crossing alternative.

A. The federal government has the exclusive authority to select the location of the international border crossing.

Executive Order 10485 states that "the proper conduct of the foreign relations of the United States requires that executive permission be obtained" for any facilities located "at the borders of the United States." That executive permission takes the form of a Presidential permit, which—in

0190-2 cont'd

0190-2 Continued

0190-3
MN PUC is the siting authority for transmission lines within the state of Minnesota up to the U.S.-Canada international border. The EIS analyzes alternative border crossings that were proposed during scoping at the request of resource agencies that are intended to inform the MN PUC transmission line route selection. At the time of the state scoping decision (see Appendix D), the Applicant did not sufficiently object to the scoping expansion. MN PUC cannot authorize an international border crossing, but the MN PUC may perform its due diligence in considering alternative routes to what was proposed by the Applicant in its Route Permit application.

Sections S.7 and 4.1.1 of the EIS are made to clearly state that the alternative border crossings considered in the EIS are done so only for the purposes of the analysis supporting the Route Permit and transmission line siting decision, but are not being considered by DOE as alternatives to its consideration of the crossing proposed by the Applicant in its applications to both DOE and MN PUC at latitude 49 00 00.00 N and longitude 95 54 50.49 W, roughly 2.9 miles east of Highway 89 in Roseau County, Minnesota. This proposed border crossing is also identified as DOE's preferred alternative in the EIS in Sections S.6.2, 1.2.2, and 1.2.2.1.

0190-3

[6] *Citizens Against Burlington*, 938 F.2d at 199.
[7] *Alaska Survival v. Surface Transp. Bd.*, 705 F.3d 1073, 1085 (9th Cir. 2013).
[8] MPUC Docket No. E015/CN-12-1163, MPUC Order dated June 30, 2015.
[9] Minn. R. 7850.3700, subp,. 7.
[10] *Id*.

0190-3 cont'd

0190-3
Continued

the case of electric transmission facilities—must be obtained from DOE.[11] As a federal district court in Minnesota has explained, "the President's authority to issue [a] border-crossing Permit comes by way of his constitutional authority over foreign affairs and authority as Commander in Chief . . . ."[12]

By nature, the conduct of foreign relations is "an area where federal uniformity is essential."[13] "Foreign commerce," in particular, "is pre-eminently a matter of national concern."[14] To that end, Article II of the Constitution gives the President the "vast share of responsibility for the conduct of our foreign relations."[15]

In the case of Presidential permits for international border crossings, the President is explicitly exercising the federal power to conduct "foreign relations."[16] When such exclusive "national power" is invoked, it may not be "obscured by state or local action."[17] Indeed, the President's authority to conduct foreign relations preempts and invalidates any action by state or local entities that would infringe on the national power.[18] States simply are not permitted to "intru[de] . . . into the field of foreign affairs[,] which the Constitution entrusts to the President and the Congress."[19]

DOE's role under Executive Order 10485 is to consider whether issuing a Presidential permit for the border crossing facility proposed by Minnesota Power is consistent with the public interest.[20] If DOE determines that a permit should issue, it will be exercising delegated Presidential authority to conduct foreign relations.[21]

Neither the State of Minnesota nor any other state has authority to alter the location of an international border crossing. The Final EIS accordingly should note that any routes inconsistent with the single border crossing for a Presidential permit are outside of the MPUC's jurisdiction to approve.

B. The Department of Energy's preferred alternative is the only permissible endpoint for the GNTL project.

A Presidential permit application is a request for permission to cross the U.S. border at a single, specific location. DOE regulations implementing Executive Order 10485 accordingly require that every application for a Presidential permit include a "detailed map . . . showing the physical location, longitude and latitude of the facility on the international border."[22] After extensive

[11] *Id.*; *see* Executive Order 12038 (transferring authority from the Federal Power Commission to the Secretary of Energy).
[12] *Sierra Club v. Clinton*, 689 F. Supp. 2d 1147, 1163 (D. Minn. 2010).
[13] *Japan Line Ltd. v. Los Angeles Cty.*, 441 U.S. 434, 448 (1979).
[14] *Id.*
[15] *American Ins. Ass'n v. Garamendi*, 539 U.S. 396, 414 (2003).
[16] E.O. 10485.
[17] *Crosby v. National Foreign Trade Council*, 530 U.S. 363, 381 (2000).
[18] *See, e.g.*, *American Ins. Ass'n*, 539 U.S. at 419-20; *Crosby*, 530 U.S. at 385-86.
[19] *American Ins. Ass'n*, 539 U.S. at 417 (quoting *Zschernig v. Miller*, 389 U.S. 429, 432 (1968)).
[20] Executive Order 10485, § 1(a)(3).
[21] *Sierra Club*, 689 F. Supp. 2d at 1163.
[22] 10 C.F.R. § 205.322(b)(2).

negotiations, Minnesota Power and its Canadian partner, Manitoba Hydro, agreed on the border crossing location that DOE is considering as part of the Presidential permit process.[23]

The DEIS announces in Section 1.2.2.1 that "DOE's preferred alternative is to grant a Presidential permit to Minnesota Power's proposed international border crossing." That announcement should foreclose consideration of any alternative border crossings. DOE has exclusive authority to permit an international border crossing, and its preference is to permit the border crossing agreed to by Minnesota Power and Manitoba Hydro that is being considered in the Presidential Permit process (the "Presidential Permit Border Crossing"). The Minnesota transmission line routing process should take that border crossing as the northern endpoint for the GNTL Project, just as it has accepted the expanded Blackberry substation as the southern endpoint.

Because DOE has identified a preferred international border crossing, the Final EIS should note that all other border crossings are no longer permissible endpoints for the GNTL Project.

C. Because Canada's regulatory process is not considering any other crossing, the other "alternatives" would not result in a transmission line project.

Even apart from DOE's exclusive jurisdiction over international border crossings, and its preferred alternative for this Project, no border crossing is feasible other than the Presidential Permit Border Crossing.

1. No alternative border crossing is feasible given the current status of the Canadian environmental review process.

As the DEIS was being finalized, the government of Manitoba filed a letter with the Administrative Law Judge assigned to the GNTL Route Permit proceedings.[24] That letter explains that, after a "detailed route selection process" in Canada, "***Manitoba Hydro has selected a specific proposed route***" for purposes of the Canadian regulatory process.[25] That route ends at the Presidential Permit Border Crossing.[26] When Manitoba Hydro files its Environmental Impact Statement with the appropriate Canadian authorities, it will not contain any alternative border crossings.[27] Canadian authorities will conduct "an extensive review" of Manitoba Hydro's filing, but "that review is based upon the ***single proposed route and selected border crossing***."[28] No other border crossing will be considered as part of the Canadian process.[29] And, as the DEIS acknowledges, it is not DOE's or EERA's role to consider potential environmental effects in Canada, or to second-guess the Canadian environmental review process.[30]

0190-3 cont'd

0190-3 Continued

0190-4
Thank you for your comment. No change is made in the EIS in direct response to this comment, however, Section 1.3.2 is updated with information about the status of the Canadian process for siting this project in Canada by Manitoba Hydro as provided by comment letters submitted by both the Province of Manitoba's General Counsel (see response to comment 078-1) and Manitoba Hydro (see response to comments 079-1 and 079-2).

0190-4

[23] Letter from Manitoba Hydro to Minn. Dep't of Commerce at 2 (July 30, 2015) (MH Letter).
[24] *See* Docket No. E015/RP-14-21, Document ID 0156-111176-01, Letter from Gordon E. Hannon, General Counsel, Manitoba Justice to Administrative Law Judge Ann O'Reilly (June 2, 2015) (Manitoba Justice Letter).
[25] *Id*. at 6 (emphasis added).
[26] *Id*.
[27] *Id*. at 6-7; MH Letter at 2.
[28] *Id*. at 7 (emphasis added).
[29] *Id*. at 7-8.
[30] DEIS at 11-12. ("NEPA does not require an analysis of environmental impacts that occur within another sovereign nation that result from actions approved by that sovereign nation.")

Even more recently, Manitoba Hydro itself has transmitted a letter to EERA clearly stating that it "can only support the agreed-upon border crossing . . . known as the "Proposed Border Crossing – Blue/Orange Route in the Draft EIS."[31] That letter briefly summarizes the "robust, transparent analysis of routes and all potential border crossings" that took place in Canada, and explains how that process led to the selection of the Blue/Orange Route as the "preferred end point for each entity."[32] Leaving no doubt about where things now stand in the Canadian process, the letter further states that "Manitoba Hydro does **not** have routes that connect to the border crossing variations included in the Draft EIS."[33]

It makes no common sense for the EIS to continue evaluating border crossing alternatives that are not being considered as part of the Canadian review process. The GNTL Project cannot exist unless it connects to the Manitoba Hydro transmission line that will bring hydroelectricity into the United States from Canada. A border crossing that does not match any crossing being considered in Canada is fundamentally infeasible, and should be treated that way in the Final EIS.

Practically speaking, the selection of an "alternative border crossing" would cause both Minnesota Power and Manitoba Hydro to reconsider their long-term plans for meeting their customers' energy needs.[34] The companies have spent considerable resources identifying a border crossing that was "in the best interests of the overall project and acceptable to both parties."[35] If the MPUC identified a different crossing, it is unlikely that the companies would invest more time or effort in the GNTL, and the project would be abandoned.

2. It is not feasible for Minnesota Power to submit a new Presidential permit application at this stage.

The DEIS fails to recognize the infeasibility of the alternative border crossings. Instead, it proposes in Section 1.2.2.1 that "[i]f the MN PUC issues a permit for a route with a different border crossing . . ., the Applicant could submit an amended Presidential permit application to DOE . . . ." Setting aside the DOE's exclusive power to determine the location of an international border crossing, requiring Minnesota Power to restart the application process is infeasible because it would thwart the purposes of the GNTL Project.

Selecting an "alternative border crossing" would not simply require Minnesota Power to restart its Presidential permit application process. Manitoba Hydro would also have to agree to that border crossing and obtain approval from Canadian authorities.[36] And even if Manitoba Hydro did file "new or amended applications containing a different proposed route," it "would be very unlikely that the necessary studies and the regulatory process would be completed in time to

[31] MH Letter at 1.
[32] *Id*. at 2.
[33] *Id*.
[34] MPUC Docket No. E015/CN-12-1163, MPUC Order dated June 30, 2015 at 2: "The project is part of a joint effort with Manitoba Hydro to construct a new Canada-United States transmission interconnection. The project is intended to provide hydropower and wind storage energy products to Minnesota Power's customers and will provide an additional 500 MW of transfer capacity from the line."; see MH Letter at 2.
[35] Manitoba Justice Letter at 6; MH Letter at 2.
[36] Manitoba Justice Letter at 6.

0190-4 cont'd

0190-4 Continued

0190-5
Thank you for your comment. The EIS analyzes alternative border crossings that were proposed during scoping at the request of resource agencies and are intended to inform the MN PUC transmission line route selection. MN PUC cannot authorize an international border crossing, but the MN PUC may perform its due diligence in this EIS in considering alternative routes to what was proposed by the Applicant in its Route Permit application.

Sections S.7 and 4.1.1 of the EIS are changed to clearly state that the alternative border crossings considered in the EIS are done so only for the purposes of the analysis supporting the Route Permit and transmission line siting decision, but are not being considered by DOE as alternatives in its Presidential permit decision. The international border crossing proposed by the Applicant in its applications to both DOE and MN PUC at latitude 49 00 00.00 N and longitude 95 54 50.49 W, roughly 2.9 miles east of Highway 89 in Roseau County, Minnesota, is clearly identified as DOE's preferred alternative in the EIS in Sections S.6.2, 1.2.2, and 1.2.2.1.

0190-5

DOE has determined the purpose and need is adequate, per program goals and objectives, and no changes are made to the alternatives analyzed in the EIS.

meet the proposed 2020 in-service date" required by the power purchase agreements between Manitoba Hydro and Minnesota Power.[37]

Fulfilling the June 2020 in-service date specified by those power purchase agreements is one aspect of Minnesota Power's purpose for the GNTL Project. That purpose stems from the MPUC's determination that Minnesota Power faces "capacity and energy deficits over the period 2020 – 2035."[38] As a result, Minnesota Power "need[s] a significant additional amount of peaking capacity and energy to meet its future capacity and energy needs."[39] If an alternative border crossing cannot meet the June 2020 in-service date, it is not feasible, and should be excluded from further consideration in the EIS under NEPA[40] and the MPUC's rules.[41]

The Final EIS should state that all "alternative border crossings" are infeasible because they cannot satisfy the Project's purpose and need to have the GNTL in service by 2020, as required by Minnesota Power's power purchase agreements with Manitoba Hydro.

III. The DEIS does not adequately describe potential effects on human settlement and agriculture.

A. The Roseau Lake WMA Variation 1 and Cedar Bend WMA Variation violate Minnesota Power's purposes for the GNTL Project.

As a matter of corporate philosophy, Minnesota Power is committed to having a positive impact on the communities it serves. That is why the company spent years planning the GNTL Project, listening to the people who lived in the areas where the line might be routed, and carefully identifying a route that would receive widespread acceptance from the community. By and large, the company believes that it was successful in achieving that goal, as evidenced by the minimal amount of public opposition to the Proposed Blue/Orange Route.

To ensure that the GNTL Project remained consistent with Minnesota Power's philosophy as it progressed through environmental review, the company built its commitment to having a positive impact on communities into the project's statement of purpose. As discussed above, DOE and EERA are legally obligated to consider that purpose as part of the DEIS's statement of underlying purpose and need for the project.

Unfortunately, the DEIS contains two route variations that plainly would not have a positive impact on their host community. Roseau Lake WMA Variation 1 would, as the DEIS acknowledges, include 50 residences within a 3,000-foot route—more than one residence for every mile of transmission line.[42] The route would also include more than 12,600 acres of

[37] Manitoba Justice Letter at 8; MH Letter at 2.
[38] MPUC Docket No. E015/CN-12-1163, Findings of Fact and Conclusions of Law at 33, ¶ 175 (Mar. 16, 2015) as approved in MPUC Order dated June 30, 2015.
[39] *Id*.
[40] "The [EIS] need not consider an infinite range of alternatives, only reasonable or feasible ones." *Alaska Survival*, 705 F.3d at 1087.
[41] Minn. R. 7850.3700, subp 7 ("When the Public Utilities Commission has issued a Certificate of Need for a …high voltage transmission line…the environmental assessment shall not address questions of need, including size, type, and timing; questions of alternative system configurations; or questions of voltage.").
[42] DEIS at 270, Table 6-13.

0190-5 cont'd

0190-5 Continued

0190-6
The potential impact on human settlement and agricultural land is evaluated for all alternatives in the EIS. As discussed in Section 5.2.1 of the EIS, high voltage transmission line projects, like the proposed Great Northern Transmission Line project, have the potential to impact human settlement in a variety of ways, including potential displacement of humans which can be assessed by evaluating the presence or absence of human settlement features like residences, churches, schools, etc. The EIS also goes on to assess the potential for impacts to humans for all alternatives in terms of several other closely related resource areas, including, noise, public health and safety, transportation, air quality, electronic interference, and property values. Impacts to agricultural lands and practices are evaluated for all alternatives in Chapter 6 of the EIS.

0190-6 The purpose of the EIS is to evaluate the potential impacts from DOE granting a Presidential permit for the proposed Great Northern Transmission Line project and alternatives evaluated to inform the Route Permit decision to be made by the MN PUC.

No changes are made to the EIS in response to this comment.

0190-6 cont'd

0190-6
Continued

agricultural land.[43] Having spoken with the farmers and residents who would be affected by Roseau Lake WMA Variation 1, Minnesota Power can say with confidence that they would not view the transmission line as having a positive effect on their community. Indeed, many of them have expressed staunch opposition to the line being located on their property.

The situation is similar with the Cedar Bend WMA Variation. There are 101 residences within the 3,000-foot route width.[44] That means Minnesota Power would face an average of more than five residences for every mile of transmission line. The route also contains over 2,600 acres of agricultural land.[45] Again, Minnesota Power has listened to the residents in this area, and knows that they do not want a transmission line built along the proposed Cedar Bend WMA Variation route. Building a line in the face of unified, vocal public opposition is not usually consistent with having a positive impact on communities.

Because the Roseau Lake WMA Variation 1 and the Cedar Bend WMA Variation would each have a negative effect on their host communities, they do not satisfy Minnesota Power's purpose in building the GNTL Project, and should be eliminated from further consideration in the Final EIS.

0190-7
The tables in the Land Use Compatibility Sections in Chapter 6 of the EIS are updated with the total acres of land in the ROW, along with acres of public and private land in the ROW. The titles of the land ownership figures were updated to indicate public land ownership. As such, private land is not shown on the land ownership figures.

B. The DEIS must account for effects on human settlement by identifying effects on privately owned land.

0190-7

Among the 14 "routing factors" that the MN PUC considers when deciding whether to permit a high-voltage transmission line, the first-listed is "effects on human settlement."[46] The DEIS acknowledges as much in Section 1.3.1.1.

Minnesota Power's purpose for the GNTL—which, as discussed above, should be incorporated into the EIS—also includes "making a positive impact in on communities." Consideration of private property accordingly was central to the company's multi-year routing and public outreach process for the GNTL.[47]

In addition, the Working Group that was assembled by the EERA to review the GNTL project emphasized that the GNTL "is a public purpose project and should therefore be routing as much as possible on public land, minimizing impact to human settlement and private property use."[48]

Despite all of this, the DEIS's discussion of effects does not measure the effects of the proposed route and route variations on privately owned property. As a result, the DEIS does not adequately measure "effects on human settlement," as required by the Minnesota Rules.

To begin with, Chapter 5 of the DEIS describes the Affected Environment and Potential Impacts, but omits any discussion of privately owned lands as a factor that would be affected by the Project. Consistent with Minnesota Rules 7850.4100(A), Minnesota Power's purpose for the

[43] *Id*. at 272, Table 6-14.
[44] DEIS at 289, Table 6-25.
[45] *Id*. at 291, Table 6-26.
[46] Minn. R. 7850.4100(A).
[47] Minnesota Power Received over 1,000 comments on the Project, the majority of which expressed concern over impacts to private property, residences, and agriculture.
[48] DEIS Appendix C at 11.

0190-7 cont'd

0190-7
Continued

GNTL Project, and the instructions from the Working Group, Chapter 5 should be revised to include a statement that effects on privately owned lands are an important consideration in the EIS.

Chapter 6 is also deficient when it describes the Comparative Environmental Consequences of each Route and Alignment Modification.

Although the Human Settlement analysis for each "Variation Area" discusses land ownership, it does not mention privately owned land. Likewise, the acreage of privately owned land within each Variation is not included in any table or figure in Chapter 6. The discussion of Land Ownership instead focuses on how each Variation impacts state forest, state fee, county, state conservation, or USFWS interest lands.

Table 6-15 for the Roseau Lake WMA Variation Area is presented as an example:

Table 6-15 Land Ownership within the Anticipated ROW in the Roseau Lake WMA Variation Area

Resource	Type	Evaluation Parameter	Roseau Lake WMA Variation Area		
			Proposed Blue/ Orange Route	Roseau Lake WMA Variation 1	Roseau Lake WMA Variation 2
State Forests	--	Acres within ROW	334	6	52
State Fee Lands[1] Total	--	Acres within ROW	453	6	145
State Fee Lands[1] by Type	Consolidated Conservation	Acres within ROW	346	6	96
	Other - Acquired, Tax Forfeit, Volstead	Acres within ROW	13	0	11
	Trust Fund	Acres within ROW	94	<0.5	39
	Federal - State Lease	Acres within ROW	0	0	0

Source(s): MnDNR 2003, reference (148); MnDNR 2014, reference (152)

Note(s): Totals may not sum due to rounding

(1) This dataset represents state land ownership using public land survey quarter-quarter sections as the smallest unit. In some cases, multiple state lands are located within a single quarter-quarter section. Therefore, features may be duplicated and the analysis results may over-represent potential impacts.

All of the "Land Ownership within the Anticipated ROW…" tables in Chapter 6 generally look similar to this example.[49] None of them mention private land ownership.[50]

Because these tables do not account for privately owned land, they are unclear about how many ***total*** acres are within the ROW for each alternative within the Variation Area. More important, the tables make no effort to calculate the amount of privately owned land within each ROW. It is difficult for the Administrative Law Judge (ALJ), the MN PUC, or any other reader to fully

[49] Table 6-3; Table 6-15; Table 6-27; Table 6-39; Table 6-51; Table 6-68; Table 6-80; Table 6-91; Table 6-102; Table 6-112; Table 6-124; Table 6-136; Table 6-145; Table 6-162; Table 6-174; Table 6-185; Table 6-197; and Table 6-206.

[50] In addition, the land ownership tables are misleading about how much public land is within the ROW. The categories of "State Forests" and "State Fee Land" appear to overlap, leaving the impression of more total acres of state land than are actually present.

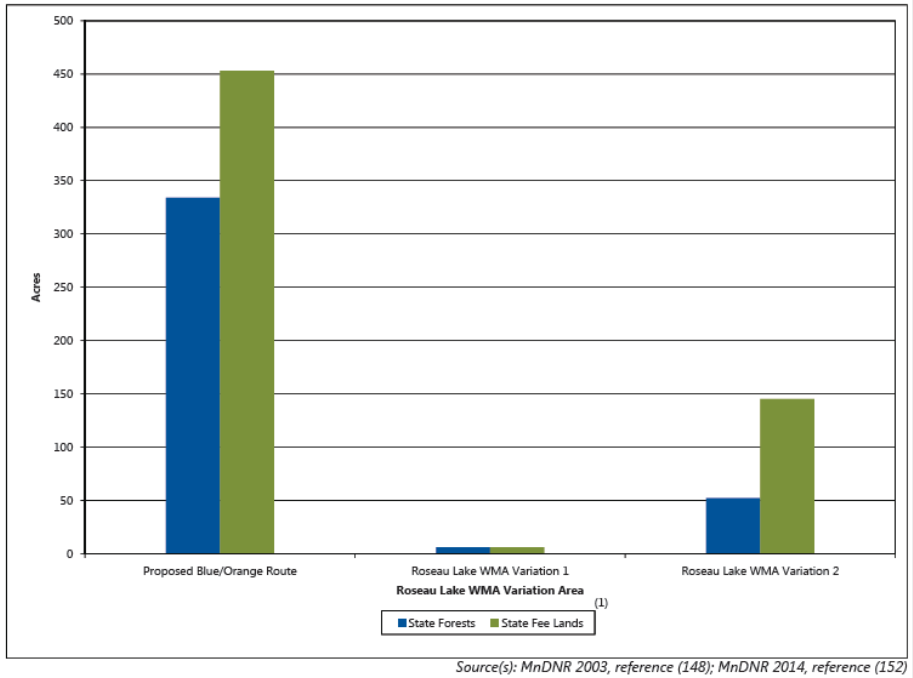
0190-7 cont'd

0190-7
Continued

account for human settlement effects without an understanding of how much land is owned by individual human beings—many of whom likely live and work on the land they own.

The problem with the land ownership tables in Chapter 6 is, if anything, magnified in the corresponding figures. For example, Figure 6-13, entitled "Land Ownership within the ROI in the Roseau Lake WMA Variation Area," shows that the Proposed Blue/Orange Route has over 450 acres of state fee lands and more than 300 acres of state forests. Roseau Lake WMA Variation 1, by contrast, has very little of either. The height of the bars strongly suggests that the Proposed Blue/Orange Route has significantly greater effects on "Land Ownership."

Figure 6-13 Land Ownership within the ROI in the Roseau Lake WMA Variation Area



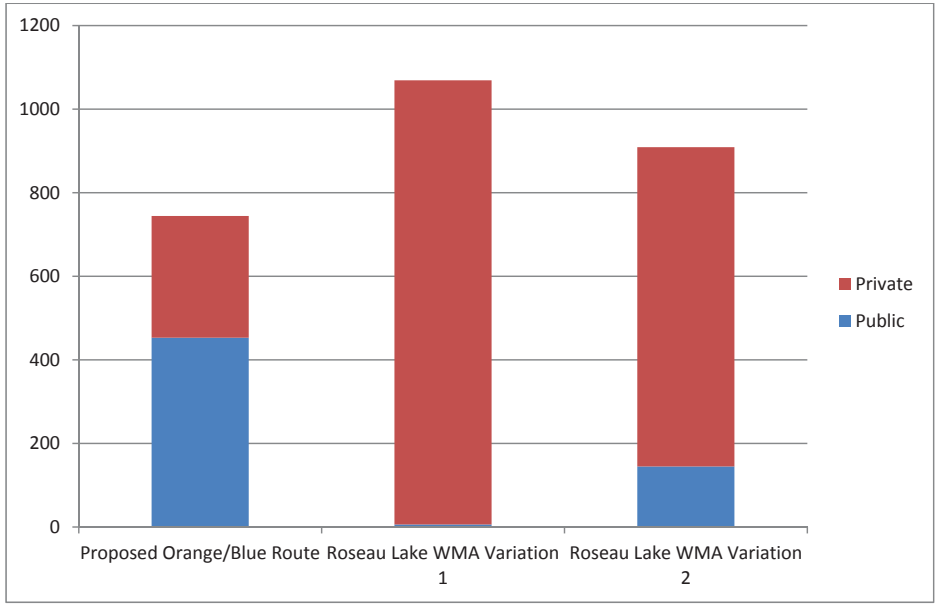
Source(s): MnDNR 2003, reference (148); MnDNR 2014, reference (152)

Note(s):

Totals may not sum due to rounding

(1) This dataset represents state land ownership using public land survey quarter-quarter sections as the smallest unit. In some cases, multiple state lands are located within a single quarter-quarter section. Therefore, features may be duplicated and the analysis results may over-represent potential impacts.

In fact, the huge swaths of land within the Roseau Lake WMA Variation 1 ROI are privately owned. If Figure 6-13 took that land ownership into account, it would look quite different:



Because tables and figures that omit the amount of privately owned land from the calculation of land ownership are misleading, and do not fully account for potential effects on human settlement, all of the land ownership figures and tables, as well as the accompanying discussion, should be revised to include effects on privately owned land.

C. The discussion of aesthetics should recognize that the ROI is too simplistic in agricultural areas.

Consistent with the instructions in the Minnesota Rules, the DEIS attempts to evaluate effects on human settlement in part by considering the Project's potential aesthetic effects.[51] Unfortunately, that analysis falls short in a manner that understates aesthetic effects, especially in agricultural areas.

Section 5.3.1.1 (and similar sections for the Central and East Sections) defines the ROI for aesthetic effects as "1,500 feet from the anticipated alignment of the transmission line." That distance is reasonable in places where the line is located in a forested area, and thus visually obscured by surrounding trees.

The situation is different, however, in predominantly agricultural areas. As the DEIS acknowledges, "[a]esthetic impacts are likely to be greatest for views of the proposed Project in

[51] Minn. R. 7850.4100(A).

0190-7 cont'd

0190-7 Continued

0190-8

As stated in Section 5.3.1.1, "The 1,500 foot ROI for aesthetic resources was identified because the proposed Project is *most likely* to be visible within this near-foreground distance zone and views of the proposed Project from aesthetic resources within this distance zone have the *greatest potential* to result in visual impacts for sensitive viewers" (*emphasis added*). The EIS also states, in Section 5.3.1.1, that "Aesthetic impacts are likely to be greatest for views of the proposed Project in the foreground distant zone (i.e., up to about 0.5 miles from the proposed Project), but impacts can also be substantial for views from greater distances." Thus, 1,500 feet provides a reasonable distance within which aesthetic resources may be identified and compared for the different route variations and modifications to assess potential aesthetic impacts, but the EIS does not identify that aesthetic impacts would only occur within this distance. In addition, while distance is an important factor in determining the level of aesthetic impact, a variety of other factors in combination contribute to determining aesthetic impacts. As stated in Section 5.3.1.1 "Impacts on aesthetics are assessed based on the extent of changes to landscape character and scenic quality, the level of contrast introduced by the proposed Project, its proximity to viewers, and the visual sensitivity related to views of the proposed Project." Depending on these factors, aesthetic impacts are as likely to occur in forested areas as agricultural areas. Therefore, while there is a greater potential for aesthetic impacts in the near-foreground and foreground distance zones, it cannot be reliably stated that there is a "potential for greater aesthetic effects in agricultural areas, where long-distance visibility tends to be much higher."

0190-8

Visual simulations, provided in Appendix N, Photo Simulations, of the EIS, were prepared for seven viewpoints within the study area to represent typical views of the proposed Project. These simulations are intended to provide reviewers with a sense of what the transmission line would look like from various distances and in various landscape settings within the study area.

No changes are made to the EIS in response to this comment.

the foreground distance zone (i.e. up to ***about 0.5 miles*** from the proposed Project), but impacts can also be substantial for views from greater distances."[52] In fact, "a recent study on the visibility of transmission lines in western landscapes" found that structures were "noticeable to causal observers at ***up to 10 miles*** and strongly attracted attention at up to ***3 miles***."[53] Residents of the agricultural areas that predominate in the West Section of the study area may thus experience aesthetic effects—in other words, they will see the proposed transmission line—at distances far greater than 1,500 feet.

For example, Table 6-13, "Aesthetic Resources within the ROI in the Roseau Lake WMA Variation Area," currently lists the number of houses within 500 feet, 1,000 feet, and 1,500 feet of the proposed route and variations. Most of that Variation Area—especially for Roseau Lake WMA Variation 1—is within a "western landscape" like the one referenced in the DEIS. There are 727 residences within 3 miles of Roseau Lake WMA Variation 1. The study cited in Chapter 5 suggests that most or all of these residences would be affected by the proposed variation.

To account for the study of western landscapes cited in the DEIS, Section 5.3.1.1 of the Final EIS should include a discussion that emphasizes the potential for greater aesthetic effects in agricultural areas, where long-distance visibility tends to be much higher.

D. Displacement effects are not the same for all alternatives, and should not be dismissed in Chapter 5.

Under Minnesota Rules, consideration of effects on human settlement must include "displacement" caused by the proposed transmission line.[54] The DEIS describes displacement as something that "would have similar expected general impacts . . . for all proposed routes and variations."[55] According to the DEIS, "[d]isplacements are relatively rare," and would occur only within the 200-foot ROW for the transmission line.[56] The DEIS goes on to conclude that "there are no residences, churches, schools, daycares, or nursing homes within the [200-foot] ROI that would be displaced as a result of the anticipated alignment."[57]

Simply using the ROW as the ROI for displacement does not adequately account for potential effects. As the DEIS explains in Section 1.3.1.4, the MN PUC will permit a 650-3,000 foot route. The 200-foot ROW may be located anywhere within the permitted Route, not necessarily on the presently anticipated alignment. That means that any residence or other building within the entire 650-3,000 foot route faces a possibility of displacement.[58] This potential effect could readily be captured using a table that included both the number of residences and other buildings within the 200-foot ROW, as well as the number of residences or other buildings within the potential 3,000-foot permitted route.

[52] DEIS at 159 (emphasis added).
[53] *Id*.
[54] Minn. R. 7850.4100(A).
[55] DEIS at 77.
[56] *Id*. at 78.
[57] *Id*.
[58] The Final EIS should note that Minnesota Power has carefully evaluated the Proposed Blue and Orange Routes, and is confident that it can avoid displacing any residences along those routes. The route variations, by contrast, have not been subject to careful scrutiny, increasing the risk of displacement within the route.

0190-8 cont'd

0190-8 Continued

0190-9
While the MN PUC may permit a 650-3,000 foot route, as identified in the Generic Route Permit Template (Appendix B of the EIS, Section 3.1): "Any alignment modifications within the designated route shall be located so as to have comparable overall impacts relative to the factors in the Minn. Rules, part 7850.4100, as does the alignment identified in this permit, and shall be specifically identified and documented in and approved as part of the plan and profile submitted pursuant to Section 4.1 of this permit."

0190-9 When evaluating direct impacts throughout the EIS, the ROW, not the route width is regularly used for analysis because of this procedural requirement should the proposed alignment change. Further, including an evaluation of the route width instead of the ROW would result in an overestimation of the potential impacts as not all residences outside of the defined ROW would be displaced; only those that would be within the 200 foot ROW of the revised alignment.

No changes are made to the EIS in response to this comment.

For example, as already noted above, the Roseau Lake WMA 1 Variation has no residences within the expected ROW, but 50 within the potential 3,000-foot route. The Cedar Bend WMA Variation is just 19.6 miles long, but has 101 homes within a 3,000-foot route width. The Effie Variation has 14 residences within its 3,000-foot route, but would have less room to maneuver around them due to the presence of two existing high-voltage transmission lines. None of these issues is adequately addressed in the DEIS.

The Final EIS should acknowledge in Section 5.2.1.1 that any residence or other building within the permitted Route could be displaced. Moreover, because the number of residences and other buildings within the potential routes, the issue of displacement should be discussed for each Variation Area in Chapter 6, not dismissed as a similar effect in Chapter 5.

E. State forests should not be overemphasized as an effect on human settlement because many of them are inaccessible to residents.

As described above, the DEIS underemphasizes displacement and aesthetic effects on residences—both of which are issues directly relevant to human settlement. At the same time, the DEIS overemphasizes certain "aesthetic resources" that have a far more attenuated connection to human settlement.

Section 5.3.1.1 rightly acknowledges that "visual resources are generally defined as the natural and built features of the landscape that may be viewed by the public . . . ."[59] Yet its definition of "aesthetic resources includes "state forests" and "national forests," neither of which is typically "viewed by the public" within the Project Area. What is more, the DEIS already addresses public recreation opportunities within state forests by including trails, campgrounds, and water access points in its list of aesthetic resources. Adding state forests to the list essentially double-counts these public recreational opportunities, while ignoring the fact that the vast state forests in the project area are rarely used as recreational areas. The Final EIS accordingly should eliminate state forests from its calculation of aesthetic effects.

The presence of state forests is also overemphasized or double-counted in other parts of the DEIS. Chapter 6 includes state and national forests in its analysis of Land Ownership, Land-Based Economies, and Vegetation for each Variation Area. Chapter 7 accounts for state forests when evaluating the relative merits of each route variation's effects on Aesthetics, Land Use Compatibility, Forestry, Vegetation, and Wildlife.

As Map 5-12 illustrates, forest land is the dominant land cover type within the proposed routes and route variations. As a result, the proposed routes and variations have nearly identical effects on state forests—especially when those routes are considered as a whole. It would not be unreasonable to discuss state forests in Chapter 5 as effects common to all alternatives, and omit them from the comparative analyses in Chapters 6 and 7.

The Final EIS should explicitly acknowledge that all proposed routes and route variations affect similar amounts of state forest land. In addition, Chapter 6 of the Final EIS should not include state forests in its discussion of aesthetics, vegetation, or wildlife. The presence of state forests is useful only to calculate effects on forestry and land ownership.

[59] DEIS at 158.

0190-9 cont'd

0190-9 Continued

0190-10
Presence of state forest land is not double counted in the EIS. For example, in the Vegetation sections of Chapter 6, acres of GAP forested land cover types are provided in addition to acres of state forest land (in an effort to provide the reader with all relevant information). These acreages are not meant to be summed and are never summed in the EIS. Further, state forests serve multiple uses to the state and to the public (land-based economies, recreation and tourism, wildlife, etc.) and to accurately reflect the proposed Project's impact on each of these uses, discussion of state forests within multiple resource areas is appropriate within the EIS.

0190-10 No changes are made to the EIS in response to this comment.

F. The DEIS should more clearly state the ways in which different alignments will affect agricultural lands.

In addition to requiring the MN PUC to consider a project's effects on human settlement, the Minnesota Rules also mandate consideration of "effects on land-based economies, including, but not limited to, agriculture, forestry, tourism, and mining."[60] This factor is especially significant in the Project Area, where agriculture is a rare resource, while forests and wetlands are plentiful. Yet the DEIS fails to fully capture the potential effects on agriculture in several places.

Section 5.3.2.1 describes the potential impact to agricultural practices across the Project Area. The text states:

> The ROI for this analysis of impacts to agriculture includes the anticipated 200-foot ROW of the proposed transmission line . . . . [T]his ROI was selected based on the expectation that, given the construction activities proposed, the majority of impacts on agriculture would likely be limited to this area.[61]

Contrary to these statements in the DEIS, the effects of the proposed transmission line on agricultural practices are not generally temporary and short-term in nature, and they are not necessarily limited to the 200-foot ROW. Permanent effects that may occur outside of the ROW include effects on drive lines (for agricultural machinery) and effects caused by angle structures, which can limit aerial spraying for agriculture in an area much greater than the ROW. These concerns were raised during scoping, and should be addressed in the EIS.[62]

Minnesota Power recognizes that permanent effects outside the ROW are not easily quantified in terms of acreage. Nonetheless, the discussion of Land-Based Economies in Sections 5.3.2.1, 5.4.2.1, and 5.5.2.1 should include language recognizing this potential for permanent, adverse agricultural effects outside of the ROW, particularly in the West Section.

IV. The DEIS's discussion of corridor sharing is misleading and inaccurate.

The Minnesota Rules for routing high-voltage transmission lines place particular emphasis on corridor sharing—i.e., the "use or paralleling of existing rights-of-way, survey lines, natural division lines, and agricultural field boundaries," and the "use of existing transportation, pipeline, and electrical transmission systems or rights-of-way."[63] Minnesota Power accordingly considered such corridor sharing opportunities when it developed its proposed routes. The DEIS's analysis of corridor sharing, however, fails to account for the different environmental benefits that different types of corridors may offer, especially in the context of a 500 kV transmission line like the GNTL.

[60] Minn. R. 7850.4100(C).
[61] DEIS at 167.
[62] *See* Scoping Summary Report at C-10, C-18.
[63] Minn. R. 7850.4100(H), (J).

0190-11

0190-11
The majority of impacts to agriculture would occur within the ROW, as Chapter 5 and 6 of the EIS suggests. Section 5.3.2 disucsses potential impacts to agriculture that may occur outside of the ROW, including aerial spraying, irrigation systems, and precision farming systems.

As discussed in Section 1.3.1.4 of the EIS, once a route is selected and a permit is issued, the Applicant would contact landowners to gather information about their property and their concerns and discuss how the ROW would best proceed across the property.The Applicant will work with landowners to minimize impacts to agriculture.

No changes are made to the EIS in response to this comment.

0190-12

0190-12
References to an ROI in the Corridor Sharing sections of Chapter 5 and Chapter 6 are removed from the EIS.

The purpose of the Corridor Sharing sections in Chapter 6 is to present all available information on potential for paralleling existing corridors, including transmission lines, roads, trails, field lines, and PLSS boundaries. The tables in the Corridor Sharing sections of Chapter 6 are intentionally broken down by corridor types so that one can identify the percentages of each alternative that would parallel each type of existing corridor, as opposed to just providing a total number of corridor sharing for each alternative. Furthermore, these tables are broken down in a hierarchical manner to place emphasis on paralleling corridors in the following order: transmission line, road/trail, field line, and PLSS.

As the EIS states, paralleling existing corridors can reduce fragmentation on the landscape, which could influence impacts associated with human settlement and the natural environment. As such, the potential for paralleling existing transmission line corridors is discussed when analyzing all alternatives within a variation area in Chapter 6 for several resources, such as aesthetics, vegetation, and wildlife.

A. The DEIS should be clear that not all "corridors" have the same—or any—environmental benefits, and adjust its calculations accordingly.

1. It is inappropriate to use a quarter-mile ROI to identify corridor sharing.

To account for the presence of corridor sharing, the DEIS defined a ROI that "generally includes infrastructure corridors within approximately 0.25 miles of the proposed routes and variations."[64] The DEIS explains this definition by first acknowledging that "as distance from existing corridors increases, the benefits of corridor sharing diminish."[65] But the DEIS fails to explain why benefits exist within a quarter-mile (1,320 feet), and not some other, shorter distance.

As the DEIS acknowledges, the primary benefit of corridor sharing is to "minimize[] fragmentation of the landscape" and "adjacent property."[66] But those benefits do not exist for corridors a quarter-mile away.

For example, an existing 200-foot transmission line ROW through a forested area may cause "fragmentation"—a break between two larger forested areas—that could adversely affect wildlife. If a new line is built parallel to the existing line, additional fragmentation is avoided if the new 200-foot ROW is adjacent or nearly adjacent to the existing one. If the new ROW is 1,000 feet away from the old one, however, the result would be ***more*** fragmentation—an isolated, 1,000-foot stretch of forested land in-between two 200-foot ROWs. Yet the DEIS counts both of these scenarios as favorable "corridor sharing." Similarly, the DEIS would potentially identify a "corridor sharing" benefit for a transmission line that is hundreds of feet away from an agricultural field boundary, even though any location other than directly on the field boundary would offer no benefits whatsoever to adjacent property.

Because the 0.25 ROI results in misleading conclusions about corridor sharing, the Final EIS should not use it. The Final EIS should further recognize that, realistically, corridor sharing creates environmental benefits only if the new centerline is specifically designed to take advantage of a corridor sharing opportunity. Many of the route variations studied in the DEIS are not so designed.

2. The only corridor sharing that provides significant environmental benefits for a project like this is paralleling a 500 kV or 230 kV line.

The Minnesota Rules requiring the MN PUC to consider various types of corridor sharing do not distinguish between them. An environmental analysis should.

Not all corridor sharing offers the same environmental benefits, especially for a 500 kV transmission line like the GNTL. There are few, if any, environmental benefits to paralleling a field line, which may change from season to season. Likewise, paralleling PLSS lines, which are not necessarily connected to any landscape features, does not reduce environmental effects.

[64] DEIS at 193.
[65] *Id.*
[66] *Id.*

0190-12 Continued

0190-12 cont'd
The ROI was used as an outer limit when reviewing the alternatives for corridor sharing or paralleling opportunities as required under Minnesota Rule 7850.4100 subpart h and subpart j. When the transmission line is located along other transmission lines, it was paralleling the other transmission lines, not sharing a corridor. Opportunities for corridor sharing or paralleling are located as close to the road, section line, etc. as possible in order to meet the intent of Minnesota Rule 7850.4100 subpart h and subpart j.

No changes are made to the EIS in response to this comment.

For similar reasons, paralleling an existing two-lane road offers no environmental benefits for a 500 kV transmission line. The primary benefit of paralleling an existing road or small transmission line is to reduce the total ROW by overlapping the two ROWs. The ROW for a 500 kV line, however, cannot overlap the ROW for an existing road or small transmission line.[67] What is more, paralleling existing roads and small transmission lines in agricultural areas could have the adverse effect of reducing farm equipment mobility. Ultimately, the only significant corridor sharing benefits that may exist in this project would accrue from paralleling an existing 230 kV or 500 kV transmission line, where corridor sharing could reduce fragmentation.

Section 6.2.2.6 and Table 6-23 illustrate the importance of this distinction. As written, the tables list and calculate all "Feature Sharing Corridors" for the Roseau Lake WMA Variations, including transmission lines, field lines, PLSS lines, and roads. Table 6-23 thus makes it appear that the Proposed Orange/Blue Route would offer the benefits of corridor sharing along 60% of its length, while the Roseau Lake WMA Variation 2 would provide those same benefits along 71% of its length. But it is far more important that 33% of the Proposed Orange/Blue Route would parallel large transmission lines, as opposed to 27% of the Roseau Lake WMA Variation 2.[68] Because the DEIS does not make this clear, it could be misleading to the decisionmakers and the public.

The Final EIS should explain that the benefits of corridor sharing are only significant where the proposed GNTL would parallel an existing 230 kV line or an existing 500 kV line. Other corridor sharing calculations should be dropped from comparison tables.

3. Paralleling the abandoned corridor offers no environmental benefits.

The Balsam Variation Area – Balsam Variation Scoping Decision Route was accepted for analysis in the DEIS because there once was a transmission line corridor in that area. That line has since been removed, the ROW sold, and the landscape re-planted with trees and other natural vegetation. Section 6.4.3 nevertheless concludes that the impacts of the Balsam Variation are minimized or reduced because it "parallels an abandoned corridor."

There are no environmental benefits to paralleling an abandoned transmission line corridor in these circumstances. Contrary to the suggestion in Section 6.4.3, the "abandoned corridor" is not being used as a trail, or for recreational purposes of any kind. It should instead be regarded as greenfield or open land that presents no corridor sharing opportunities.

The Final EIS should remove all text and tables that inaccurately describe the abandoned corridor or identify it as an opportunity for corridor sharing.

B. The DEIS inaccurately suggests that paralleling existing transmission lines reduces effects on forestry and vegetation.

Chapter 6 repeatedly concludes that paralleling existing transmission line ROW minimizes or reduces the impact to forestry, vegetation, wildlife, threatened and endangered species, and rare

[67] The DEIS is inaccurate on this point. *See* DEIS at 194.
[68] As discussed below, the variation itself parallels no transmission lines. Table 6-23 is actually counting the corridor sharing in areas where the Proposed Orange/Blue Route and Roseau Lake WMA Variation 2 share the same route.

0190-12 cont'd

0190-12 Continued

0190-13
The Balsam Variation is located in an abandoned corridor that is under a conservation easement. The text in the EIS is revised in the Summary, Chapter 5, and Chapter 6. The edit changed the text from "the Balsam Variation will parallel an abandoned corridor" to "the Balsam Variation would be located in an abandoned corridor." This abandoned transmission line corridor is not included in the acreages/percentages for corridor sharing shown in the EIS.

0190-14
Chapter 6 of the EIS quantifies the acres of forested land in the ROW for each alternative. This is the metric by which one can assess quantities of forest that would be removed for each alternative. As discussed in both the EIS and the Applicant's Route Ppermit Aapplication (Section 6.4), creating a new corridor within an unfragmented forest alters the integrity of that forest, with consequences for all other resources (i.e. wildlife, rare species) dependent on that unfragmented forest.

No changes are made to the EIS in response to this comment.

0190-13

0190-14

species and communities. As discussed above, corridor sharing—properly defined—may offer benefits insofar as it minimizes habitat fragmentation effects. But corridor sharing does not significantly reduce effects on forests.

To ensure safety and system reliability, ROW corridors for large transmission lines cannot overlap. Thus, even when a new line parallels an existing one, the entire 200-foot ROW must be cleared. If that ROW contains forest land or other vegetation, the same amount of forest would be cleared as if the line did not parallel an existing line. The DEIS seems not to recognize this fact, claiming that a route would have fewer effects on "timber activities" because it offered the most opportunities for corridor sharing.[69]

The Final EIS should clearly state that paralleling existing transmission lines does not reduce the amount of forest land or vegetation that must be cleared within the 200-foot ROW, and should remove all statements suggesting that corridor sharing offers forestry or vegetation benefits.

C. The DEIS does not accurately describe the potential effects of existing transmission lines on electrical system reliability.

Electrical system reliability is one of the factors MN PUC is required to consider in determining which route to select and permit.[70] Strengthening system reliability is also one of Minnesota Power's explicit goals in building the GNTL Project. The DEIS, however, fails to adequately account for the adverse effects on electrical system reliability that can result from transmission line paralleling and transmission line crossing.

1. Paralleling the existing Manitoba-United States tie lines increases adverse effects on system reliability.

The DEIS acknowledges that the more parallel ROWs or common corridors are used for multiple transmission lines—particularly high voltage facilities—the more likely it becomes that an outage involving multiple facilities could occur.[71] The DEIS also rightly states that Minnesota Power should evaluate the electrical reliability impact of corridor sharing on a case-by-case basis.[72] But the DEIS only applies this principle where the Project would be in a common corridor with the existing 500 kV Manitoba–United States tie line.[73] Other parallel corridor scenarios are generally handled by considering whether there would be two or three transmission lines in a common corridor. The DEIS generally assumes that locating two lines in the same corridor would not adversely affect electrical system reliability,[74] while locating three lines in the same corridor would have potential adverse effects.[75]

In reality, the electrical reliability impacts of establishing a common transmission line corridor are much more nuanced, depending primarily on the purpose and expected performance of the transmission lines. In this case, the only parallel corridor scenarios that have any noteworthy

[69] DEIS at 275.
[70] Minn. R. 7850.4100(K); *see* DEIS at 194.
[71] DEIS at 195.
[72] *Id*.
[73] *See, e.g., id*. at 197 (discussing system reliability in the West Section).
[74] *See, e.g., id*. at 238 (discussing reliability in the East Section).
[75] *Id*.

0190-14 cont'd

0190-14 Continued

0190-15
The following text is added to Section 2.8.3 of the EIS: According to the Applicant, the electrical reliability impacts of establishing a parallel transmission line corridor depend primarily on the purpose and expected performance of the transmission lines. None of the alternatives that parallel existing corridors with 69 kV, 115 kV, or 230 kV transmission lines that do not connect Manitoba and the United States would impact electrical system reliability.

0190-15

If the proposed Project parallels the existing 230 kV tie line corridor, the impact of a simultaneous, unexpected outage of the two facilities on electrical reliability would be minimal, but still notable because the lines would share a common purpose of transferring power from Manitoba to the United States. If the Proposed Project parallels the existing 500 kV tie line corridor, a simultaneous unexpected outage would have a greater impact on electrical system reliability because the transmission lines not only share a common load, but would also carry similar (and greater) amounts of power.

If three transmission lines (i.e., the Proposed Project, 500 kV tie line, and 230 kV tie line) are located in parallel corridors, a simultaneous unexpected outage of the Proposed Project and two tie lines could have the greatest impact to electrical reliability.

0190-15 cont'd

0190-15
Continued

electrical system reliability impacts are those involving the Project and one or more of the existing Manitoba–United States tie lines. The Final EIS accordingly should recognize that none of the common corridor scenarios involving 69 kV, 115 kV, or 230 kV lines that do not connect Manitoba and the United States has any significant impact on electrical system reliability, regardless of how many transmission lines are located in the common corridor.

Where the Project shares a common corridor with the existing 230 kV tie line, the impact of a simultaneous, unexpected outage of the two facilities on electrical reliability would be relatively minimal, but still notable because the lines would share a common purpose of transferring power from Manitoba to the United States. Where the Project shares a common corridor with the existing 500 kV tie line, a simultaneous unexpected outage would have a greater impact on electrical system reliability because the lines not only share a common purpose, but would also carry similar (and greater) amounts of power. The Final EIS should thus recognize that establishing a common corridor with the Project and another Manitoba–United States tie line carries an elevated level of risk to electrical system reliability.

Where the Project would be placed in a common corridor with both of the existing tie lines, as proposed in the Effie and East Bear Lake Variations, a simultaneous unexpected outage of the three tie lines would have a substantially greater impact to electrical reliability than would paralleling just one of those tie lines. Such an event would leave only two operating tie lines, both of which are far smaller. This would severely weaken the Manitoba–United States transmission interface, putting a significant amount of Minnesota load at risk that would not be at risk during a simultaneous outage of the two 500 kV lines. The Final EIS accordingly should explain that establishing a common corridor with the Project, the existing 500 kV tie line and the existing 230 kV tie lines—as proposed in the Effie and East Bear Lake Variations—carries the highest level of risk to electrical system reliability of any proposed route or variation, and that a simultaneous unexpected outage of the Project and these two particular transmission lines could have severe consequences for the electric power system in Manitoba and Minnesota.

0190-16
The following text is added to Section 5.3.7 of the EIS: Based on information provided by the Applicant, to ensure safety, constructing such crossing spans would require an outage of the line being crossed. Increasing the number of crossings could increase the number of discrete outages required. This could limit construction timeframes because system requirements may not always permit such outages.

2. Crossing the existing Manitoba-United States tie lines increases adverse effects on system reliability.

0190-16

The DEIS briefly acknowledges that Minnesota Power wants to minimize the number of times the GNTL crosses existing transmission lines, for the sake of system reliability.[76] But there is no further discussion of the construction, operation, and maintenance effects that would be caused by new transmission line crossings.

As with the parallel corridors, the only line crossing scenarios that have any noteworthy electrical system reliability effects are those involving the Project and one or more of the existing Manitoba–United States tie lines. To ensure safety, constructing such crossing spans would require an outage of the line being crossed. Increasing the number of crossings would increase the number of discrete outages required. This could limit construction timeframes because system requirements may not always permit such outages. The Final EIS should explicitly recognize this potential system reliability factor.

[76] DEIS at 195.

Similar issues could occur during operation and maintenance of the Project. When one of the tie lines is out of service for maintenance, the power transfer capability on the Manitoba–United States interface is intentionally limited to avoid overloading the remaining tie lines. The larger the tie line, the more limited the transfer capability when it is out of service. When two of the tie lines must be taken out of service simultaneously, such as for maintenance of a crossing span, transfer capability during the outage would be further reduced, magnifying the impact of the outage on the reliability of the system. Limiting the number places where the GNTL crosses the existing Manitoba–United States tie lines would limit these effects.

Finally, transmission line crossings in general increase the likelihood of conductor-to-conductor contacts, which occur when the conductors of one line fall onto the conductors of another line. While this risk is relatively minimal, especially given that appropriate design criteria considerations that be incorporated at all crossing locations, it is impossible for one line to fall on the other if they do not cross.

The FEIS should recognize that the creating new transmission line crossings involving the existing Manitoba–United States tie lines has electrical reliability impacts during construction, operation, and maintenance of the Project, and that these impacts are best mitigated by limiting the total number of crossings.

V. The DEIS understates certain effects that would result from the route variations.

A. There is an active mine permit that makes the Balsam variation infeasible.

Under the Minnesota Rules, the MPUC is required to account for the effects of a proposed transmission line on "land-based economies," including "mining."[77]

In December 2014, Magnetation LLC[78] began operating its "Plant Four" within the ROW for the Balsam Variation. Magnetation has both a mineral lease and a mine permit for this operation, neither of which is identified in the DEIS. In fact, the DEIS erroneously states that "no active mining operations that could pose existing public health and safety hazards have been identified in the Project footprint."[79] That is no longer the case with respect to the Balsam Variation, which would traverse a large stockpile of red ore tailings that is a part of Magnetation's active operations. It should go without saying that a high-voltage transmission line cannot feasibly cross an active mine site.

The Final EIS should state that Magnetation's mining operations eliminate the Balsam Variation from further consideration as a feasible alternative.

0190-16 cont'd

0190-16
Continued

0190-17
The southern portion of the Balsam Variation crosses know state mineral resources leased by the MnDNR. The area is within the property boundary for Magnetation as shown on the map at http://www.magnetation.com/home/wp-content/uploads/2014/05/Land-Plant4JLOPropBound300dpi.pdf. While transmission lines cannot be constructed on active mine features, the 3,000 foot route width could allow flexibility to site the transmission line to avoid the feature. Construction of transmission lines could affect future mining operations if the transmission line or structures encumber the lease or interfere with access to mineable resources or the ability to remove these resources. However, if a conflict were to arise, then the transmission line and structures would need to be relocated to allow access to the mineral resource.

Sections S.10.3.3, 6.4.3.2 and 7.2.2.4 of the EIS are updated with information related to the Balsam Variation and mining.

0190-17

[77] Minn. R. 7850.4100(C).
[78] Magnetation Inc. is a natural resources and iron ore mining company that has developed a process to recover high-quality iron ore concentrate from previously abandoned waste stockpiles and tailings basins. Magnetation LLC is a joint venture between Magnetation Inc. and AK Steel Corporation.
[79] DEIS at 155.

B. Selecting a route variation would likely require relocation of the Series Compensation Station, which could have significant wetland fill effects not documented in the DEIS.

The DEIS rightly acknowledges that constructing the GNTL Project will involve construction of a Series Compensation Station somewhere near the midpoint of the line.[80] It does not, however, address the effects that certain route variations would have on the location of the Series Compensation Station.

Electrical design optimization studies concluded that the best location for the Project's series compensation station is near the midpoint of the combined Manitoba and Minnesota projects, running from the Dorsey Substation near Winnipeg, Manitoba, Canada, to Minnesota Power's existing Blackberry Substation near Grand Rapids, Minnesota, USA. Based on this conclusion and the preliminary estimated line lengths in Manitoba and Minnesota, Minnesota Power undertook a site search to identify a viable series compensation station site somewhere on the segment of the Proposed Blue/Orange Route that runs generally west to east, south of Warroad in Roseau County. Since the series compensation station, similar to a traditional substation, would require permanent filling of any wetlands located within the estimated 6 acre footprint of the facility, a primary goal of Minnesota Power's site search was to minimize the facility's environmental effects by identifying a predominantly upland site for the series compensation station.

As shown in Map 6-18, viable upland sites in the search area are limited. Minnesota Power has obtained an option to purchase the only viable upland site it found—a 60 acre privately owned parcel that is currently cultivated. This proposed series compensation station site is located at almost the exact overall midpoint of the line based on the preliminary estimated line lengths, making it an ideal site from both an engineering and environmental perspective.

Three of the route variations analyzed in the DEIS would impact Minnesota Power's ability to use the site that it has optioned for the series compensation station. Two of those variations—the Cedar Bend WMA Variation and Beltrami North Variation 2—would bypass Minnesota Power's proposed series compensation station site entirely, forcing Minnesota Power to give up its option on the proposed site and seek an entirely different site for the series compensation station. The DEIS does not discuss or evaluate the impact of relocating the series compensation station as a result of these two variations, even though a new series compensation station site would almost certainly have greater wetland fill and/or aesthetic impacts (or other types of impacts). A different site would also potentially be less optimal from an engineering perspective if it couldn't be located as near to the overall midpoint of the combined projects as Minnesota Power's proposed site.

The other variation, Beltrami North Variation 1, follows the north side of the existing 500 kV line through the series compensation station site. While the same site could be utilized, placing the series compensation station—and thus the new transmission line—on the north side of the existing 500 kV line would increase the human impact of the project, because the facility would be closer to and more visible from nearby residences. The DEIS does not discuss or evaluate the

[80] DEIS at 15.

0190-18

0190-18
Section 2.9.4 of the EIS is updated with a statement explaining that the proposed location of the Series Compensation Station is specific to the Proposed Blue Route or the Proposed Orange Route. Until the final route is permitted by the MN PUC, specific wetland impacts for the the Series Compensation Station are unknown.

aesthetic impact (or any other type of impact) from relocating the series compensation station to the north side of the existing 500 kV line as a result of Beltrami North Variation 1.

The Final EIS should address the potential relocation of the Series Compensation Station, noting that such relocation would likely increase wetland fill and other effects, in addition to causing significant engineering difficulties.

C. Because the DEIS does not consistently show a 250-foot separation between the existing HVTL and proposed variation centerlines, the effects of those variations are misstated.

Safety and system reliability generally require a minimum 250-foot separation between the centerlines of any existing 230 kV or 500 kV transmission line and the proposed GNTL line.[81] Unfortunately, it appears that the GIS maps used in preparing the DEIS did not consistently maintain this minimum separation distance for some of the route variations proposed during the scoping process.

Because the affected environment is often similar throughout the project area, moving the route variation ROWs to a proper distance away from the existing transmission lines is unlikely to substantially change the effects calculations in the DEIS. There is, however, one important exception that Minnesota Power identified in the Cedar Bend WMA Variation. If a 250-foot separation were in place between the proposed Cedar Bend WMA Variation ROW centerline and the existing 230 kV line centerline, it would result in displacement of four homes.[82] These displacements are not accounted for anywhere in the DEIS.

The Final EIS should acknowledge that, if its proposed ROW is properly spaced away from the existing transmission line, the Cedar Bend WMA Variation would displace four homes.

D. The DEIS does not account for the location of existing HVTL substations, some of which would render the variation route infeasible.

Throughout the DEIS, there is little mention of the substations that serve the existing 500 kV and 230 kV tie lines. But especially with respect to the Cedar Bend WMA Variation, those substations are likely to cause insurmountable difficulties.

Although it is not easy to see in the DEIS maps, the "Common Start Point" for the Cedar Bend WMA Variation is nearly adjacent to two operating substations—one that serves the existing 500 kV line, and one that serves the existing 230 kV line. (The problem can be seen in the DEIS Map Book, Map 7, although these substations are there incorrectly identified as "communication towers.") The Cedar Bend WMA Variation proposed ROW appears to thread right between these two substations. From a construction, operation, and electrical system reliability perspective, however, such a path for the new line is simply not possible.

[81] The DEIS acknowledges this need for "all new" ROW in several places, and notes that 250 or 300 foot ROW may be needed for longer spans. DEIS at S-4, 27, 238.
[82] *See* attached map, Potential Displacements: Cedar Bend WMA Variation Area.

0190-18 cont'd

0190-18 Continued

0190-19

0190-19
The Applicant provided the shapefiles used in the EIS analysis for their Proposed Blue Route, Proposed Orange Route, C2 Segment Option Variation, and J2 Segment Option Variation. In addition, the Applicant provided a memo with design changes (Decmember 1, 2014) which assumed a 250 foot separation between the anticipated alignments when paralleling existing 500 kV transmission line.

The shapefiles provided by the Applicant show that where their proposed alternatives parallel the existing 500 kV transmission line, there is a separation of 250 feet between the anticipated alignments. However, in the shapefile, where the proposed alternatives parallel the existing 230 kV transmission lines, the distance between the anticipated alignments is 150 feet. And where the proposed alternatives parallel an existing 115 kV transmission line, there is a separation of 150-300 feet between the anticipated alignments.

Based on the distance provided in the Applicant's shapefile for paralleling existing 230 kV transmission lines, the Cedar Bend WMA Variation (which parallels an existing 230 kV transmission line) would not displace four residences. If the MN PUC selects the Cedar Bend WMA Variation, the Applicant will need to work within the 3,000 foot route to develop an anticipated alignment.

0190-20

No changes are made to the EIS in response to this comment.

0190-20
Communication towers are located at the subject substations and are accurately identified on related maps (e.g., Map 6-65 in Volume II of the EIS). No information is provided by the Applicant that supports the conclusion made in this comment that it would not be possible for the proposed transmission line to be routed between between these substations.

No changes are made to the EIS in response to this comment.

There is no feasible way to build, operate, or maintain a 500 kV line that passes so close to two existing substations. That fact alone makes the Cedar Bend WMA Variation infeasible, and should exclude it from further consideration in the Final EIS.

VI. The DEIS does not adequately discuss the Project's costs or the effects of increasing those costs.

A. The EIS should not compare costs on a per-mile basis, because that is irrelevant to both cost recovery and the Applicant's decision of whether to build the Project.

The Minnesota Rules require the PUC to consider the "costs of constructing, operating, and maintaining" a proposed high-voltage transmission line.[83] And while they need to be updated in the Final EIS, the DEIS does include the total costs of the GNTL Project. In addition, the DEIS's discussion of construction costs consistently cites the "cost per mile" for building various route alternatives.[84] That factor is irrelevant, and should not be carried forward in the Final EIS.

Nothing in the Minnesota Rules suggests that the PUC will consider the per-mile cost of the GNTL Project. This makes sense, because the PUC sets cost recovery rates based on the total costs to the project proponent, not the per-mile cost. A project with a longer route, such as Roseau Lake WMA Variation 1, might cost less to build on a per-mile basis, but its overall length makes its total cost far higher. Neither Minnesota Power nor ratepayers would see any benefit from the theoretical per-mile cost of such a route. Indeed, both Minnesota Power and its ratepayers would obviously prefer a line that costs less overall, regardless of how much it costs per mile.

Because cost-per-mile is irrelevant, it should not be discussed in the Final EIS.

B. The EIS should recognize that route variations or permit conditions that increase Project costs will have an effect on ratepayers.

Presumably, costs are included in the list of factors that the PUC considers when licensing a new transmission primarily because increases in cost can lead to increases in the rates paid by consumers. Yet this issue is left unmentioned in the DEIS.

Cost increases are important because Minnesota Power's Certificate of Need establishes a "soft cap" on recovery for the estimated cost for the GNTL Project.[85] If the Project significantly exceeds those costs, the PUC will likely consider a rate increase to ensure cost recovery. This is particularly problematic for route variations that cost far more than the Proposed Blue/Orange Route, like Roseau Lake WMA Variation 1.

As shown in Minnesota Power's relative merit assessment tables, variations that exceed the cost of the proposed route by more than 20% should be clearly identified because they are more likely to result in rate increases for consumers.

[83] Minn. R. 7850.4100(L).
[84] *See, e.g.*, DEIS at 349 (Table 6-62), 353 (Table 6-65).
[85] MPUC Docket No. E-015/CN-12-1163, MPUC Order dated June 30, 2015 at 19.

0190-20 cont'd

0190-20 Continued

0190-21
The cost per mile was originally provided by the Applicant in a data call so is included in Chapter 6 of the Draft EIS. For clarification, the Final EIS is updated to describe this as average cost per mile in the tables.

0190-21

0190-22
The relative merit tables in Chapter 6 of the EIS use the 20% threshold as a way to highlight cost differences.

0190-22

VII. The DEIS recognize the problems with comparing route variations without using common start and end points for each variation.

In several places, the DEIS groups multiple variations together to compare them with the Proposed Blue/Orange Route. The document never explains why it does this, but the result is often misleading.

Creating common start and end points for purposes of comparison requires variations that actually have the same starting and ending points. Only then can the decisionmaker and the public accurately identify the ways in which the environmental effects of the routes may differ. What is more—and what the DEIS does not consistently accomplish—the route variations should be treated as variations from the Proposed Blue/Orange Route, not as one of several ways to travel between two arbitrarily chosen points.

Unfortunately, the DEIS makes several comparisons using multiple variations with different end points. The result is that one or more of the variations share the same route for a certain distance, and that shared route is included in the comparison of effects. It should go without saying that such route variations cannot truly be compared to one another, or to the proposed route.

The Final EIS should clearly acknowledge when its calculation of effects is based in part on areas where the Proposed Blue/Orange Route and the route variation are identical.

0190-23

0190-23
Chapter 4 of the EIS explains and provides maps that show the alternatives in each variation area. The shared portion(s) of the alternatives are shown on Maps 4-3, 4-4, 4-6, 4-7, 4-15, and 4-17. All maps in Chapter 4 also show the shared portions of the Proposed Blue Route, Proposed Orange Route, or Proposed Blue/Orange Route.

Section 4.2 defines the terms used to describe the analyis of the alternatives in this EIS. Section 4.3 describes the starting and ending points for the alternatives.

No changes are made to the EIS in response to this comment.

VIII. The color-coded tables in Chapter Six do not serve their intended purpose, and should be eliminated or substantially modified.

0190-24

A. The color-coded tables cannot assist the decisionmaker or the public in comparing environmental effects among alternatives.

Throughout Chapter 6, the DEIS uses what it describes as a "stoplight motif" to "describe the relative merits of each alternative."[86] These graphics purport to compare effects across alternatives, apparently with the goal of creating a shorthand reference that can be used in determining the route that best meets the state's routing criteria. At least for a project of this size and scope, however, a simplification of this nature is not helpful to the decisionmaker or the public.

1. The GNTL Project is too long, and the DEIS contains too many variations, to be compared using numerous, independent graphics.

It is possible that a relative merits graphic with a "stoplight motif" would provide some insight into comparative environmental effects for a project with two or three widely divergent routes with common start and ending points. For a project like the GNTL, with two proposed routes and 22 sometimes overlapping route variations, such graphics only add confusion.

The DEIS contains a separate relative merits graphic for every variation area in three separate sections that cover large portions of northern Minnesota. The decisionmaker cannot simply start with the first graphic, decide on a preferable route, and then move to the next graphic, because

0190-24
The relative merits table provided by the Applicant used different methodology and is included in the Appendix Y of the Final EIS.

[86] DEIS at 344.

0190-24 cont'd

0190-24
Continued

selecting one route variation eliminates certain variations in other sections. This requires the decisionmaker to jump from graphic-to-graphic, skipping comparisons made irrelevant by prior route choices.

What is more, there is no principled reason to start with a particular variation area when putting together a preferred route. A decisionmaker who progressively eliminated variations starting with the west section could end up with a different route from one who began with the east section, even if both had precisely the same values when reading the comparison graphics.

Worst of all, the variation areas do not represent equal units of measurement with respect to the routing factors. For example, the border crossing area contains about 10-25 miles of transmission line, depending on the variation. The Pine Island variation area, by contrast, contains over 100 miles of transmission line. Obviously, the alternatives within the Pine Island Variation Area should have a far greater weight when comparing the overall effects of the project alternatives. Yet because a decisionmaker cannot see this disparity in effects using the relative merits graphics, he or she could choose a border crossing that may appear preferable when compared within its variation area, but that leads to substantially greater effects elsewhere on the route.

Simply put, the color-coded "stoplight motif" graphics are at best unhelpful—and at worst actively harmful—when applied to a project like the GNTL that contains numerous variation areas across more than 200 miles of transmission lines.

2. Even within a variation area, the "stoplight motif" graphics do not shed any light on which route is preferable.

Setting aside their lack of value for the project as a whole, the "stoplight motif" graphics frequently offer little guidance in choosing among alternatives within a variation area. A decisionmaker faced with a table containing numerous green, orange, and red boxes often has no principled reason to choose one variation over another. The result, again, is confusion and error.

To take just one example, Table 6-65 purports to compare the relative merits of five route variations in the Beltrami North Central Variation Area using the "stoplight motif." Each column in the table represents a different route variation. The first column, for the Proposed Blue/Orange Route, contains 8 green squares, 2 orange squares, and 1 red square. The fourth column, representing Beltrami North Central Variation 3, contains 6 greens and 5 oranges. The decisionmaker is left to wonder whether it is better for a route to have no red squares, but more orange squares, or one red square and more green squares.

Similar quandaries abound in the relative merits tables. And the process only becomes more complicated if the decisionmaker wants to weigh certain effects more heavily than others, which would require comparing both rows and columns. Because the "stoplight motif" graphics do even not work on their own terms, they should be ignored or removed from the Final EIS.

3. The methodology by which colors were chosen is inevitably arbitrary, and in any event not adequately explained.

Perhaps most problematic of all, the method by which the colors in the "stoplight motif" graphics is completely obscure. Each of the graphics contains a footnote stating, in full: "Colors represent

0190-24 cont'd

0190-24
Continued

least impacts (green), moderate impacts (orange), and greatest impacts (red) relative to the specific Factor." No further explanation of how the colors were selected appears anywhere in the DEIS.

The footnote describing the method of selecting colors is inaccurate on its face. If green truly represented the "least impacts," and red the "greatest impacts," with respect to each factor, every row in every table would logically have one green square and one red square. But that is not the case. Very few of the rows have red squares, indicating that red does not actually identify the route variation with the "greatest impacts" for each routing factor. If the colors actually represent something more like low, moderate, and high impacts, the DEIS never says so.

To make matters worse, the color assignments in the relative merits graphics often appear to be incorrectly or arbitrarily assigned. These problems could be addressed to some degree on a case-by-case basis. But they reveal a larger methodological problem with the entire concept of the "stoplight motif" graphics. Without a clear, repeatable standard for assigning colors, the tables will remain inherently misleading. That is reason enough to remove them from the Final EIS entirely. At a bare minimum, the Final EIS should strongly caution the decisionmaker against relying on the standardless "stoplight motif" graphics without extensive reference to the more precise—and often more accurate—discussions of effects in the text.

B. Because the colors that appear in the Chapter Six tables are often erroneous or arbitrary, Minnesota Power has created its own tables.

Instead of suggesting changes to the "stoplight motif" graphics, Minnesota Power is offering its own version of the "Relative Merits Assessment" tables that appear throughout Chapter 6.[87] If such tables are going to be used, these versions are an improvement in several respects.

First, Minnesota Power's Relative Merits Assessment tables include all of the routing factors described in the Minnesota Rules.[88] This creates a better picture of how the routing alternatives are similar, on the premise that a choice between alternatives generally should not hinge on a minor difference that appears more significant when some factors are omitted.

Second, Minnesota Power's tables include numerical measurements and percentages wherever possible. This makes it easier to understand the degree to which one route alternative differs from another, and allows for small differences to be identified even where two routes receive the same color designation.

Third, Minnesota Power's tables assign colors based on a logical, repeatable methodology. A route alternative is colored green where it would have minimal effects on a resource with the implementation of best management practices, such that no mitigation is required. Yellow means that the route could have minimal to moderate effects on the resource with best management practices, and mitigation is likely to be required. Red means that the route's effects are moderate or greater, and that those effects cannot be mitigated. This methodology works for most of the routing factors and elements covered in the table.

[87] Because the Presidential Permit Border Crossing is the only feasible alternative in the Border Crossing Variation Area, Minnesota Power is not providing a revised graphic for that area.
[88] *See* Minn. R. 7850.4100.

0190-24 cont'd

0190-24
Continued

Some routing factors that are not susceptible to the minimal-moderate-unmitigable system described in the previous paragraph. In such cases, Minnesota Power's tables assign colors in the following manner:

- For corridor sharing, Minnesota Power selected colors intended to indicate that increased transmission line corridor sharing typically has greater environmental benefits. Thus, green means corridor sharing of 90% or greater, yellow means corridor sharing greater than 10% but less than 90%, and red means corridor sharing of 10% or less. The exact percentages are available in Minnesota Power's table so the reader can tell exactly where a route alternative lies along this continuum.

- For costs, green represents the costs proposed in Minnesota Power's Certificate of Need application for a particular route segment, or anything less expensive. Yellow represents anything that costs up to 20% more than Minnesota Power's proposed costs. Red represents anything that costs more than 20% of what Minnesota Power proposed, because anything in excess of that threshold increases the risks of changes to ratepayer cost recovery.

- For electrical system reliability, a case-by-case determination of effects is necessary. Accordingly, green means that a route alternative would have no identifiable effect on system reliability, because it does not parallel one of the existing Manitoba-Minnesota tie lines. Yellow means that a route alternative could have moderate but acceptable effects on system reliability because it parallels one of the existing tie lines. Red means that a route alternative could have severe and unacceptable effects on system reliability because it parallels both of the existing tie lines.

By assigning colors based on an absolute scale, Minnesota Power's tables present a much more realistic picture of the GNTL Project's effects than the DEIS tables, which often use a different color for relatively small differences in effects. This allows the decisionmaker and the public to assess the relative merits of the routes as a whole, as opposed to the relative merits of each routing factor. This is a far less confusing way of distinguishing between the effects of different route alternatives, and illustrates that, for the most part, the environmental effects of the various route alternatives are not significantly different.

Minnesota Power does not expect the Final EIS to completely replace the tables that appear in the DEIS. Instead, Minnesota Power requests that (1) its tables be acknowledged in the Final EIS, and published in the appendix to the Final EIS that contains DEIS comments;[89] and (2) that the DOE and EERA review these alternative tables to determine whether the information they contain justifies changing any of the colors used in the DEIS.

[89] *See* 40 C.F.R. § 1503.4(b) ("All substantive comments received on the draft statement . . . should be attached to the final statement . . . .").

0190-25
Revisions for the cost estimates provided by the Applicant are included in Chapters 4 amd 6 of the EIS.

0190-25

Route Segment	Segment Length Reported in DEIS	Total Cost Reported in DEIS	Total Cost Provided by MP	Total Cost Latest Revision	Proposed Action	Comment
Border Crossing Proposed	25	$29,012,219	$29,012,219	$29,012,219	Okay	
Border Crossing Pine Creek Variation	25.7	$29,292,118	$29,292,118	$29,292,118	Okay	
Border Crossing Hwy 310 Variation	18.6	$21,144,610	$21,144,610	$21,144,610	Okay	
Border Crossing 500kV Variation	10.1	$11,512,144	$11,512,144	$11,512,144	Okay	
Border Crossing 230kV Variation	8.2	$9,862,592	$9,862,110	$9,862,110	Update DEIS	DEIS mistake (typo?)
Roseau Lake WMA Proposed	30.7	$33,247,089	$33,247,089	$33,247,089	Okay	
Roseau Lake WMA Variation 1	44.1	$57,086,075	$57,086,075	$57,086,075	Okay	
Roseau Lake WMA Variation 2	37.5	$46,162,144	$46,162,144	$46,162,144	Okay	
Cedar Bend WMA Proposed	24.7	$27,197,650	$27,197,650	$27,197,650	Okay	
Cedar Bend WMA Variation	19.6	$21,235,417	$21,265,417	$23,202,312	Update DEIS	Included Cedar Bend WMA Hop 1 to have a common endpoint (See Map #1) Added $660,000 to account for two 500 kV line crossings
Beltrami North Proposed	16.5	$18,984,370	$18,984,370	$18,984,370	Okay	
Beltrami North Variation 1	15.8	$18,411,668	$18,411,668	$19,591,668	Update DEIS	Added $850,000 for a new 500 kV line crossing to have a common endpoint (See Map #2) Added $330,000 to account for one 500 kV line crossing
Beltrami North Variation 2	19.7	$24,571,721	$24,571,721	$24,571,721	Okay	
Beltrami North Central Proposed	11.6	$12,574,123	$12,574,123	$12,574,123	Okay	Can only be compared with Variations 1, 2, & 3 (See Map #3)
Beltrami North Central Variation 1	13.7	$13,708,602	$13,708,602	$14,368,602	Update DEIS	Can only be compared with Proposed Blue/Orange Route (See Map #3) Added $660,000 to account for two 500 kV line crossings
Beltrami North Central Variation 2	12.6	$14,478,550	$14,478,550	$14,478,550	Okay	Can only be compared with Proposed Blue/Orange Route (See Map #3)
Beltrami North Central Variation 3	12.2	$16,155,266	$16,155,266	$16,815,266	Update DEIS	Can only be compared with Proposed Blue/Orange Route (See Map #3) Added $660,000 to account for two 500 kV line crossings
Beltrami North Central Proposed w/HOP	15.1	N/A	$18,235,175	$18,565,175	Update DEIS	Can only be compared with Variations 4 & 5 Added $330,000 to account for one 500 kV line crossing
Beltrami North Central Variation 4	13.5	$17,168,969	$17,168,969	$17,498,969	Update DEIS	Can only be compared with Proposed Blue Route including "hop" (See Map #3) Added $330,000 to account for one 500 kV line crossing Length is incorrect - should be 14.5 miles (includes Beltrami North Hop 3)
Beltrami North Central Variation 5	15	$16,636,730	$16,636,730	$16,966,730	Update DEIS	Can only be compared with Proposed Blue Route including "hop" (See Map #3) Added $330,000 to account for one 500 kV line crossing
Pine Island Blue Alternative	109.8	$118,546,237	N/A	$118,876,237	Update DEIS	Added $330,000 to account for one 500 kV line crossing
Pine Island Oragne Alterantive	105.4	$113,672,041	N/A	$113,672,041	Okay	
Beltrami South Central Proposed	1.2	$5,805,518	$1,214,573	$1,214,573	Update DEIS	DEIS mistake (swapped with Beltrami South)
Beltrami South Central Variation	1.7	$9,925,396	$3,440,123	$3,440,123	Update DEIS	DEIS mistake (swapped with Beltrami South)
Beltrami South Proposed	5.6	$1,214,573	$5,805,518	$5,805,518	Update DEIS	DEIS mistake (swapped with Beltrami South Central)
Beltrami South Variation	7.5	$3,440,123	$9,925,396	$9,925,396	Update DEIS	DEIS mistake (swapped with Beltrami South Central)
North Black River Proposed	8.4	$9,893,560	$9,893,560	$9,893,560	Okay	
North Black River Variation	9.2	$9,240,164	$9,240,164	$10,552,560	Update DEIS	MP refined this estimate slightly based on land cover information
C2 Proposed	32.8	$35,769,239	$35,769,239	$35,769,239	Okay	
C2 Variation	46	$54,466,435	$54,466,435	$54,466,435	Okay	
J2 Proposed	42.2	$48,706,641	$48,706,641	$48,706,641	Okay	

0190-25 cont'd

Route Segment	Segment Length Reported in DEIS	Total Cost Reported in DEIS	Total Cost Provided by MP	Total Cost Latest Revision	Proposed Action	Comment
J2 Variation	45.2	$52,128,879	$52,128,879	$52,128,879	Okay	
Northome Proposed	3.7	$4,192,942	$4,192,942	$4,192,942	Okay	
Northome Variation	4	$6,385,615	$6,385,615	$6,385,615	Okay	
Cutfoot Proposed	4.2	$5,640,538	$5,640,538	$5,640,538	Okay	
Cutfoot Variation	4.8	$6,222,257	$6,222,257	$6,222,257	Okay	
Effie Proposed Blue	41.1	$46,649,600	$46,649,600	$46,649,600	Okay	
Effie Proposed Orange	44.6	$49,488,323	N/A	$49,488,323	Okay	
Effie Variation	49.8	$57,353,305	$57,353,305	$57,353,305	Okay	
East Bear Lake Proposed	8.9	$9,736,790	$9,736,790	$9,736,790	Okay	
East Bear Lake Variation	10.5	$13,279,079	$13,279,079	$13,279,079	Okay	
Balsam Proposed Blue	12.9	$15,121,621	$15,121,621	$15,121,621	Okay	
Balsam Proposed Orange	13.7	$16,018,490	$16,018,490	$16,018,490	Okay	
Balsam Variation	17.8	$19,502,472	$19,502,472	$19,502,472	Okay	
Dead Mans Pond Proposed	2.2	$2,873,223	$2,873,223	$2,873,223	Okay	
Dead Mans Pond Variation	2.3	$4,409,841	$4,409,841	$4,409,841	Okay	
Blackberry Blue Alternative	5.4	$8,380,680	$8,380,680	$8,380,680	Okay	
Blackberry Orange Alternative	6.1	$10,148,060	$10,148,060	$10,148,060	Okay	

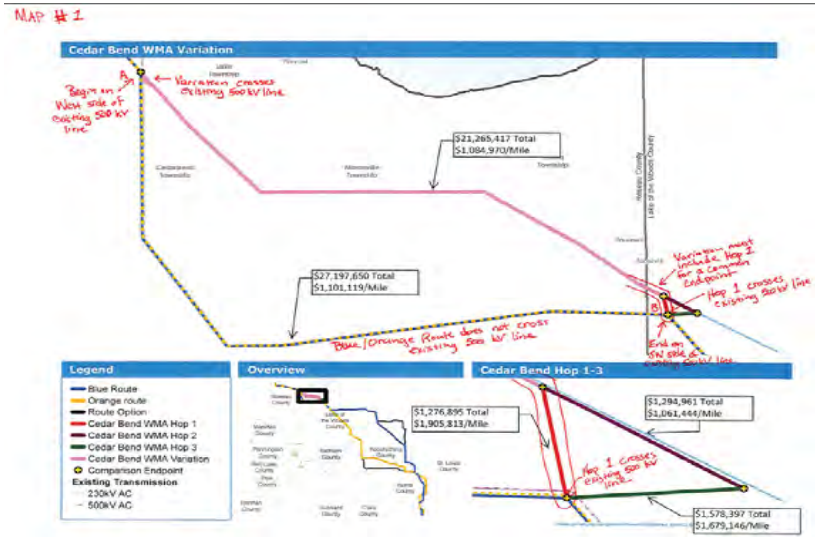
0190-25
Continued

Cedar Bend WMA Variation Area - Additional Comments on Cost & Electrical Reliability

Because the Cedar Bend WMA Variation does not come to a common endpoint with the Proposed Blue/Orange Route, the cost & electrical reliability comparisons (and the other impact comparisons) are mischaracterized. As shown in Map #1 below, both the Proposed Route & the Variation begin at Point A, located on the west side of the existing 500 kV line. The Proposed Route ends at Point B, located on the south side of the existing 500 kV line, and never crosses the existing line between Point A and Point B. The Cedar Bend WMA Variation, as shown in the map and evaluated in the DEIS, ends at Point C, which is approximately 3700 feet north of Point B on the other side of the existing 500 kV line. For comparability purposes, the Variation must include "Cedar Bend WMA Hop 1" - which connects Point B and Point C - in order to reach a common endpoint with the Proposed Route.

Cost Impacts: The total cost of the Cedar Bend WMA Variation as reported in the DEIS is approximately $1.28 million low because it does not include Hop 1

Reliability Impacts: The Cedar Bend WMA Variation already includes one crossing of the existing 500 kV line where it diverges from the Proposed Route immediately east of Point A. Because the Variation does not include Hop 1, the second 500 kV line crossing needed to get to a common endpoint with the Proposed Route is not captured and the electrical reliability impact of the Cedar Bend WMA Variation is understated. The Variation also passes unacceptably close to existing substations.



0190-26

0190-26
The proposed routes and alternatives are described in Chapter 4. Alternatives discussed in the EIS were proposed during the scoping process and selected for inclusion in the EIS.

The following text is added to Section 2.8.3 of the EIS to address electrical system reliability: According to the Applicant, the electrical reliability impacts of establishing a parallel transmission line corridor depend primarily on the purpose and expected performance of the transmission lines. None of the alternatives that parallel existing corridors with 69 kV, 115 kV, or 230 kV transmission lines that do not connect Manitoba and the United States would impact electrical system reliability.

If the proposed Project parallels the existing 230 kV tie line corridor, the impact of a simultaneous, unexpected outage of the two facilities on electrical reliability would be minimal, but still notable because the lines would share a common purpose of transferring power from Manitoba to the United States. If the Proposed Project parallels the existing 500 kV tie line corridor, a simultaneous unexpected outage would have a greater impact on electrical system reliability because the transmission lines not only share a common load, but would also carry similar (and greater) amounts of power.

If there are three transmission lines (i.e., the proposed Project, 500 kV tie line, and 230 kV tie line) located in parallel corridors, a simultaneous unexpected outage of the Proposed Project and two tie lines could have the greatest impact to electrical reliability.

0190-26 cont'd

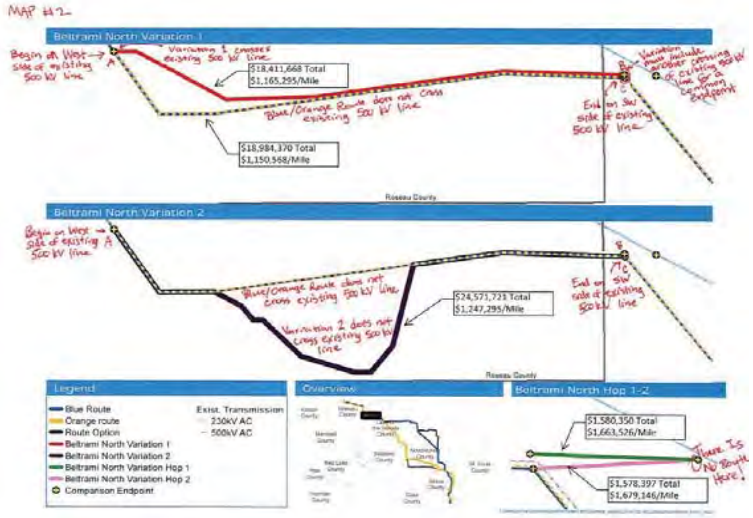
0190-26
Continued

Beltrami North Variation Area - Additional Comments on Cost & Electrical Reliability

Because Beltrami North Variation 1 does not come to a common endpoint with the Proposed Blue/Orange Route, the cost & electrical reliability comparisons (and to a lesser extent the other impact comparisons) are mischaracterized. As shown in Map #2 below, both the Proposed Route & both Beltrami North variations begin at Point A, located on the west side of the existing 500 kV line. The Proposed Route ends at Point C, located on the south side of the existing 500 kV line, and never crosses the existing line between Point A and Point C. Beltrami North Variation 1, as shown in the map and evaluated in the DEIS, ends at Point B, which is on the opposite side (the north side) of the existing 500 kV line. For comparability purposes, Beltrami North Variation 1 must include a corner structure and a crossing span in order to connect Point B and Point C and reach a common endpoint with the Proposed Route.

Cost Impacts: The total cost of Beltrami North Variation 1 as reported in the DEIS is approximately $1.18 million low because it does not include the corner structure & crossing span.

Reliability Impacts: Beltrami North Variation 1 already includes one crossing of the existing 500 kV line where it diverges from the Proposed Route immediately east of Point A. Because the Variation does not include the second 500 kV line crossing needed to get to a common endpoint with the Proposed Route, the additional crossing is not captured and the electrical reliability impact of Beltrami North Variation 1 is understated.



0190-26 cont'd

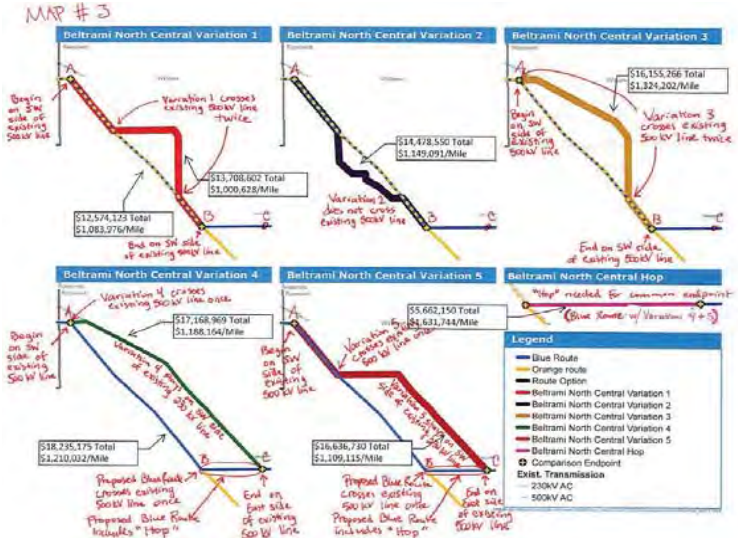
0190-26
Continued

Beltrami North Central Variation Area - Additional Comments on Cost & Electrical Reliability

The Beltrami North Central Variation Area actually includes two different sets of variations, each with a common set of endpoints. Comparison of all five variations and the Proposed Blue/Orange Route mischaracterizes the cost & electrical reliability comparisons (and other impact comparisons as well). The Proposed Blue/Orange Route and Beltrami North Central variations 1-3 all share a common set of endpoints, identified as Point A and Point B on Map #3 below. Both endpoints are located on the southwest side of the existing 500 kV line. The Proposed Route and Variation 2 do not require crossing the existing 500 kV line. Variations 1 and 3 both require two crossings of the existing 500 kV line to connect Point A and Point B. The Proposed Blue Route, including the segment of Proposed Route identified as the "Beltrami North Central Hop" on Map #3 below, shares a common set of endpoints, identified as Point A and Point C, with Beltrami North Central Variations 4 and 5. The Proposed Route and the two variations all require one crossing of the existing 500 kV line. in order to reach Point C.

Cost Impacts: Segment costs should only be compared for routes with common endpoints. Variations 1 -3 may be compared to the Proposed Blue/Orange Route, but variations 4 & 5 should only be compared to the Proposed Blue Route where it connects Point A and Point C.

Reliability Impacts: Variations 1 & 3 necessitate additional 500 kV line crossings that are not required for the Proposed Route or variations 2, 4, and 5, but the impact of this is understated if a common set of endpoints is not used.



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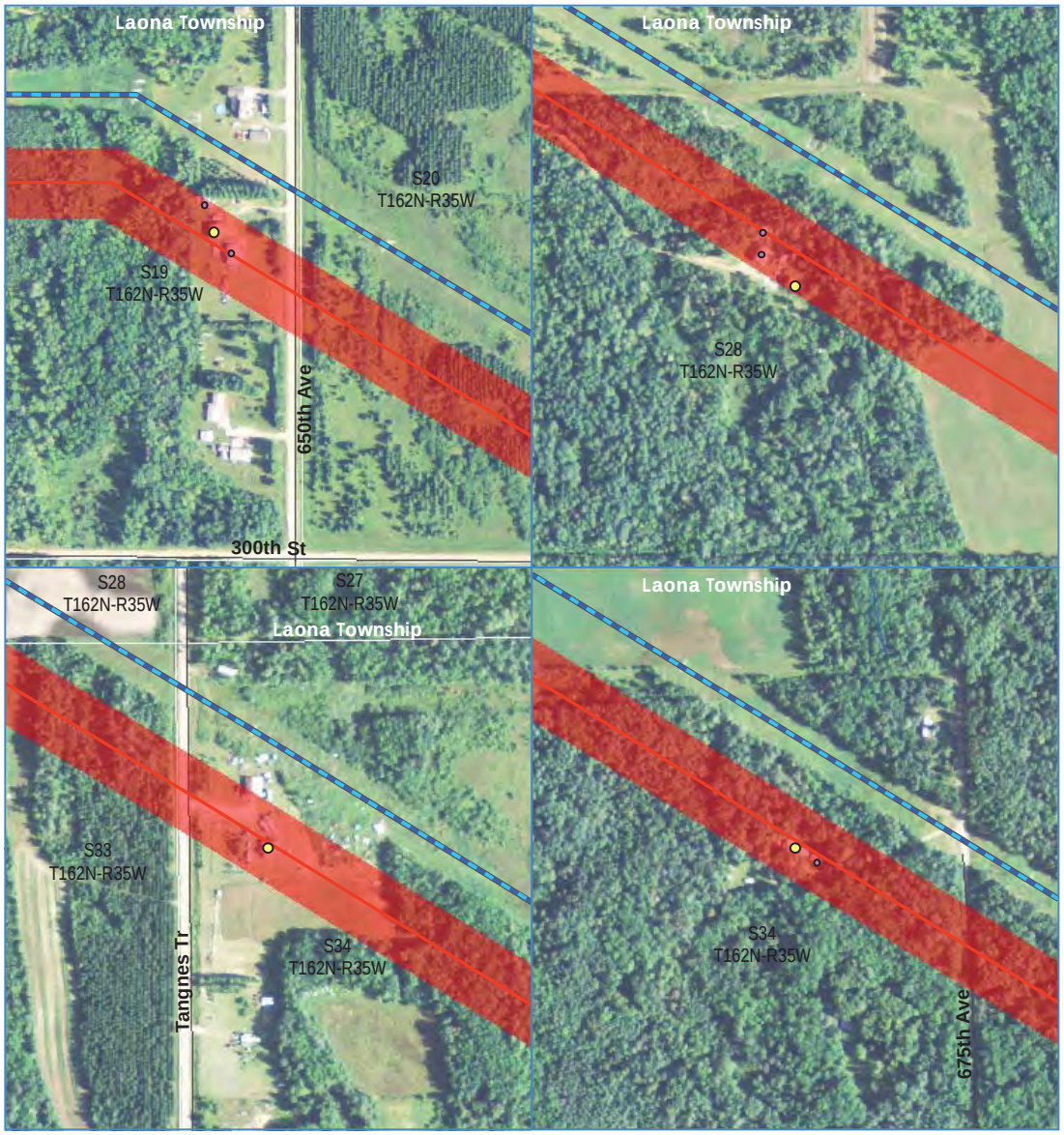
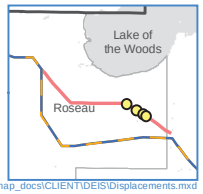
Potential Displacements
Cedar Bend WMA Variation



Legend

- Scoping Decision Route
- Cedar Bend WMA Variation
- Cedar Bend WMA Variation Right-of-Way
- Existing 230kV AC Transmission
- Structure
- Residence

0 400 Feet



Sources: ESRI, Minnesota DNR

\\mspe-gis-file\gisprojlarge\MinnPower\182035\map_docs\CLIENT\DEIS\Displacements.mxd

0190-27

These figures are associated with Comment 209-19 (page 24, lines 11-3). See the previous response to Comment 209-19 .

No changes are made to the EIS in response to this comment.

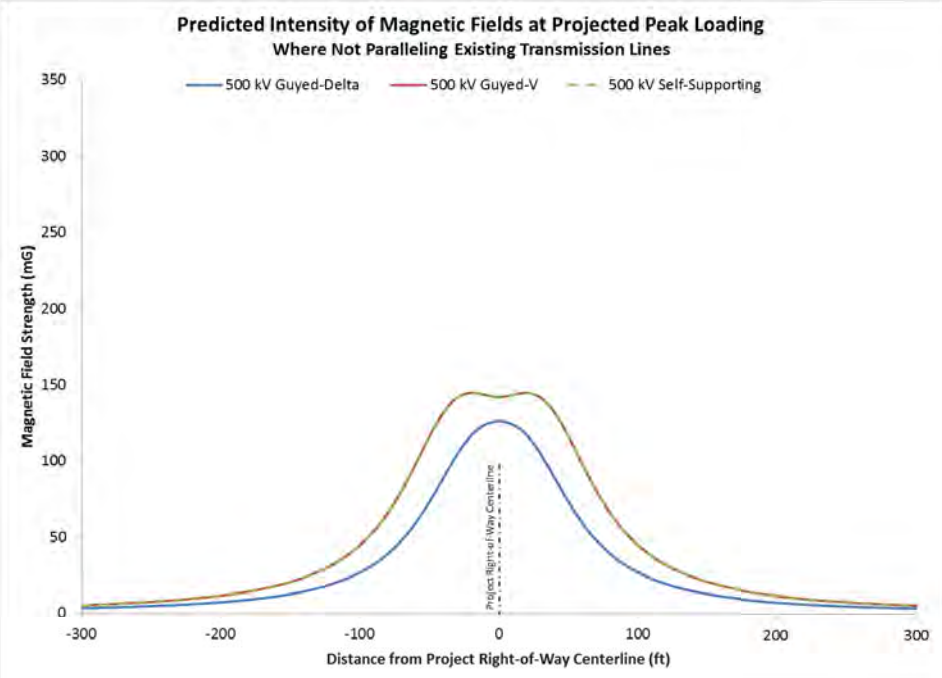
Magnetic Field Simulation Results: Projected Peak Loading

0190-28

0190-28
Appendix H and Table 5-4 and Appendix I and Tables 5-20 to 5-22 of the EIS are updated with the analysis provided by the Applicant.

Predicted Intensity of Magnetic Fields (mG) at Projected Peak Loading Where Not Paralleling Existing Transmission Lines

Structure Type	Line Current	Distance from Project ROW Centerline										
		-300	-200	-100	-50	-25	0	25	50	100	200	300
500 kV Guyed-Delta	1,024 A	3.2	7.2	26.8	73.1	111.2	126.2	111.2	73.1	26.8	7.2	3.2
500 kV Guyed-V	1,024 A	5.2	11.6	44.8	115.9	143.8	141.9	143.8	115.9	44.8	11.6	5.2
500 kV Self-Supporting	1,024 A	5.2	11.6	44.8	115.9	143.8	141.9	143.8	115.9	44.8	11.6	5.2



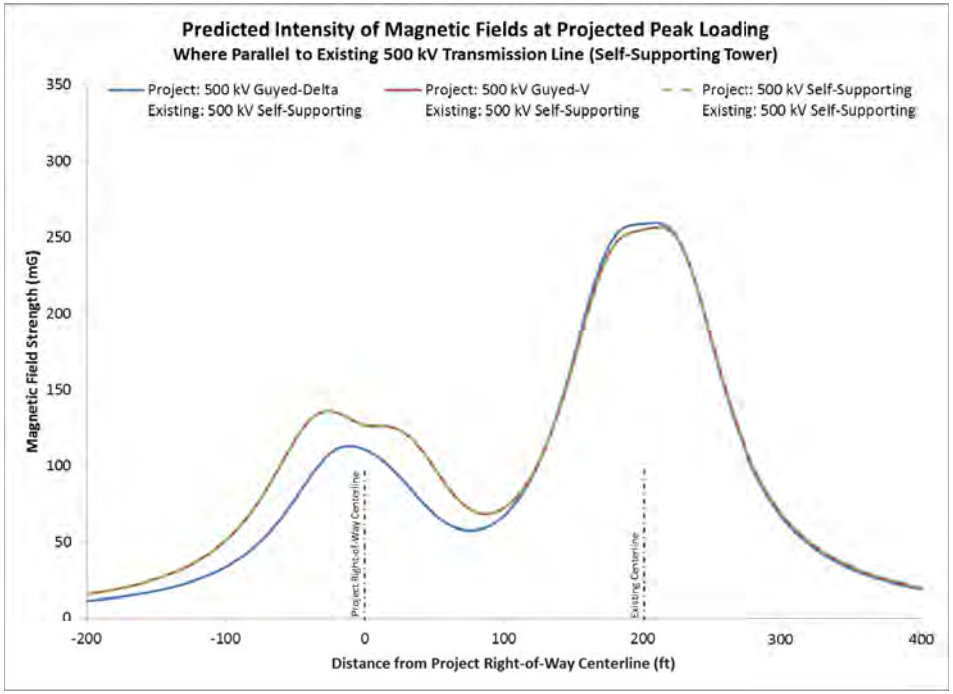
Magnetic Field Simulation Results: Projected Peak Loading

0190-28 cont'd

0190-28
Continued

Predicted Intensity of Magnetic Fields (mG) at Projected Peak Loading
Where Parallel to Existing 500 kV Transmission Line (Self-Supporting Tower)

Structure Type	Line Voltage	Distance from Project ROW Centerline										
		-200	-100	-50	-25	0	25	50	100	200	300	400
Project: 500 kV Guyed-Delta Existing: 500 kV Self-Supporting	1,024 A 1,897 A	11.5	33.8	78.5	108.2	110.8	92.9	68.3	67.4	258.8	66.9	18.8
Project: 500 kV Guyed-V Existing: 500 kV Self-Supporting	1,024 A 1,897 A	15.9	51.1	117.2	136.1	126.6	123.7	98.5	72.4	254.8	68.8	19.9
Project: 500 kV Self-Supporting Existing: 500 kV Self-Supporting	1,024 A 1,897 A	15.9	51.1	117.2	136.1	126.6	123.7	98.5	72.4	254.8	68.8	19.9



[Simulation assumes that Project ROW is adjacent to existing line ROW]

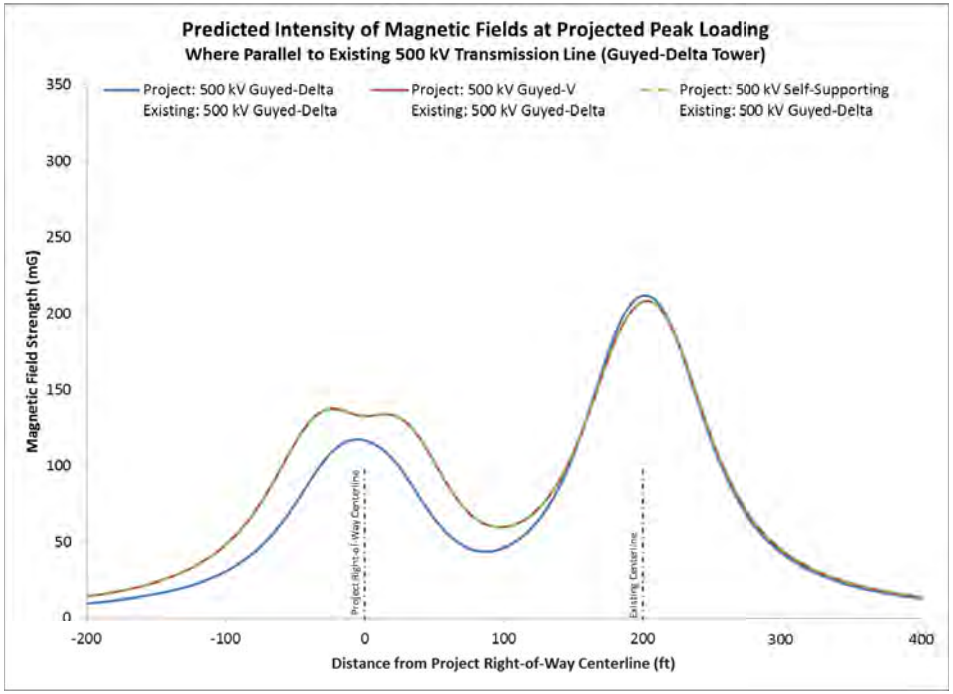
Magnetic Field Simulation Results: Projected Peak Loading

0190-28 cont'd

0190-28
Continued

Predicted Intensity of Magnetic Fields (mG) at Projected Peak Loading
Where Parallel to Existing 500 kV Transmission Line (Guyed-Delta Tower)

Structure Type	Line Voltage	Distance from Project ROW Centerline										
		-200	-100	-50	-25	0	25	50	100	200	300	400
Project: 500 kV Guyed-Delta Existing: 500 kV Guyed-Delta	1,024 A 1,897 A	9.9	30.8	75.1	108.1	116.7	98.9	65.3	46.4	211.7	43.0	12.6
Project: 500 kV Guyed-V Existing: 500 kV Guyed-Delta	1,024 A 1,897 A	14.2	48.3	115.3	137.4	132.7	131.5	102.4	59.8	207.6	44.9	13.6
Project: 500 kV Self-Supporting Existing: 500 kV Guyed-Delta	1,024 A 1,897 A	14.2	48.3	115.3	137.4	132.7	131.5	102.4	59.8	207.6	44.9	13.6



[Simulation assumes that Project ROW is adjacent to existing line ROW]

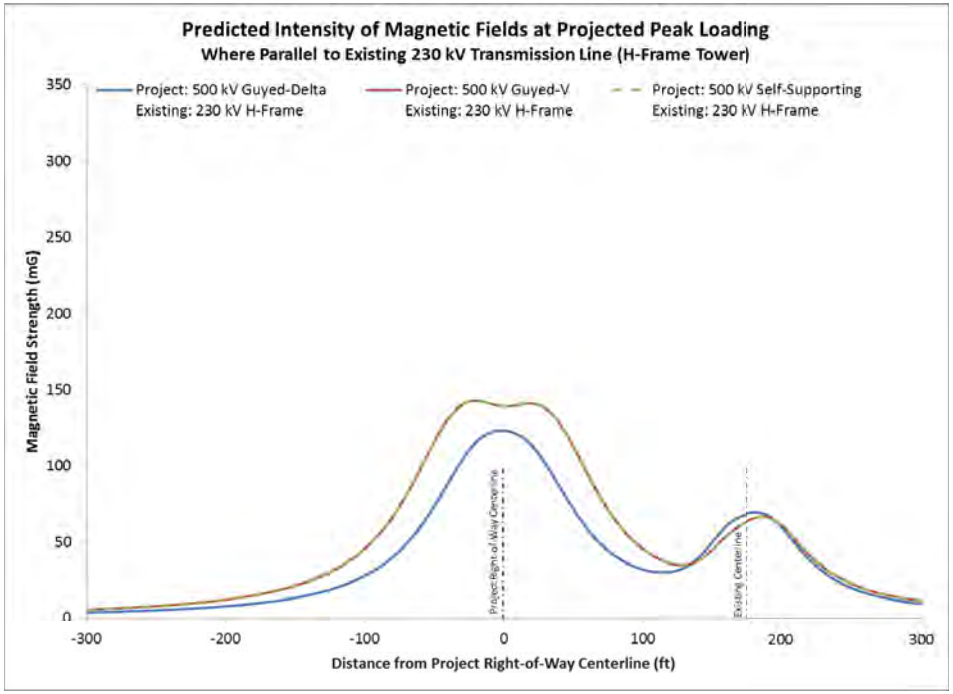
Magnetic Field Simulation Results: Projected Peak Loading

0190-28 cont'd

0190-28
Continued

Predicted Intensity of Magnetic Fields (mG) at Projected Peak Loading
Where Parallel to Existing 230 kV Transmission Line (H-Frame Tower)

Structure Type	Line Voltage	Distance from Project ROW Centerline										
		-300	-200	-100	-50	-25	0	25	50	100	200	300
Project: 500 kV Guyed-Delta Existing: 230 kV H-Frame	1,024 A 434 A	3.7	7.9	27.9	73.8	110.4	123.3	107.7	71.5	32.0	60.1	9.1
Project: 500 kV Guyed-V Existing: 230 kV H-Frame	1,024 A 434 A	5.6	12.3	45.7	116.0	142.3	139.0	140.0	112.3	45.5	61.4	11.1
Project: 500 kV Self-Supporting Existing: 230 kV H-Frame	1,024 A 434 A	5.6	12.3	45.7	116.0	142.3	139.0	140.0	112.3	45.5	61.4	11.1



[Simulation assumes that Project ROW is adjacent to existing line ROW]

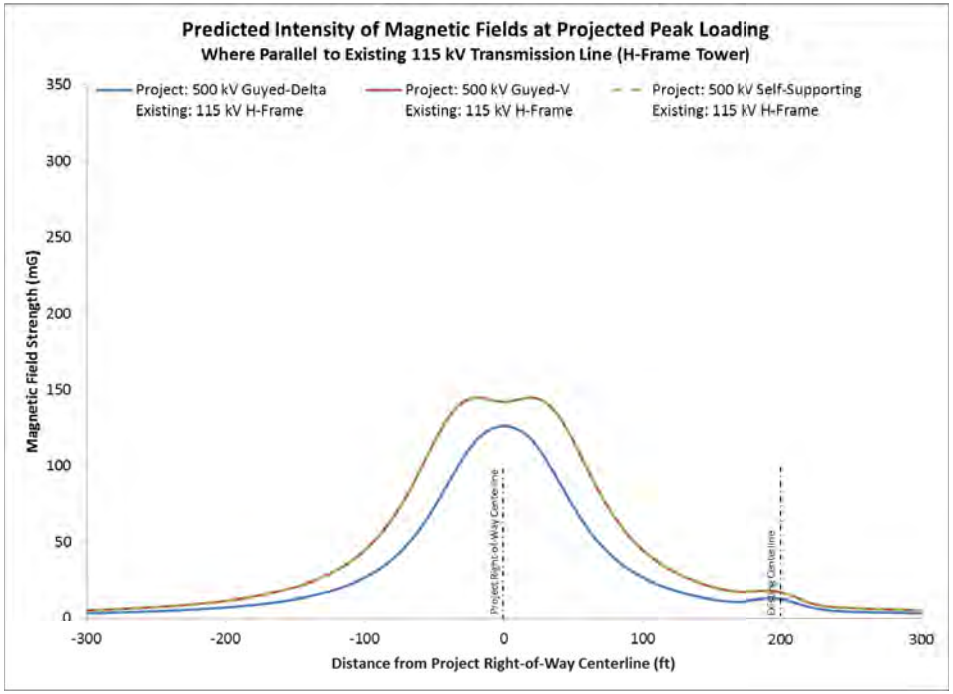
Magnetic Field Simulation Results: Projected Peak Loading

0190-28 cont'd

0190-28
Continued

Predicted Intensity of Magnetic Fields (mG) at Projected Peak Loading
Where Parallel to Existing 115 kV Transmission Line (H-Frame Tower)

Structure Type	Line Voltage	Distance from Project ROW Centerline										
		-300	-200	-100	-50	-25	0	25	50	100	200	300
Project: 500 kV Guyed-Delta Existing: 115 kV H-Frame	1,024 A 32 A	3.2	7.2	26.8	73.0	111.2	126.3	111.3	73.1	26.7	12.4	2.9
Project: 500 kV Guyed-V Existing: 115 kV H-Frame	1,024 A 32 A	5.2	11.6	44.7	115.9	143.9	142.0	143.9	116.0	44.7	16.7	4.8
Project: 500 kV Self-Supporting Existing: 115 kV H-Frame	1,024 A 32 A	5.2	11.6	44.7	115.9	143.9	142.0	143.9	116.0	44.7	16.7	4.8



[Simulation assumes that Project ROW is adjacent to existing line ROW]

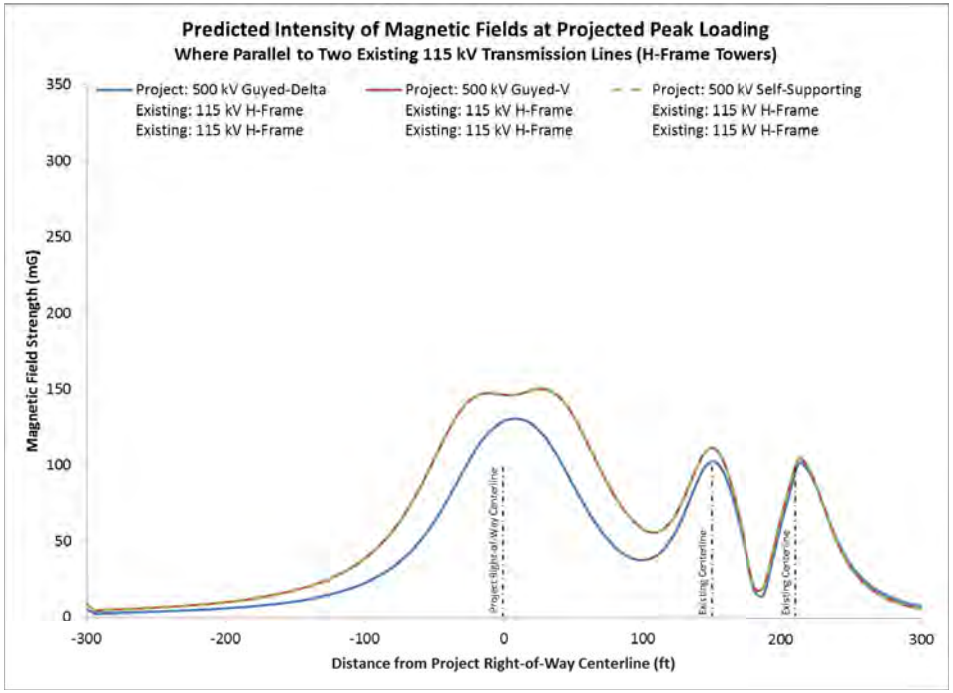
Magnetic Field Simulation Results: Projected Peak Loading

0190-28 cont'd

0190-28
Continued

Predicted Intensity of Magnetic Fields (mG) at Projected Peak Loading
Where Parallel to Two Existing 115 kV Transmission Lines (H-Frame Towers)

Structure Type	Line Voltage	Distance from Project ROW Centerline										
		-300	-200	-100	-50	-25	0	25	50	100	200	300
Project: 500 kV Guyed-Delta Existing: 115 kV H-Frame Existing: 115 kV H-Frame	1,024 A 536 A 536 A	5.3	5.9	22.6	63.0	103.2	128.9	123.1	86.4	37.5	60.7	7.7
Project: 500 kV Guyed-V Existing: 115 kV H-Frame Existing: 115 kV H-Frame	1,024 A 536 A 536 A	9.1	10.1	38.8	104.3	142.3	146.4	150.1	132.2	58.0	65.4	5.8
Project: 500 kV Self-Supporting Existing: 115 kV H-Frame Existing: 115 kV H-Frame	1,024 A 536 A 536 A	9.1	10.1	38.8	104.3	142.3	146.4	150.1	132.2	58.0	65.4	5.8



[Simulation assumes that Project ROW is adjacent to existing line ROW]

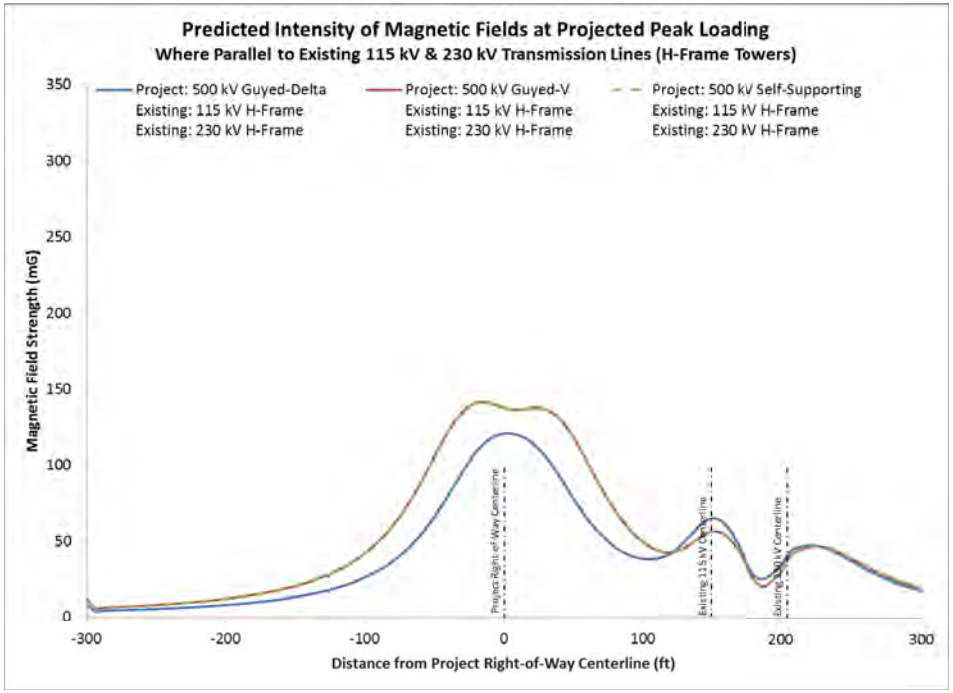
Magnetic Field Simulation Results: Projected Peak Loading

0190-28 cont'd

0190-28
Continued

Predicted Intensity of Magnetic Fields (mG) at Projected Peak Loading
Where Parallel to Existing 115 kV & 230 kV Transmission Lines (H-Frame Towers)

Structure Type	Line Voltage	Distance from Project ROW Centerline										
		-300	-200	-100	-50	-25	0	25	50	100	200	300
Project: 500 kV Guyed-Delta Existing: 115 kV H-Frame Existing: 230 kV H-Frame	1,024 A 557 A 601 A	8.3	8.1	26.3	66.1	102.4	120.8	110.8	77.9	38.4	34.4	17.7
Project: 500 kV Guyed-V Existing: 115 kV H-Frame Existing: 230 kV H-Frame	1,024 A 557 A 601 A	12.1	12.2	42.0	105.5	138.7	137.6	137.6	118.2	49.5	30.0	19.6
Project: 500 kV Self-Supporting Existing: 115 kV H-Frame Existing: 230 kV H-Frame	1,024 A 557 A 601 A	12.1	12.2	42.0	105.5	138.7	137.6	137.6	118.2	49.5	30.0	19.6



[Simulation assumes that Project ROW is adjacent to existing line ROW]

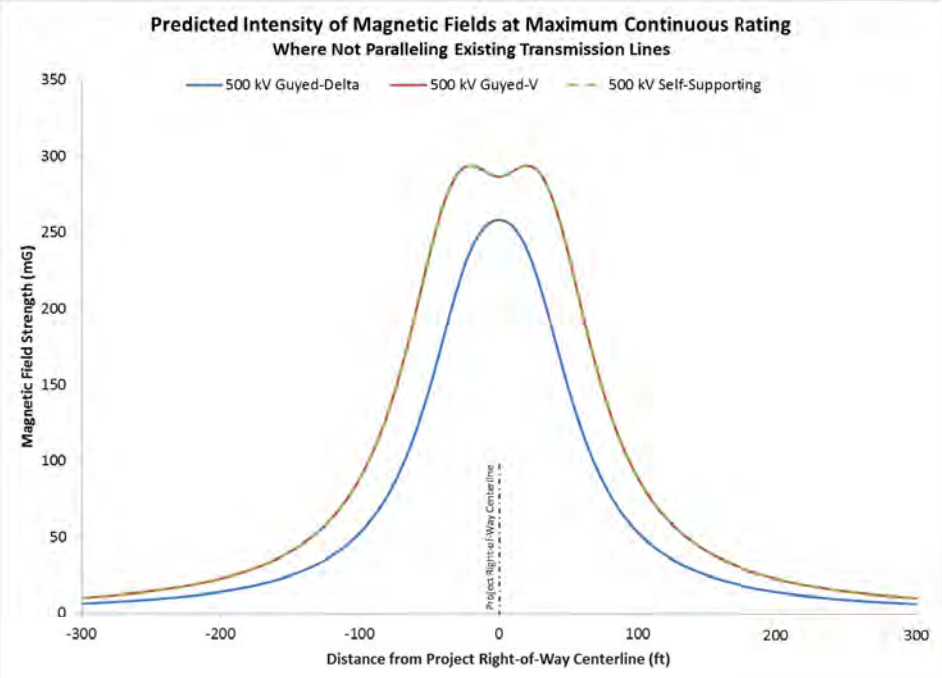
Magnetic Field Simulation Results: Max Continuous Rating

0190-28 cont'd

0190-28
Continued

Predicted Intensity of Magnetic Fields (mG) at Maximum Continuous Rating
Where Not Paralleling Existing Transmission Lines

Structure Type	Line Current	Distance from Project ROW Centerline										
		-300	-200	-100	-50	-25	0	25	50	100	200	300
500 kV Guyed-Delta	2,000 A	6.3	14.1	52.9	147.3	227.2	258.1	227.2	147.3	52.9	14.1	6.3
500 kV Guyed-V	2,000 A	10.1	22.8	88.5	235.0	292.5	286.2	292.5	235.0	88.5	22.8	10.1
500 kV Self-Supporting	2,000 A	10.1	22.8	88.5	235.0	292.5	286.2	292.5	235.0	88.5	22.8	10.1



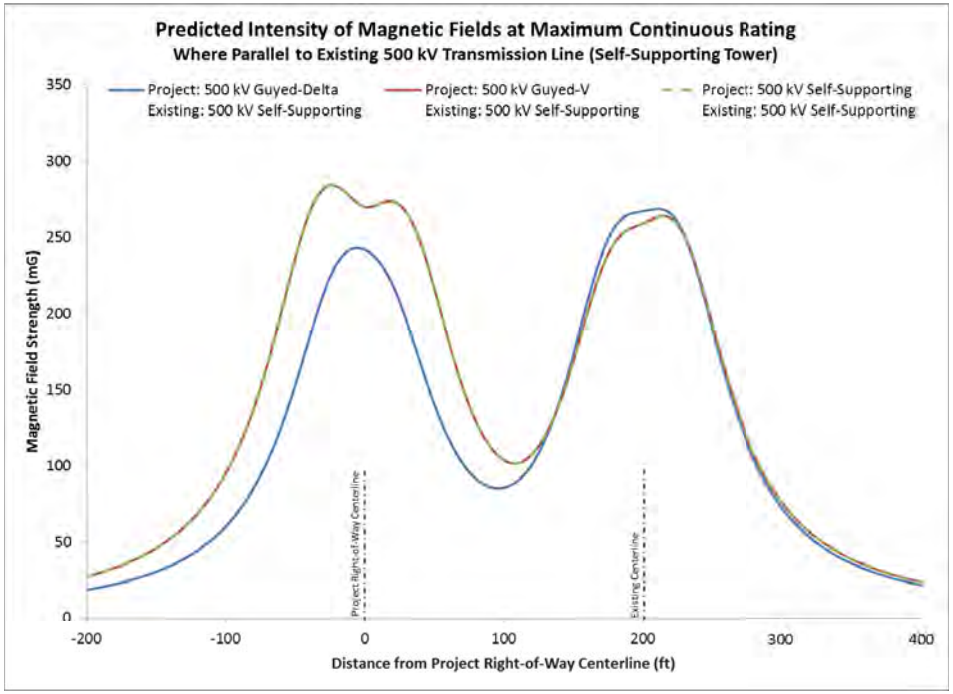
Magnetic Field Simulation Results: Max Continuous Rating

0190-28 cont'd

0190-28
Continued

Predicted Intensity of Magnetic Fields (mG) at Maximum Continuous Rating
Where Parallel to Existing 500 kV Transmission Line (Self-Supporting Tower)

Structure Type	Line Voltage	Distance from Project ROW Centerline										
		-200	-100	-50	-25	0	25	50	100	200	300	400
Project: 500 kV Guyed-Delta Existing: 500 kV Self-Supporting	2,000 A 2,000 A	18.6	60.3	153.0	223.8	241.7	207.7	140.2	85.6	267.1	72.9	21.4
Project: 500 kV Guyed-V Existing: 500 kV Self-Supporting	2,000 A 2,000 A	27.3	95.2	236.4	284.1	269.9	271.3	216.1	103.9	259.1	76.6	23.6
Project: 500 kV Self-Supporting Existing: 500 kV Self-Supporting	2,000 A 2,000 A	27.3	95.2	236.4	284.1	269.9	271.3	216.1	103.9	259.1	76.6	23.6



[Simulation assumes that Project ROW is adjacent to existing line ROW]

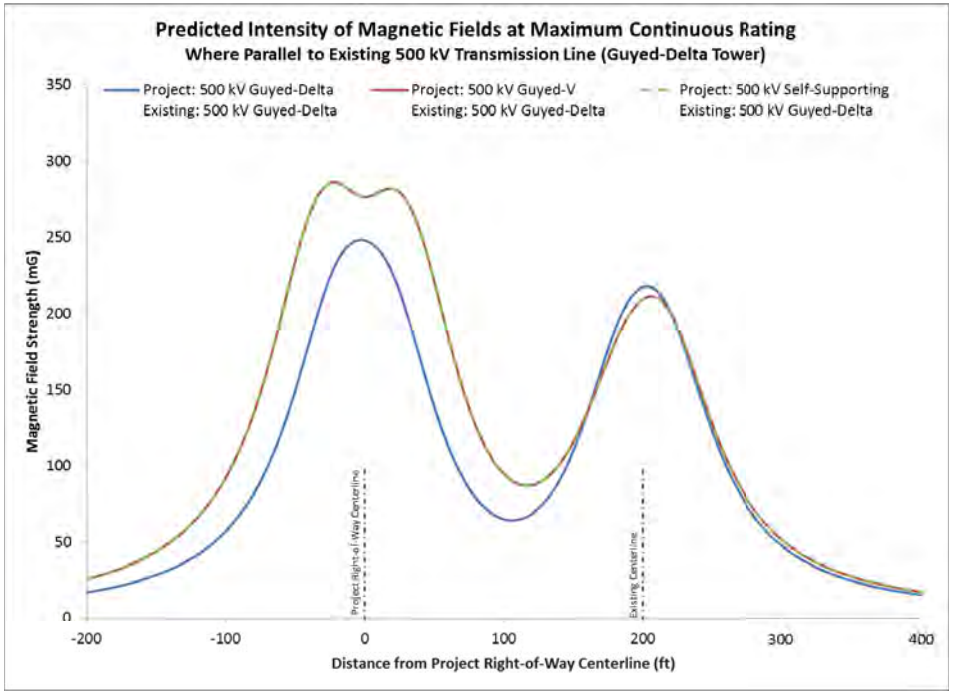
Magnetic Field Simulation Results: Max Continuous Rating

0190-28 cont'd

0190-28
Continued

Predicted Intensity of Magnetic Fields (mG) at Maximum Continuous Rating Where Parallel to Existing 500 kV Transmission Line (Guyed-Delta Tower)

Structure Type	Line Voltage	Distance from Project ROW Centerline										
		-200	-100	-50	-25	0	25	50	100	200	300	400
Project: 500 kV Guyed-Delta Existing: 500 kV Guyed-Delta	2,000 A 2,000 A	16.9	57.2	149.4	223.8	248.0	214.3	138.5	64.9	217.3	47.9	14.9
Project: 500 kV Guyed-V Existing: 500 kV Guyed-Delta	2,000 A 2,000 A	25.5	92.3	234.2	285.5	276.2	279.5	220.5	94.6	209.4	51.7	16.9
Project: 500 kV Self-Supporting Existing: 500 kV Guyed-Delta	2,000 A 2,000 A	25.5	92.3	234.2	285.5	276.2	279.5	220.5	94.6	209.4	51.7	16.9



[Simulation assumes that Project ROW is adjacent to existing line ROW]

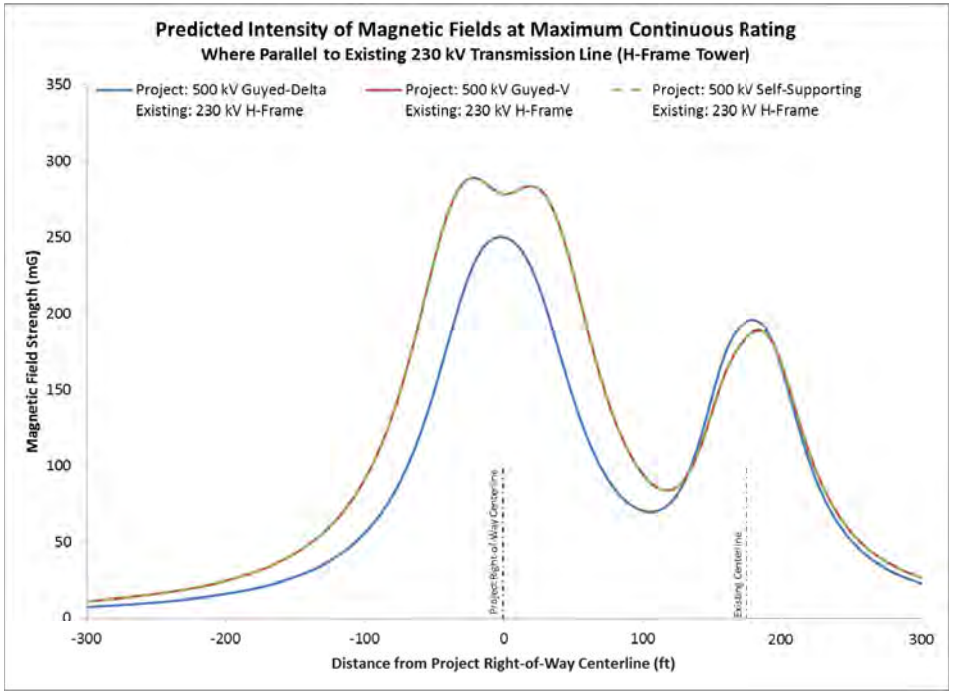
Magnetic Field Simulation Results: Max Continuous Rating

0190-28 cont'd

0190-28
Continued

Predicted Intensity of Magnetic Fields (mG) at Maximum Continuous Rating
Where Parallel to Existing 230 kV Transmission Line (H-Frame Tower)

Structure Type	Line Voltage	Distance from Project ROW Centerline										
		-300	-200	-100	-50	-25	0	25	50	100	200	300
Project: 500 kV Guyed-Delta Existing: 230 kV H-Frame	2,000 A 1,198 A	7.5	16.0	56.0	149.5	225.2	250.1	217.7	143.6	70.4	165.7	22.6
Project: 500 kV Guyed-V Existing: 230 kV H-Frame	2,000 A 1,198 A	11.3	24.6	91.3	235.3	288.3	278.2	281.9	225.4	94.2	167.9	26.5
Project: 500 kV Self-Supporting Existing: 230 kV H-Frame	2,000 A 1,198 A	11.3	24.6	91.3	235.3	288.3	278.2	281.9	225.4	94.2	167.9	26.5



[Simulation assumes that Project ROW is adjacent to existing line ROW]

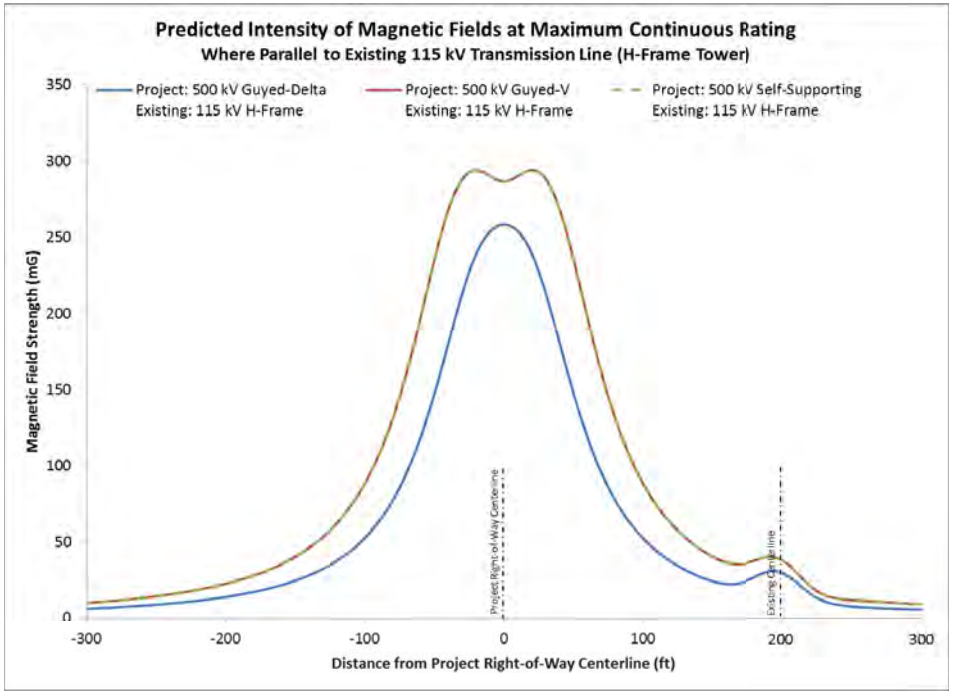
Magnetic Field Simulation Results: Max Continuous Rating

0190-28 cont'd

0190-28
Continued

Predicted Intensity of Magnetic Fields (mG) at Maximum Continuous Rating
Where Parallel to Existing 115 kV Transmission Line (H-Frame Tower)

Structure Type	Line Voltage	Distance from Project ROW Centerline										
		-300	-200	-100	-50	-25	0	25	50	100	200	300
Project: 500 kV Guyed-Delta Existing: 115 kV H-Frame	2,000 A 96 A	6.3	14.1	52.8	147.2	227.3	258.4	227.5	147.4	52.5	29.9	5.4
Project: 500 kV Guyed-V Existing: 115 kV H-Frame	2,000 A 96 A	10.1	22.7	88.5	235.0	292.7	286.5	292.9	235.3	88.3	38.3	9.0
Project: 500 kV Self-Supporting Existing: 115 kV H-Frame	2,000 A 96 A	10.1	22.7	88.5	235.0	292.7	286.5	292.9	235.3	88.3	38.3	9.0



[Simulation assumes that Project ROW is adjacent to existing line ROW]

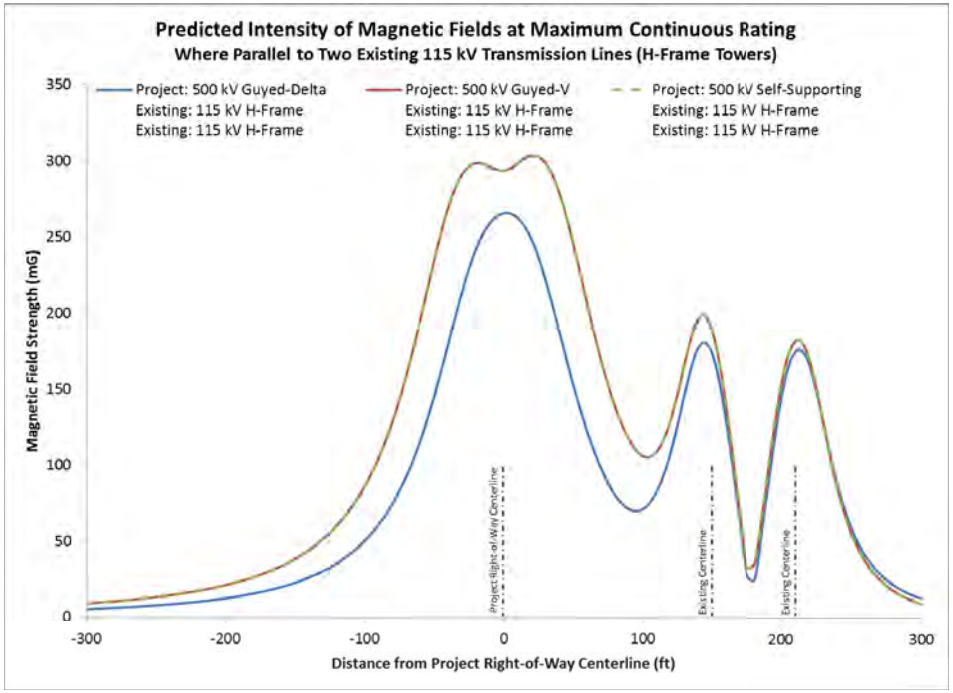
Magnetic Field Simulation Results: Max Continuous Rating

0190-28 cont'd

0190-28
Continued

Predicted Intensity of Magnetic Fields (mG) at Maximum Continuous Rating
Where Parallel to Two Existing 115 kV Transmission Lines (H-Frame Towers)

Structure Type	Line Voltage	Distance from Project ROW Centerline										
		-300	-200	-100	-50	-25	0	25	50	100	200	300
Project: 500 kV Guyed-Delta Existing: 115 kV H-Frame Existing: 115 kV H-Frame	2,000 A 929 A 929 A	5.3	12.6	50.4	145.7	229.4	265.5	235.9	151.9	71.2	143.0	12.6
Project: 500 kV Guyed-V Existing: 115 kV H-Frame Existing: 115 kV H-Frame	2,000 A 929 A 929 A	9.1	21.3	86.3	235.1	296.4	293.6	302.5	244.5	105.8	152.0	9.1
Project: 500 kV Self-Supporting Existing: 115 kV H-Frame Existing: 115 kV H-Frame	2,000 A 929 A 929 A	9.1	21.3	86.3	235.1	296.4	293.6	302.5	244.5	105.8	152.0	9.1



[Simulation assumes that Project ROW is adjacent to existing line ROW]

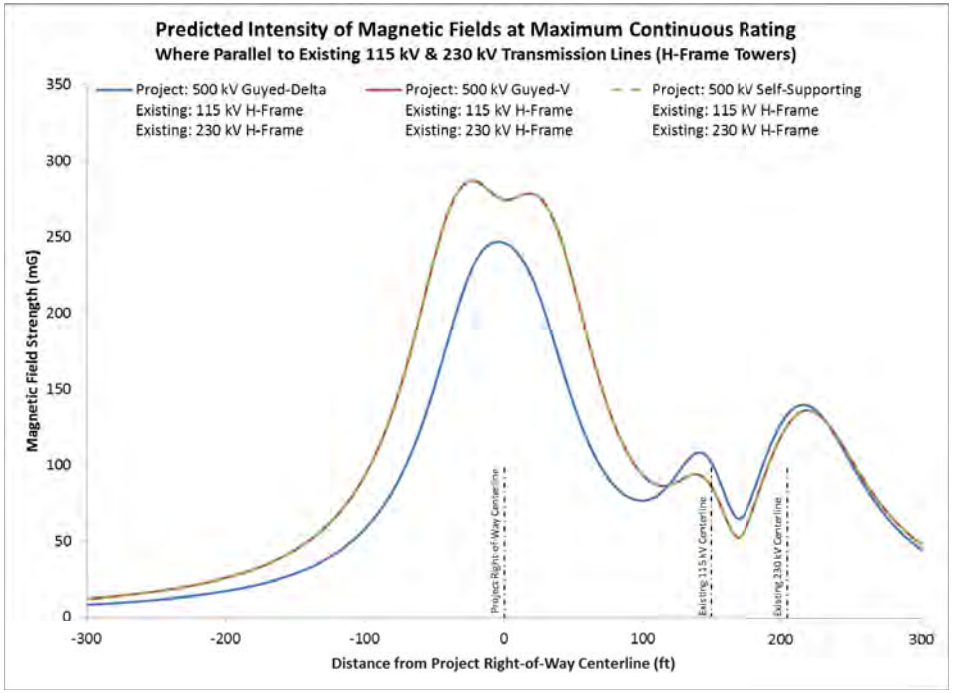
Magnetic Field Simulation Results: Max Continuous Rating

0190-28 cont'd

0190-28
Continued

Predicted Intensity of Magnetic Fields (mG) at Maximum Continuous Rating
Where Parallel to Existing 115 kV & 230 kV Transmission Lines (H-Frame Towers)

Structure Type	Line Voltage	Distance from Project ROW Centerline										
		-300	-200	-100	-50	-25	0	25	50	100	200	300
Project: 500 kV Guyed-Delta Existing: 115 kV H-Frame Existing: 230 kV H-Frame	2,000 A 804 A 1,753 A	8.3	17.2	58.1	151.4	224.8	246.1	212.1	140.2	76.7	127.5	44.8
Project: 500 kV Guyed-V Existing: 115 kV H-Frame Existing: 230 kV H-Frame	2,000 A 804 A 1,753 A	12.1	25.9	93.3	236.0	286.6	274.3	276.2	219.1	93.3	119.3	48.3
Project: 500 kV Self-Supporting Existing: 115 kV H-Frame Existing: 230 kV H-Frame	2,000 A 804 A 1,753 A	12.1	25.9	93.3	236.0	286.6	274.3	276.2	219.1	93.3	119.3	48.3



[Simulation assumes that Project ROW is adjacent to existing line ROW]

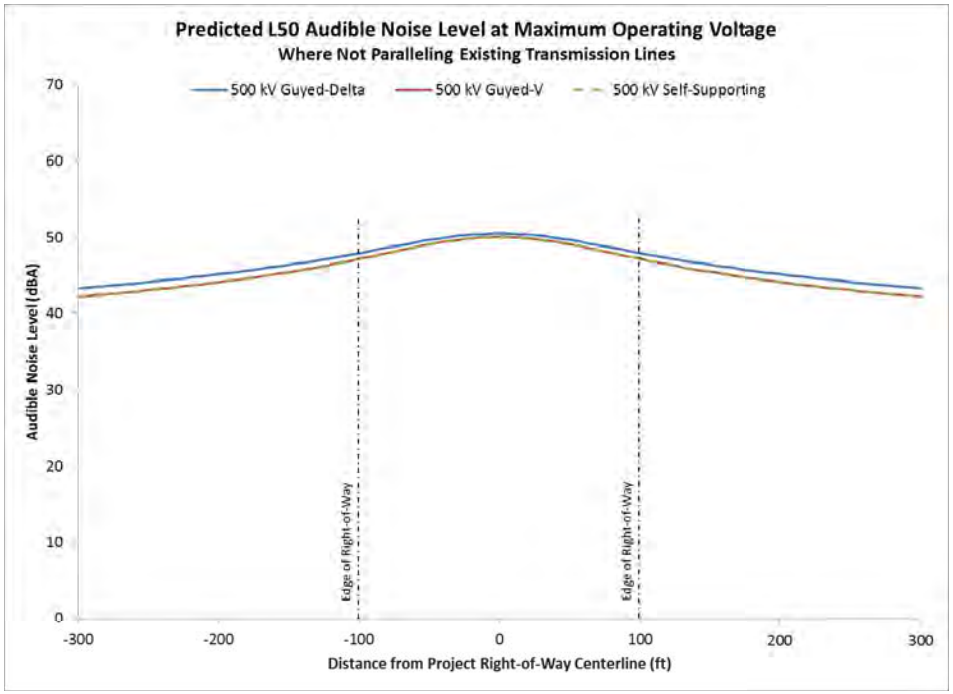
Audible Noise Simulation Results

0190-28 cont'd

0190-28
Continued

Predicted L50 Audible Noise Level (dBA) at Maximum Operating Voltage
Where Not Paralleling Existing Transmission Lines

Structure Type	Line Voltage	Distance from Project ROW Centerline										
		-300	-200	-100	-50	-25	0	25	50	100	200	300
500 kV Guyed-Delta	550 kV	43.3	45.2	47.9	49.7	50.3	50.5	50.3	49.7	47.9	45.2	43.3
500 kV Guyed-V	550 kV	42.2	44.1	47.2	49.1	49.8	50.1	49.8	49.1	47.2	44.1	42.2
500 kV Self-Supporting	550 kV	42.2	44.1	47.2	49.1	49.8	50.1	49.8	49.1	47.2	44.1	42.2



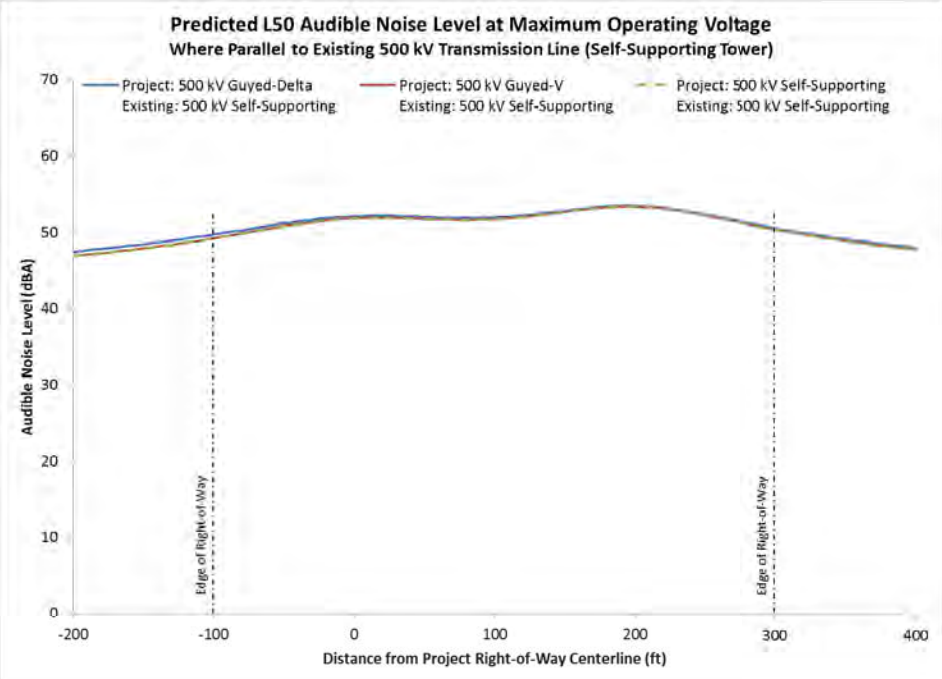
Audible Noise Simulation Results

0190-28 cont'd

0190-28
Continued

Predicted L50 Audible Noise Level (dBA) at Maximum Operating Voltage
Where Parallel to Existing 500 kV Transmission Line (Self-Supporting Tower)

Structure Type	Line Voltage	Distance from Project ROW Centerline										
		-200	-100	-50	-25	0	25	50	100	200	300	400
Project: 500 kV Guyed-Delta Existing: 500 kV Self-Supporting	550 kV 550 kV	47.4	49.7	51.2	51.8	52.1	52.2	52.0	52.0	53.4	50.5	47.9
Project: 500 kV Guyed-V Existing: 500 kV Self-Supporting	550 kV 550 kV	46.9	49.2	50.8	51.4	51.8	51.9	51.7	51.7	53.4	50.4	47.7
Project: 500 kV Self-Supporting Existing: 500 kV Self-Supporting	550 kV 550 kV	46.9	49.2	50.8	51.4	51.8	51.9	51.7	51.7	53.4	50.4	47.7



[Simulation assumes that Project ROW is adjacent to existing line ROW]

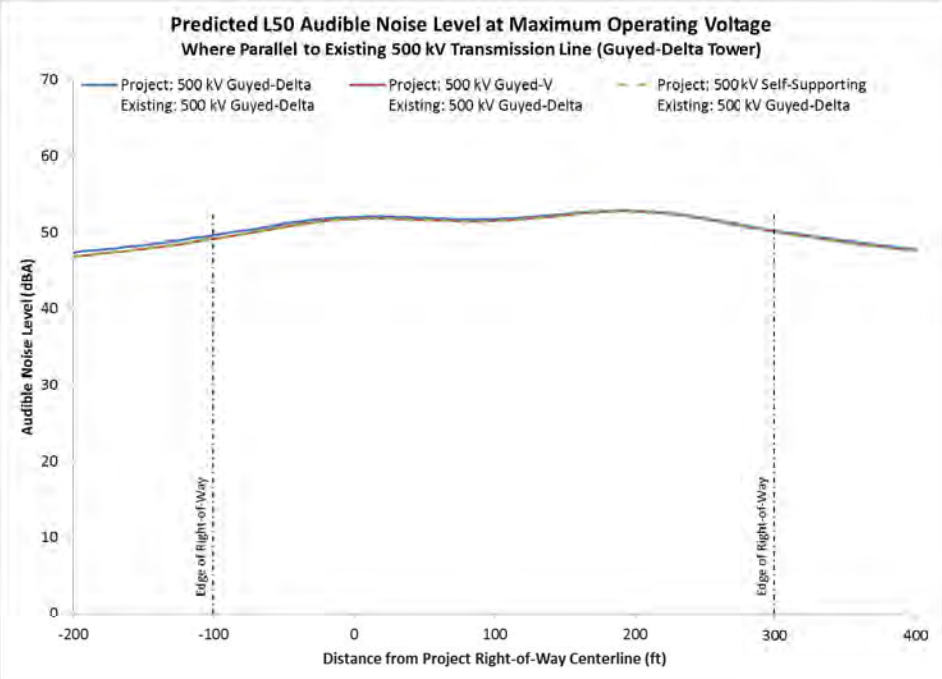
Audible Noise Simulation Results

0190-28 cont'd

0190-28
Continued

Predicted L50 Audible Noise Level (dBA) at Maximum Operating Voltage Where Parallel to Existing 500 kV Transmission Line (Guyed-Delta Tower)

Structure Type	Line Voltage	Distance from Project ROW Centerline										
		-200	-100	-50	-25	0	25	50	100	200	300	400
Project: 500 kV Guyed-Delta Existing: 500 kV Guyed-Delta	550 kV 550 kV	47.3	49.6	51.1	51.7	52.0	52.0	51.9	51.7	52.8	50.2	47.8
Project: 500 kV Guyed-V Existing: 500 kV Guyed-Delta	550 kV 550 kV	46.8	49.1	50.7	51.4	51.7	51.8	51.6	51.5	52.7	50.1	47.6
Project: 500 kV Self-Supporting Existing: 500 kV Guyed-Delta	550 kV 550 kV	46.8	49.1	50.7	51.4	51.7	51.8	51.6	51.5	52.7	50.1	47.6



[Simulation assumes that Project ROW is adjacent to existing line ROW]

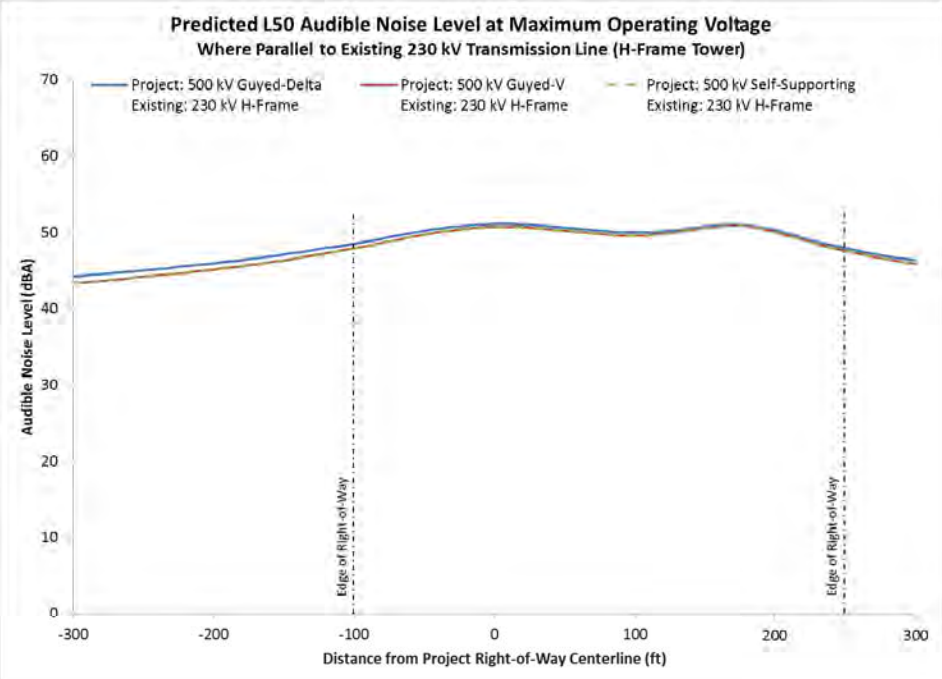
Audible Noise Simulation Results

0190-28 cont'd

0190-28
Continued

Predicted L50 Audible Noise Level (dBA) at Maximum Operating Voltage
Where Parallel to Existing 230 kV Transmission Line (H-Frame Tower)

Structure Type	Line Voltage	Distance from Project ROW Centerline										
		-300	-200	-100	-50	-25	0	25	50	100	200	300
Project: 500 kV Guyed-Delta Existing: 230 kV H-Frame	550 kV 253 kV	44.2	45.9	48.5	50.2	50.8	51.1	51.0	50.6	50.0	50.3	46.3
Project: 500 kV Guyed-V Existing: 230 kV H-Frame	550 kV 253 kV	43.4	45.1	47.9	49.7	50.4	50.7	50.6	50.2	49.6	50.1	45.9
Project: 500 kV Self-Supporting Existing: 230 kV H-Frame	550 kV 253 kV	43.4	45.1	47.9	49.7	50.4	50.7	50.6	50.2	49.6	50.1	45.9



[Simulation assumes that Project ROW is adjacent to existing line ROW]

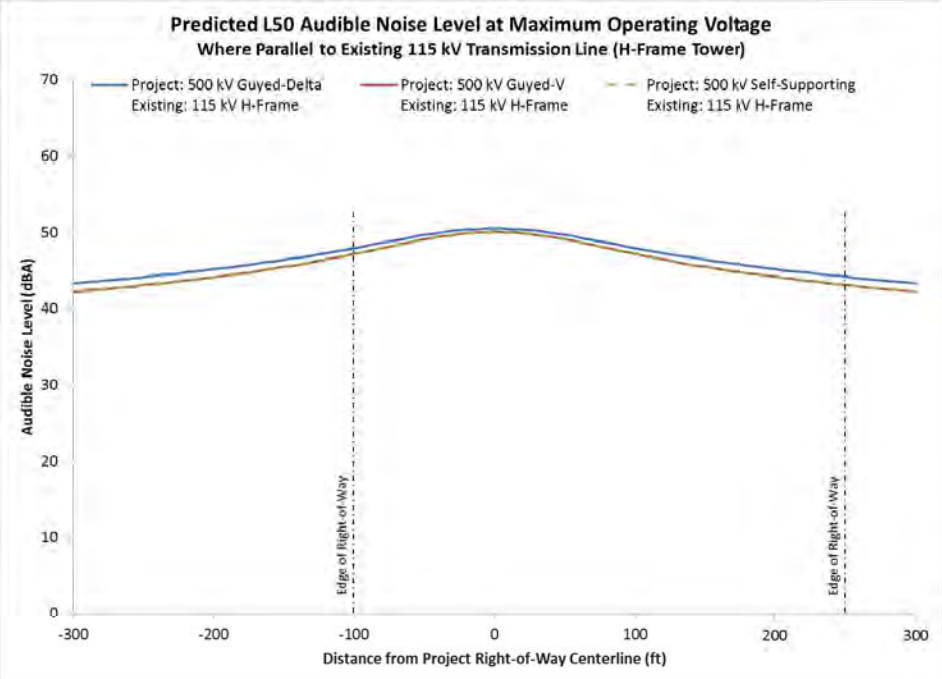
Audible Noise Simulation Results

0190-28 cont'd

0190-28
Continued

Predicted L50 Audible Noise Level (dBA) at Maximum Operating Voltage
Where Parallel to Existing 115 kV Transmission Line (H-Frame Tower)

Structure Type	Line Voltage	Distance from Project ROW Centerline										
		-300	-200	-100	-50	-25	0	25	50	100	200	300
Project: 500 kV Guyed-Delta Existing: 115 kV H-Frame	550 kV 127 kV	43.3	45.2	47.9	49.7	50.3	50.5	50.3	49.7	47.9	45.2	43.3
Project: 500 kV Guyed-V Existing: 115 kV H-Frame	550 kV 127 kV	42.2	44.1	47.2	49.1	49.8	50.1	49.8	49.1	47.2	44.2	42.2
Project: 500 kV Self-Supporting Existing: 115 kV H-Frame	550 kV 127 kV	42.2	44.1	47.2	49.1	49.8	50.1	49.8	49.1	47.2	44.2	42.2



[Simulation assumes that Project ROW is adjacent to existing line ROW]

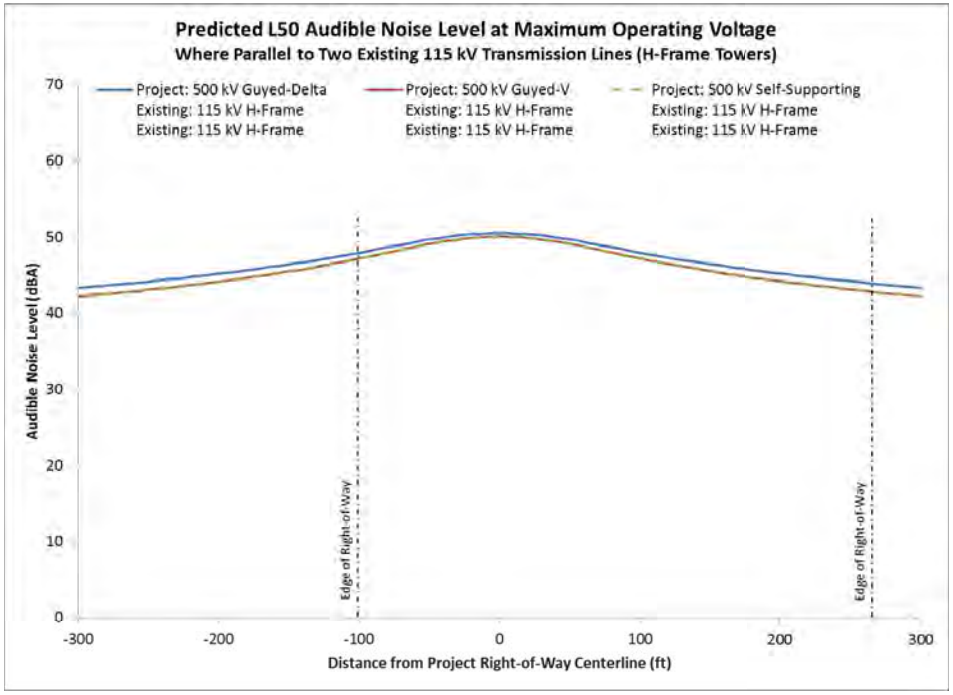
Audible Noise Simulation Results

0190-28 cont'd

0190-28
Continued

Predicted L50 Audible Noise Level (dBA) at Maximum Operating Voltage
Where Parallel to Two Existing 115 kV Transmission Lines (H-Frame Towers)

Structure Type	Line Voltage	Distance from Project ROW Centerline										
		-300	-200	-100	-50	-25	0	25	50	100	200	300
Project: 500 kV Guyed-Delta Existing: 115 kV H-Frame Existing: 115 kV H-Frame	550 kV 127 kV 127 kV	43.3	45.2	47.9	49.7	50.3	50.5	50.3	49.7	47.9	45.2	43.3
Project: 500 kV Guyed-V Existing: 115 kV H-Frame Existing: 115 kV H-Frame	550 kV 127 kV 127 kV	42.2	44.1	47.2	49.1	49.8	50.1	49.8	49.1	47.2	44.2	42.2
Project: 500 kV Self-Supporting Existing: 115 kV H-Frame Existing: 115 kV H-Frame	550 kV 127 kV 127 kV	42.2	44.1	47.2	49.1	49.8	50.1	49.8	49.1	47.2	44.2	42.2



[Simulation assumes that Project ROW is adjacent to existing line ROW]

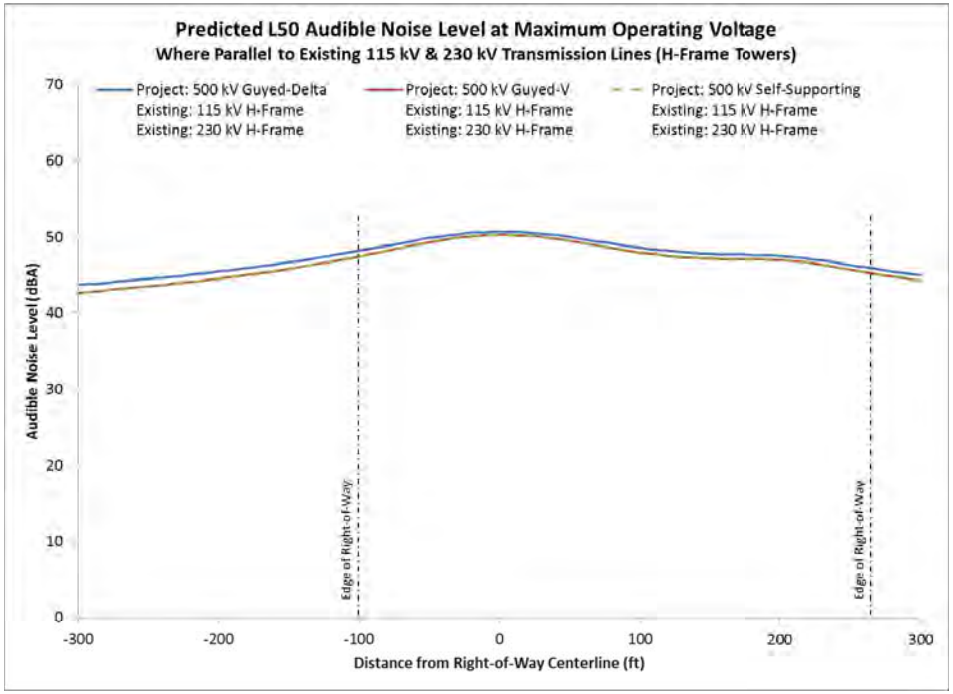
Audible Noise Simulation Results

0190-28 cont'd

0190-28
Continued

Predicted L50 Audible Noise Level (dBA) at Maximum Operating Voltage
Where Parallel to Existing 115 kV & 230 kV Transmission Lines (H-Frame Towers)

Structure Type	Line Voltage	Distance from Project ROW Centerline										
		-300	-200	-100	-50	-25	0	25	50	100	200	300
Project: 500 kV Guyed-Delta Existing: 115 kV H-Frame Existing: 230 kV H-Frame	550 kV 127 kV 253 kV	43.7	45.5	48.2	49.9	50.5	50.7	50.5	50.0	48.6	47.5	45.0
Project: 500 kV Guyed-V Existing: 115 kV H-Frame Existing: 230 kV H-Frame	550 kV 127 kV 253 kV	42.6	44.5	47.4	49.3	50.0	50.3	50.1	49.5	47.9	47.0	44.3
Project: 500 kV Self-Supporting Existing: 115 kV H-Frame Existing: 230 kV H-Frame	550 kV 127 kV 253 kV	42.6	44.5	47.4	49.3	50.0	50.3	50.1	49.5	47.9	47.0	44.3



[Simulation assumes that Project ROW is adjacent to existing line ROW]

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Appendix H and Table 5-5 of the EIS are updated with the analysis provided by the Applicant.

minnesota power
AN ALLETE COMPANY

GREAT NORTHERN TRANSMISSION LINE

MEMORANDUM

DATE:	April 6, 2015
	Julie Smith, DOE
	Bill Storm, DOC
To:	Cheryl Feigum, Barr
C:	Lydia Nelson
FROM:	Jim Atkinson & David Moeller
SUBJECT:	Response to Request for Information (RFI) – Substation Noise

Substation Noise

Following is a response to **RFI dated 2/27/15**

Request:
Does MN power now know or have an idea of the equipment that would be installed [at the Iron Range Substation]? Or typical equipment? A preliminary look at the range of noise emission related to such equipment and that expected at the station is helpful in the draft document.

Response:
As noted in the Application, the dominant noise sources at substations are power transformers. Devices similar to transformers, such as transmission-level reactors, also generate similar levels of audible noise. At the time the Application was written, the exact size, number, and location of Project transformers and other substation equipment had not yet been determined by electrical design optimization studies. Therefore, it was not appropriate at that time to provide a substation audible noise analysis.

Since the Application was submitted in April 2014, electrical design optimization studies have concluded, recommendations have been provided, and engineering is proceeding based on the recommended size and number of Project transformers and other substation equipment from the electrical studies. Based on these recommendations, Minnesota Power anticipates that the predominant noise emitters from the Iron Range 500/230 kV Substation will include a single 1200 MVA 500/230 kV transformer bank and two 150 MVAr 500 kV shunt reactors. The 500/230 kV transformer bank will consist of three single phase 400 MVA transformers and a spare phase of the same size that will not normally carry load. At this time, a final general arrangement and site plan for the Iron Range 500/230 kV Substation is not available, so the exact location of the transformer and reactor banks has not yet been determined.
Given the limited information available at this time, it is still not appropriate to provide a detailed substation audible noise assessment. However, Minnesota Power provides the following simplified and conservative substation noise assessment, based on the best available information at this time:

The four transformers were modeled as a single point source at their estimated position on the property, approximately midpoint in the substation based on the preliminary site plan shown in Figure 1. A single point source was modeled for the two reactors at their estimated position, at the northern fence line in the substation based on the preliminary site plan shown in Figure 1. The site plan shown in Figure 1 is the best information available at this time about the substation arrangement and location on the property, but is subject to change based on several site-specific engineering factors. Transformer noise levels were calculated using the Electric Power Plant Environmental Noise Guide (EPPENG). These values were compared to feedback received directly from transformer manufacturers for a transformer of comparable size and design characteristics and were found to be higher. The decision to use the higher transformer noise levels from the EPPENG provides a more conservative analysis. Reactor noise levels were estimated using the National

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Electrical Manufacturer's Association (NEMA) Standard TR1 Table 0-2, which provides guidance to manufacturers pertaining to the maximum allowable noise level that equipment must be designed to operate within. Other noise sources in the area, such as wind and traffic, and obstacles in the propagation path, such as fencing, other equipment and firewalls, were ignored.

The two nearest residences were considered for the analysis, as shown in Figure 2.

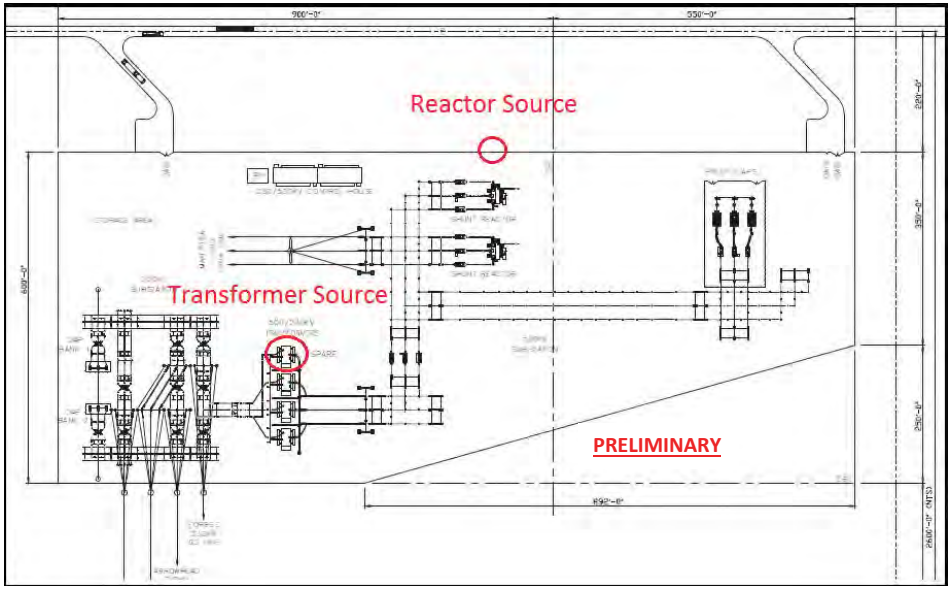

Figure 1: Point Source Locations

Figure 2: Noise Receptors

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Continued

The calculated project-related noise levels for the two receptor locations shown in Figure 2 are given in Tables 1 and 2.

Table 1: Calculated Noise Levels for Northern Receptor

Range of noise emissions from the transformers (SPL @ 3ft, dBA)		Noise emissions from the reactors (SPL @ 6ft., dBA)	Transformers at 1,120 ft. (dBA)	Reactors at 1,155 ft. (dBA)	Overall SPL at the residence immediately North of the substation (dBA)
Low	82	90	30	44	44
High	92	90	40	44	46

Table 2: Calculated Noise Levels for Northeastern Receptor

Range of noise emissions from the transformers (SPL @ 3ft., dBA)		Noise emissions from the reactors (SPL @ 6ft., dBA)	Transformers at 1,700 ft. (dBA)	Reactors at 1,100 ft. (dBA)	Overall SPL at the residence Northeast of the substation (dBA)
Low	82	90	27	45	45
High	92	90	37	45	45

Analysis results show that the calculated noise levels are expected to comply with the Minnesota Pollution Control Agency (MPCA) 50 dBA nighttime limit at both of the receptor locations based on the assumptions used to perform this assessment. As noted, this is a simplified assessment based on the dominant noise sources in the Iron Range 500/230 kV Substation and neglecting other noise influences in the area. If the size of the equipment or the general arrangement and site plan for the Iron Range 500/230 kV Substation vary from the assumptions used to calculate the noise levels discussed above, the noise impact of the substation on the surrounding environment, including the noise receptors analyzed in this assessment, will change.

COPY

Manitoba

Justice
Legal Services Branch
Civil Law Division
Room 730 Woodsworth Building
405 Broadway
Winnipeg MB R3C 3L6

In reply, please refer to:
Gord Hannon
General Counsel

Phone: (204) 945-0242
Fax: (204) 948-2244
Gord.Hannon@gov.mb.ca
File No: NR04D0 (429)

June 2, 2015

RECEIVED
JUN 04 2015
MINNESOTA PUBLIC
UTILITIES COMMISSION

Administrative Law Judge Ann O'Reilly
Office of Administrative Hearings
600 N. Robert Street
St. Paul, MN 55164

Dear Madam:

Re: Canadian and Provincial Permitting of the Manitoba Minnesota Transmission Project
OAH Docket No. 65-2500-31367
MPUC Docket No. E-015/TL-14-21

Please find enclosed Manitoba Justice's comments to the Minnesota Public Utilities Commission E-Docket Number E-015/TL-14-21, in the Matter of the Application of Minnesota Power for a Route Permit for the Great Northern Transmission Line Project in Roseau, Lake of the Woods, Beltrami, Koochiching and Itasca Counties. Please include our comments in the above-referenced record.

Yours truly,

Gordon E. Hannon
General Counsel

c. Dan Wolf, Executive Secretary, Minnesota Public Utilities Commission

Manitoba

Justice
Legal Services Branch
Civil Law Division
Room 730 Woodsworth Building
405 Broadway
Winnipeg MB R3C 3L6

In reply, please refer to:
Gord Hannon
General Counsel

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File No: NR04D0 (429)

June 2, 2015

Administrative Law Judge Ann O'Reilly
Office of Administrative Hearings
600 N. Robert Street
St. Paul, MN 55164

Dear Madam:

Re: Canadian and Provincial Permitting of the Manitoba Minnesota Transmission Project
OAH Docket No. 65-2500-31367
MPUC Docket No. E-015/TL-14-21

Through representatives of Manitoba Hydro, representatives of the Government of Manitoba have been informed of regulatory developments regarding Minnesota Power's application for a route permit that would allow the construction of the Great Northern Transmission Line, the United States portion of a proposed new International Power Line ("IPL"), that would connect with the Manitoba Minnesota Transmission Project ("the Project") at the Canada-United States Border.

On behalf of the Government of Manitoba, this letter is being submitted for filing on the public record and to inform the Administrative Law Judge, Minnesota Department of Commerce – Energy Environmental Review and Analysis Division and Minnesota Public Utilities Commission about these issues:

(I) Canadian federal and Manitoba provincial legal regime and regulatory processes for authorizing an International Transmission Line;
(II) an overview of the regulatory processes in Canada to date;
(III) the required steps to complete the regulatory processes in Canada; and
(IV) coordination with United States and Minnesota regulatory processes.

As a representative of the Government of Manitoba we can advise particularly of the Manitoba Government understanding of Manitoba provincial regulatory processes. However, the federal National Energy Board ("the NEB") has Canadian federal regulatory responsibilities under federal law because of the international nature of the

IPL. Manitoba is working with the NEB to coordinate the provincial and federal regulatory processes.

I. Canadian Federal and Provincial Legal Regime and Regulatory Processes for Authorizing an International Transmission Line

A. Overview

Under Canada's *Constitution Act, 1867*, laws in relation to international power lines are matters of exclusive federal jurisdiction. This jurisdiction has been exercised by the enactment by Canadian Parliament of the *National Energy Board Act* and the provisions of the *Canadian Environmental Assessment Act, 2012* relating to IPLs.

Provincial legislation applies to the use and allocation of Crown (public) land in Manitoba for the line in Manitoba.

Generally, intra-provincial power transmission lines are subject to environmental assessment and licensing under *The Environment Act* of Manitoba. *The Environment Act* provides a regime of environmental assessment and licensing of projects or developments of defined classes. Transmission lines greater than 230 kV are considered Class 3 developments under the Classes of Development Regulation made under *The Environment Act* and are thus subject to the highest level of environmental assessment under Manitoba legislation. All documents filed in the environmental assessment process are filed on a public registry. The Environmental Impact Statement is open to public comments which are considered in the decision-making process.

Federal legislation allows for the involvement of provincial authorities and processes, including the assessment of the environmental impacts of IPLs, under certain circumstances. A common feature of both federal and provincial environmental review processes is the requirement for an applicant to conduct a public engagement program ("PEP") regarding the project, including the proposed route of an IPL, and its potential socio-economic and environmental impacts as part of its environmental assessment of the project prior to filing an application for licenses and authorizations.

The regulatory practice in Manitoba is that government authorities do not formally engage in public consultations about projects of this type. Government decision makers do not generally engage directly in public consultation: public input is provided through the proponent's public engagement program and through comments on the public registry. In some cases, however, a public hearing may be commissioned by the minister of Conservation and Water Stewardship before the Clean Environment Commission, for the Commission to provide advice to decision makers respecting a proposed development.

The Government of Manitoba engages directly in consultations with Aboriginal peoples about potential adverse effects of the project on the exercise of Aboriginal or treaty rights recognized pursuant to section 35 of the *Constitution Act, 1982*.

B. Canadian Federal law

1. *National Energy Board Act*, R.S.C., 1985, c. N-7

The responsibility for regulating the construction and operation of IPLs rests with the National Energy Board of Canada pursuant to the *National Energy Board Act,* R.S.C., 1985, c. N-7. In accordance with Section 58.1 of the *National Energy Board Act*, authorization is required to construct or operate an IPL. The National Energy Board Electricity Regulations, SOR/97-130 set out a comprehensive list of information requirements for inclusion in an application to be filed with the NEB for an authorization of an IPL. The NEB Electricity Filing Manual provides additional extensive detail and guidance on the expectations for the content of an application. Both the regulations and the Filing Manual identify the need for an application to contain: an identification of a single proposed route and border crossing point for the IPL; an environmental and socio-economic assessment of the IPL; and a description of the Public Engagement Program that has been undertaken by the applicant. Upon the filing of an application, the NEB's authority is limited under Section 58.11 of the Act to either issuing a permit authorizing the IPL or recommending and issuing a certificate for the IPL. There is no authority for NEB to determine an alternate route for an IPL.

Notwithstanding federal jurisdiction over IPLs, Sections 58.17 and 58.2 of the Act allow for the application of provincial laws to certain matters relating to IPLs, including environmental assessment, where an Order in Council is issued by the government of the province where the IPL is located. While the NEB allows for a provincial environmental review process, and while the NEB is also under a duty to seek to avoid the duplication of measures undertaken by a province in respect of an IPL, the NEB is prohibited from delegating its decision-making authority regarding the environmental impacts of an IPL under federal environmental legislation, as discussed below.

2. *Canadian Environmental Assessment Act, 2012*, S.C. 2012, c. 19, s. 52

The construction, operation and decommissioning of a new electrical transmission line with a voltage of 345 kV or more and requiring 75 km or more of new right of way in totality is considered a Designated Project pursuant s. 39 of the Schedule to the *Regulation Designating Physical Activities* SOR/2012-147 under the *Canadian Environmental Assessment Act, 2012*, S.C. 2012, c. 19, s. 52 (*CEAA, 2012*).

Pursuant to paragraph 15(b) of *CEAA, 2012*, the NEB is a "Responsible Authority" for a "Designated Project" regulated under the *National Energy Board Act.* As part of its responsibilities, the NEB must ensure that an environmental assessment has been performed by the applicant pursuant to *CEAA, 2012* and must determine whether the IPL is likely to cause significant adverse environmental effects.

C. Provincial law

1. *The Crown Corporations Public Review and Accountability Act*, C.C.S.M. c. P336 and *The Public Utilities Board Act*, C.C.S.M. c. P280

The Public Utilities Board of Manitoba ("the PUB") has jurisdiction over Manitoba Hydro's retail electricity rates in accordance with Section 26 of *The Crown Corporations Public Review and Accountability Act* and *The Public Utilities Board Act*. Although the PUB does not have the specific authority to review Manitoba Hydro's capital projects, the PUB can be assigned additional duties by order of the Lieutenant Governor in Council.

Manitoba Order in Council 128/2013 was issued on April 17, 2013 under the authority of section 107 of *The Public Utilities Board Act* requiring a panel of the Public Utilities Board of Manitoba to conduct a "Needs For and Alternatives To" ("NFAT") review of Manitoba Hydro's preferred development plan, including the construction of a new 500 kV IPL and to make a recommendation to the Government of Manitoba as to whether construction of the new IPL should go forward.

2. *The Environment Act*, C.C.S.M. c. E125

The construction of electrical transmission lines greater than 230 kV and associated facilities is considered a Class 3 Development pursuant to the Classes of Development Regulation M.R. 164/88, made under *The Environment Act* and is subject to licensing under Section 12 of *The Environment Act*. The Licensing Procedures Regulation, M.R. 163/88 made under the Act outlines the process to be used and the information requirements for proposals under the Act. Subsection 1(1) of this Regulation requires the submission of a proposal that contains the location of the proposed development and a description of the environmental and socio-economic impacts of the development. A full, detailed assessment of the impacts for the proposed development is limited to the single proposed route and associated infrastructure. While alternative routes are included in the proposal, they are included only for comparison purposes to demonstrate why the single proposed route was selected. The proposal will not include detailed environmental or social-economic impacts of these alternatives. Should the proposed route be rejected in this process, an alternative route is not chosen by the regulator.

The Environment Act process includes an opportunity for public comments through a public registry maintained by Manitoba Conservation and Water Stewardship

3. *The Crown Lands Act*, C.C.S.M. c. C.340

Publicly-owned lands in Canada are considered to be "Crown lands", administered and controlled on behalf of the Crown. Under Canada's constitution Crown lands are generally administered and controlled by the provinces. The use and allocation of Crown

lands in Manitoba is governed by *The Crown Lands Act*. That Act provides the legislative authority for the provincial government to allocate or grant rights in provincial Crown land in Manitoba. Authorizations for the use of any Crown land for the IPL in Manitoba will be required to be granted under *The Crown Lands Act*.

4. The *Constitution Act, 1982* and Consultation by the Government with Aboriginal Peoples

Subsections 35(1) and (2) of the *Constitution Act, 1982* state:

> Recognition of existing aboriginal and treaty rights
> 35. (1) The existing aboriginal and treaty rights of the aboriginal peoples of Canada are hereby recognized and affirmed.
>
> Definition of "aboriginal peoples of Canada"
> (2) In this Act, "aboriginal peoples of Canada" includes the Indian, Inuit and Métis peoples of Canada.

The *Constitution Act, 1982* is part of the constitution of Canada and applies to federal and provincial government action. In accordance with governing case law interpreting s. 35, including leading Supreme Court of Canada cases *Haida Nation v. British Columbia (Minister of Forests),* [2004] 3 S.C.R. 511, 2004 SCC 73 and *Mikisew Cree First Nation v. Canada (Minister of Canadian Heritage) [2005] 3 S.C.R. 388, 2005 SCC 69*, it is settled law in Canada that the Crown (federal and provincial governments within the scope of their responsibilities) has a duty to consult with Aboriginal peoples about any decision or action that might affect the exercise of Aboriginal rights or treaty rights of the Aboriginal peoples and to attempt in good faith to address or accommodate concerns expressed by the Aboriginal peoples about those effects before making the decision or taking the action.

The Government of Manitoba has developed an Interim Provincial Policy for Crown Consultation with First Nations, Métis Communities and Other Aboriginal Communities as a general statement of the approach of the Government to meeting its duty of consultation with Aboriginal peoples. The Government is committed to completing consultation processes with potentially-affected Aboriginal communities. In order to determine the communities potentially affected an initial assessment of the consultation requirements is undertaken by the Government based on the route of the proposed project. Consultation is being planned based on the identified proposed route in Manitoba.

II. An Overview of the Regulatory Processes to Date

The need for and justification for the Project has already been confirmed by the Public Utilities Board of Manitoba as a result of the NFAT review process conducted between June 2013 and May 2014. The PUB issued a final report to the Manitoba Government

on the NFAT process in June 2014. The NFAT review process commenced with the filing of Manitoba Hydro's proposal and rationale, followed by two rounds of written information requests, the filing of evidence by interveners, one further round of information requests, and finally a hearing held from March 3 to May 26, 2014. The NFAT review included the appointment of independent expert consultants to examine Manitoba Hydro's plans. Those experts filed reports on their findings and testified at the NFAT hearing.

The PUB final report recommended that Manitoba Hydro be given approval to proceed with the construction of the proposed 500 kV Manitoba Minnesota transmission line. On December 10, 2014, Order in Council 545/2014 was issued by the Government Manitoba under *The Manitoba Hydro Act* authorizing Manitoba Hydro to proceed with all actions necessary to construct and operate the new transmission line.

Manitoba Order in Council No. 00386/2013 has also been issued under the authority of the *National Energy Board Act* designating the Manitoba Minister of Conservation and Water Stewardship as the provincial regulatory agency for the proposed IPL. This allows for the provincial environmental assessment and licensing process under *The Environment Act* to apply to the portion of the line in Manitoba.

It is our understanding that Manitoba Hydro has considered several different alternative routes for the Project over the last few years and conducted a Public Engagement Process that included consideration of these alternative routes. Based upon the outcome of that Public Engagement Process and a detailed route selection process conducted with the assistance of several external consultants, Manitoba Hydro has selected a specific proposed route. That route ends at a border crossing that was determined after several months of analysis and in-depth discussion with Minnesota Power. The crossing selected was considered to be in the best interests of the overall project and acceptable to both parties.

It is our understanding that Manitoba Hydro will be filing an application with the NEB for approval of a specific final preferred route with an identified associated border crossing, consistent with Canadian legal requirements.

We understand that three pre-application meetings have been held with the NEB providing information regarding the scope of the Project and the intended authorizations that will be sought once the application is filed. As described below, the NEB was also provided with Manitoba Hydro's draft Scoping Document.

Several meetings have also been held with representatives of Manitoba Conservation and Water Stewardship with respect to scope of environmental assessment, including the Public Engagement Program. On November 21, 2014, Manitoba Hydro filed an Environment Act Proposal with MCWS for a Class 3 Development under subsections 12(1) and 12(3) of *The Environment Act*, and provided a draft Scoping Document that outlines the proposed contents of an Environmental Impact Statement (EIS) for the Manitoba-Minnesota Transmission Project that describes the various environmental

components that will be studied. Included in that draft Scoping Document was a map of the final preferred route that identified the selected border crossing.

Pursuant to subsection 12(4) of *The Environment Act,* MCWS posted the filed documents on a public registry, and provided an opportunity for public/stakeholder comment until February 25, 2015. The public registry is available on-line at: http://www.gov.mb.ca/conservation/eal/registries/5750mbhydrombminnesota/index.html

Also pursuant to subsection 12(4) of *The Environment Act*, the Proposal was provided for analysis to the Technical Advisory Committee (TAC), made up of experts from several different provincial departments, including the wildlife branch, heritage branch, and fisheries branch, of the preferred route and associated border crossing. Comments from various departments have already been received.

III. The Required Steps to Complete the Regulatory Processes in Canada

It is anticipated that the current round of public engagement by Manitoba Hydro will be completed by summer 2015 and Manitoba Hydro will file its Environmental Impact Statement with Manitoba Conservation and Water Stewardship shortly after that pursuant to subsection 12(5) of *The Environment Act.*

An application will subsequently be filed with NEB. The NEB application and the EIS filed under the Environment Act will both seek approval for the single proposed route and the selected border crossing.

Public notification of the NEB application will be made and an opportunity for interested parties to file written comments with NEB will be specified in the notice. Manitoba Hydro will then have an opportunity to file written responses to any comments.

Once the EIS is filed, MCWS, coordinating with the NEB, will then begin its assessment of the Project and the EIS in accordance with subsection 12(5) of *The Environment Act.* Public consultations conducted by Manitoba Hydro are taken into consideration by MCWS when conducting its assessment. A public hearing before the Manitoba Clean Environment Commission may also be ordered under clause 12(5)(e) and subsection 12(6) of that Act. The NEB also has jurisdiction to order a public hearing under section 24 of the *National Energy Board Act.* As such, there could possibly be a joint public hearing or two separate hearings.

The provincial Technical Advisory Committee also conducts an extensive review of submitted EIS documents and provides written information requests to Manitoba Hydro that must be satisfied as part of the process. This may be done in advance of the public hearing or concurrently. Again, that review is based upon the single proposed route and selected border crossing.

Independent of the environmental assessment process, including any public hearings is the Crown consultation process with Aboriginal communities referred to above. The

consultations will involve consideration of the single proposed route and selected border crossing.

IV. Coordination with United States and Minnesota Regulatory Processes

It is our understanding from Manitoba Hydro that the Minnesota Department of Commerce – Energy Environmental Review and Analysis Division and Minnesota Public Utilities Commission have issued an environmental scoping document that includes multiple alternative border crossings in addition to the border crossing associated with the Preferred Route. It is further our understanding that these additional border crossings are not included in Minnesota Power's application for a Presidential Permit.

Any decision by the Minnesota Department of Commerce, Energy Environmental Review and Analysis Division, or Minnesota Public Utilities Commission that would require a border crossing other than the selected border crossing included in the Canadian, Provincial and Presidential Permit review process will require the filing of new or amended applications containing a different proposed route. Manitoba Hydro advises that the filing of new or amended proposals with MCWS, or a new or amended application to the NEB, would require significant new studies to address the change in route to a different border crossing as part of the regulatory process in Canada. Manitoba Hydro also advises that it would be very unlikely that the necessary studies and the regulatory process would be completed in time to meet the proposed 2020 in-service date. As the agreements between Manitoba Hydro and Minnesota Power require a 2020 in-service date, the project may therefore be jeopardized.

Yours truly,

Gordon E. Hannon
General Counsel

c. Dan Wolf, Executive Secretary, Minnesota Public Utilities Commission

0190-30

0190-30
Section 1.3.2 is updated with information about the status of the Canadian process for siting this project in Canada by Manitoba Hydro as provided by comment letter submitted by both the Province of Manitoba's General Counsel (see response to comment 078-1).

Appendix A – Links to legislation and key documents referred to in letter

Order in Council 00128/2013 for Manitoba Public Utilities Board NFAT Review:
http://oic.gov.mb.ca/OICDocs/2013/04/Healthy%20Living,%20Seniors%20&%20Consumer%20Affairs.130417.Public%20Utilities%20Board%20Act.1282013.pdf

Terms of Reference for Manitoba Public Utilities Board NFAT Review:
http://www.pub.gov.mb.ca/pdf/nfat/TermsOfReference-Ap25.pdf

Interim Provincial Policy for Crown Consultation with First Nations, Métis Communities and Other Aboriginal Communities:
http://www.gov.mb.ca/ana/pdf/pubs/interim_aboriginal_consultation_policy_and_guidelines.pdf

National Energy Board Act (Canada)
http://laws-lois.justice.gc.ca/eng/acts/N-7/FullText.html

National Energy Board Electricity Regulations
http://laws-lois.justice.gc.ca/eng/regulations/SOR-97-130/index.html

Canadian Environmental Assessment Act, 2012 (Canada)
http://laws-lois.justice.gc.ca/eng/acts/C-15.21/index.html

The Environment Act (Manitoba)
http://web2.gov.mb.ca/laws/statutes/ccsm/e125e.php

Classes of Development Regulation
http://web2.gov.mb.ca/laws/regs/current/_pdf-regs.php?reg=164/88

The Public Utilities Board Act (Manitoba)
http://web2.gov.mb.ca/laws/statutes/ccsm/p280e.php

The Crown Lands Act (Manitoba)
http://web2.gov.mb.ca/laws/statutes/ccsm/c340e.php

Order in Council 545/2014, authorizing Transmission Line
http://oic.gov.mb.ca/OICDocs/2014/12/Manitoba%20Hydro.141210.Manitoba%20Hydro%20Act.5452014.pdf

Order in Council 00386/2013
http://oic.gov.mb.ca/OICDocs/2013/11/Conservation%20&%20Water%20Stewardship.131106.National%20Energy%20Board%20Act.3862013.pdf

Manitoba Hydro
PO Box 7950 Stn Main • Winnipeg, Manitoba Canada • R3C 0J1
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0190-31
Section 1.3.2 is updated with information about the status of the Canadian process for siting this project in Canada by Manitoba Hydro as provided by comment letter submitted by Manitoba Hydro (see response to comments 079-1 and 079-2).

July 30, 2015

Mr. William Cole Storm
Environmental Review Manager
Minnesota Department of Commerce
85 7th Place East, Suite 500
St. Paul, Minnesota, 55101

Dear Mr. Storm:

RE: Great Northern Transmission Line Border Crossing

As you are aware, Manitoba Hydro is the Proponent for the Canadian portion of the 500 kV transmission project known in Canada as the 'Manitoba-Minnesota Transmission Project,' and in the U.S. as the Great Northern Transmission Line (Project). We recently reviewed the Draft Environmental Impact Statement (EIS) (June 19, 2015), submitted by the Minnesota Department of Commerce - Energy Environmental Review and Analysis Staff and U.S. Department of Energy.

The Draft EIS identifies a number of border crossing variations that are under consideration. Manitoba Hydro would like to provide the following comments regarding selection of the border crossing:

1. Manitoba Hydro can only support the agreed-upon border crossing located at Lat. 49 00 00.00N; Long. 95 54 50.49W; known as the Proposed Border Crossing - Blue/Orange Route in the Draft EIS and noted as the MH Preferred Border Crossing and shown as a light blue area on the attached map.

0190-31

Manitoba Hydro completed a robust, transparent comparative analysis of routes and all potential border crossings using a process based on the EPRI-GTC Overhead Electric Transmission Line Siting Methodology. This process:

- Evaluated numerous social, technical and environmental factors, similar to those criteria identified in the Minnesota Public Utilities Commission routing and siting regulations (such as land use, human settlement, agriculture, forestry, cultural and historic resources, wildlife, rare species, water resources, noise, air quality, health and safety, engineering constraints, etc.);
- Incorporated routing preferences (that is, a weighting of the routing criteria) based on discussions with internal and external stakeholders; and
- Used this data to identify and rank potential border crossings and routes.

Using this methodology, Manitoba Hydro determined that Piney East Border crossing (MH Former Border Crossing shown in light grey on the attached map) which encompassed Border Crossing Hwy 310 Variation, was not a feasible border crossing for a variety of compelling reasons. These included, but were not limited to, the fact that routes to this crossing traverse areas of high biological diversity that had been noted by government agencies and environmental

0190-31 Continued 0190-31 cont'd

non-government organizations. Furthermore, this area is primarily composed of Crown (public) lands, which support traditional Aboriginal use and First Nations noted significant concerns in regards to route alternatives in this area. Border Crossing 500 kV Variation and the Border Crossing 230 kV Variation were outside of the agreed upon Border crossing and thus were not analyzed but would pose many of the same challenges.

Based on our environmental analysis and public, First Nations and Métis engagement processes, in consultation with Minnesota Power, the Proposed Border Crossing - Blue/Orange Route was selected as the preferred end point for each entity. While other border crossings were favored by each entity, the Proposed Border Crossing – Blue/Orange route was jointly selected because it balances environmental, technical, and stakeholder impacts on both sides of the border.

The preferred route and border crossing were presented as part of a third round of our engagement processes earlier this year. With the feedback received and through the environmental review work being undertaken, Manitoba Hydro determined the final placement of the transmission line and will submit an environmental impact statement to Manitoba Conservation and Water Stewardship. An application will also be filed with the National Energy Board in September. Manitoba Hydro **does not** have routes that connect to the border crossing variations included in the Draft EIS. Our application will only include the Proposed Border Crossing - Blue/Orange Route location developed and agreed upon by Manitoba Hydro and Minnesota Power.

Manitoba Hydro and Minnesota Power have made a business commitment to have the Project in service by June 2020. Selection of a border crossing location that does not align with our border crossing and route jeopardizes this commitment and the Project.

Should you have any questions or require further clarification please do not hesitate to contact me at 204-360-4394.

Regards,

Original signed by Shannon Johnson

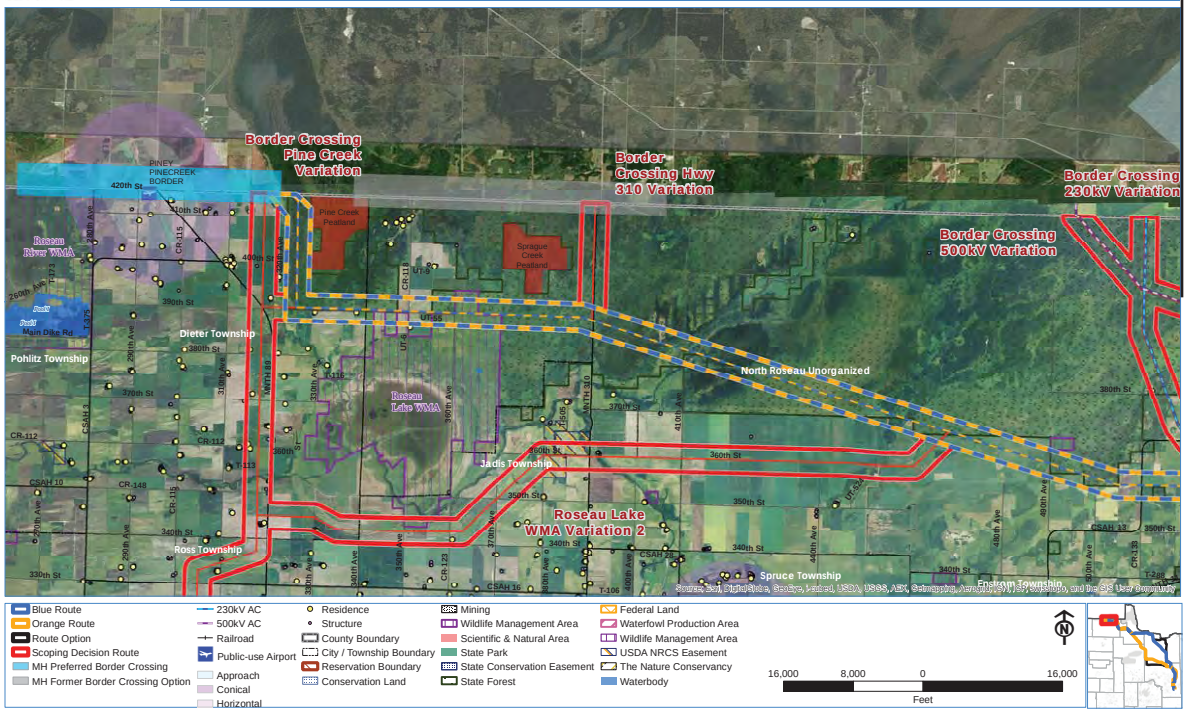
Shannon Johnson
Manager
Licensing and Environmental Assessment Department
Manitoba Hydro
820 Taylor Ave (3)
Winnipeg, Manitoba
R3M 3T1

Attachments: 1

Cc: Julie Ann Smith, PhD, Federal Document Manager
DOE Office of Electricity Delivery and Energy Reliability
1000 Independence Avenue SW
Washington, DC, 20585

0190-31 cont'd

Manitoba Hydro Letter
dated July 30, 2015
Page 3 of 3



Blue Route	230kV AC	Residence	Mining	Federal Land
Orange Route	500kV AC	Structure	Wildlife Management Area	Waterfowl Production Area
Route Option	Railroad	County Boundary	Scientific & Natural Area	Wildlife Management Area
Scoping Decision Route	Public-use Airport	City / Township Boundary	State Park	USDA NRCS Easement
MH Preferred Border Crossing	Approach	Reservation Boundary	State Conservation Easement	The Nature Conservancy
MH Former Border Crossing Option	Conical	Conservation Land	State Forest	Waterbody
	Horizontal			

16,000 8,000 0 16,000
Feet

DEIS Chapter	Section	Page #	Paragraph, Figure or Table #	Comment	
1	1.3.1.1	6		Does not address Minn. Stat. 216E.02, subd. 3 (cooperation on interstate routes) AND Does not address Minn. Stat. 216E.03, subd. 7(b)(12) issues raised by local entities (such as Roseau County) only addresses issues raised by DNR and USFWS.	0190-32
1	1.3.2	9		Minnesota Public Utilities Commission – Certificate of Need: "The MN PUC must also determine whether there is a need for a transmission line, and establish the size, type, and required end points of the proposed project…" The MN PUC granted a Certificate of Need for the GNTL Project on June 30, 2015. This statement should be updated throughout the EIS.	0190-33
1	1.4.3	12		The description of USFWS's role as a cooperating agency is too limited. The DEIS states that "USFWS will also coordinate any special use permit if ROW access is requested and granted on USFWS interest properties." This doesn't mention the fact that ROW access would be requested from, and granted by, USFWS. That should be listed as one of USFWS's primary roles as a cooperating agency.	0190-34
2	2.1	15		"The new 500 kV substation required for the proposed Project would be expected to permanently impact approximately 17.8 acres." Approximately 23 acres anticipated at this time with preliminary engineering, may deviate during detailed engineering. The DEIS references both 17.8 and 17.4 acres throughout.	0190-35
2	2.1	15		"The series compensation station will permanently impact approximately 60 acres." Approximately 6 acres anticipated at this time with preliminary engineering, may deviate during detailed engineering. Wetland investigations may dictate the layout and affect total size. Update throughout the document.	0190-36
2	2.1	15		"The final location for the 500 kV series compensation station would be determined by electric design optimization studies and final route selection, but would likely be located at the approximate midpoint of the Minnesota portion of the transmission line." MP has provided its preferred series comp station site, which his located at approximately the midpoint between the Dorsey Substation (the endpoint of the Canadian project) and the Iron Range Substation (the endpoint of the Minnesota project).	0190-37
2	2.1	16		"The applicant proposes..." [x4] "Additional details of the proposed Project and construction methods are provided in Section 2.7 through 2.11." Add a new sentence: "The Applicant notes that the details of construction methods are subject to change based on field surveys and numerous other factors."	0190-38
2	2.2.2	20		"…a new 500 kV transmission line – which can carry a total of up to 883 MW of electric power…" The line itself will have higher capacity than that, as described elsewhere. It's transfer capability on the Manitoba-U.S. interface that we're after. To avoid confusion, suggest revising to say "…a new 500 kV transmission line – which can facilitate up to 883 MW of additional power transfers between Manitoba and the United States…"	0190-39
2	2.2.2	20		"[The Applicant] operates transmission and distribution systems, including 8,866 miles of transmission lines..." Should say "…8,866 miles of transmission & distribution lines…"	0190-40
2	2.2.3	21		"…additional 133 MW 'Renewable Optimization Agreement' that the Applicant will also submit to the MN PUC for approval once the agreement has been formally approved by both parties." The ROA described here was approved in a MPUC written order dated January 30, 2015 (MPUC Docket No. E015/M-14-960).	0190-41
2	2.6.2	28		Remove the following: "…and one-third of the overall transmission line distance from the Riel Substation to the Blackberry 500 kV Substation." The endpoint is wrong (should be Dorsey not Riel) and this location is no longer under consideration. Also, two sentences earlier, change "Riel" to "Dorsey."	0190-42
2	2.8.1	30		"The proposed Project is designed to increase the total transfer capability between the U.S. and Manitoba by at least 750 MW." While this is technically accurate, it is out-of-date. Suggest updating to say "…increase the total transfer capability between the U.S. and Manitoba by up to 883 MW."	0190-43

0190-32
Local entities that raised substantive issues during the Draft EIS comment period are addressed as part of the comment/response process.

No changes are made to the EIS in response to this comment.

0190-33
The text is updated in Section 1.3.2 of the EIS to state that the formal order from the MN PUC was issued on June 30, 2015.

0190-34
USFWS, a cooperating agency for this EIS, provided this information.

No changes are made to the EIS in response to this comment.

0190-35
The acreage is revised to 23 acres in Sections 2.1, 2.6.1, and 6.7.3.2 of the EIS.

0190-36
This edit is made in Section 2.1 of the EIS.

0190-37
These comments are incorporated in Chapter 2 of the EIS.

0190-38
The following sentence is incorporated into Section 2.1 of the EIS: "The Applicant notes that the details of construction methods are subject to change based on field surveys."

0190-39
This comment is incorporated into Section 2.2.2 of the EIS.

0190-40
This comment is incorporated into Section 2.2.2 of the EIS.

0190-41
This comment is incorporated into Section 2.2.3 of the EIS.

0190-42
This comment is incorporated into Section 2.6.2 of the EIS.

0190-43
This comment is incorporated into Section 2.8.1 of the EIS.

2	2.8.1	30		Remove the following sentence: "The Applicant will supplement this information after completion of additional MISO system impact studies." Additional information filed with Chris Lawrence at DOE: see 11/19/2014 email from David Moeller.
2	2.9.4	33		"…the Applicant has identified a candidate site for the compensation station…" This is MP's preferred site. Suggest replacing "candidate" with "preferred."
2	2.9.4	33		"…located at the approximate midpoint of the Minnesota portion of the transmission line…" The midpoint of the Minnesota portion is very different from the overall midpoint between Winnipeg and the Iron Range. Please modify as follows: "…located at the approximate overall midpoint of the transmission line."
2	2.9.4	33		"The Applicant would then seek to obtain purchase option agreements with the owners of the identified properties along the route selected by the MN PUC." MP has obtained an option on its preferred series comp station site. Suggest eliminating this paragraph and continuing the first paragraph with the following: "The Applicant has entered a purchase option agreement with the owner of the property for its preferred compensation station site. The purchase agreement would be executed upon receiving the necessary regulatory permits."
2	2.9.5	34		"The Applicant may then seek to obtain purchase option agreements with the owners of the identified properties along the route selected by the MN PUC. Once the route has been determined, the Applicant will execute the appropriate purchase agreement." To be accurate, change this language to the following: "Depending on further engineering analysis, the Applicant may seek purchase option agreements on some or all of these candidate sites. Once the final route has been selected by the MN PUC, the Applicant will execute the appropriate purchase agreements."
2	2.11.7.6	37		"Equipment would not be refueled in wetlands. In addition, no petroleum products, herbicides or pesticides or hazardous chemicals of any kind should be mixed or poured or otherwise handled in wetland areas." This should read, "Where practical, equipment would not be refueled in wetlands. In addition, and where practical, no petroleum products, herbicides or pesticides of any kind should be mixed or poured or otherwise handled in wetland areas."
2	2.14	43		"…the Applicant currently estimates that the construction of the proposed Project on the route alternatives or any combination of proposed segment options, including substation facilities, would cost between $495.5 million and $647.7 million (2013 dollars)." Minnesota Power has provided updated cost information. Should say "…would cost between $558 million and $710 million (2013 dollars)."
2	2.15	43	2-14	This section should be amended to state that "…construction could begin as early as fall of 2016; however, the applicant currently anticipates a 2017 start."
3			3rd	"…pending 133 MW Renewable Optimization Agreement." This ROA was approved in MPUC written order dated January 30, 2015 (MPUC Docket No. E015/M-14-960).
3			last	It should be noted here that MN PUC has now granted a CoN for the Project.
4	4.3.1.3			To be consistent with other parts of this chapter, the statement "a need to avoid USFWS land" should say "a need to consider avoiding USFWS" land.
4	4.3.2.5			C2 was developed by Minnesota Power, not commenters.
4	4.3.2.6			C2 was developed by Minnesota Power, not commenters.
4	4.3.3.2			The East Bear Lake variation is supposed to mitigate Bear-Wolf Peatland impacts, but there are no boundaries of this peatland, so it's impossible to know if the alternative mitigates impacts. The EIS should acknowledge this fact.
5	5.2.1.1	78		"…adequate space is generally available to allow the alignment of the transmission line to be adjusted so that no buildings would ultimately be located within the ROW of the proposed Project." This statement should be removed. This is not a true statement for a 500 kV line where the cost and space requirements of turning structures are significantly greater than even a 230 kV line. This line will not weave its way around inside the route to avoid things.

0190-44

0190-44
The text is updated in Section 2.8.1 of the EIS to identify the Applicant filed the required sensitivity studies and other reliability-related reports to DOE on July 24, 2014.

0190-45

0190-46

0190-45
This comment is incorporated into Section 2.9.4 of the EIS.

0190-47

0190-46
This comment is incorporated into Sections 2.1 and 2.9.4 of the EIS.

0190-48

0190-47
This comment is incorporated into Section 2.9.4 of the EIS.

0190-49

0190-48
This comment is incorporated into Section 2.9.5 of the EIS.

0190-50

0190-49
Applicant's Route Permit Application states, "refueling will occur at sites away from wetlands and waters" on pages ES-22, ES-23, 6.17-27, and 6.18-12 and that "refueling of equipment in wetlands will not be permitted" on page 5-12.

0190-51

0190-52

Section 2.11.1.6 of the EIS now states, "As a BMP, equipment would not be refueled in wetlands. In addition, no petroleum products, herbicides or pesticides or hazardous chemicals of any kind should be mixed or poured or otherwise handled in wetland areas."

0190-53
0190-54
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0190-57

0190-58

0190-50
This comment is incorporated into Section 2.14 of the EIS.

0190-51

This comment is incorporated into Section 2.15 and Table 2-4 of the EIS.

0190-52
This comment is incorporated into Chapter 3 of the EIS.

0190-53
Section 1.3.2 states that the certificate of need was granted. The text in Chapter 3 refers to Section 1.3.2.

No changes are made to the EIS in response to this comment.

0190-54
This comment is incorporated into Section 4.3.1.3 of the EIS.

0190-55
Chapter 4 does not mention who developed the C2 alternative.

No changes are made to the EIS in response to this comment.

0190-56
Chapter 4 does not mention who developed the J2 alternative.

No changes are made to the EIS in response to this comment.

0190-57
The Bear-Wolf Peatland *does* have a boundary defined per the preliminary MBS SBS data received from the MnDNR on 12/10/2014. The SBS Site Name is "Bear - Wolf Peatland" and it has a rating of "High." The Proposed East Bear Lake Variation nearly entirely avoids this area. There is also adjacent, to the east, the "Bear Lake Inclusion" site which has a "Below" rating. Both the Proposed Orange Route and East Bear Lake Variation have new impacts through this area.

0190-58

The 3,000 foot route width would allow flexibility to site the transmission line.

5	5.2.1.2	105		Values in second row ("500 kV Transmission Line paralleling existing 500 kV Transmission Line") are incorrect. They appear to have been copied from the previous row ("Standalone"). Correct values are as follows: Within ROW: 52 dBA \\\ At edge of ROW: 52 dBA \\\ At 300 feet from centerline: 51 dBA.
5	5.2.1.2	105		Values in fifth row ("500 kV paralleling two existing 115 kV Transmission Lines") are incorrect. They appear to be the missing values from the second row (see above comment). Correct values are as follows: Within ROW: 51 dBA \\\ At edge of ROW: 48 dBA \\\ At 300 feet from centerline: 43 dBA.
5	5.2.1.2	105		Values in sixth row ("500 kV paralleling existing 115 kV and 230 kV Transmission Lines") are incorrect. Correct values are as follows: Within ROW: 51 dBA \\\ At edge of ROW: 49 dBA \\\ At 300 feet from centerline: 45 dBA.
5	5.2.1.2	105		Footnote (5) should say "Existing 115 kV 20L and 230 kV 83L transmission lines (H-Frame structures)."
5	5.2.1.2	106		"Major noise sources from a series compensation station include capacitor bank, damping circuit, by-pass switches, and protective devices." It is misleading to say that these are "major noise sources" – the only "major noise sources" in a substation are generally transformers & reactors. Most of the time the operation of the listed equipment will be relatively silent, and noise will be below background levels. See a handful of sentences later, where the DEIS states "Most of the other electrical equipment at substations is either silent or generates minimal noise in comparison to transformers."
5	5.2	106		"Based on these assumptions, the predicted noise operational level perceived at 100 feet from the proposed Blackberry 500 kV Substation would be 41 dBA (assuming the use of a substation perimeter wall)." A perimeter wall is not currently planned for the site. Substation security has not yet been addressed in engineering. Firewalls are likely between transformers and possible between reactors. Typical substation construction includes a perimeter fence – not a solid wall.
5	5.2.1.2	106		"The nearest residence is located approximately 560 feet northeast of the proposed Blackberry 500 kV Substation." This may or may not be true if you're measuring from the fence, but a more appropriate way to characterize the distance would be to provide distance from the primary noise source (transformer) to the residence. See MP's RFI response dated April 6, 2015. Nearest residence is 1,120 feet from preliminary transformer location. This also directly contradicts the statement from Appendix H: "No residences have been identified in the vicinity of the substation site." (Page H-5)
5	5.2.1.2	106		"At this location [the nearest residence], noise from the proposed substation would be 26 dBA (assuming the use of a substation perimeter wall)." See MP's RFI response dated April 6, 2015. Expected noise from substation transformers and reactors at this residences is between 44-46 dBA.
5	5.2.1.8	134		"…that there is currently a sufficient labor pool in the ROI to supply the number of construction workers required for the proposed Project." The Project will have significant local economic benefit, but the assumption that labor will be largely supplied from the ROI is likely not correct due to the specialty trades required.
5	5.2.1.9	141		"In addition, hunting activities in close proximity to a transmission line increases the risk for shooting insulators or conductors which can break wires and cause an electrical discharge arc." This statement is not consistent with the stated reference (67) and is not correct. Transmission lines appear to provide hunting opportunities based on the prevalence of hunting blinds on existing rights-of-way. Responsible hunting will not result in shot out insulators because no game species reside on the insulators. Insulators are shot at on occasion, but this should be characterized as a crime and discussed in Section 5.2.2.6 Intentional Destructive Acts.

0190-59

0190-59
This comment is incorporated into Table 5-4 in Section 5.2.1.2 of the EIS.

0190-60

0190-60
0190-61 This comment is incorporated into Table 5-4 in Section 5.2.1.2 of the EIS.

0190-62

0190-63

0190-61
This comment is incorporated into Table 5-4 in Section 5.2.1.2 of the EIS.

0190-64

0190-62
This comment is incorporated into Table 5-4 in Section 5.2.1.2 of the EIS.

0190-63
0190-65 This comment is incorporated into Section 5.2.1.2 of the EIS.

0190-64
This comment is incorporated into Section 5.2 of the EIS.

0190-66

0190-65
This comment is incorporated into Section 5.2.1.2 of the EIS.

0190-67

0190-68
0190-69

0190-66
This comment is incorporated into Section 5.2.1.2 of the EIS.

0190-67
This comment is incorporated into Section 5.2.1.8 of the EIS.

0190-68
Section 5.2.1.9 indicates an "increased risk" of potential damage to insultators or conductors due to accidental shooting during hunting

activities. As you indicate in your comment, insulators are shot at on occasion, this risk of occasional shooting is acknowledged in the literature cited in Section 5.2.1.9.

No changes are made to the EIS in response to this comment.

0190-69
Thank you for your comment. No changes are made to the EIS in response to this comment.

5	5.2.2.1	142		"Based on epidemiological studies, there is an association between childhood leukemia and EMF exposure." This is taken out of context and it is misleading. The studies quoted in Appendix K always say or imply that it is a weak association. At the very least, the same language (weak association) should be used here. "…despite an association between childhood leukemia and EMF exposure…" Suggest modifying: "…despite a weak association between…"
5	5.2.2.1	144	5-21	"Maximum field within ROW" value is incorrect for "500 kV Guyed V- and Self-Supporting towers" under "Proposed 500 kV paralleling existing 230 kV Line" section. Instead of 6.91 kV/m it should be 7.04 kV/m \\\ Instead of 7.02 kV/m it should be 7.04 kV/m \\\ Instead of 6.41 kV/m it should be 6.43 kV/m.
5	5.2.2.1	144	5-21	Footnote (4) should say "Existing 230 kV 907L transmission line (H-Frame structures)."
5	5.2.2.1	144	5-21	Footnote (7) should say "Existing 115 kV 20L and 230 kV 83L transmission lines (H-Frame structures)"
5	5.2.2.1	145	5-22	Title should be "Predicted Magnetic Field Strengths for the Proposed Project at Maximum Continuous Rating."
5	5.2.2.1	145	5-22	Multiple data errors are present in this table. MP will provide the correct data in a similar tabular format so it may be updated. Notes on MP-provided table below: o All data based on "Maximum Continuous Rating" (2000 Amps) o "Maximum within ROW" based on the raw data from the POWER Engineers analysis o "paralleling existing 500 kV Transmission Line" data assumes existing D602F transmission line self-supporting structures o Variations from the data in Table 5-21 of the DEIS are highlighted in a separate document.
5	5.2.2.1	145	5-22	Footnote (1) should say "The Applicant has assumed magnetic fields from Self-Supporting lattice tower as equivalent to magnetic fields from guyed V-structures."
5	5.2.2.1	145	5-22	Footnote (3) should say "Existing 230 kV 907L transmission line (H-Frame structures)."
5	5.2.2.1	145	5-22	Footnote (6) should say "Existing 115 kV 20L and 230 kV 83L transmission lines (H-Frame structures)."
5	5.2.2.1	146		"500 kV D602F transmission line (guyed Delta, guyed V, and self-supporting structures)" The existing 500 kV line was not modeled in a Guyed-V configuration. Suggest modifying as follows: "500 kV D602F transmission line (Guyed Delta and self-supporting structures)."
5	5.2.2.1	146		"230 kV 83L transmission line…" should say "230 kV 907L transmission line…"
5	5.2.2.1	146		"115 kV 28L and 230 kV 83L transmission lines…" should say "115 kV 20L and 230 kV 83L transmission lines…"
5	5.2.2.1	146		"The Applicant has modeled magnetic field levels for the two main operational scenarios that considered the proposed types of structures, and whether the proposed 500 kV transmission line would be installed stand-alone or located in a shared corridor with an existing transmission line. Predicted magnetic fields from a total of six cases were calculated at average and peak current levels. The average levels for these scenarios are the current levels experienced for most hours of the year; peak levels are current levels for limited hours of the year when current levels are projected to be higher due to system loading and electrical generation in the proposed Project area, among other factors." This entire paragraph is misleading. Suggest the following wording (refer to RPA text, Page 6.15-7): "The Applicant has modeled magnetic field levels for two conditions: the maximum continuous rating of the Project, which represents the maximum allowable power flow on the transmission line, and the projected peak loading when the Project is in service, derived from power system modeling of the Project under peak loading conditions. For both conditions, predicted magnetic fields from a total of six corridor scenarios (stand-alone or where the Project may parallel existing transmission lines) were calculated for each of the proposed structure types for the Project."

0190-70

0190-70
This comment is incorporated into Section 5.2.2.1 of the EIS.

0190-71

0190-71
This comment is incorporated into Table 5-21 in Section 5.2.2.1 of the EIS.

0190-72

0190-73

0190-74

0190-72
This comment is incorporated into Table 5-21 in Section 5.2.2.1 of the EIS.

0190-75

0190-73
This comment is incorporated into Table 5-21 in Section 5.2.2.1 of the EIS.

0190-76

0190-77
0190-78

0190-74
This comment is incorporated into Table 5-22 in Section 5.2.2.1 of the EIS.

0190-79

0190-80
0190-81

0190-75
This comment is incorporated into Table 5-22 in Section 5.2.2.1 of the EIS.

0190-82

0190-76
This comment is incorporated into Table 5-22 in Section 5.2.2.1 of the EIS.

0190-77
This comment is incorporated into Table 5-22 in Section 5.2.2.1 of the EIS.

0190-78
This comment is incorporated into Table 5-22 in Section 5.2.2.1 of the EIS.

0190-79
This comment is incorporated into Section 5.2.2.1 of the EIS.

0190-80
This comment is incorporated into Section 5.2.2.1 of the EIS.

0190-81
This comment is incorporated into Section 5.2.2.1 of the EIS.

0190-82
This comment is incorporated into Section 5.2.2.1 of the EIS.

5	5.2.2.8	158		The last paragraph states "The Applicant would use protective devices to safeguard workers and the public from transmission line operational hazards, including the use of shield wires, circuit breakers, and relays." These devices are for the protection of equipment, not necessarily the public.
5	5.3.1.2	163		"This conversion from forest land in state fee areas where timber can no longer be harvested would result in a reduction of revenues to the School Trust Land program." The property taxes paid by the Project would counter-balance any lost timber revenue. In addition, timber revenue from the ROW clearing go to the School Trust Land program as a one time payment.
5	5.3.2.1	168		"For the transmission line itself, the footprint of the structure proposed for the project is 33 square feet." This is not accurate. See Route Permit Application, Page 6-2: "Permanent land cover impacts are assumed to 1,936 square feet per structure for self-supporting suspension towers, which includes the area covered by the base of each structure plus a 2-foot buffer…"
5	5.3.2.1	168		"In addition, stray voltage could affect livestock if facilities are not properly wired/grounded" This is misleading since there are no stray voltage impacts directly from the Project. See previously-provided information on stray voltage: Page 149, Stray Voltage – General Impacts: "Stray voltage impacts are not anticipated as a result of construction, operation, maintenance, and emergency repair of the proposed Project…" \\\ Page 149, Stray Voltage – General Impacts: "Potential impacts related to stray voltage are not expected from construction, operation, maintenance, and emergency repair of the proposed Project for any proposed route or variation considered…"
5	5.3.2.2	169		"In addition, increasing the time between line maintenance in forested areas could result in harvestable products. Finally, elevated spanning, in areas with high elevations, could reduce forest clearing." This is not practical. Utilities must certify vegetative clearance requirements are met annually to insure reliability. These statements are not accurate, and should be deleted.
5	5.3.2.2	169		"As mentioned above, short-term impacts are estimated as 0.92 acres per structure location. Long-term impacts to forestry resources would be caused by the clearing of trees and physical presence of transmission line structures and associated facilities in forest lands. As mentioned above, for the transmission line itself, the footprint of the structure proposed for the project is 33 square feet." The ROW would be cleared of vegetation during construction, not just the structure staging area. The footprint of the self-supporting structure would be 1,936 square feet. The 33 square foot footprint of the foundation system for the Guyed-V structure is irrelevant here.
5	5.3.4.3	185		"Impacts are expected to be extensive in areas where new ROW would be created .." Chapter 6 consistently and accurately describes impacts as minimal in the context of the entire area. This statement should be edited to make it consistent with those other statements.
5	5.3.4.3	185		"Because the structures would be larger and the phase spacing for the proposed project's conductors greater compared to distribution lines, avian electrocutions are unlikely." In light of this statement, electrocutions should not be included in Chapter 6.
5	5.3.7	195		"The existing 500-kV transmission line already has experienced an unexpected outage causing it to be the second largest contingency in the MISO footprint." This is not stated correctly. It would be more accurate to say: "An unexpected outage of the existing 500-kV transmission line is currently the second largest contingency in the MISO footprint."
5	5.3.7	195		"The applicable Category D contingencies are loss of all transmission lines along a common ROW and loss of an entire voltage level at a substation" It would help to add the following clarifying information: "The applicable Category D contingencies from NERC standard TPL-004 are…"
5	5.3.7	195		"(see Section 2.8.5)" This is not a helpful reference as the information in Section 2.8.5 doesn't help understand the NERC standard being discussed.

0190-83

0190-83
This comment refers to text on page 6.5-5 of the Applicant's Route Permit Application.

0190-84

No changes are made to the EIS in response to this comment.

0190-85

0190-84
The property taxes and timber revenue from ROW clearing would offset some of the revenue lost from the School Trust Land program. However, currently there is not enough information to determine the revenue offset.

0190-86

No changes are made to the EIS in response to this comment.

0190-85
This comment is incorporated into Chapters 5 and 6 of the EIS.

0190-87

0190-88

0190-86
Section 5.3.2.1 provides a general overview of typical stray voltage effects in livestock facilities based on publicly available information and then discusses project-specific information to conclude that there would not be stray voltage effects associated with the project at those facilities identified in the ROI.

0190-89

No changes are made to the EIS in response to this comment.

0190-90

0190-87
This comment is incorporated into Section 5.3.2.2 of the EIS.

0190-91

0190-88
This comment is incorporated into Section 5.3.2.2 of the EIS.

0190-92

0190-89

0190-93

Text in Chapter 5 is generally comparing the potential impacts to wildlife from the creation of a new corridor in an unfragmented forest. Impacts are expected to be greater (extensive, i.e. cover a larger area) in an unfragmented forest. Chapter 6 is comparing the

impacts across routes, while incorporating proximity to wildlife resources (i.e. WMAs). In comparing routes, while fragmenting a forest would have extensive (greater area) impacts, those impacts are minimal because there is a significant amount of habitat available.

No changes are made to the EIS in response to this comment.

0190-90
As indicated in this sentence, it is unlikely, not impossible. Text is present in Chapter 6 because it is a "potential" impact.

No changes are made to the EIS in response to this comment.

0190-91
This comment is incorporated into Section 5.3.7 of the EIS.

0190-92
This comment is incorporated into Section 5.3.7 of the EIS.

0190-93
This comment is incorporated into Section 5.3.7 of the EIS.

5	5.3.7	195		"…so the analysis for the proposed Project would be on a case-by-case basis by the Applicant based on NERC standards." This analysis is not based solely on NERC standards. The following qualifying information would be helpful: "…so the analysis for the proposed Project would be on a case-by-case basis by the Applicant based on the applicable NERC standards as well as the purpose and expected performance of the Project and the adjacent transmission line."
5	5.3.7	195		"When the proposed Project parallels an existing transmission line, the Applicant is proposing to offset the proposed transmission line by 50 feet from the ROW of the existing transmission line." This is poorly worded. Suggest the following correction: "When the proposed Project parallels an existing transmission line, the Applicant is proposing to offset the alignment of the proposed transmission line by 250 feet from the alignment of the existing transmission line."
5	5.3.7	195		"…can be reduced by maintaining the proposed 50 foot offset between ROWs…" See above comment. Suggest the following correction: "…can be reduced by maintaining an appropriate offset between the two transmission lines…"
5	5.3.7.2	197		"Therefore, the reliability impacts in the U.S. of an unexpected simultaneous outage of both the proposed and existing 500 kV tie transmission lines…would largely be addressed by these measures in conjunction with the proposed special protections system and corresponding power transfer reductions." MP suggests adding the following qualifying statement to the end of the paragraph: "Even so, the fact that all of these considerations must be discussed as a result of corridor sharing with the existing 500 kV transmission line illustrates that fact that corridor sharing causes real electrical reliability concerns. Therefore, routes and variations that increase the parallel distance or number of crossings with the Project and the existing 500 kV line should be considered to have a negative impact on electrical system reliability.
6	6.4.1.1	534		"Not including residences, the proposed routes and variation would affect similar numbers of aesthetic resources, with the Proposed Blue Route affecting 11, the Proposed Orange Route affecting 12, and the Effie Variation affecting 11." This is inconsistent with a statement elsewhere in the DEIS: "In total, the proposed routes and variation would affect similar numbers of aesthetic resources, with the Proposed Blue Route affecting nine, the Proposed Orange Route affecting 10, and the Effie Variation affecting 11."
6	6.4.3.7	584	ESR	"The configuration may decrease the reliability of the proposed Project…Adverse impacts are possible as a result of the construction and operation of three high-voltage transmission lines under one variation in the East Section." Reliability effects depend on the function and purpose of the lines. In this case, co-locating the Project with the two existing 115 kV lines would pose little to no reliability concern because the Project and the 115 kV lines serve vastly different purposes. See MP's general comments on electrical reliability.
6	6.7.1.2	651		Says could contrast strongly w its surroundings. Has potential to result in significant aesthetic impacts. Could argue that residence is 0.4 miles north – and is already looking at T-line. If substation is on south side of existing and propose route would not "contrast strongly" with surroundings. (another reason to use MP route)
6	6.7.1.2	651		FYI - Says Hwy 71 sites (orange and blue route) are in MBS Bio Sig sites (unknown rank) Blue Hwy 71 alt site isn't in wetland or MBS site..
App H				Please work with MP to update the audible noise information presented in this appendix. Much of it is inaccurate.
App I				All audible noise tables & plots are missing. MP will provide.
App I				All magnetic field tables & plots are missing. MP will provide
App I				Please do not include the memos from POWER in this appendix. The memos included have extra information that is irrelevant to the DEIS and potentially misleading, and not all relevant memos are included. Please remove all memos from POWER to Minnesota Power.

0190-94

0190-94
Thank you for your comment.

No changes are made to the EIS in response to this comment.

0190-95

0190-95
The Applicant provided the shapefiles used in the EIS analysis for their Proposed Blue Route, Proposed Orange Route, C2 Segment Option Variation, and J2 Segment Option Variation. In addition, the Applicant provided a memo with design changes (Decmember 1, 2014) which assumed a 250 foot separation between the anticipated alignments when paralleling existing 500 kV transmission line.

0190-96

0190-97

The shapefiles provided by the Applicant show that where their proposed alternatives parallel the existing 500 kV transmission line, there is a separation of 250 feet between the anticipated alignments. However, in the shapefile, where the proposed alternatives parallel the existing 230 kV transmission lines, the distance between the anticipated alignments is 150 feet. And where the proposed alternatives parallel an existing 115 kV transmission line, there is a separation of 150-300 feet between the anticipated alignments.

0190-98

No changes are made to the EIS in response to this comment.

0190-99

0190-96
This comment is incorporated into Section 5.3.7 of the EIS.

0190-100

0190-97
Thank you for your comment, these concerns will be reduced by maintaining appropriate offsets.

0190-101 No changes are made to the EIS in response to this comment.

0190-102

0190-103

0190-104

0190-105

0190-98
This comment is incorporated into Section 6.4.1.1 of the EIS.

0190-99
The following text is added to Section 2.8.3 of the EIS: According to

the Applicant, the electrical reliability impacts of establishing a parallel transmission line corridor depend primarily on the purpose and expected performance of the transmission lines. None of the alternatives that parallel existing corridors with 69 kV, 115 kV, or 230 kV transmission lines that do not connect Manitoba and the United States would impact electrical system reliability.

If the proposed Project parallels the existing 230 kV tie line corridor the impact of a simultaneous, unexpected outage of the two facilities on electrical reliability would be minimal, but still notable because the lines would share a common purpose of transferring power from Manitoba to the United States. If the Proposed Project parallels the existing 500 kV tie line corridor, a simultaneous unexpected outage would have a greater impact on electrical system reliability because the transmission lines not only share a common load, but would also carry similar (and greater) amounts of power.

If three transmission lines (i.e., the Proposed Project, 500 kV tie line, and 230 kV tie line) are located in parallel corridors, a simultaneous unexpected outage of the Proposed Project and two tie lines could have the greatest impact to electrical reliability.

0190-100
The aesthetic impact of the 500 kV series compensation station is not solely determined based on the nearest residence and the EIS acknowledges that the impact is dependent on the actual location, and therefore the compensation station could contrast strongly with its surroundings.

No changes are made to the EIS in response to this comment.

0190-101
The EIS text is correct - Section 6.7.2.1 states that the Hwy 71 regeneration station (option 1) is located in a wetland (per the NWI shapefile) and within an MBS SBS site (per the preliminary MBS SBS data we received from the MnDNR on 12/10/2014). The Hwy 71 regeneration station (option 2) is not located in a wetland (per the NWI shapefile) and is not located within an MBS SBS site (per the preliminary MBS SBS data we received from the MnDNR on 12/10/2014).

No changes are made to the EIS in response to this comment.

0190-102

Appendix H of the EIS is updated with information provided by the Applicant.

0190-103
Appendix I and Section 5.2.1.2 of the EIS is updated based on the information provided by the Applicant.

0190-104
Appendix I and Section 5.2.1.2 of the EIS is updated based on the information provided by the Applicant.

0190-105
Appendix I and Section 5.2.1.2 of the EIS is updated based on the information provided by the Applicant.

App N				Some of the photo sims (most obviously the Highway 11 crossings) show incorrect structure heights & conductor to ground clearances. These simulations give a highly inaccurate picture of what the Project may look like once it's built. Please work with MP to update these photo sims so they present a fair and accurate depiction of the Project

0190-106

0190-106

This structure heights and conductor to ground clearances used in the photosimulations were provided by the Applicant. Information was reviewed and provided to the Applicant for their consideration. Upon review of the information by the Applicant, they decided that no additional photosimulations or viewshed analysis would be required for the Final EIS. No changes are made to the EIS in response to this comment from the Applicant.

STATE OF MINNESOTA	)	AFFIDAVIT OF SERVICE VIA
	) ss	ELECTRONIC FILING AND
COUNTY OF ST. LOUIS	)	U.S. MAIL

Susan Romans of the City of Duluth, County of St. Louis, State of Minnesota, says that on the **10th** day of **August**, **2015**, she served Minnesota Power's Response to the Great Northern Transmission Line Draft Environmental Impact Statement released on June 19, 2015 in Docket No. E015/TL-14-21 to William Storm of the Department of Commerce and Julie Smith of the Department of Energy, DoE No. EIS-0499, via email and electronic filing. The remaining parties on the attached service list were served as indicated.

Susan Romans

Susan Romans

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Burl W.	Haar	burl.haar@state.mn.us	Public Utilities Commission	Suite 350 121 7th Place East St. Paul, MN 551012147	Electronic Service	Yes	OFF_SL_14-21_Official CC Service List
Linda	Jensen	linda.s.jensen@ag.state.mn.us	Office of the Attorney General-DOC	1800 BRM Tower 445 Minnesota Street St. Paul, MN 551012134	Electronic Service	Yes	OFF_SL_14-21_Official CC Service List
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Travis	Germundson	travis.germundson@state.mn.us		Board of Water & Soil Resources 520 Lafayette Rd Saint Paul, MN 55155	Electronic Service	No	SPL_SL_14-21_Agency Reps 14-21
Brooke	Haworth	Brooke.Haworth@state.mn.us	Department of Natural Resources	500 Lafayette Road Saint Paul, MN 55155	Electronic Service	No	SPL_SL_14-21_Agency Reps 14-21
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Kari	Howe	kari.howe@state.mn.us	DEED	332 Minnesota St, #E200 1ST National Bank Bldg St. Paul, MN 55101	Electronic Service	No	SPL_SL_14-21_Agency Reps 14-21
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Stacy	Kotch	Stacy.Kotch@state.mn.us	MINNESOTA DEPARTMENT OF TRANSPORTATION	395 John Ireland Blvd. St. Paul, MN 55155	Electronic Service	No	SPL_SL_14-21_Agency Reps 14-21
Debra	Moynihan	debra.moynihan@state.mn.us	MN Department of Transportation	395 John Ireland Blvd MS 620 St. Paul, MN 55155-1899	Electronic Service	No	SPL_SL_14-21_Agency Reps 14-21
Bob	Patton	bob.patton@state.mn.us	MN Department of Agriculture	625 Robert St N Saint Paul, MN 55155-2538	Electronic Service	No	SPL_SL_14-21_Agency Reps 14-21

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
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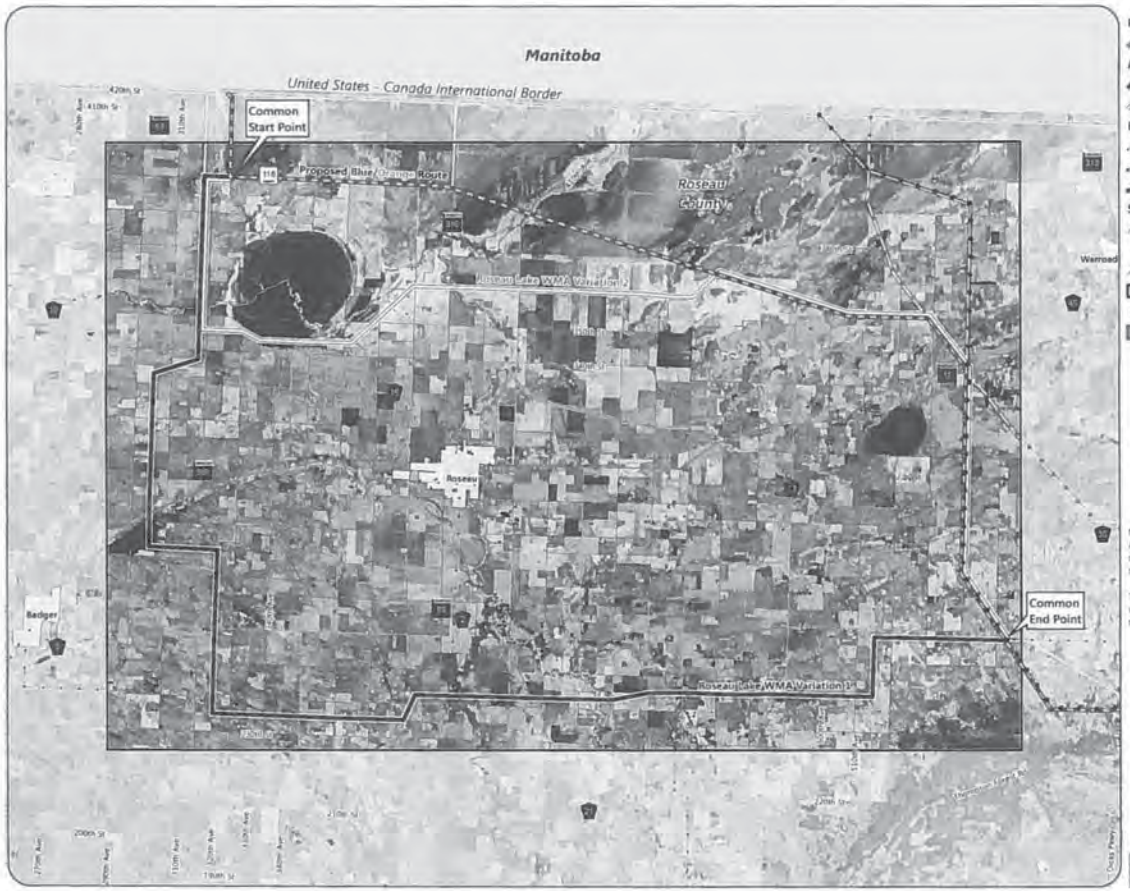
Michele	Ross	michele.ross@state.mn.us	Department of Health	625 N Robert St Saint Paul, MN 55101	Electronic Service	No	SPL_SL_14-21_Agency Reps 14-21
Jamie	Schrenzel	jamie.schrenzel@state.mn.us	Minnesota Department of Natural Resources	500 Lafayette Road Saint Paul, MN 55155	Electronic Service	No	SPL_SL_14-21_Agency Reps 14-21
David	Seykora	dave.seykora@state.mn.us	MN Department of Transportation	395 John Ireland Boulevard Mail Stop 130 St. Paul, MN 55155-1899	Electronic Service	No	SPL_SL_14-21_Agency Reps 14-21
Bruce	West	Bruce.West@state.mn.us	Department of Public Safety	Box 145 444 Cedar Street St. Paul, MN 55151	Electronic Service	No	SPL_SL_14-21_Agency Reps 14-21
Jonathan	Wolfgram	Jonathan.Wolfgram@state.mn.us	Department of Public Safety	445 Minnesota Street Suite 147 St. Paul, MN 55101-1547	Electronic Service	No	SPL_SL_14-21_Agency Reps 14-21

0191-1
The relative merits table provided by the Applicant used different methodology than the relative merit tables in the EIS and is included in the comment appendix of the EIS. However, additional information is included in the Final EIS to introduce the relative merit tables and the relative merits tables are updated throughout the Final EIS. Appendix X includes detailed spreadsheets with the data used to compile the summary relative merits tables for the Final EIS.

Color	Definition
Green	The alternative will have minimal effects on the resource with the implementation of best management practices, such that no mitigation is required.
Yellow	The alternative will have minimal to moderate effects on the resource with the implementation of best management practices, such that mitigation is likely to be required.
	The alternative will have moderate or greater effects on the resource, and those effects cannot be mitigated.
Some routing factors that are not susceptible to the minimal-moderate-unmitigable system described above. In such cases, Minnesota Power's tables assign colors in the following manner:	
Corridor Sharing	Green means greater than 90% of the Route or Variation parallels an existing transmission line; yellow means between 10% and 90% of the Route or Variation parallels existing transmission lines; and red means less than 10% of the Route or Variation parallels an existing transmission line.
Costs	Green represents the costs proposed in Minnesota Power's Certificate of Need application for a particular route segment, or anything less expensive. Yellow represents anything that costs up to 20% more than Minnesota Power's proposed costs. Red represents anything that costs more than 20% of what Minnesota Power proposed, because anything in excess of that threshold.
Electrical System Reliability	For electrical system reliability; green means no identifiable impact (does not parallel or cross any existing Manitoba-Minnesota tie lines); yellow means acceptable impact (impacts to electrical system reliability are moderate and acceptable); red means: unacceptable impact (impacts to electrical system reliability are sever and unacceptable). These judgments are based on the expertise of Minnesota Power's engineers, and are further discussed in the company's comments on the DEIS.

Factor	Element	Footnote
General		Unless otherwise stated below, the ROIs discussed in Chapters 5 and 6 of the DEIS are used in these comparison tables. Consistent with its comments on the DEIS, Minnesota Power has used alternative ROIs and/or other metrics for assessing effects, as described below, and as further explained in its DEIS comments. Minnesota Power does not have access to the exact methodology or data used in the DEIS. As a result, Minnesota Power compiled these tables by copying and, when necessary or appropriate, interpreting the data used in Chapter 6 of the DEIS.
Human Settlement	Aesthetics	Minnesota Power did not include state forests in its calculation of aesthetic effects. The DEIS already addresses public recreation opportunities within state forests by including trails, campgrounds, and water access points in its list of aesthetic resources. Adding state forests to the list essentially double-counts these public recreational opportunities, while ignoring the fact that the vast state forests in the project area are rarely used as recreational areas.
	Land Use Compatibility	The dominant land cover type is presented in the table to highlight the most abundant resource within the Route/Alternative.
	Land Ownership	
	Public	All public lands are added together for this comparison. Public lands include Federal, State, and County lands.
	Private	Private land is calculated by subtracting public lands from the total number of acres within the ROW for a particular Route/Alternative. A more accurate count of acres of private land and number of private landowners crossed could be made by using County Tax Assessor parcel data.
Land-Based Economies	Agriculture	Acres of agricultural land within 1,500 feet is used for this comparison to account for effects on agricultural land and practices that would likely occur beyond just the 200-foot ROW. GAP Landcover data was used to determine acres of agriculture because prime farmland soils are less accurate in identifying actual agricultural land uses.
	Forestry	Only acres of State Forest land within the ROW is used for these comparisons. It should be noted that corporate lands (such as Blandin) could also be included to the extent they are available.
	Mining & Mineral Leases	There are several occurrences where the acres of mining and mineral leases exceed the total number of acres within the ROW of a particular Route/Alternative. These numbers are highlighted in red in the tables. Minnesota Power is unsure about the source of this error and has not attempted to correct it.
Rare and Unique Natural Resources	Rare Species	Minnesota Power removed aquatic species from this calculation in light of the Chapter 6 text (for each Variation Area) consistently stating that PWI, non-PWI, trout, and impaired streams will be spanned and no structures will be placed within the waterbodies.
	Rare Communities	Acres of MBS Sites of Biodiversity and MBS Native Plant Communities include only the "high" or "outstanding" values where the data has been finalized. In other areas, the preliminary total of all ranks is used.
Corridor Sharing	Paralleling Existing Infrastructure	Minnesota Power included only existing high-voltage transmission lines in this analysis because they are the only corridor sharing opportunities that would potentially provide any environmental benefit.
Electrical System Reliability		This assessment of the electrical system reliability impacts of each of the Routes and Variations performed by Minnesota Power's engineers takes into account specifically the locations where the proposed line parallels or crosses existing Manitoba – Minnesota tie lines. For the particular case of the GNTL Project, no other common corridor or line crossing scenarios involving 69 kV, 115 kV, or 230 kV lines that do not connect Manitoba and the United States has any significant impact on electrical system reliability, regardless of how many transmission lines are involved.



Proposed Routes
- Blue/Orange Route

Alternatives
- Roseau Lake WMA Variation 1
- Roseau Lake WMA Variation 2

Existing Transmission Lines
- 69 or 115 kV
- 230 kV
- 500 kV

Streets and Highways
- State Trunk Highway
- County State Aid Highway
- Local Road
- Variation Area
- Municipal Boundary
- International Boundary

Note:
Anticipated alignments are shown offset for display purposes only. Please refer to more detailed maps for precise alignment placement.

The Applicant will be issued a Route Permit with a specific route width. The proposed route widths are shown in Appendix S.

Miles
2.5 0 2.5

Map 4-4

ROSEAU LAKE WMA VARIATION AREA
Great Northern Transmission Line
Draft Environmental Impact Statement

Relative Merits			Roseau Lake WMA Variations						
Factor	Element	ROI	Proposed Blue / Orange Route (30.7 miles)		Roseau Lake WMA Variation 1 (44.1 miles)		Roseau Lake WMA Variation 2 (37.5 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
Human Settlement	**Aesthetics**								
	Residences	1,500 feet	12	-	50	-	23	-	Roseau Lake WMA Variation 1 could potentially impact more than four times as many residences as the Blue/Orange Route.
	Historic Architectural Sites	5,280 feet	0	-	1	-	2	-	The Blue/Orange Route would not impact any known architectural sites within 5,280.
	State Scenic Byways	1,500 feet	1	-	1	-	1	-	All Alternatives would cross State Highway 11 - Waters of the Dancing Sky Scenic Byway.
	Trails		1	-	1	-	1	-	All Alternatives would cross one snowmobile trail.
	Land Use Compatibility								
	Dominant Land Cover Type	1,500 feet	7,350 ac of Forested and/or Swamp	64.9%	12,616 ac of Agricultural Land	78.2%	8,783 ac of Agricultural Land	63.8%	The Blue/Orange Route's major land cover type is Forested and/or Swamp which would result in a long-term change in land use for areas currently forested and/or swamp land, but these changes would be limited in extent, and there would still be extensive forest and swamp lands in the surrounding area; so these changes are expected to have a minimal impact on land use (pg. 272). The Variations' major land cover type is Agriculture.
	Land Ownership	200 feet	744 acres total		1,069 acres total		909 acres total		The Blue/Orange Route contains more acres of public land but would potentially impact the fewest private landowners.
	Public		453	60.9%	6	0.6%	145	15.9%	
	Private		291	39.1%	1,063	99.4%	764	84.0%	
Land-Based Economies	Agriculture	1,500 feet	3,364	29.7%	12,616	78.2%	8,783	63.8%	Variation 1 would potentially impact four times as many acres of agricultural land than the Blue/Orange Route.
	Forestry	200 feet	334	44.9%	6	0.6%	52	5.7%	The Blue/Orange Route contains more acres of State Forest land.
	Mining & Mineral Leases		0	0.0%	0	0.0%	0	0.0%	No Alternatives would impact any mining or mineral leases.
Archaeology and Historic Architectural Resources	Historic Architectural Sites	5,280 feet	0	-	1	-	2	-	The Blue/Orange Route would not impact any known architectural sites within 5,280 nor would it impact any known archaeological sites within 1,500 feet.
	Archaeological Sites	1,500 feet	0	-	3	-	3	-	
Water Resources	PWI Waters	Crossings or 200 feet	2	-	10	-	3	-	All Alternatives would cross a number of waterbodies; however, it is anticipated that these crossings are spannable (crossings would be less than the average spanning length of 1,250 feet) and structures would not be placed in them.
	Non-PWI Waters		23	-	38	-	33	-	
	Impaired Waters		1	-	2	-	2	-	
	Floodplains		321	43.1%	202	18.9%	307	33.8%	All Alternatives contain a similar number of acres of FEMA-designated floodplains and all will require structure placement within floodplains.

Relative Merits			Roseau Lake WMA Variations						
Factor	Element	ROI	Proposed Blue / Orange Route (30.7 miles)		Roseau Lake WMA Variation 1 (44.1 miles)		Roseau Lake WMA Variation 2 (37.5 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
	NWI Wetlands		547	73.5%	102	9.5%	272	29.9%	The Blue/Orange Route would potentially impact twice as many acres of NWI-mapped wetlands as Variation 2. While direct, adverse impacts to forested and shrub wetlands are permanent and may change wetland functions within the ROW, they are expected to be minimal because of the amount of surrounding forested and shrub wetlands in the region (pg. 279).
Vegetation	North American Boreal Flooded & Swamp Forest	200 feet	388	52.1%	61	5.7%	165	18.1%	The Blue/Orange Route contains a greater amount of forest land; the two Variations contain a greater amount of herbaceous agricultural vegetative cover. While direct, adverse impacts to forested areas would be long-term, contiguous forest is abundant in the region surrounding the Project (pg. 280).
	North American Boreal Forest		73	9.8%	30	2.8%	57	6.3%	
	Herbaceous Agricultural		196	26.3%	866	81.0%	531	58.4%	
	Other		87	11.7%	112	10.5%	156	17.2%	
Wildlife	WMAs	200 feet	69	9.3%	0	0.0%	44	4.8%	The Blue/Orange Route and Variation 2 contain similar acres of WMA. Variation 2 contains the most acres of Grassland Bird Conservation Areas; however, ongoing vegetation management of the ROW in early successional vegetative state, would be compatible with grassland bird species' habitat requirements (pg. 282).
	Grassland Bird Conservation Areas		131	17.6%	40	3.7%	220	24.2%	
Rare and Unique Natural Resources	Rare Species	1 mile (aquatic species not included)	7	-	2	-	3	-	The Blue/Orange Route is located within one mile of seven documented rare species. Surveys will be performed on the final 200-foot ROW to determine if any of these species are present within the permitted ROW. Any indirect impacts to rare species from the proposed Project are expected to be minimal because of the amount of surrounding forested habitat and woody vegetation. Through the use of Applicant proposed avoidance and minimization measures, direct impacts to rare species are not expected (pg. 284).
	State Rare Communities	200 feet							
	MBS Sites of Biodiversity		107	14.4%	7	0.7%	77	8.5%	The Blue/Orange Route contains more acres of MBS Sites of Biodiversity, HCVF, and MBS Native Plant communities.
	High Conservation Value Forest		22	3.0%	6	0.6%	6	0.7%	
	MBS Native Plant Communities		39	5.2%	0	0.0%	22	2.4%	
Corridor Sharing	Paralleling Existing Infrastructure	-	-	33.0%	-		-	27.0%	The Blue/Orange Route parallels existing transmission lines for approximately 1/3rd of its length.

Relative Merits			Roseau Lake WMA Variations						
Factor	Element	ROI	Proposed Blue / Orange Route (30.7 miles)		Roseau Lake WMA Variation 1 (44.1 miles)		Roseau Lake WMA Variation 2 (37.5 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
Electrical System Reliability		-		-		-		-	The Blue/Orange Route and Variation 2 both parallel one existing Manitoba – Minnesota tie line for part of their length, while Variation 1 does not parallel any existing Manitoba – Minnesota tie lines.
Cost	Total Cost	-	$33,247,089	-		-		-	Variation 1 would cost the most to construct.

Proposed Regeneration Site

Proposed Routes

Blue/Orange Route

Alternatives

Cedar Bend WMA Variation

Hop 1

Hop 2

Hop3

Proposed Series Compensation Station

Wildlife Managment Area

USFWS Interest Land

Existing Transmission Lines

69 or 115 kV

230 kV

500 kV

Streets and Highways

State Trunk Highway

County State Aid Highway

Local Road

Variation Area

Municipal Boundary

County Boundary

Note:
Anticipated alignments are shown offset for display purposes only. Please refer to more detailed maps for precise alignment placement.

The Applicant will be issued a Route Permit with a specific route width. The proposed route widths are shown in Appendix 5.

Miles

1.5 0 1.5

Map 4-5

CEDAR BEND WMA VARIATION AREA

Great Northern Transmission Line
Draft Environmental Impact Statement

U.S. DEPARTMENT OF ENERGY

MINNESOTA DEPARTMENT OF COMMERCE

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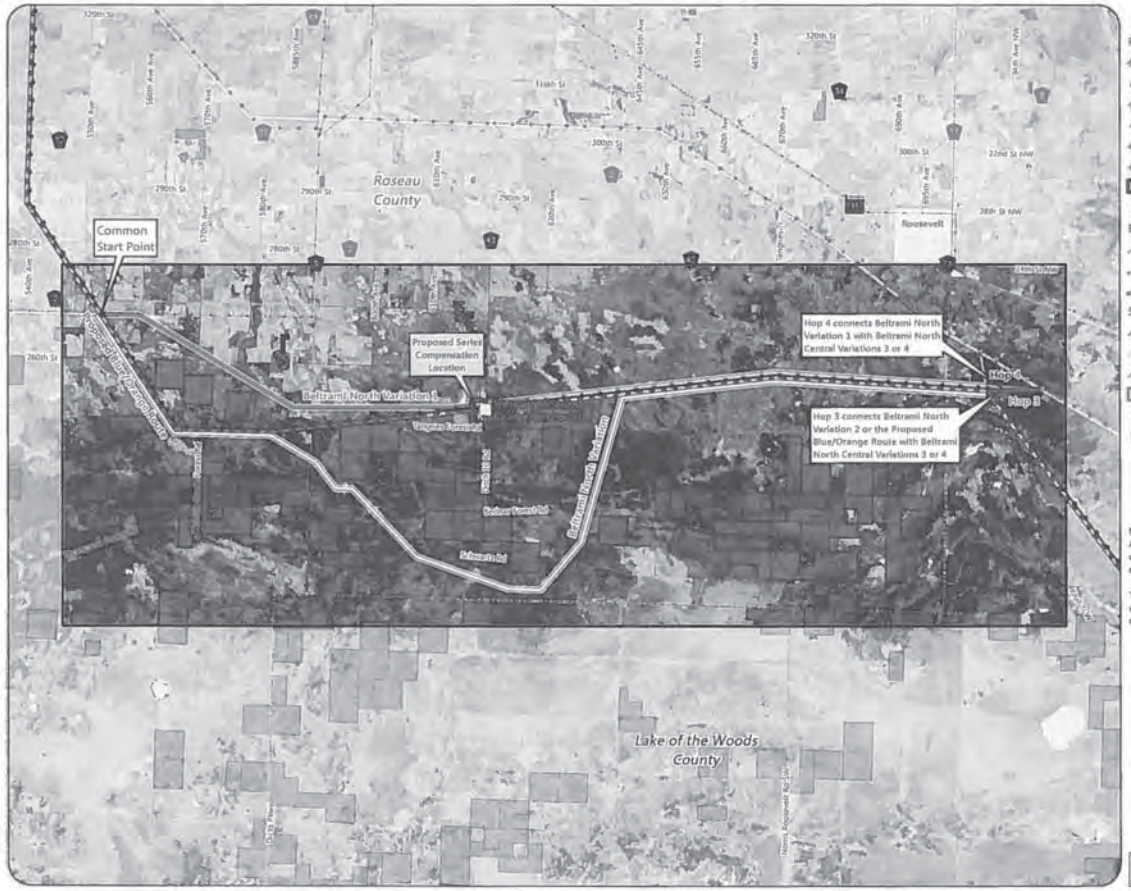
Relative Merits			Cedar Bend WMA Variation				
Factor	Element	ROI	Proposed Blue / Orange Route (24.7 miles)		Cedar Bend WMA Variation (19.6 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
Human Settlement	**Aesthetics**						
	Residences	1,500 feet (within ROW)	11 (0)	-		-	The Cedar Bend WMA Variation would potentially impact ten times as many residences as the Blue/Orange Route and contains 4 homes within the ROW.
	Historic Architectural Sites	5,280 feet	0	-	8	-	The Cedar Bend WMA Variation has a higher potential to impact eight known architectural sites within 5,280 feet; however, the permitted Route width will be less than 5,280 feet so some sites may not be impacted.
	State Scenic Byways	1,500 feet	1	-	1	-	Both Alternatives would cross State Highway 11 - Waters of the Dancing Sky Scenic Byway. Both Alternatives would cross the scenic byway adjacent to existing transmission lines of similar design.
	Trails		2	-	2	-	Both Alternatives would cross two snowmobile trails.
	Land Use Compatibility						
	Dominant Land Cover Type	1,500 feet	8,045 ac	88.1%	4,180 ac	57.3%	Both Alternatives' major land cover type is Forested and/or Swamp. Both Alternatives would result in a long-term change in land use for areas currently forested and/or swamp land, but these changes would be limited in extent, and there would still be extensive forest and swamp lands in the surrounding area; so these changes are expected to have a minimal impact on land use (pg. 291).
	Land Ownership	200 feet	599 acres total		475 acres total		The Blue/Orange Route contains more than five times as many acres of public land; however, it would potentially impact the fewest private land owners.
	Public		447	74.6%	84	17.7%	
	Private		152	25.4%	391	82.3%	
Land-Based Economies	Agriculture	1,500 feet	844	9.2%	2,625	36.0%	The Cedar Bend WMA Variation would potentially impact three times as many acres of agricultural land than the Blue/Orange Route.
	Forestry	200 feet	372	62.1%	78	16.4%	The Blue/Orange Route contains more than four times as many acres of State Forest land than the Variation.
	Mining & Mineral Leases		97	16.2%	0	0.0%	The Blue/Orange Route would potentially impact more mining and mineral lease lands.
Archaeology and Historic Architectural Resources	Historic Architectural Sites	5,280 feet	0	-	8	-	The Cedar Bend WMA Variation has a higher potential to impact eight known architectural sites within 5,280 feet; however, the permitted Route width will be less than 5,280 feet so some sites may not be impacted. The Cedar Bend WMA Variation also has a higher potential to impact two known archaeological sites within 1,500 feet.
	Archaeological Sites	1,500 feet	0	-	2	-	
	PWI Waters		4	-	5	-	Both Alternatives would cross a number of waterbodies, however, it is anticipated that these crossings are spannable (crossings would be less than the average spanning length of 1,250 feet) and structures would not be placed in them.
	Non-PWI Waters		12	-	11	-	
	Impaired Waters		2	-	3	-	

Relative Merits			Cedar Bend WMA Variation				
Factor	Element	ROI	Proposed Blue / Orange Route (24.7 miles)		Cedar Bend WMA Variation (19.6 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
Water Resources	Floodplains	Crossings or 200 feet	0	0.0%	32	6.7%	The Cedar Bend WMA Variation would potentially impact a FEMA-designated floodplain as it would require construction and placement of transmission structures within Zone A of two floodplain areas. Impacts to floodplains are expected to be minimal (pg. 298).
	NWI Wetlands		466	77.8%	154	32.4%	The Blue/Orange Route would potentially impact three times as many acres of NWI-mapped wetlands and the Cedar Bend WMA Variation. While direct, adverse impacts to forested and shrub wetlands are permanent and may change wetland functions within the ROW, they are expected to be minimal because of the amount of surrounding forested and shrub wetlands in the region (pg. 299).
Vegetation	Boreal Flooded & Swamp Forest	200 feet	338	56.4%	117	24.6%	The Blue/Orange Route contains a greater amount of forest land and Cedar Bend Variation contains a greater amount of agricultural land. While direct, adverse impacts to forested areas would be long-term, contiguous forest is abundant in the region surrounding the Project (pg. 300).
	Boreal Forest		110	18.4%	57	12.0%	
	Cool Temperate Forest		37	6.2%	28	5.9%	
	Eastern Flooded & Swamp Forest		58	9.7%	64	13.5%	
	Herbaceous Agricultural		41	6.8%	186	39.1%	
	Other		15	2.5%	23	4.8%	
Wildlife	WMAs	200 feet	44	7.3%	0	0.0%	The Blue/Orange Route contains more acres of WMA and crosses one DNR shallow lake. Both Alternatives contain similar amounts of Grassland Bird Conservation Areas; however, ongoing vegetation management of the ROW in early successional vegetative state, would be compatible with grassland bird species' habitat requirements (pg. 302).
	Shallow Lakes		1	0.2%	0	0.0%	
	Grassland Bird Conservation Areas		50	8.4%	10	2.1%	
Rare and Unique Natural Resources	Rare Species	1 mile (aquatic species not included)	2	-	0	-	The Blue/Orange Route is located within one mile of two documented vascular plants. Surveys will be performed on the final 200-foot ROW to determine if any of these species are present within the permitted ROW. Any indirect impacts to rare species from the proposed Project are expected to be minimal because of the amount of surrounding forested habitat and woody vegetation. Through use of Applicant proposed avoidance and minimization measures, direct impacts to rare species are not expected (pg. 304).
	State Rare Communities	200 feet					
	MBS Sites of Biodiversity		43	7.2%	0	0.0%	The Blue/Orange Route contains the most MBS Sites of Biodiversity, HCVF, and MBS Native Plant Communities.
	High Conservation Value Forest		8	1.3%	0	0.0%	

Relative Merits			Cedar Bend WMA Variation				
Factor	Element	ROI	Proposed Blue / Orange Route (24.7 miles)		Cedar Bend WMA Variation (19.6 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
	MBS Native Plant Communities		22	3.7%	0	0.0%	
Corridor Sharing	Paralleling Existing Infrastructure	-	-	100.0%	-	100.0%	Both Alternatives parallel existing transmission lines for 100% of their lengths.
Electrical System Reliability		-		-		-	Both Alternatives parallel one existing Manitoba – Minnesota tie line for their entire length, but the Cedar Bend WMA Variation would establish two new crossings of the existing 500 kV tie line that are not necessary for the Blue/Orange Route and is also routed unacceptably close to at least two existing transmission substations.
Cost	Total Cost	-	$27,197,850	-	$23,202,312	-	The Blue/Orange Route would cost the most to construct. *Cost for the Cedar Bend WMA have been updated since the initial data request.*



Proposed Regeneration Site

Proposed Routes

Blue/Orange Route

Alternatives

Beltrami North Variation 1

Beltrami North Variation 2

Hop 3

Hop 4

Proposed Series Compensation Station

USFWS Interest Land

Existing Transmission Lines

69 or 115 kV

230 kV

500 kV

Streets and Highways

State Trunk Highway

County State Aid Highway

Local Road

Variation Area

Municipal Boundary

County Boundary

Note:
Anticipated alignments are shown offset for display purposes only. Please refer to more detailed maps for precise alignment placement.

The Applicant will be issued a Route Permit with a specific route width. The proposed route widths are shown in Appendix S.

Miles

1.5 0 1.5

Map 4-6

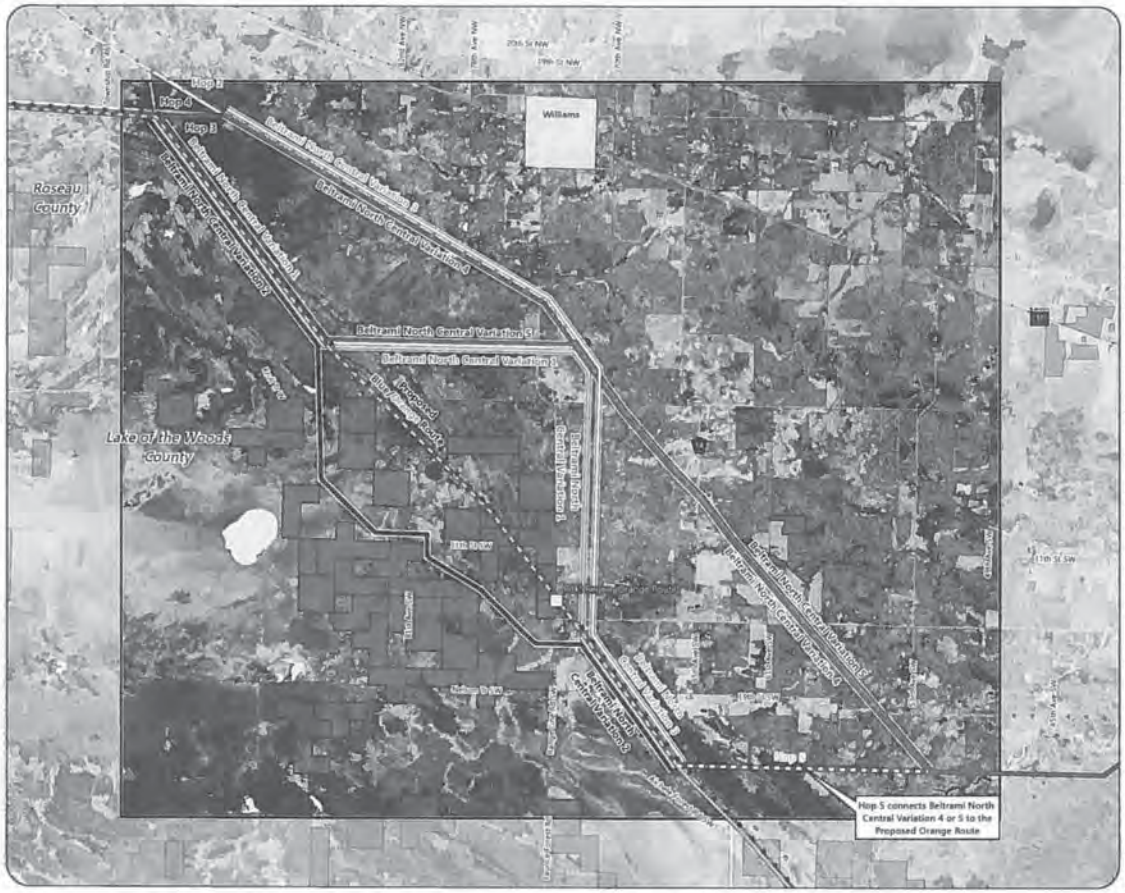
BELTRAMI NORTH VARIATION AREA

Great Northern Transmission Line
Draft Environmental Impact Statement

Relative Merits			Beltrami North Variations						
Factor	Element	ROI	Proposed Blue / Orange Route (16.5 miles)		Beltrami North Variation 1 (15.8 miles)		Beltrami North Variation 2 (19.7 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
Human Settlement	**Aesthetics**								
	Residences	1,500 feet	3	-	6	-	1	-	Variation 1 would potentially impact more residences than the other Alternatives.
	Historic Architectural Sites	5,280 feet	0	-	0	-	2	-	Variation 2 has a higher potential to impact 2 known architectural sites within 5,280 feet; however, the permitted Route width will be less than 5,280 feet so some sites may not be impacted.
	Trails	1,500 feet	2	-	2	-	2	-	All Alternatives would cross two snowmobile trails.
	Land Use Compatibility								
	Dominant Land Cover Type	1,500 feet	5,961 ac	97.0%	5,391 ac	91.4%	7,190 ac	98.5%	All Alternatives' major land cover type is Forested and/or Swamp. All Alternatives would result in a long-term change in land use for areas currently forested and/or swamp land, but these changes would be limited in extent, and there would still be extensive forest and swamp lands in the surrounding area; so these changes are expected to have a minimal impact on land use (pg. 311).
	Land Ownership	200 feet	400 acres total		383 acres total		478 acres total		Variation 2 contains more acres of public land than the other Alternatives and the fewest acres of private land.
	Public		372	93.0%	297	77.5%	462	96.7%	
	Private		28	7.0%	86	22.5%	16	3.4%	
Land-Based Economies	Agriculture	1,500 feet	84	1.4%	358	6.1%	22	0.3%	Variation 1 would potentially impact four times as many acres of agricultural land than the Blue/Orange Route.
	Forestry	200 feet	372	93.0%	291	76.0%	462	96.7%	Variation 2 contains the most acres of State Forest; Variation 1 contains the fewest.
	Mining & Mineral Leases		97	24.3%	97	25.3%	152	31.8%	Variation 2 would potentially impact more mining and mineral lease lands than the Blue/Orange Route and Variation 1.
Archaeology and Historic Architectural Resources	Historic Architectural Sites	5,280 feet	0	-	0	-	2	-	Variation 2 has a higher potential to impact two known architectural sites within 5,280 feet; however, the permitted Route width will be less than 5,280 feet so some sites may not be impacted. Variation 2 also has a higher potential to impact two known archaeological sites within 1,500 feet.
	Archaeological Sites	1,500 feet	0	-	0	-	2	-	
Water Resources	PWI Waters	Crossings or 200 feet	4	-	9	-	3	-	All Alternatives would cross a number of waterbodies; however, it is anticipated that these crossings are spannable (crossings would be less than the average spanning length of 1,250 feet) and structures would not be placed in them.
	Non-PWI Waters		7	-	4	-	12	-	
	Impaired Waters		2	-	6	-	2	-	
	Floodplains		0	0.0%		0.0%	0	0.0%	No Alternatives would impact FEMA-designated floodplains.
	NWI Wetlands		323	80.8%	294	76.8%	391	81.9%	All Alternatives would potentially impact a similar amount of NWI-mapped wetlands. While direct, adverse impacts to forested and shrub wetlands are permanent and may change wetland functions within the ROW, they are expected to be minimal because of the amount of surrounding forested and shrub wetlands in the region (pg. 316).

Relative Merits			Beltrami North Variations						
Factor	Element	ROI	Proposed Blue / Orange Route (16.5 miles)		Beltrami North Variation 1 (15.8 miles)		Beltrami North Variation 2 (19.7 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
Vegetation	North American Boreal Flooded & Swamp Forest	200 feet	242	60.5%	221	57.7%	300	62.8%	All Alternatives would potentially impact a similar amount of forested land. While direct, adverse impacts to forested areas would be long-term, contiguous forest is abundant in the region surrounding the Project (pg. 318).
	North American Boreal Forest		94	23.5%	84	21.9%	117	24.5%	
	Eastern North American Cool Temperate Forest		27	6.8%	24	6.3%	21	4.4%	
	Eastern North American Flooded & Swamp Forest		26	6.5%	38	9.9%	35	7.3%	
	Other		11	2.8%	54	14.1%	40	8.4%	
Wildlife	Shallow Lakes	200 feet	1	-	0	-	1	-	Variation 2 contains more acres of land designated as an Important Bird Area and the Blue/Orange Route and Variation 2 both cross one DNR Shallow Lake. Short-term indirect impacts are expected to be minimal because of the large amount of similar habitat in the surrounding region, and the long-term direct impacts are expected to be minimized through use of Applicant-proposed minimization measures (Section 2.13) (pg. 319).
	Important Bird Areas		0	0.0%	0	0.0%	23	4.8%	
Rare and Unique Natural Resources	Rare Species	1 mile (aquatic species not included)	2		1	-	7	-	Variation 2 is located within one mile of seven documented vascular plants. Surveys will be performed on the final 200-foot ROW to determine if any of these species are present within the permitted ROW. Any indirect impacts to rare species from the proposed Project are expected to be minimal because of the amount of surrounding forested habitat and woody vegetation. Through use of Applicant proposed avoidance and minimization measures, direct impacts to rare species are not expected (pg. 322).
	State Rare Communities	200 feet							
	MBS Sites of Biodiversity		0	0.0%	6	1.6%	30	6.3%	Variation 2 contains the most amount of MBS Sites of Biodiversity, Blue/Orange has the fewest. All Alternatives contain relatively few or no acres of HCVF and MBS Native Plant Communities.
	High Conservation Value Forest		8	2.0%	0	0.0%	8	1.7%	
	MBS Native Plant Communities		0	0.0%	0	0.0%	8	1.7%	

Relative Merits			Beltrami North Variations						
Factor	Element	ROI	Proposed Blue / Orange Route (16.5 miles)		Beltrami North Variation 1 (15.8 miles)		Beltrami North Variation 2 (19.7 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
Corridor Sharing	Paralleling Existing Infrastructure	-	-	100.0%	-	72.0%	-	53.0%	The Blue/Orange Route parallels existing transmission lines for 100% of its length; Variation 1 for 72%; and Variation 2 for 53%. All three Alternatives share a similar corridor for most of their lengths; when that similar corridor is removed from consideration; Variation 2 would not parallel any existing transmission lines.
Electrical System Reliability		-		-		-		-	All Alternatives all parallel one existing Manitoba – Minnesota tie line for a significant part of their length.
Cost	Total Cost	-	$18,984,370	-	$19,591,668	-		-	Variation 2 would cost the most to construct. *Cost for Variation 1 have been updated since the initial data request.*



Proposed Regeneration Site

Proposed Routes

- Blue/Orange Route
- Blue Route
- Orange Route

Alternatives

- Beltrami North Central Variation 1
- Beltrami North Central Variation 2
- Beltrami North Central Variation 3
- Beltrami North Central Variation 4
- Beltrami North Central Variation 5
- Hop 2
- Hop 3
- Hop 4
- Hop 5
- USFWS Interest Land

Existing Transmission Lines

- 69 or 115 kV
- 230 kV
- 500 kV

Streets and Highways

- State Trunk Highway
- County State Aid Highway
- Local Road
- Variation Area
- Municipal Boundary
- County Boundary

Note
Anticipated alignments are shown offset for display purposes only. Please refer to more detailed maps for precise alignment placement.

The Applicant will be issued a Route Permit with a specific route width. The proposed route widths are shown in Appendix S.

Miles
1.2 0 1.2

Map 4-7

BELTRAMI NORTH CENTRAL VARIATION AREA

Great Northern Transmission Line
Draft Environmental Impact Statement

U.S. DEPARTMENT OF ENERGY | COMMERCE

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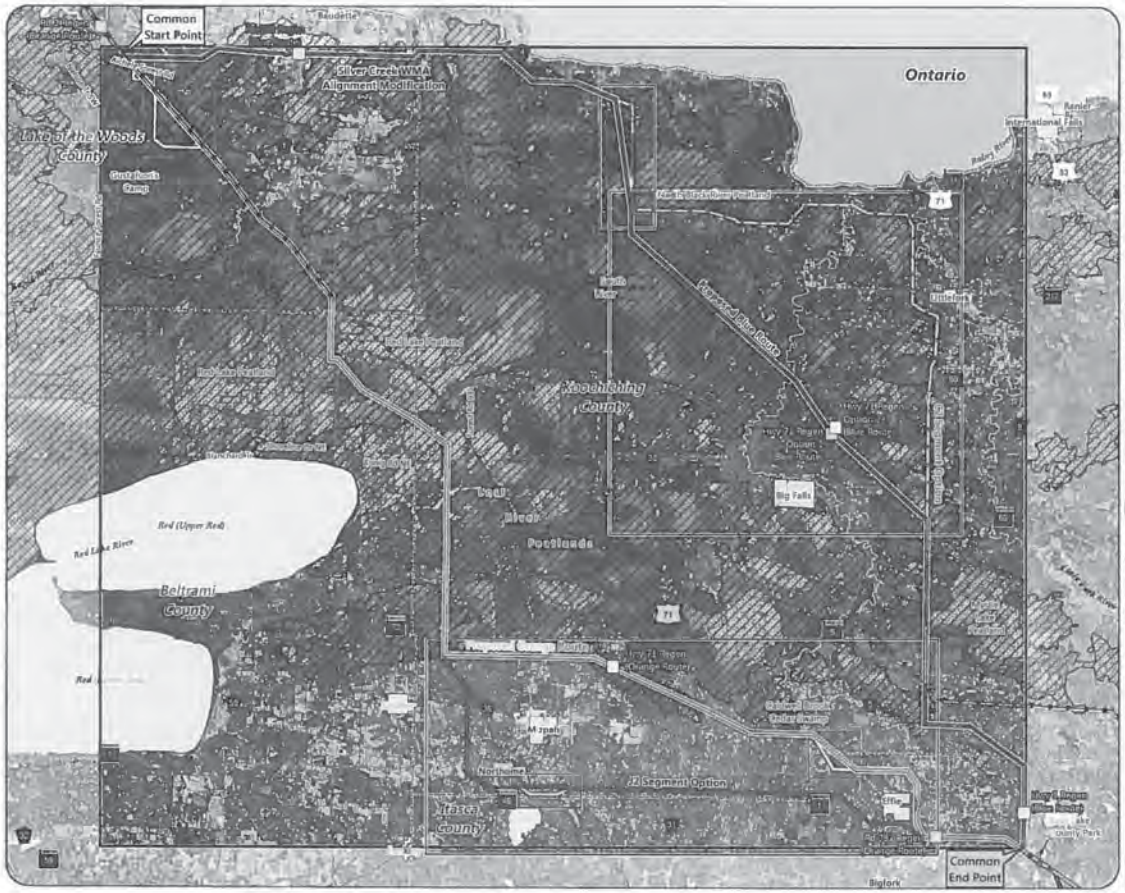
Relative Merits			Beltrami North Central Variations												
Factor	Element	ROI	Proposed Blue / Orange Route (11.6 miles)		Beltrami North Central Variation 1 (13.7 miles)		Beltrami North Central Variation 2 (12.6 miles)		Beltrami North Central Variation 3 (12.2 miles)		Beltrami North Central Variation 4 (13.5 miles)		Beltrami North Central Variation 5 (15.0 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
Human Settlement	**Aesthetics**														
	Residences	1,500 feet	3	-	2	-	2	-	4	-	10	-	8	-	Beltrami North Variation 4 would potentially impact the most residences within 1,500 feet.
	Historic Architectural Sites	5,280 feet	0	-	0	-	0	-	0	-	1		1	-	Variations 4 and 5 have a potential to impact one known historic site within 5,280 feet, however, the permitted Route width will be less than 5,280 feet so some sites may not be impacted.
	Trails	1,500 feet	1	-	1	-	1	-	1	-	1	-	1	-	All Alternatives would cross one snowmobile trail.
	Land Use Compatibility														
	Dominant Land Cover Type	1,500 feet	4,305 ac	98.7%	5,005 ac	97.7%	4,553 ac	98.8%	4,460 ac	97.2%	4,674 ac	92.0%	5,219 ac	92.9%	All Alternatives' major land cover type is Forested and/or Swamp. All Alternatives would result in a long-term change in land use for areas currently forested and/or swamp land, but these changes would be limited in extent, and there would still be extensive forest and swamp lands in the surrounding area; so these changes are expected to have a minimal impact on land use (pg. 330).
	Land Ownership	200 feet	281 acres total		332 acres total		acres total		296 acres total		327 acres total		364 acres total		All Alternatives contain similar amounts of public land.
	Public		242	86.1%	237	71.4%	56	83.8%	184	62.2%	178	54.4%	230	63.3%	
	Private		39	13.9%	95	28.6%	50	16.4%	112	37.9%	149	45.5%	154	42.4%	
Land-Based Economies	Agriculture	1,500 feet	1	0.0%	49	1.0%	0	0.0%	49	1.1%	276	5.4%	277	4.9%	The Blue/Orange Route and Variation 2 would potentially impact the fewest acres of agricultural land whereas Variations 4 and 5 would potentially impact the most.
	Forestry	200 feet	224	79.7%	237	71.4%	55	83.3%	184	62.2%	178	54.4%	230	63.3%	All Alternatives contain similar amounts of State Forest land.
	Mining & Mineral Leases		0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	No Alternatives would impact any mining or mineral leases.
Archaeology and Historic Architectural Resources	Historic Architectural Sites	5,280 feet	0	-	0	-	0	-	0	-	1	-	1	-	Variations 4 and 5 have a potential to impact one known historic site within 5,280 feet; however, the permitted Route width will be less than 5,280 feet so some sites may not be impacted. No Alternatives would impact any known archaeological sites within 1,500 feet.
	Archaeological Sites	1,500 feet	0	-	0	-	0	-	0	-	0	-	0	-	
			0	-	0	-	1		2		2		2	-	All Alternatives would cross a number of waterbodies; however, it is anticipated that these crossings are spannable (crossings would be less than the average spanning length of 1,250 feet) and structures would not be placed in them.
			6	-	6	-	6		4		6		7	-	
			1	0.4%	1	0.6%	1		1		1		1	0.6%	All Alternatives would cross FEMA-designated floodplains; however, these crosses are spannable and structures would not be placed within the floodplain.
			[illegible]	96.7%		94.5%	[illegible]		[illegible]				[illegible]	92.7%	All Alternatives would potentially impact a similar amount of NWI-mapped wetlands. While direct, adverse impacts to forested and shrub wetlands are permanent and may change wetland functions within the ROW, they are expected to be minimal because of the amount of surrounding forested and shrub wetlands in the region (pg. 337).
			[illegible]	62.9%	60		[illegible]		[illegible]		[illegible]		63	44.8%	All Alternatives would potentially impact similar amounts of forested land. While direct, adverse impacts to forested areas would be long-term, contiguous forest is abundant in the region surrounding the Project (pg. 338).
			[illegible]	23.5%	[illegible]	31.3%	78		[illegible]		[illegible]		[illegible]	31.6%	
			[illegible]	10.7%	[illegible]	10.2%	42		[illegible]		[illegible]		[illegible]	15.1%	
			[illegible]	2.8%	1	4.2%	7		[illegible]		[illegible]		[illegible]		

Relative Merits			Beltrami North Central Variations												
Factor	Element	ROI	Proposed Blue / Orange Route (11.6 miles)		Beltrami North Central Variation 1 (13.7 miles)		Beltrami North Central Variation 2 (12.6 miles)		Beltrami North Central Variation 3 (12.2 miles)		Beltrami North Central Variation 4 (13.5 miles)		Beltrami North Central Variation 5 (15.0 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
Wildlife	Important Bird Areas	200 feet	117	41.6%	31	9.3%	157	51.4%	31	10.5%	33	10.1%	33	9.1%	The Orange/Blue Route and Variation 2 contain more acres of designated Important Bird Area lands than the other Variations. Short-term indirect impacts are expected to be minimal because of the large amount of similar habitat in the surrounding region, and the long-term direct impacts are expected to be minimized through use of Applicant-proposed minimization measures (Section 2.13) (pg. 339).
Rare and Unique Natural Resources	Rare Species	1 mile (aquatic species not included)	4	-	4	-	4	-	4	-	0	-	3	-	All Alternatives (except Variation 4) are within one mile of three to four documented vascular plants. Surveys will be performed on the final 200-foot ROW to determine if any rare species are present within the permitted ROW. Any indirect impacts to rare species are expected to be minimal because of the amount of the surrounding habitat. Through use of Applicant-proposed avoidance and minimization measures, direct impacts to rare species are not expected (pg. 341).
	State Rare Communities	200 feet													
	MBS Sites of Biodiversity		101	35.9%	15	4.5%	115	37.6%	15	5.1%	0	0.0%	0	0.0%	The Blue/Orange and Variation 2 contain similar amounts of MBS Sites of Biodiversity; however it should be noted that not all biodiversity significance ranks have been determined for Lake of the Woods County.
Corridor Sharing	Paralleling Existing Infrastructure	-	-	100.0%	-	48.0%	-	49.0%	-	70.0%	-	92.0%	-	70.0%	The Blue/Orange Route parallels existing transmission lines for 100% of its length.
Electrical System Reliability		-	-	-	-	-	-	-	-	-	-	-	-	-	The Blue/Orange Route and the five Variations all parallel one existing Manitoba – Minnesota tie line for a significant part of their length. Variations 1 and 3 also establish two new crossings of the existing 500 kV tie line that are not necessary for the Blue/Orange Route.
Cost	Total Cost		$12,574,123	-	$14,368,602	-	$14,478,550	-		-		-		-	Variation 4 would cost the most to construct. *Costs for Variations 1, 3, 4, and 5 have been updated since the initial data request.*



Proposed Regeneration Site

Proposed Routes

- Blue/Orange Route
- Blue Route
- Orange Route
- C2 Segment Option
- J2 Segment Option

Alternatives

- Silver Creek WMA Alignment Modification
- Scientific and Natural Area (SNA)
- Peatland Complex

Existing Transmission Lines

- 69 or 115 kV
- 230 kV
- 500 kV

Streets and Highways

- US Highway
- State Trunk Highway
- County State Aid Highway
- Local Road
- Variation Area
- Municipal Boundary
- County Boundary
- International Boundary

Note
Anticipated alignments are shown offset for display purposes only. Please refer to more detailed maps for precise alignment placement.

The Applicant will be issued a Route Permit with a specific route width. The proposed route widths are shown in Appendix 5.

Miles
6.5 0 6.5

Map 4-9

PINE ISLAND VARIATION AREA
Great Northern Transmission Line
Draft Environmental Impact Statement

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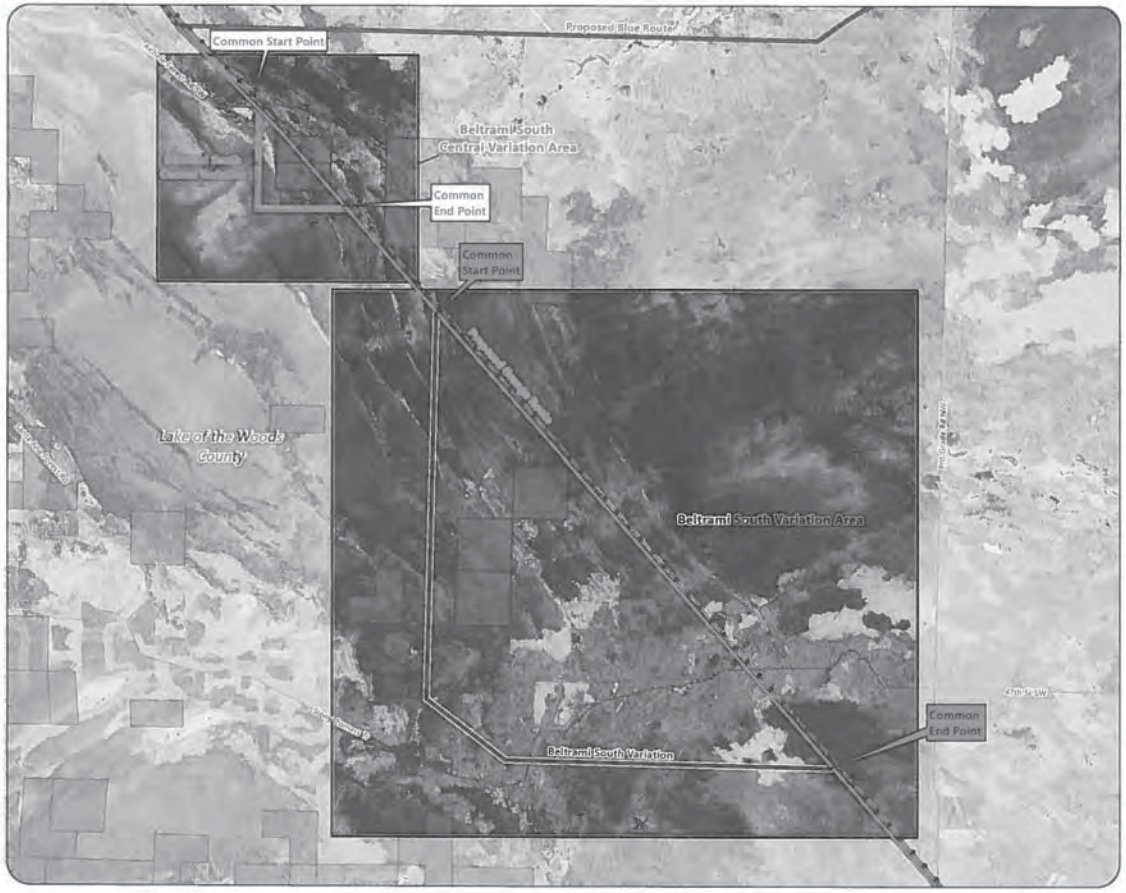
Relative Merits			Pine Island Variation Area				
Factor	Element	ROI	Proposed Blue Route (109.8 miles)		Proposed Orange Route (105.4 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
Human Settlement	**Aesthetics**						
	Residences	1,500 feet	14	-	2	-	The Blue Route would potentially impact more residences than the Orange Route.
	Historic Architectural Sites	5,280 feet	2	-	7	-	The Orange Route has a higher potential to impact known historic architectural sites within 5,280 feet; however, the permitted Route width will be less than 5,280 feet so some sites may not be impacted.
	Trails		5		8		Both Alternatives would cross one state trail and one water trail. The Orange Route would cross one more snowmobile trail than the Blue Route.
	Land Use Compatibility						
	Dominant Land Cover Type	1,500 feet	38,203 ac	95.4%	37,685 ac	98.0%	Both Alternatives' major land cover type is Forested and/or Swamp. Both Alternatives would result in a long-term change in land use for areas currently forested and/or swamp land, but these changes would be limited in extent, and there would still be extensive forest and swamp lands in the surrounding area; so these changes are expected to have a minimal impact on land use (pg. 384-385).
	Land Ownership	200 feet	2,662 acres total		2,555 acres total		Both Alternatives contain similar amounts of public and private lands.
	Public		2,299	86.4%	2,326	91.0%	
	Private		363	13.6%	229	9.0%	
Land-Based Economies	Agriculture	1,500 feet	985	2.5%	305	0.8%	The Blue Route would potentially impact almost three times as many acres of agricultural land.
	Forestry	200 feet	2,291	86.1%	1,980	77.5%	Both Routes contain similar amounts of State Forest lands.
	Mining & Mineral Leases		1,205	45.3%	370	14.5%	The Blue Route would potentially impact over three times as many acres of mining and mineral leases than the Orange Route.
Archaeology and Historic Architectural Resources	Historic Architectural Sites	5,280 feet	2	-	7	-	The Orange Route has a higher potential to impact known historic architectural sites within 5,280 feet; however, the permitted Route width will be less than 5,280 feet so some sites may not be impacted. The Blue Route is within 1,500 feet of a known archaeological site.
	Archaeological Sites	1,500 feet	1	-	0	-	
Water Resources	PWI Waters	Crossings or 200 feet	18	-	25	-	Both Alternatives would a similar number of PWI, non-PWI, and impaired waters; however, it is anticipated that these crossings are spannable (crossings would be less than the average spanning length of 1,250 feet) and structures would not be placed in them.
	Non-PWI Waters		48	-	48	-	
	Impaired Waters		1	-	1	-	
	Trout Stream		1		0		
	Floodplains		20	-	11	-	Both Routes would cross FEMA-designated floodplains; however, crossings would be less than the average spanning length of 1,250 feet and structures would not be placed in them.

Relative Merits			Pine Island Variation Area				
Factor	Element	ROI	Proposed Blue Route (109.8 miles)		Proposed Orange Route (105.4 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
	NWI Wetlands		2,102	79.0%	1,875	73.4%	The Orange Route would potentially impact slightly more acres of NWI-mapped wetlands than the East Bear Lake Variation. While direct, adverse impacts to forested and shrub wetlands are permanent and may change wetland functions within the ROW, they are expected to be minimal because of the amount of surrounding forested and shrub wetlands in the region (pg. 391).
Vegetation	North American Boreal Flooded & Swamp Forest	200 feet	1,372	51.5%	1,323	51.8%	Both Alternatives would potentially impact a similar amount of forested land. While direct, adverse impacts to forested areas would be long-term, contiguous forest is abundant in the region surrounding the Project (pg. 393).
	North American Boreal Forest		785	29.5%	769	30.1%	
	Eastern North American Flooded & Swamp Forest		366	13.8%	358	14.0%	
	Other		139	5.2%	1,232	48.2%	
Wildlife	WMAs	200 feet	49	1.8%	274	10.7%	The Blue Route contains fewer acres of WMA than the Orange Route.
	Important Bird Areas		1,405	52.8%	1,722	67.4%	Both Alternatives contain a similar amount of land designated as an Important Bird Area. Short-term indirect impacts are expected to be minimal because of the large amount of similar habitat in the surrounding region, and the long-term direct impacts are expected to be minimized through use of Applicant-proposed minimization measures (Section 2.13) (pg. 395).
Rare and Unique Natural Resources	Rare Species	1 mile (aquatic species not included)	6	-	13	-	The Orange Route is within one mile of more than twice as many documented rare species than the Blue Route. Surveys will be performed on the final 200-foot ROW to determine if any rare species are present within the permitted ROW. Any indirect impacts to rare species are expected to be minimal because of the amount of the surrounding habitat. Through use of Applicant-proposed avoidance and minimization measures, direct impacts to rare species are not expected (pg. 397).
	State Rare Communities	200 feet					
	Ecologically Important Lowland Conifers		29	1.1%	5	0.2%	Both Routes contain few acres of Ecologically Important Lowland Conifers; however, the Blue Route would pass through more acres than the Orange Route.
	MBS Sites of Biodiversity		1,514	56.9%	1,839	64.1%	Both Routes contain similar amounts of MBS Sites of Biodiversity.
Corridor Sharing	Paralleling Existing Infrastructure	-	-	39.0%	-	23.0%	The Blue Route parallels existing transmission lines for 39% of its length; the Orange Route for 23% of its length

Relative Merits			Pine Island Variation Area				
Factor	Element	ROI	Proposed Blue Route (109.8 miles)		Proposed Orange Route (105.4 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
Electrical System Reliability		-		-		-	Both proposed routes parallel one existing Manitoba – Minnesota tie line for a significant part of their length. The Blue Route also establishes two new crossings of the existing 500 kV tie line that are not necessary for the Orange Route.
Cost	Total Cost	-	$118,878,237	-	$113,672,041	-	The Blue Route would cost the most to construct. *The cost of the Blue Route has been updated since the initial data request.*



Proposed Routes
- Blue/Orange Route
- Blue Route
- Orange Route

Alternatives
- Beltrami South Central Variation
- Beltrami South Variation
- USFWS Interest Land

Existing Transmission Lines
- 500 kV

Streets and Highways
- Local Road
- Variation Area

Note:
Anticipated alignments are shown offset for display purposes only. Please refer to more detailed maps for precise alignment placement.

The Applicant will be issued a Route Permit with a specific route width. The proposed route widths are shown in Appendix 5.

Miles
0.8 0 0.8

Map 4-10

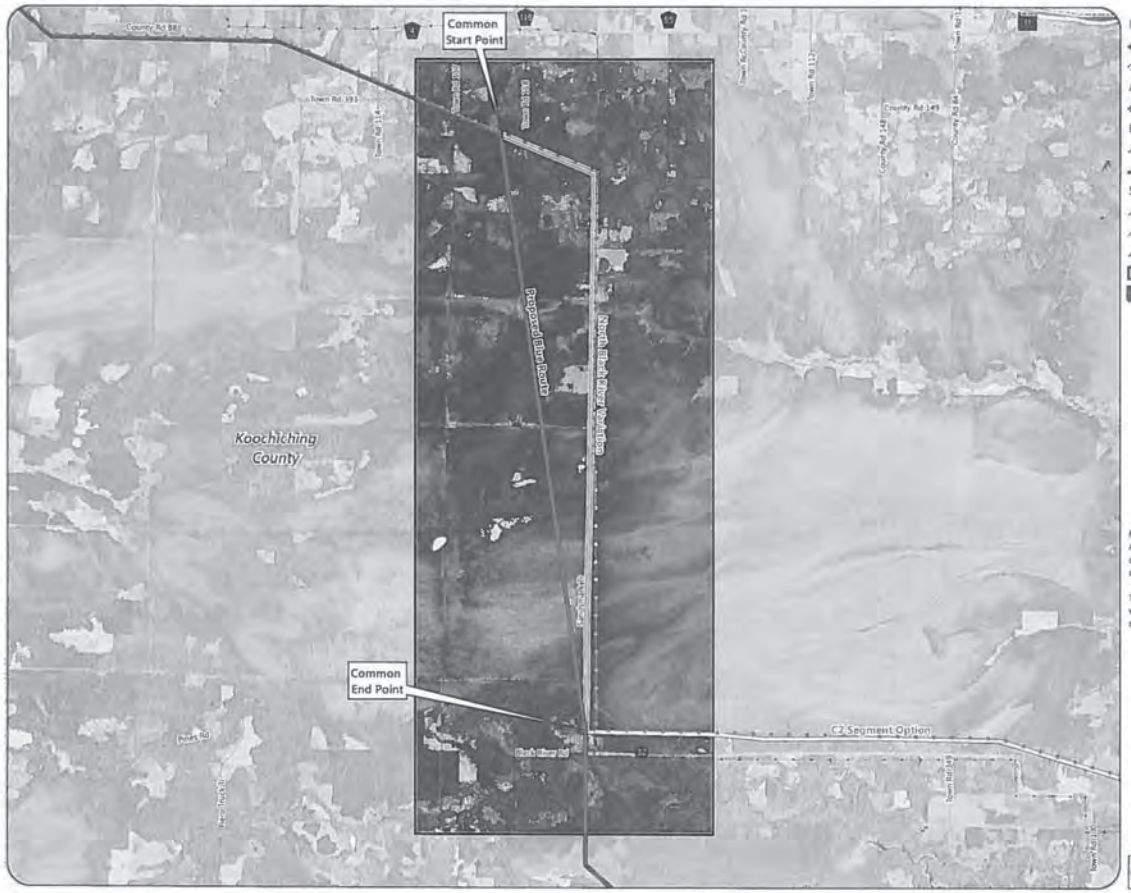
BELTRAMI SOUTH CENTRAL AND BELTRAMI SOUTH VARIATION AREAS
Great Northern Transmission Line
Draft Environmental Impact Statement

Relative Merits			Beltrami South Central Variations				
Factor	Element	ROI	Proposed Orange Route (1.2 miles)		Beltrami South Central Variation (1.7 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
Human Settlement	**Aesthetics**						
	Residences	1,500 feet	0	-	0	-	Neither Alternative would impact residences within 1,500 feet.
	Historic Architectural Sites	5,280 feet	0	-	0	-	Neither Alternative would impact any known architectural sites within 5,280 feet.
	Trails	1,500 feet	1	-	1	-	Both Alternatives would cross one snowmobile trail.
	Land Use Compatibility						
	Dominant Land Cover Type	1,500 feet	598 ac	98.8%	779 ac	99.2%	Both Alternatives' major land cover type is Forested and/or Swamp. Both Alternatives would result in a long-term change in land use for areas currently forested and/or swamp land, but these changes would be limited in extent, and there would still be extensive forest and swamp lands in the surrounding area; so these changes are expected to have a minimal impact on land use (pg. 402).
	Land Ownership	200 feet	29 acres total		41 acres total		Both Alternatives are entirely located within public lands and neither would impact private land owners.
	Public		30	103.1%	43	104.4%	
	Private		0	0.0%	0	0.0%	
Land-Based Economies	Agriculture	1,500 feet	0	0.0%	0	0.0%	Neither Alternative would impact agricultural land.
	Forestry	200 feet	30	103.1%	43	104.4%	Both Alternatives are entirely located within State Forest lands.
	Mining & Mineral Leases		0	0.0%	0	0.0%	Neither Alternative would impact any mining or mineral leases.
Archaeology and Historic Architectural Resources	Historic Architectural Sites	5,280 feet	0	-	0	-	Neither Alternative would impact any known historic architectural sites or archaeological sites.
	Archaeological Sites	1,500 feet	0	-	0	-	
Water Resources	PWI Waters	Crossings or 200 feet	0	-	0	-	Neither Alternative would cross any PWI, non-PWI, or impaired waters.
	Non-PWI Waters		0	-	0	-	
	Impaired Waters		0	-	0	-	
	Floodplains		0	-	0	-	Neither Alternative would impact FEMA-designated floodplains.
	NWI Wetlands		30	103.1%	43	104.4%	Both Alternatives would potentially impact a similar amount of NWI-mapped wetlands. While direct, adverse impacts to forested and shrub wetlands are permanent and may change wetland functions within the ROW, they are expected to be minimal because of the amount of surrounding forested and shrub wetlands in the region (pg. 406).
Vegetation	North American Boreal Flooded & Swamp Forest	200 feet	24	82.5%	32	77.7%	Both Alternatives would potentially impact similar amounts of forest land. While direct, adverse impacts to forested areas would be long-term, contiguous forest is abundant in the region surrounding the Project (pg. 406).
	Other		5	17.2%	9	21.8%	

Relative Merits			Beltrami South Central Variations				
Factor	Element	ROI	Proposed Orange Route (1.2 miles)		Beltrami South Central Variation (1.7 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
Wildlife	Important Bird Areas	200 feet	30	103.1%	43	104.4%	Both Alternatives are entirely located within lands designated as Important Bird Areas. Short-term indirect impacts are expected to be minimal because of the large amount of similar habitat in the surrounding region, and the long-term direct impacts are expected to be minimized through use of Applicant-proposed minimization measures (Section 2.13) (pg. 409).
Rare and Unique Natural Resources	Rare Species	1 mile (aquatic species not included)	4	-	4	-	Both Alternatives would be located within one mile of four vascular plants. Surveys will be performed on the final 200-foot ROW to determine if any rare species are present within the permitted ROW. Any indirect impacts to rare species are expected to be minimal because of the amount of the surrounding habitat. Through use of Applicant-proposed avoidance and minimization measures, direct impacts to rare species are not expected (pg. 409).
	State Rare Communities	200 feet					
	MBS Sites of Biodiversity		30	103.1%	43	104.4%	Both Alternatives contain similar amounts of MBS Sites of Biodiversity.
Corridor Sharing	Paralleling Existing Infrastructure	-	-	100.0%	-	[illegible]	The Orange Route parallels existing transmission lines for 100% of its length.
Electrical System Reliability		-		-		-	The Orange Route parallels one existing Manitoba – Minnesota tie line for its entire length while the Variation does not parallel any existing Manitoba – Minnesota tie lines.
Cost	Total Cost	-	$1,214,573	-	[illegible]	-	Beltrami South Central Variation would cost the most to construct. *These costs have been updated since the initial information request.*

Relative Merits			Beltrami South Variations				
Factor	Element	ROI	Proposed Orange Route (5.6 miles)		Beltrami South Variation (7.5 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
Human Settlement	**Aesthetics**						
	Residences	1,500 feet	0	-	0	-	Neither Alternative would impact residences within 1,500 feet.
	Historic Architectural Sites	5,280 feet	0	-	0	-	Neither Alternative would impact any known architectural sites within 5,280 feet.
	Trails	1,500 feet	0	-	0	-	Neither Alternative would cross any trails.
	Land Use Compatibility						
	Dominant Land Cover Type	1,500 feet	2,186 ac	99.5%	2,887 ac	99.7%	Both Alternatives' major land cover type is Forested and/or Swamp. Both Alternatives would result in a long-term change in land use for areas currently forested and/or swamp land, but these changes would be limited in extent, and there would still be extensive forest and swamp lands in the surrounding area; so these changes are expected to have a minimal impact on land use (pg. 415).
	Land Ownership	200 feet	136 acres total		182 acres total		Both Alternatives are entirely located within public lands and neither would impact private land owners.
	Public		136	100.1%	183	100.7%	
	Private		0	0.0%	0	0.0%	
Land-Based Economies	Agriculture	1,500 feet	0	0.0%	0	0.0%	Neither Alternative would impact agricultural land.
	Forestry	200 feet	136	100.1%	183	100.7%	Both Alternatives are entirely located within State Forest lands.
	Mining & Mineral Leases		58	42.7%	287	157.9%	There are more acres of mineral leases within Beltrami South Variation than the total number of acres within the ROW. Regardless, the Beltrami South Variation would potentially impact more mining and mineral leases than the Orange Route.
Archaeology and Historic Architectural Resources	Historic Architectural Sites	5,280 feet	0	-	0	-	Neither Alternative would impact any known historic architectural sites or archaeological sites.
	Archaeological Sites	1,500 feet	0	-	0	-	
Water Resources	PWI Waters	Crossings or 200 feet	0	-	0	-	Neither Alternative would cross any PWI, non-PWI, or impaired waters.
	Non-PWI Waters		0	-	0	-	
	Impaired Waters		0	-	0	-	
	Floodplains		0	-	0	-	Neither Alternative would impact FEMA-designated floodplains.
	NWI Wetlands		136	100.1%	183	100.7%	Both Alternatives would potentially impact a similar amount of NWI-mapped wetlands. While direct, adverse impacts to forested and shrub wetlands are permanent and may change wetland functions within the ROW, they are expected to be minimal because of the amount of surrounding forested and shrub wetlands in the region (pg. 418).

Relative Merits			Beltrami South Variations				
Factor	Element	ROI	Proposed Orange Route (5.6 miles)		Beltrami South Variation (7.5 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
Vegetation	North American Boreal Flooded & Swamp Forest	200 feet	114	83.9%	139	76.5%	Both Alternatives would potentially impact similar amounts of forest land. While direct, adverse impacts to forested areas would be long-term, contiguous forest is abundant in the region surrounding the Project (pg. 420).
	North American Boreal Forest		16	11.8%	35	19.3%	
	Other		22	16.2%	43	23.7%	
Wildlife	Important Bird Areas	200 feet	136	100.1%	183	100.7%	Both Alternatives are entirely located on lands designated as Important Bird Areas. Short-term indirect impacts are expected to be minimal because of the large amount of similar habitat in the surrounding region, and the long-term direct impacts are expected to be minimized through use of Applicant-proposed minimization measures (Section 2.13) (pg. 420).
Rare and Unique Natural Resources	Rare Species	1 mile (aquatic species not included)	1	-	2	-	Beltrami South Variation is within one mile of two vascular plants; the Orange Route is within one mile of one vascular plant. Surveys will be performed on the final 200-foot ROW to determine if any rare species are present within the permitted ROW. Any indirect impacts to rare species are expected to be minimal because of the amount of the surrounding habitat. Through use of Applicant-proposed avoidance and minimization measures, direct impacts to rare species are not expected (pg. 422).
	State Rare Communities	200 feet					
	MBS Sites of Biodiversity		120	88.4%	161	88.6%	Both Alternatives contain similar amounts of MBS Sites of Biodiversity.
Corridor Sharing	Paralleling Existing Infrastructure	-	-	100.0%	-		The Orange Route parallels existing transmission lines for 100% of its length.
Electrical System Reliability		-		-		-	The Orange Route parallels one existing Manitoba – Minnesota tie line for its entire length while the Beltrami South Variation does not parallel any existing Manitoba – Minnesota tie lines.
Cost	Total Cost	-	$5,805,518	-		-	Beltrami South Variation would cost the most to construct. *These costs have been updated since the initial information request.*



Map 4-11

NORTH BLACK RIVER VARIATION AREA

Great Northern Transmission Line
Draft Environmental Impact Statement

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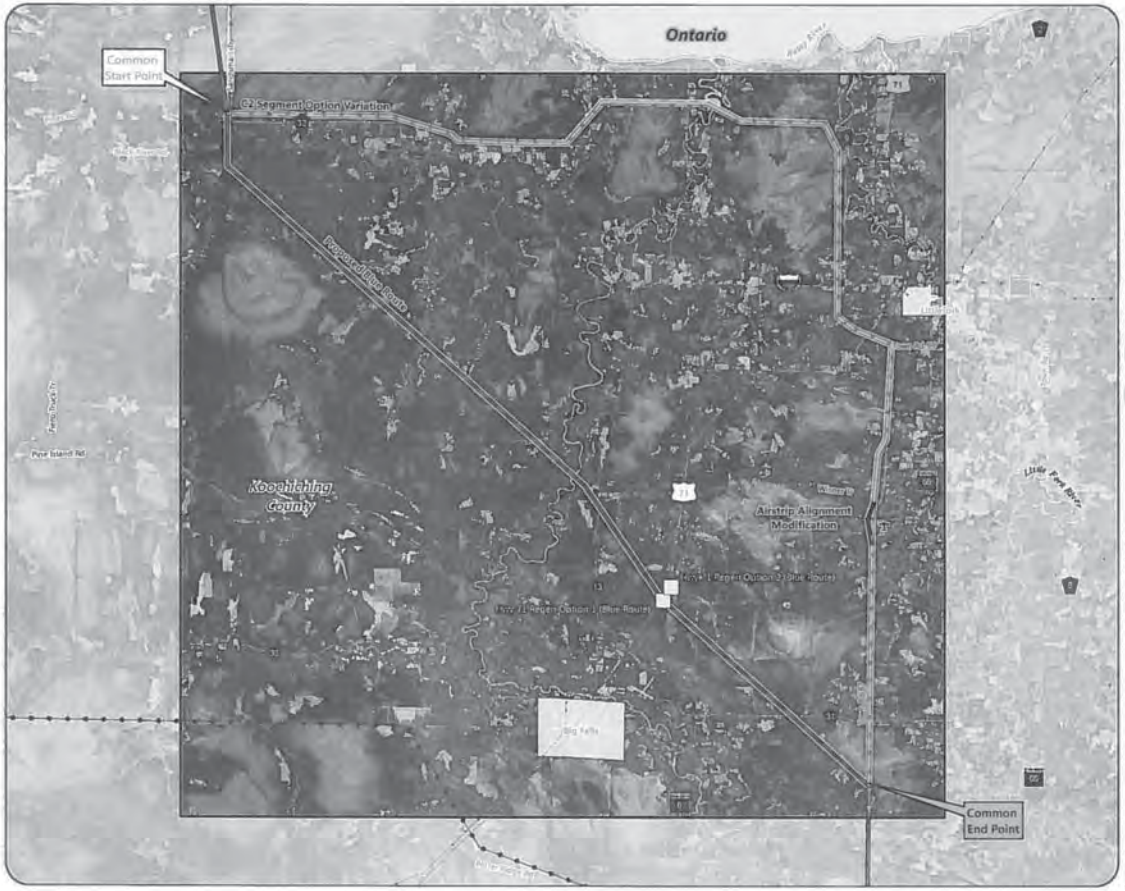
Relative Merits			North Black River Variations				
Factor	Element	ROI	Proposed Blue Route (6.4 miles)		North Black River Variation (9.2 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
Human Settlement	**Aesthetics**						
	Residences	1,500 feet	1	-	5	-	North Black River Variation would potentially impact more residences than the Blue Route.
	Historic Architectural Sites	5,280 feet	0	-	0	-	Neither Alternative would impact any known architectural sites within 5,280 feet.
	Trails	1,500 feet	2	-	2	-	Both Alternatives would cross two snowmobile trails.
	Land Use Compatibility						
	Dominant Land Cover Type	1,500 feet	3,190 ac	99.4%	3,296 ac	94.3%	Both Alternatives' major land cover type is Forested and/or Swamp. Both Alternatives would result in a long-term change in land use for areas currently forested and/or swamp land, but these changes would be limited in extent, and there would still be extensive forest and swamp lands in the surrounding area; so these changes are expected to have a minimal impact on land use (pg. 428).
	Land Ownership	200 feet	204 acres total		223 acres total		Both Alternatives contain a similar amount of public lands; however, the Blue Route would not impact any private land owners.
	Public		188	92.3%	158	70.9%	
	Private		16	7.9%	65	29.1%	
Land-Based Economies	Agriculture	1,500 feet	0	0.0%	69	2.0%	The Blue Route would not impact agricultural land.
	Forestry	200 feet	188	92.3%	156	70.0%	Both Alternatives contain a similar amount of State Forest land.
	Mining & Mineral Leases		405	198.9%	362	162.3%	There are more acres of mineral leases within both Alternatives than the total number of acres within the 200-foot ROW.
Archaeology and Historic Architectural Resources	Historic Architectural Sites	5,280 feet	0	-	0	-	Neither Alternative would impact any known historic architectural sites or archaeological sites.
	Archaeological Sites	1,500 feet	0	-	0	-	
Water Resources	PWI Waters	Crossings or 200 feet	0	-	0	-	Both Alternatives would cross few non-PWI waters; however, it is anticipated that these crossings are spannable (crossings would be less than the average spanning length of 1,250 feet) and structures would not be placed in them.
	Non-PWI Waters		4	-	4	-	
	Impaired Waters		0	-	0	-	
	Floodplains		0	-	0	-	Neither Alternative would impact FEMA-designated floodplains.
	NWI Wetlands		193	94.8%	198	88.8%	Both Alternatives would potentially impact a similar amount of NWI-mapped wetlands. While direct, adverse impacts to forested and shrub wetlands are permanent and may change wetland functions within the ROW, they are expected to be minimal because of the amount of surrounding forested and shrub wetlands in the region (pg. 434).

Relative Merits			North Black River Variations				
Factor	Element	ROI	Proposed Blue Route (8.4 miles)		North Black River Variation (9.2 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
Vegetation	North American Boreal Flooded & Swamp Forest	200 feet	144	70.7%	114	51.1%	Both Alternatives would potentially impact a similar amount of forest land. While direct, adverse impacts to forested areas would be long-term, contiguous forest is abundant in the region surrounding the Project (pg. 435).
	North American Boreal Forest		47	23.1%	49	22.0%	
	Eastern North American Flooded Swamp & Forest		12	5.9%	29	13.0%	
	Other		60	29.5%	109	48.9%	
Wildlife	Important Bird Areas	200 feet	191	93.8%	214	96.0%	Both Alternatives contain a similar amount of land designated as an Important Bird Area. Short-term indirect impacts are expected to be minimal because of the large amount of similar habitat in the surrounding region, and the long-term direct impacts are expected to be minimized through use of Applicant-proposed minimization measures (Section 2.13) (pg. 436).
Rare and Unique Natural Resources	Rare Species	1 mile (aquatic species not included)	0	-	0	-	Neither Alternative is located within one mile of a documented rare species. Surveys will be performed on the final 200-foot ROW to determine if any rare species are present within the permitted ROW. Any indirect impacts to rare species are expected to be minimal because of the amount of the surrounding habitat. Through use of Applicant-proposed avoidance and minimization measures, direct impacts to rare species are not expected (pg. 437).
	State Rare Communities	200 feet					
	MBS Sites of Biodiversity		165	81.0%	109	48.9%	Both Alternatives contain similar amounts of MBS Sites of Biodiversity.
Corridor Sharing	Paralleling Existing Infrastructure	-	-		-	100.0%	The North Black River Variations parallels existing transmission lines for 100% of its length.
Electrical System Reliability		-		-		-	The North Black River Variation parallels one existing Manitoba – Minnesota tie line for its entire length while the Blue Route does not parallel any existing Manitoba – Minnesota tie lines.
Cost	Total Cost	-	$9,893,580	-	$10,552,560	-	The North Black River Variations would cost the most to construct. *This cost has been updated since the initial information request.*

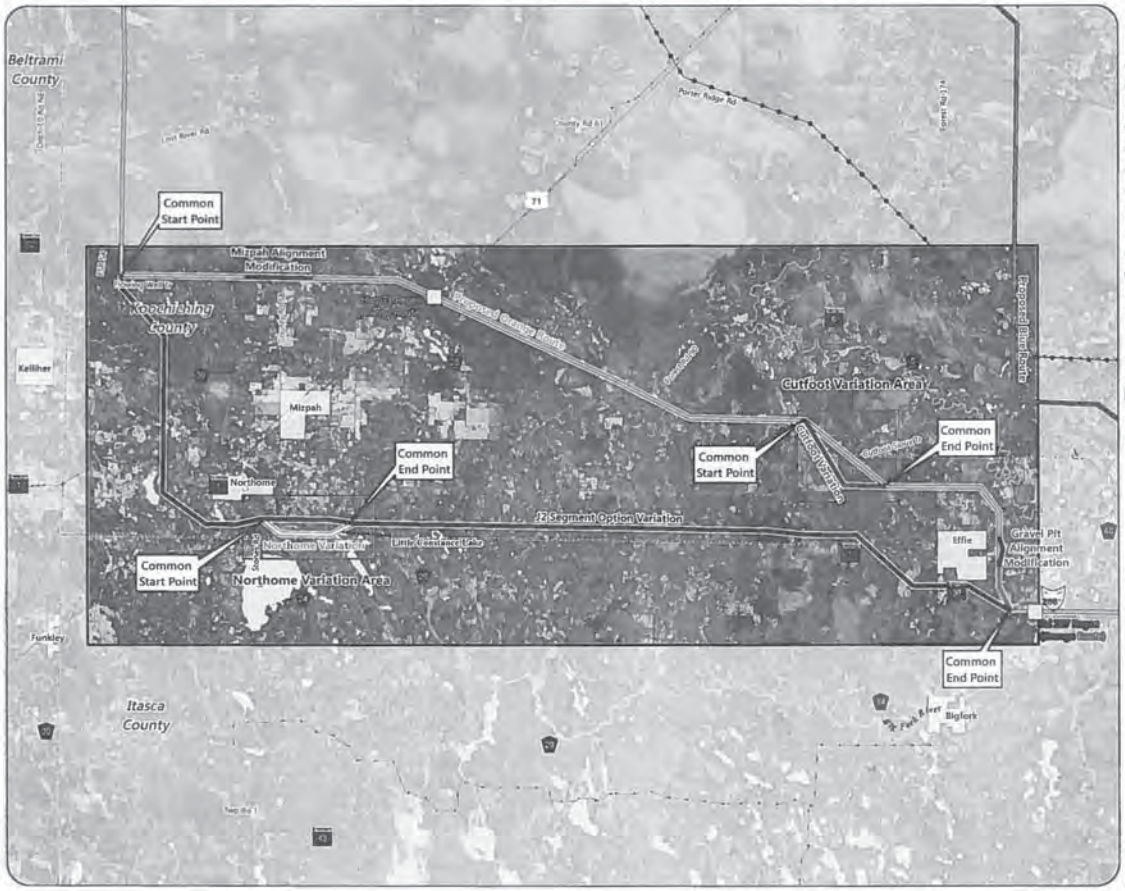


Map 4-12

C2 SEGMENT OPTION VARIATION AREA
Great Northern Transmission Line
Draft Environmental Impact Statement

Relative Merits			C2 Segment Option Variation Area				
Factor	Element	ROI	Proposed Blue Route (32.8 miles)		C2 Segment Option (46 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
Human Settlement	**Aesthetics**						
	Residences	1,500 feet	0	-	29	-	C2 would potentially impact 29 more residences than the Blue Route.
	Historic Architectural Sites	5,280 feet	0	-	0	-	Neither Alternative would impact any known architectural sites within 5,280 feet.
	Trails	1,500 feet	4	-	3	-	Both Alternatives would cross one water trail and one state trail. The Blue Route would cross one more snowmobile trail than C2.
	Land Use Compatibility						
	Dominant Land Cover Type	1,500 feet	11,922 ac	98.5%	16,121 ac	95.5%	Both Alternatives' major land cover type is Forested and/or Swamp. Both Alternatives would result in a long-term change in land use for areas currently forested and/or swamp land, but these changes would be limited in extent, and there would still be extensive forest and swamp lands in the surrounding area; so these changes are expected to have a minimal impact on land use (pg. 441-442).
	Land Ownership	200 feet	795 acres total		1,115 acres total		Both Alternatives contain a similar amount of public lands; however, the Blue Route would not impact any private land owners.
	Public		797	100.2%	654	58.8%	
	Private		0	0.0%	461	41.4%	
Land-Based Economies	Agriculture	1,500 feet	0	0.0%	167	1.0%	The Blue Route would not impact agricultural lands whereas C2 would potentially impact 167 acres.
	Forestry	200 feet	797	100.2%	274	24.6%	The Blue Route is located entirely within State Forest land.
	Mining & Mineral Leases		16	2.0%	67	6.0%	C2 would potentially impact four times as many mining and mineral leases than the Blue Route.
Archaeology and Historic Architectural Resources	Historic Architectural Sites	5,280 feet	0	-	0	-	Neither Alternative would impact any known historic architectural sites or archaeological sites.
	Archaeological Sites	1,500 feet	0	-	0	-	
Water Resources	PWI Waters	Crossings or 200 feet	5	-	3	-	Both Alternatives would cross a number of PWI, non-PWI, and impaired waterways; however, however, it is anticipated that these crossings are spannable (crossings would be less than the average spanning length of 1,250 feet) and structures would not be placed in them.
	Non-PWI Waters		12	-	5	-	
	Impaired Waters		1	-	2	-	
	Floodplains		8	-	28	-	C2 would potentially impact more acres of FEMA-designated floodplain; however, both Alternatives would require construction and placement of transmission structures in Zone A floodplains of the Black and Big Fork Rivers, respectively (pg. 448).
	NWI Wetlands		728	91.5%	829	74.3%	Both Alternatives would potentially impact similar amounts of NWI-mapped wetlands. While direct, adverse impacts to forested and shrub wetlands are permanent and may change wetland functions within the ROW, they are expected to be minimal because of the amount of surrounding forested and shrub wetlands in the region (pg. 449).

Relative Merits			C2 Segment Option Variation Area				
Factor	Element	ROI	Proposed Blue Route (32.8 miles)		C2 Segment Option (46 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
Vegetation	North American Boreal Flooded & Swamp Forest	200 feet	464	60.9%	728	65.3%	C2 impacts almost twice as many acres of forest land than the Blue Route. While direct, adverse impacts to forested areas would be long-term, contiguous forest is abundant in the region surrounding the Project (pg. 450).
	North American Boreal Forest		248	31.2%	162	14.5%	
	Eastern North American Flooded Swamp & Forest		56	7.0%	185	16.6%	
	Other		311	39.1%	387	34.7%	
Wildlife	Important Bird Areas	200 feet	469	59.0%	406	36.4%	Both Alternatives contain a similar amount of land designated as an Important Bird Area. Short-term indirect impacts are expected to be minimal because of the large amount of similar habitat in the surrounding region, and the long-term direct impacts are expected to be minimized through use of Applicant-proposed minimization measures (Section 2.13) (pg. 452).
Rare and Unique Natural Resources	Rare Species	1 mile (aquatic species not included)	0	-	2	-	C2 is within one mile of two document rare species. Surveys will be performed on the final 200-foot ROW to determine if any rare species are present within the permitted ROW. Any indirect impacts to rare species are expected to be minimal because of the amount of the surrounding habitat. Through use of Applicant-proposed avoidance and minimization measures, direct impacts to rare species are not expected (pg. 453).
	State Rare Communities	200 feet					
	Ecological Important Lowland Conifers		7	0.9%	6	0.5%	Both Routes would potentially impact similar amounts of the same DNR Ecologically Important Lowland Conifer stand.
	MBS Sites of Biodiversity		642	80.7%	510	45.7%	Both Alternatives contain similar amounts of MBS Sites of Biodiversity; the Blue Route contains slightly more acres than C2.
Corridor Sharing	Paralleling Existing Infrastructure	-	-		-	81.0%	The Blue Route does not parallel existing transmission lines whereas C2 parallels existing transmission for 81% of its length.
Electrical System Reliability		-		-		-	C2 parallels one existing Manitoba – Minnesota tie line for its entire length. The Blue Route does not parallel any existing Manitoba – Minnesota tie lines.
Cost	Total Cost	-	$35,789,239	-		-	C2 Segment would cost the most to construct.


Beltrami County
Koochiching County
Itasca County
Common Start Point
Mizpah Alignment Modification
Proposed Orange Route
Proposed Blue Route
Cutfoot Variation Area
Common End Point
Common Start Point
Cutfoot Variation
Common End Point
Mizpah
Northome
J2 Segment Option Variation
Northome Variation
Little Cranberry Lake
Common Start Point
Northome Variation Area
Effie
Gravel Pit Alignment Modification
Common End Point
Bigfork
Kelliher
Funkley
Porter Ridge Rd
Proposed Regeneration Site
Proposed Routes
Blue Route
Orange Route
Alternatives
J2 Segment Option Variation
Northome Variation
Cutfoot Variation
Alignment Modification
Existing Transmission Lines
69 or 115 kV
230 kV
500 kV
Streets and Highways
US Highway
State Trunk Highway
County State Aid Highway
Local Road
Variation Area
Municipal Boundary
County Boundary
Note:
Anticipated alignments are shown offset for display purposes only. Please refer to more detailed maps for precise alignment placement.
The Applicant will be issued a Route Permit with a specific route width. The proposed route widths are shown in Appendix S
Miles
3.5
0
3.5
Map 4-13
J2 SEGMENT OPTION, NORTHOME AND CUTFOOT VARIATION AREAS
Great Northern Transmission Line
Draft Environmental Impact Statement
U.S. DEPARTMENT OF ENERGY
COMMERCE
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Relative Merits			J2 Segment Option Variation Area				
Factor	Element	ROI	Proposed Orange Route (42.2 miles)		J2 Segment Option (45.2 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
Human Settlement	**Aesthetics**						
	Residences	1,500 feet	0	-	6	-	J2 would potentially impact six more residences than the Orange Route.
	Historic Architectural Sites	5,280 feet	2	-	7	-	J2 would potentially impact more known historical architectural sites; however, the permitted Route width will be less than 5,280 feet so some sites may not be impacted.
	Scenic Byway	1,500 feet	0		2		J2 would cross Scenic Byways 46 and 38.
	Trails	1,500 feet	3	-	5	-	Both Alternatives would cross one state trail; J2 would cross four snowmobile trails and the Orange Route would cross two.
	Land Use Compatibility						
	Dominant Land Cover Type	1,500 feet	15,110 ac	97.4%	15,860 ac	94.1%	Both Alternatives' major land cover type is Forested and/or Swamp. Both Alternatives would result in a long-term change in land use for areas currently forested and/or swamp land, but these changes would be limited in extent, and there would still be extensive forest and swamp lands in the surrounding area, so these changes are expected to have a minimal impact on land use (pg. 459).
	Land Ownership	200 feet	1,023 acres total		1,096 acres total		Both Alternatives are primarily located on public lands; however, J2 would potentially impact almost three times as many acres of private land than would the Orange Route.
	Public		945	92.4%	868	79.2%	
	Private		78	7.6%	228	20.8%	
Land-Based Economies	Agriculture	1,500 feet	153	1.0%	164	1.0%	Both Alternatives contain similar amounts of agricultural lands.
	Forestry	200 feet	851	83.2%	715	65.2%	Both Alternatives contain similar amounts of State Forest lands.
	Mining & Mineral Leases		82	8.0%	73	6.7%	Both Alternatives would potentially impact a similar amount of mining and mineral lease land.
Archaeology and Historic Architectural Resources	Historic Architectural Sites	5,280 feet	2	-	7	-	J2 would potentially impact more known historical architectural sites; however, the permitted Route width will be less than 5,280 feet so some sites may not be impacted. Neither Alternative would impact any known archaeological sites.
	Archaeological Sites	1,500 feet	0	-	0	-	
Water Resources	PWI Waters	Crossings or 200 feet	6	-	3	-	Both Alternatives would cross a number of PWI and non-PWI waters; however, it is anticipated that these crossings are spannable (crossings would be less than the average spanning length of 1,250 feet) and structures would not be placed in them.
	Non-PWI Waters		24	-	38	-	
	Impaired Waters		0	-	0	-	
	Floodplains		3	-	0	-	The Orange Route would cross a Zone A floodplain; however, crossings would be less than the average spanning length of 1,250 feet and structures would not be placed in them.
	NWI Wetlands		509	49.8%	353	32.2%	The Orange Route would potentially impact slightly more acres of NWI-mapped wetlands than J2. While direct, adverse impacts to forested and shrub wetlands are permanent and may change wetland functions within the ROW, they are expected to be minimal because of the amount of surrounding forested and shrub wetlands in the region (pg. 466).

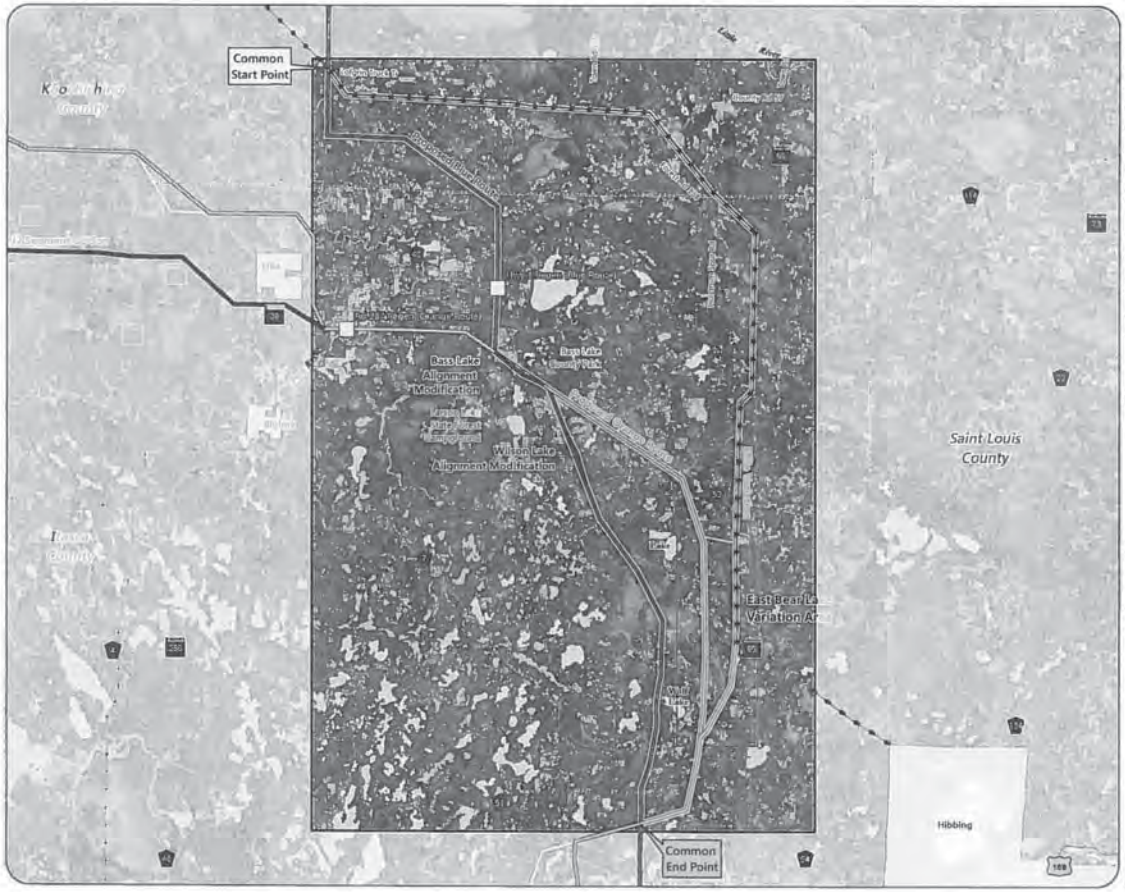
Relative Merits			J2 Segment Option Variation Area				
Factor	Element	ROI	Proposed Orange Route (42.2 miles)		J2 Segment Option (45.2 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
Vegetation	North American Boreal Flooded & Swamp Forest	200 feet	319	31.2%	124	11.3%	Both Alternatives would potentially impact a similar amount of forest land. While direct, adverse impacts to forested and shrub wetlands are permanent and may change wetland functions within the ROW, they are expected to be minimal because of the amount of surrounding forested and shrub wetlands in the region (pg. 467).
	North American Boreal Forest		477	46.6%	650	59.3%	
	Eastern North American Flooded Swamp & Forest		176	17.2%	191	17.4%	
	Eastern North American Cool Temperate Forest		36	3.5%	98	9.0%	
	Other		704	68.8%	972	88.7%	
Wildlife	Important Bird Areas	200 feet	262	25.6%	72	6.6%	The Orange Route contains more acres of land designated as an Important Bird Area. Short-term indirect impacts are expected to be minimal because of the large amount of similar habitat in the surrounding region, and the long-term direct impacts are expected to be minimized through use of Applicant-proposed minimization measures (Section 2.13) (pg. 468).
Rare and Unique Natural Resources	Rare Species	1 mile (aquatic species not included)	3	-	2	-	The Orange Route is within one mile of three vascular plant species whereas J2 is within one mile of one vascular plant species and one colonial water bird nesting site (animal assemblage). Surveys will be performed on the final 200-foot ROW to determine if any rare species are present within the permitted ROW. Any indirect impacts to rare species are expected to be minimal because of the amount of the surrounding habitat. Through use of Applicant-proposed avoidance and minimization measures, direct impacts to rare species are not expected (pg. 470).
	State Rare Communities	200 feet					
	MBS Sites of Biodiversity		489	47.8%	185	16.9%	The Orange Route would potentially impact more acres of MBS Sites of Biodiversity Significance.
Corridor Sharing	Paralleling Existing Infrastructure	-	-		-		Neither Alternative parallels existing transmission lines.
Electrical System Reliability		-		-		-	Neither Alternative parallels or crosses any existing Manitoba – Minnesota tie lines.
Cost	Total Cost	-	$48,706,841	-	$52,128,879	-	J2 Segment would cost the most to construct.

Relative Merits			Northome Variation Area				
Factor	Element	ROI	J2 Segment Option (3.7 miles)		Northome Variation (4 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
Human Settlement	**Aesthetics**						
	Residences	1,500 feet	0	-	0	-	Neither Alternative would impact any residences within 1,500 feet.
	Historic Architectural Sites	5,280 feet	0	-	0	-	Neither Alternative would impact any known architectural sites within 5,280 feet.
	Scenic Byway	1,500 feet	0		0		Neither Alternative would cross a Scenic Byway.
	Trails	1,500 feet	0	-	0	-	Neither Alternative would cross any trails.
	Land Use Compatibility						
	Land Cover of Forested and/or Swamp	1,500 feet	1,418 ac	93.1%	1,555 ac	95.3%	Both Alternatives' major land cover type is Forested and/or Swamp. Both Alternatives would result in a long-term change in land use for areas currently forested and/or swamp land, but these changes would be limited in extent, and there would still be extensive forest and swamp lands in the surrounding area; so these changes are expected to have a minimal impact on land use (pg. 474).
	Land Ownership	200 feet	90 acres total		97 acres total		The Northome Variation contains more public lands than private lands; J2 contains more acre of private lands than Northome Variation.
	Public		67	74.7%	81	83.5%	
	Private		23	25.6%	16	16.5%	
Land-Based Economies	Agriculture	1,500 feet	64	4.2%	0	0.0%	J2 would impact few acres of agricultural land whereas the Northome Variation does not impact agricultural lands.
	Forestry	200 feet	0	0.0%	0	0.0%	Neither Alternative contains State Forest lands.
	Mining & Mineral Leases		0	0.0%	0	0.0%	Neither Alternative would impact mining or mineral leases.
Archaeology and Historic Architectural Resources	Historic Architectural Sites	5,280 feet	0	-	0	-	Neither Alternative would impact any known architectural sites. Northome Variation would potentially impact one archeological site; however, the permitted Route width will be less than 5,280 feet so some sites may not be impacted.
	Archaeological Sites	1,500 feet	0	-	1	-	
Water Resources	PWI Waters	Crossings or 200 feet	0	-	1	-	Both Alternatives would cross very few PWI and non-PWI waters; however, it is anticipated that these crossings are spannable (crossings would be less than the average spanning length of 1,250 feet) and structures would not be placed in them.
	Non-PWI Waters		6	-	1	-	
	Impaired Waters		0	-	0	-	
	Floodplains		0	-	0	-	Neither Alternative would impact FEMA-designated floodplains.
	NWI Wetlands		23	25.8%	14	14.4%	Both Alternatives would potentially impact very few acres of NWI-mapped wetlands. While direct, adverse impacts to forested and shrub wetlands are permanent and may change wetland functions within the ROW, they are expected to be minimal because of the amount of surrounding forested and shrub wetlands in the region (pg. 479).

Relative Merits			Northome Variation Area				
Factor	Element	ROI	J2 Segment Option (3.7 miles)		Northome Variation (4 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
Vegetation	North American Boreal Forest	200 feet	71	79.2%	81	83.5%	Both Alternatives would potentially impact a similar amount of forested land. While direct, adverse impacts to forested areas would be long-term, contiguous forest is abundant in the region surrounding the proposed Project (pg. 480).
	Eastern North American Cool Temperate Forest		10	11.1%	10	10.3%	
	Other		19	21.2%	16	16.5%	
Wildlife	Shallow Lakes	200 feet	0	-	1	-	The Northome Variation would cross one DNR Shallow Lake.
Rare and Unique Natural Resources	Rare Species	1 mile (aquatic species not included)	1	-	2	-	One colonial waterbird nesting site is listed within one mile of J2 and two nesting sites are listed within one mile of the Northome Variation. Surveys will be performed on the final 200-foot ROW to determine if any rare species are present within the permitted ROW. Any indirect impacts to rare species are expected to be minimal because of the amount of the surrounding habitat. Through use of Applicant-proposed avoidance and minimization measures, direct impacts to rare species are not expected (pg. 482).
	State Rare Communities	200 feet					
	MBS Sites of Biodiversity		0	0.0%	0	0.0%	There are no MBS Sites of Biodiversity within either Alternative.
Corridor Sharing	Paralleling Existing Infrastructure	-	-		-		Neither Alternative parallels existing transmission lines.
Electrical System Reliability		-		-		-	Neither Alternative parallels or crosses any existing Manitoba – Minnesota tie lines.
Cost	Total Cost	-	$4,192,842	-		-	The Northome Variation would cost the most to construct.

Relative Merits			Cutfoot Variation Area				
Factor	Element	ROI	Proposed Orange Route (4.2 miles)		Cutfoot Variation (4.8 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
Human Settlement	**Aesthetics**						
	Residences	1,500 feet	0	-	0	-	Neither Alternative would impact any residences within 1,500 feet.
	Historic Architectural Sites	5,280 feet	0	-	0	-	Neither Alternative would impact any known architectural sites within 5,280 feet.
	Scenic Byway	1,500 feet	0		0		Neither Alternative would cross a Scenic Byway.
	Trails	1,500 feet	0	-	0	-	Neither Alternative would cross any trails.
	Land Use Compatibility						
	Dominant Land Cover Type	1,500 feet	1,652 ac	97.3%	1,874 ac	99.3%	Both Alternatives' major land cover type is Forested and/or Swamp. Both Alternatives would result in a long-term change in land use for areas currently forested and/or swamp land, but these changes would be limited in extent, and there would still be extensive forest and swamp lands in the surrounding area; so these changes are expected to have a minimal impact on land use (pg. 485).
	Land Ownership	200 feet	102 acres total		116 acres total		Both Alternatives are located entirely within public land.
	Public		103	101.2%	116	99.7%	
	Private		0	0.0%	0	0.0%	
Land-Based Economies	Agriculture	1,500 feet	0	0.0%	0	0.0%	Neither Alternative would impact agricultural land.
	Forestry	200 feet	103	101.2%	116	99.7%	Both Alternatives are entirely located within State Forest lands.
	Mining & Mineral Leases		29	28.5%	4	3.4%	The Orange Route contains more acres of mining and mineral leases than the Cutfoot Variation; however both would impact aggregate mining resources.
Archaeology and Historic Architectural Resources	Historic Architectural Sites	5,280 feet	0	-	0	-	Neither Alternative would impact any known historic architectural or archaeological sites.
	Archaeological Sites	1,500 feet	0	-	0	-	
Water Resources	PWI Waters	Crossings or 200 feet	0	-	0	-	The Orange Route would cross very few, if any, PWI and non-PWI waters; however, it is anticipated that these crossings are spannable (crossings would be less than the average spanning length of 1,250 feet) and structures would not be placed in them. The Cutfoot Variation would not cross any waterbodies.
	Non-PWI Waters		2	-	0	-	
	Impaired Waters		0	-	0	-	
	Floodplains		0	-	0	-	Neither Alternative would impact FEMA-designated floodplains.
	NWI Wetlands		57	56.0%	67	57.6%	Both Alternatives would potentially impact very few acres of NWI-mapped wetlands. While direct, adverse impacts to forested and shrub wetlands are permanent and may change wetland functions within the ROW, they are expected to be minimal because of the amount of surrounding forested and shrub wetlands in the region (pg. 490).

Relative Merits			Cutfoot Variation Area				
Factor	Element	ROI	Proposed Orange Route (4.2 miles)		Cutfoot Variation (4.8 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
Vegetation	North American Boreal Flooded &Swamp Forest	200 feet	28	27.5%	30	25.8%	Both Alternatives would potentially impact a similar amount of forest land. While direct, adverse impacts to forested areas would be long-term, contiguous forest is abundant in the region surrounding the Project (pg. 492).
	North American Boreal Forest		30	29.5%	64	55.0%	
	Eastern North American Flooded & Swamp Forest		39	38.3%	20	17.2%	
	Other		74	72.7%	86	73.9%	
Wildlife	All/Any	200 feet	0	0.0%	0	0.0%	Neither Alternative would impact recognized wildlife resource areas.
Rare and Unique Natural Resources	Rare Species	1 mile (aquatic species not included)	0	-	0	-	Neither Alternative is located within one mile of a documented rare species.
	State Rare Communities	200 feet					
	MBS Sites of Biodiversity		43	42.2%	60	51.5%	Both Alternatives would potentially impact similar amounts of MBS Sites of Biodiversity.
Corridor Sharing	Paralleling Existing Infrastructure	-	-		-		Neither Alternative parallels existing transmission lines.
Electrical System Reliability		-		-		-	Neither Alternative parallels or crosses any existing Manitoba – Minnesota tie lines.
Cost	Total Cost	-	$5,840,638	-	$8,222,257	-	The Cutfoot Variation would cost the most to construct.



Proposed Regeneration Site

Proposed Routes

- Blue/Orange Route
- Blue Route
- Orange Route
- J2 Segment Option

Alternatives

- Effie Variation
- Alignment Modification

Existing Transmission Lines

- 69 or 115 kV
- 230 kV
- 500 kV

Streets and Highways

- US Highway
- State Trunk Highway
- County State Aid Highway
- Local Road
- Variation Area
- Municipal Boundary
- County Boundary

Note:
Anticipated alignments are shown offset for display purposes only. Please refer to more detailed maps for precise alignment placement.

The Applicant will be issued a Route Permit with a specific route width. The proposed route widths are shown in Appendix S.

Miles
3.8 0 3.8

Map 4-15

EFFIE VARIATION AREA
Great Northern Transmission Line
Draft Environmental Impact Statement

U.S. DEPARTMENT OF ENERGY
MINNESOTA DEPARTMENT OF COMMERCE

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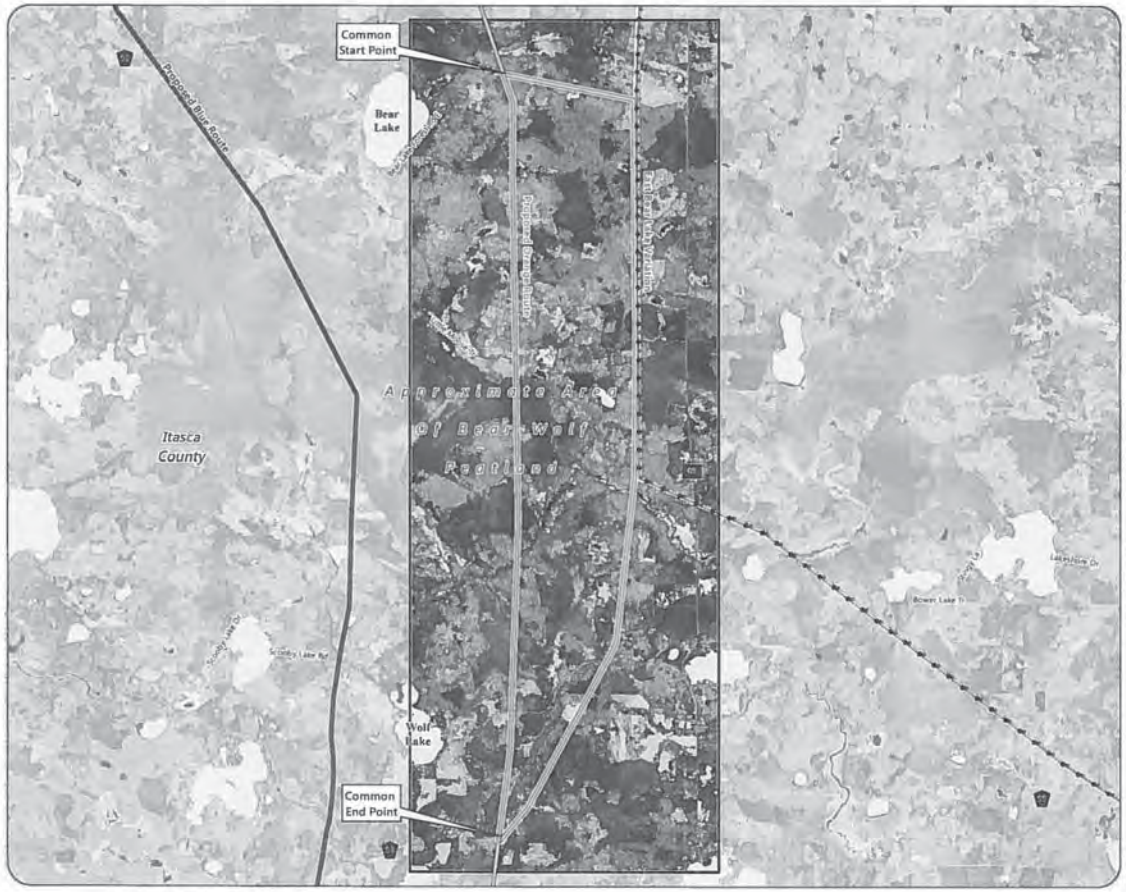
Relative Merits			Effie Variation						
Factor	Element	ROI	Proposed Blue Route (41.1 miles)		Proposed Orange Route (44.6 miles)		Effie Variation (49.8 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
Human Settlement	**Aesthetics**								
	Residences	1,500 feet	4	-	5	-	14	-	The Effie Variation impacts generally three times as many residences as the Blue or Orange Routes.
	Historic Architectural Sites	5,280 feet	1	-	1	-	3	-	Both the Blue and Orange Routes would potentially impact one historic architectural site within 5,280 feet. The Effie Variation would potentially impact three sites; however, the permitted Route width will be less than 5,280 feet so some sites may not be impacted.
	Parks	1,500 feet	1		1		0		Both the Blue and Orange Routes would potentially impact one County Park; the Effie Variation would not.
	Trails	1,500 feet	6	-	7	-	5	-	All Alternatives would cross at least five state or snowmobile trails.
	Water Access	1,500 feet	0	-	0	-	1	-	The Blue and Orange Routes would not impact any water access points; the Effie Variation would potentially impact one water access.
	Land Use Compatibility								
	Dominant Land Cover Type	1,500 feet	14,723 ac	97.6%	15,601 ac	96.7%	17,696 ac	96.8%	All Alternatives' major land cover type is Forested and/or Swamp. All Alternatives would result in a long-term change in land use for areas currently forested and/or swamp land, but these changes would be limited in extent, and there would still be extensive forest and swamp lands in the surrounding area; so these changes are expected to have a minimal impact on land use (pg. 465, 555).
	Land Ownership	200 feet	996 acres total		1,081 acres total		1,207 acres total		All Alternatives are almost entirely located on public lands. The Effie Variation contains the most acres of private land.
	Public		919	92.2%	962	89.0%	1,086	90.0%	
	Private		77	7.7%	119	11.0%	121	10.0%	
Land-Based Economies	Agriculture	1,500 feet	0	0.0%	0	0.0%	0	0.0%	None of the Alternatives would impact agricultural land.
	Forestry	200 feet	909	91.2%	958	88.6%	1,086	90.0%	All Alternatives are mostly located within State Forests; the Effie Variation would potentially impact the most acres of State Forest.
	Mining & Mineral Leases		647	64.9%	819	75.7%	824	68.3%	All Alternatives contain numerous acres of mining and mineral leases; the Effie Variation contains the most acres of mining and mineral leases.
Archaeology and Historic Architectural Resources	Historic Architectural Sites	5,280 feet	1	-	1	-	3	-	Both the Blue and Orange Routes would potentially impact one historic architectural site within 5,280 feet. The Effie Variation would potentially impact three sites; however, the permitted Route width will be less than 5,280 feet so some sites may not be impacted. The Blue and Orange Routes would not impact any known archaeological sites; the Effie Variation would potentially impact two sites.
	Archaeological Sites	1,500 feet	0	-	0	-	2	-	
	PWI Waters		10	-	13	-	13	-	All Alternatives will require crossing a number of waterbodies; however, it is anticipated that these crossings are spannable (crossings would be less than the average spanning length of 1,250 feet) and structures would not be placed in them.
	Non-PWI Waters		9	-	11	-	15	-	
	Impaired Waters		0	-	0	-	0	-	

Relative Merits			Effie Variation						
Factor	Element	ROI	Proposed Blue Route (41.1 miles)		Proposed Orange Route (44.6 miles)		Effie Variation (49.8 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
Water Resources	Floodplains	Crossings or 200 feet	3	0.3%	3	0.3%	0	0.0%	The Effie Variation would not impact any FEMA-designated floodplains. The Blue and Orange Routes would cross a Zone A floodplain; however, the crossings would be less than the average spanning length of 1,250 feet. Therefore, it would be expected that the floodplain crossings would be spanned and transmission structures would not be placed in them (pg. 544).
	NWI Wetlands		443	44.5%	391	36.2%	413	34.2%	All Alternatives would potentially impact similar acres of NWI-mapped wetlands. While direct, adverse impacts to forested and shrub wetlands are permanent and may change wetland functions within the ROW, they are expected to be minimal because of the amount of surrounding forested and shrub wetlands in the region (pg. 544).
Vegetation	North American Boreal Forest	200 feet	473	47.5%	569	52.6%	558	46.1%	All Alternatives would potentially impact a similar amount of forest land. While direct, adverse impacts to forested areas would be long-term, contiguous forest is abundant in the region surrounding the Project (pg. 546).
	North American Boreal Flooded & Swamp Forest		399	40.0%	339	31.4%	364	30.1%	
	Eastern North American Cool Temperate Forest		25	2.5%	40	3.7%	35	2.9%	
	Eastern North American Flooded & Swamp Forest		81	8.1%	99	9.2%	208	17.2%	
	Other		18	1.8%	133	12.3%	252	20.9%	
Wildlife	Important Bird Areas	200 feet	69	-	69	-	0	-	The Blue and Orange Routes contain 69 acres of land designated as an Important Bird Area. Short-term indirect impacts are expected to be minimal because of the large amount of similar habitat in the surrounding region, and the long-term direct impacts are expected to be minimized through use of Applicant-proposed minimization measures (Section 2.13) (pg. 547).
Rare and Unique Natural Resources	Rare Species	1 mile (aquatic species not included)	3	-	4	-	2	-	All Alternatives are within one mile of a colonial waterbird nesting site and at least one vascular plant. The Orange Route is within one mile of the greatest number of species. Surveys will be performed on the final 200-foot ROW to determine if any rare species are present within the permitted ROW. Any indirect impacts to rare species are expected to be minimal because of the amount of the surrounding habitat. Through use of Applicant-proposed avoidance and minimization measures, direct impacts to rare species are not expected (pg. 550).
	State Rare Communities	200 feet							
	MBS Sites of Biodiversity		422	42.4%	490	45.3%	427	35.4%	All Alternatives would potentially impact a similar number of acres of MBS Sites of Biodiversity; the Orange Route would pass through the most acres (pg. 551).

Relative Merits							Effie Variation		
Factor	Element	ROI	Proposed Blue Route (41.1 miles)		Proposed Orange Route (44.6 miles)		Effie Variation (49.8 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
Corridor Sharing	Paralleling Existing Infrastructure	-	-	-	-	-	-	80.0%	The Blue and Orange Routes would not parallel any existing transmission lines; however the Effie Variation would parallel two existing transmission line for approximately 80% of its length.
Electrical System Reliability		-		-		-		-	The Blue and Orange Routes do not parallel any existing Manitoba – Minnesota tie lines. The Blue Route would establish one new crossing of the existing 500 kV tie line. The Effie Variation would establish one new crossing of the existing 500 kV tie line and, more significantly, parallel both the 500 kV tie line and the 230 kV tie line in the same corridor for a significant part of its length, which would result in unacceptable risk to northern Minnesota loads.
Cost	Total Cost	-	$46,649,800	-	$49,488,323	-		-	Both the Orange Route and Effie Variation would cost more to construct than the Blue Route.



Proposed Routes
- Blue Route
- Orange Route

Alternatives
- East Bear Lake Variation

Existing Transmission Lines
- 230 kV
- 500 kV

Streets and Highways
- State Trunk Highway
- County State Aid Highway
- Local Road
- Variation Area

Note:
Anticipated alignments are shown offset for display purposes only. Please refer to more detailed maps for precise alignment placement.

The Applicant will be issued a Route Permit with a specific route width. The proposed route widths are shown in Appendix S.

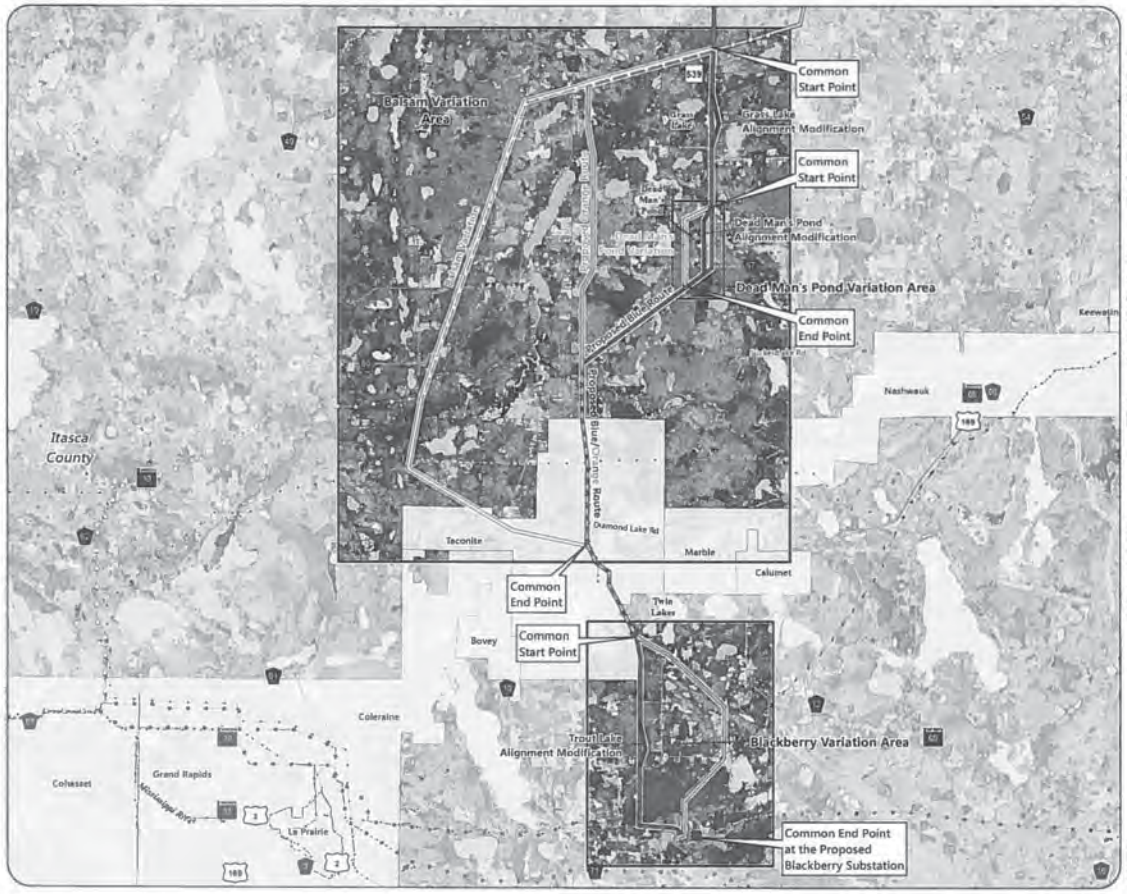
Miles
1 0 1

Map 4-16

EAST BEAR LAKE VARIATION AREA
Great Northern Transmission Line
Draft Environmental Impact Statement

Relative Merits			East Bear Lake Variation Area				
Factor	Element	ROI	Proposed Orange Route (8.9 miles)		East Bear Lake Variation (10.5 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
Human Settlement	**Aesthetics**						
	Residences	1,500 feet	0	-	0	-	Neither Alternative would impact any residences.
	Historic Architectural Sites	5,280 feet	0	-	0	-	Neither Alternative would impact any known historic architectural sites.
	Scenic Byway	1,500 feet	0		0		Neither Alternative would impact any Scenic Byways
	Trails		4		4		Both Alternatives would potentially impact one state trail and three snowmobile trails.
	Water Access Points		0	-	1	-	The East Bear Lake Variation would potentially impact one water access point.
	Land Use Compatibility						
	Dominant Land Cover Type	1,500 feet	3,381 ac	99.2%	3,910 ac	98.2%	Both Alternatives' major land cover type is Forested and/or Swamp. Both Alternatives would result in a long-term change in land use for areas currently forested and/or swamp land, but these changes would be limited in extent, and there would still be extensive forest and swamp lands in the surrounding area, so these changes are expected to have a minimal impact on land use (pg. 555).
	Land Ownership	200 feet	216 acres total		255 acres total		Both Alternatives are entirely located within public lands.
	Public		217	100.6%	256	100.6%	
	Private		0	0.0%	0	0.0%	
Land-Based Economies	Agriculture	1,500 feet	0	0.0%	0	0.0%	Neither Alternative would impact agricultural land.
	Forestry	200 feet	217	100.6%	256	100.6%	Both Alternatives are entirely located within State Forest lands.
	Mining & Mineral Leases		96	44.5%	193	75.8%	The East Bear Lake Variation would potentially impact nearly double the acres of mining and mineral leases than the Orange Route.
Archaeology and Historic Architectural Resources	Historic Architectural Sites	5,280 feet	0	-	0	-	Neither Alternative would impact any known historic architectural or archaeological sites.
	Archaeological Sites	1,500 feet	0	-	0	-	
Water Resources	PWI Waters	Crossings or 200 feet	4	-	2	-	Both Alternatives would cross a small number of PWI and non-PWI waters; however, it is anticipated that these crossings are spannable (crossings would be less than the average spanning length of 1,250 feet) and structures would not be placed in them.
	Non-PWI Waters		0	-	3	-	
	Impaired Waters		0	-	0	-	
	Floodplains		0	-	0	-	Neither Alternative would impact any FEMA-designated floodplains.

Relative Merits			East Bear Lake Variation Area				
Factor	Element	ROI	Proposed Orange Route (8.9 miles)		East Bear Lake Variation (10.5 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
	NWI Wetlands		104	48.2%	89	35.0%	The Orange Route would potentially impact slightly more acres of NWI-mapped wetlands than the East Bear Lake Variation. While direct, adverse impacts to forested and shrub wetlands are permanent and may change wetland functions within the ROW, they are expected to be minimal because of the amount of surrounding forested and shrub wetlands in the region (pg. 561).
Vegetation	North American Boreal Forest	200 feet	103	47.7%	140	55.0%	Both Alternatives would potentially impact a similar amount of forested land. While direct, adverse impacts to forested areas would be long-term, contiguous forest is abundant in the region surrounding the Project (pg. 562).
	North American Boreal Flooded & Swamp Forest		94	43.6%	77	30.3%	
	Other		113	52.4%	115	45.2%	
Wildlife	All/Any	200 feet	0	0.0%	0	0.0%	Neither Alternative would impact recognized wildlife resource areas.
Rare and Unique Natural Resources	Rare Species	1 mile (aquatic species not included)	1	-	1	-	Both Alternatives would be located within one mile of a state-listed special concern vascular plant. Surveys will be performed on the final 200-foot ROW to determine if any rare species are present within the permitted ROW. Any indirect impacts to rare species are expected to be minimal because of the amount of the surrounding habitat. Through use of Applicant-proposed avoidance and minimization measures, direct impacts to rare species are not expected (pg. 564).
	State Rare Communities	200 feet					
	MBS Sites of Biodiversity		217	100.6%	255	100.2%	Both Alternatives are entirely located within MBS Sites of Biodiversity; the East Bear Lake Variation would pass through more MBS Sites (pg. 565).
Corridor Sharing	Paralleling Existing Infrastructure	-	-		-	42.0%	The East Bear Lake Alternative parallels existing transmission line for approximately 42% of its length.
Electrical System Reliability		-		-		-	The Orange Route does not parallel any existing Manitoba – Minnesota tie lines. The East Bear Lake Variation would parallel both the 500 kV tie line and the 230 kV tie line in the same corridor for a significant part of its length, which would result in unacceptable risk to northern Minnesota loads.
Cost	Total Cost	-	$9,736,790	-		-	The East Bear Lake Variation would cost the most to construct.



Proposed Blackberry Substation Location

Proposed Routes

- Blue/Orange Route
- Blue Route
- Orange Route

Alternatives

- Balsam Variation
- Dead Man's Pond Variation
- Alignment Modification
- Abandoned 230 kV Transmission Line Corridor

Existing Transmission Lines

- 69 or 115 kV
- 230 kV

Streets and Highways

- US Highway
- State Trunk Highway
- County State Aid Highway
- Local Road
- Variation Area
- Municipal Boundary

Note:
Anticipated alignments are shown offset for display purposes only. Please refer to more detailed maps for precise alignment placement.

The Applicant will be issued a Route Permit with a specific route width. The proposed route widths are shown in Appendix 5.

Miles
2 0 2

Map 4-17

BALSAM, DEAD MAN'S POND, AND BLACKBERRY VARIATION AREAS
Great Northern Transmission Line
Draft Environmental Impact Statement

U.S. DEPARTMENT OF ENERGY | COMMERCE

75

Relative Merits							Balsam Variation Area		
Factor	Element	ROI	Proposed Blue Route (12.9 miles)		Proposed Orange Route (13.7 miles)		Balsam Variation (17.8 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
Human Settlement	**Aesthetics**								
	Residences	1,500 feet	7	-	21		11	-	The Orange Route has the highest potential to impact residences; the Balsam Variation has 11 residences within 1,500 feet and the Blue Route has the lowest potential impact to residences.
	Historic Architectural Sites	5,280 feet	13	-	24		28	-	The Orange Route and Balsam Variation have the highest potential to impact architectural sites; however, the permitted Route width will be less than 5,280 feet so some sites may not be impacted.
	Scenic Byway	1,500 feet	0		0		0		No Alternatives would impact Scenic Byways.
	Trails		2		2		3		The Blue and Orange Routes would potentially impact two snowmobile trails; Balsam Variation would impact three.
	Land Use Compatibility								
	Land Cover of Forested and/or Swamp	1,500 feet	4,541 ac	93.5%	4,828 ac	94.1%	5,189 ac	93.2%	All Alternatives' major land cover type is Forested and/or Swamp. All Alternatives would result in a long-term change in land use for areas currently forested and/or swamp land, but these changes would be limited in extent, and there would still be extensive forest and swamp lands in the surrounding area; so these changes are expected to have a minimal impact on land use (pg. 572).
	Land Ownership	200 feet	313 acres total		332 acres total		432 acres total		All Alternatives are generally located on a majority of private lands. The Balsam Variation would potentially impact the most acres of private land.
	Public		67	21.4%	53	16.0%	107	24.8%	
	Private		246	78.7%	279	84.0%	325	75.2%	
Land-Based Economies	Agriculture	1,500 feet	4	0.1%	70	1.4%	72	1.1%	The Blue Route would potentially impact the fewest acres of agricultural land; the Balsam Variation would impact the most.
	Forestry	200 feet	0	0.0%	0	0.0%	0	0.0%	No Alternatives would be located in State Forest lands.
	Mining & Mineral Leases		0	0.0%	0	0.0%	[illegible]	20.6%	The Blue and Orange Routes would not impact mining and mineral leases; the Balsam Variation would potentially impact 69 acres. It should be noted that an **active** mine would impede the construction and operation of the Balsam Variation and therefore it is no longer feasible.
Archaeology and Historic Architectural Resources	Historic Architectural Sites	5,280 feet	13	-	24		28	-	The Orange Route and Balsam Variation have the highest potential to impact known architectural sites. The Blue and Orange Routes would not impact any known archaeological sites; however, the permitted Route width will be less than 5,280 feet so some sites may not be impacted.
	Archaeological Sites	1,500 feet	0	-	0		1	-	
	PWI Waters		7	-	5		4	-	All Alternatives would cross a small number of PWI and non-PWI waters; however, it is anticipated that these crossings are spannable (crossings would be less than the average spanning length of 1,250 feet) and structures would not be placed in them.
	Non-PWI Waters		1	-	4		3	-	
	Impaired Waters		0	-	0		0	-	

Relative Merits			Proposed Blue Route (12.9 miles)		Proposed Orange Route (13.7 miles)		Balsam Variation Area Balsam Variation (17.8 miles)		
Factor	Element	ROI	Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	Notes
Water Resources	Floodplains	Crossings or 200 feet	0	-	26		22	-	The Blue Route would not impact FEMA-designated floodplains whereas the Orange Route and Balsam Variation would require construction and placement of transmission structures within Zone A floodplain.
	NWI Wetlands		54	17.3%	69	20.8%	98	22.2%	The Balsam Variation would potentially impact the most acres of NWI-mapped wetlands. While direct, adverse impacts to forested and shrub wetlands are permanent and may change wetland functions within the ROW, they are expected to be minimal because of the amount of surrounding forested and shrub wetlands in the region (pg. 578).
Vegetation	North American Boreal Forest	200 feet	205	65.6%	208	62.6%	234	54.2%	The Balsam Variation would pass through more forested land than the Blue and Orange Routes. While direct, adverse impacts to forested areas would be long-term, contiguous forest is abundant in the region surrounding the Project (pg. 580).
	North American Boreal Flooded & Swamp Forest		12	3.8%	15	4.5%	40	9.3%	
	Eastern North American Cool Temperate Forest		53	16.9%	47	14.2%	60	13.9%	
	Eastern North American Cool Temperate Flooded & Swamp Forest		29	9.3%	47	14.2%	68	15.8%	
	Other		108	34.5%	124	37.3%	198	45.9%	
Wildlife	All/Any	200 feet	0	0.0%	0	0.0%	0	0.0%	No Alternatives would impact recognized wildlife resource areas.
Rare and Unique Natural Resources	Rare Species	1 mile (aquatic species not included)	1	-	0	0.0%	0	-	The Blue Route is located within one mile of a state-listed special concern vascular plant. Surveys will be performed on the final 200-foot ROW to determine if any rare species are present within the permitted ROW. Any indirect impacts to rare species are expected to be minimal because of the amount of the surrounding habitat. Through use of Applicant-proposed avoidance and minimization measures, direct impacts to rare species are not expected (pg. 582).
	State Rare Communities	200 feet							
	MBS Sites of Biodiversity		78	24.9%	105	31.8%	95	22.0%	The Orange Route would potentially impact the most acres of MBS Sites of Biodiversity; the Blue Route would potentially impact the fewest.
Corridor Sharing	Paralleling Existing Infrastructure	-	-	15.0%		14.0%	-		The Blue and Orange Routes would parallel existing transmission lines for 15 and 14% of their lengths, respectively; the Balsam Variation would not parallel existing transmission lines.

Relative Merits			Balsam Variation Area						
Factor	Element	ROI	Proposed Blue Route (12.9 miles)		Proposed Orange Route (13.7 miles)		Balsam Variation (17.8 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
Electrical System Reliability		-		-				-	No Alternatives parallel or cross any existing Manitoba – Minnesota tie lines.
Cost	Total Cost	-	$15,121,621	-	$16,018,490			-	Both the Orange and the Balsam Variation would cost more to construct than the Blue Route.

Relative Merits			Dead Man's Pond Variation Area				
Factor	Element	ROI	Proposed Blue Route (2.2 miles)		Dead Man's Pond Variation (2.3 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
Human Settlement	**Aesthetics**						
	Residences	1,500 feet	2	-	4	-	Dead Man's Pond Variation would potentially impact more residences within 1,500 feet.
	Historic Architectural Sites	5,280 feet	1	-	1	-	Both Alternatives would potentially impact a historic architectural site within 5,280 feet; however, the permitted Route width will be less than 5,280 feet so some sites may not be impacted.
	Scenic Byway	1,500 feet	0		0		Neither Alternative would cross a Scenic Byway.
	Trails	1,500 feet	0	-	0	-	Neither Alternative would cross any trails.
	Land Use Compatibility						
	Dominant Land Cover Type	1,500 feet	905 ac	94.2%	925 ac	93.7%	Both Alternatives' major land cover type is Forested and/or Swamp. Both Alternatives would result in a long-term change in land use for areas currently forested and/or swamp land, but these changes would be limited in extent, and there would still be extensive forest and swamp lands in the surrounding area; so these changes are expected to have a minimal impact on land use (pg. 588).
	Land Ownership	200 feet	53 acres total		56 acres total		The Blue Route is mostly located on private land whereas the Dead Man's Pond Variation is mostly located on public land.
	Public		19	35.6%	37	66.3%	
	Private		34	63.8%	19	34.1%	
Land-Based Economies	Agriculture	1,500 feet	0	0.0%	2	0.2%	The Blue Route would not impact agricultural land.
	Forestry	200 feet	0	0.0%	0	0.0%	Neither Alternative would impact State Forest lands.
	Mining & Mineral Leases		0	0.0%	0	0.0%	Neither Alternative would impact any mining or mineral leases.
Archaeology and Historic Architectural Resources	Historic Architectural Sites	5,280 feet	1	-	1	-	Both Alternatives would potentially impact a historic architectural site within 5,280 feet; however, the permitted Route width will be less than 5,280 feet so some sites may not be impacted. There are no known archaeological sites within one mile of either Alternative.
	Archaeological Sites	1,500 feet	0	-	0	-	
Water Resources	PWI Waters	Crossings or 200 feet	0	-	0	-	Neither Alternative would cross any PWI, non-PWI, or impaired waters.
	Non-PWI Waters		0	-	0	-	
	Impaired Waters		0	-	0	-	
	Floodplains		0	-	0	-	Neither Alternative would impact FEMA-designated floodplains.
	NWI Wetlands		14	26.3%	4	7.2%	Both Alternatives would potentially impact very few acres of NWI-mapped wetlands. While direct, adverse impacts to forested and shrub wetlands are permanent and may change wetland functions within the ROW, they are expected to be minimal because of the amount of surrounding forested and shrub wetlands in the region (pg. 592).

Relative Merits			Dead Man's Pond Variation Area				
Factor	Element	ROI	Proposed Blue Route (2.2 miles)		Dead Man's Pond Variation (2.3 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
Vegetation	North American Boreal Forest	200 feet	34	63.8%	43	77.1%	Both Alternatives would potentially impact a similar amount for forested land. While direct, adverse impacts to forested areas would be long-term, contiguous forest is abundant in the region surrounding the proposed Project (pg. 593).
	Eastern North American Cool Temperate Forest		14	26.3%	6	10.8%	
	Other		19	35.6%	13	23.3%	
Wildlife	All/Any	200 feet	0	0.0%	0	0.0%	Neither Alternative would impact recognized wildlife resource areas.
Rare and Unique Natural Resources	Rare Species	1 mile (aquatic species not included)	0	-	0	-	Neither Alternative is located within one mile of a documented rare species.
	State Rare Communities	200 feet					
	MBS Sites of Biodiversity		0	0.0%	0	0.0%	There are no MBS Sites of Biodiversity within either Alternative.
Corridor Sharing	Paralleling Existing Infrastructure	-	-		-		Neither Alternative parallels existing transmission lines.
Electrical System Reliability		-		-		-	Neither Alternative parallels or crosses any existing Manitoba – Minnesota tie lines.
Cost	Total Cost	-	$2,873,223	-		-	The Dead Man's Pond Variation would cost the most to construct.

Relative Merits			Blackberry Variation Area				
Factor	Element	ROI	Proposed Blue Route (5.4 miles)		Proposed Orange Route (6.1 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
Human Settlement	**Aesthetics**						
	Residences	1,500 feet	11	-	22	-	The Orange Route has twice as many homes (22) within 1,500 feet as the Blue Route (11).
	Historic Architectural Sites	5,280 feet	6	-	1	-	The Blue Route has a higher potential to impact historic architectural sites within 5,280 feet; however, the permitted Route width will be less than 5,280 feet so some sites may not be impacted.
	Scenic Byway	1,500 feet	0		0		Neither Route would cross a Scenic Byway.
	Trails	1,500 feet	1	-	1	-	Both Routes would cross one snowmobile trail.
	Land Use Compatibility						
	Dominant Land Cover Type	1,500 feet	2,004 ac	94.2%	1,982 ac	84.2%	Both Routes' major land cover type is Forested and/or Swamp. Both Routes would result in a long-term change in land use for areas currently forested and/or swamp land, but these changes would be limited in extent, and there would still be extensive forest and swamp lands in the surrounding area; so these changes are expected to have a minimal impact on land use (pg. 599).
	Land Ownership	200 feet	131 acres total		148 acres total		Both Routes contain a similar number of acres of public and private lands.
	Public		41	31.3%	54	36.5%	
	Private		90	68.8%	94	63.6%	
Land-Based Economies	Agriculture	1,500 feet	50	2.4%	192	8.2%	The Blue Route would potentially impact fewer acres of agriculture than the Orange Route.
	Forestry	200 feet	0	0.0%	0	0.0%	Neither Route would impact State Forest lands.
	Mining & Mineral Leases		37	28.3%	33	22.3%	Both Routes would potentially impact a similar acres of mining and mineral leases.
Archaeology and Historic Architectural Resources	Historic Architectural Sites	5,280 feet	6	-	1	-	The Blue Route has a higher potential to impact historic architectural sites within 5,280 feet; however, the permitted Route width will be less than 5,280 feet so some sites may not be impacted. There are no known archaeological sites within one mile of either Route.
	Archaeological Sites	1,500 feet	0	-	0	-	
Water Resources	PWI Waters	Crossings or 200 feet	0	-	0	-	Both Routes would cross a small number non-PWI and impaired waters; however, it is anticipated that these crossings are spannable (crossings would be less than the average spanning length of 1,250 feet) and structures would not be placed in them (pg. 603-604).
	Non-PWI Waters		1	-	3	-	
	Impaired Waters		1	-	1	-	
	Floodplains		0	-	0	-	Neither Route would impact FEMA-designated floodplains.
	NWI Wetlands		51	39.0%	40	27.0%	Both Routes would potentially impact very few acres of NWI-mapped wetlands. While direct, adverse impacts to forested and shrub wetlands are permanent and may change wetland functions within the ROW, they are expected to be minimal because of the amount of surrounding forested and shrub wetlands in the region (pg. 604).

Relative Merits			Blackberry Variation Area				
Factor	Element	ROI	Proposed Blue Route (5.4 miles)		Proposed Orange Route (6.1 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
Vegetation	North American Boreal Forest	200 feet	80	45.8%	52	35.2%	The Blue and Orange Routes would pass through a similar amount of forested land. While direct, adverse impacts to forested areas would be long-term, contiguous forest is abundant in the region surrounding the Project (pg. 606)
	North American Boreal Flooded & Swamp Forest		30	22.9%	26	17.6%	
	Eastern North American Cool Temperate Forest		33	25.2%	49	33.1%	
	Other		71	54.2%	96	64.9%	
Wildlife	All/Any	200 feet	0	0.0%	0	0.0%	Neither Route would impact recognized wildlife resource areas.
Rare and Unique Natural Resources	Rare Species	1 mile (aquatic species not included)	2	-	3	-	Both Routes are within one mile of two threatened vascular plants; the Orange Route is within one mile of a special-concern bird listing. Surveys will be performed on the final 200-foot ROW to determine if any rare species are present within the permitted ROW. Any indirect impacts to rare species are expected to be minimal because of the amount of the surrounding habitat. Through use of Applicant-proposed avoidance and minimization measures, direct impacts to rare species are not expected (pg. 608).
	State Rare Communities	200 feet					
	MBS Sites of Biodiversity		57	43.5%	79	53.4%	Loss or conversion of native vegetation would likely be similar between the Blue and Orange Routes (pg. 608).
Corridor Sharing	Paralleling Existing Infrastructure	-	-	20.0%	-	37.0%	The Orange Route parallels existing transmission lines for 37% of its length; the Blue Route parallels existing transmission lines for 20%.
Electrical System Reliability		-		-		-	Neither Alternative parallels or crosses any existing Manitoba – Minnesota tie lines.
Cost	Total Cost	-	$8,380,880	-		-	The Orange Route would cost the most to construct.

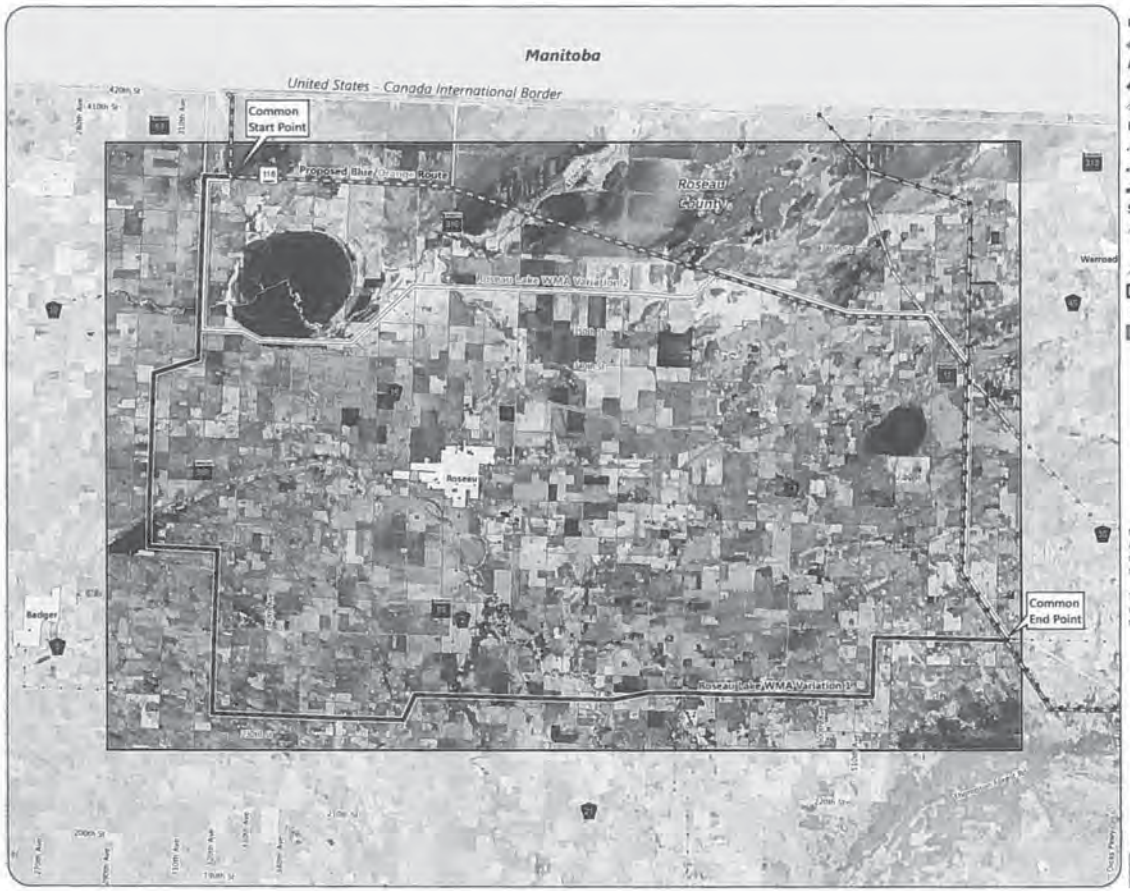
0192-1
DUPLICATE

Great Northern Transmission Line

Relative Merits Table

Color	Definition
Green	The alternative will have minimal effects on the resource with the implementation of best management practices, such that no mitigation is required.
Yellow	The alternative will have minimal to moderate effects on the resource with the implementation of best management practices, such that mitigation is likely to be required.
	The alternative will have moderate or greater effects on the resource, and those effects cannot be mitigated.
Some routing factors that are not susceptible to the minimal-moderate-unmitigable system described above. In such cases, Minnesota Power's tables assign colors in the following manner:	
Corridor Sharing	Green means greater than 90% of the Route or Variation parallels an existing transmission line; yellow means between 10% and 90% of the Route or Variation parallels existing transmission lines; and red means less than 10% of the Route or Variation parallels an existing transmission line.
Costs	Green represents the costs proposed in Minnesota Power's Certificate of Need application for a particular route segment, or anything less expensive. Yellow represents anything that costs up to 20% more than Minnesota Power's proposed costs. Red represents anything that costs more than 20% of what Minnesota Power proposed, because anything in excess of that threshold.
Electrical System Reliability	For electrical system reliability; green means no identifiable impact (does not parallel or cross any existing Manitoba-Minnesota tie lines); yellow means acceptable impact (impacts to electrical system reliability are moderate and acceptable); red means: unacceptable impact (impacts to electrical system reliability are sever and unacceptable). These judgments are based on the expertise of Minnesota Power's engineers, and are further discussed in the company's comments on the DEIS.

Factor	Element	Footnote
General		Unless otherwise stated below, the ROIs discussed in Chapters 5 and 6 of the DEIS are used in these comparison tables. Consistent with its comments on the DEIS, Minnesota Power has used alternative ROIs and/or other metrics for assessing effects, as described below, and as further explained in its DEIS comments. Minnesota Power does not have access to the exact methodology or data used in the DEIS. As a result, Minnesota Power compiled these tables by copying and, when necessary or appropriate, interpreting the data used in Chapter 6 of the DEIS.
Human Settlement	Aesthetics	Minnesota Power did not include state forests in its calculation of aesthetic effects. The DEIS already addresses public recreation opportunities within state forests by including trails, campgrounds, and water access points in its list of aesthetic resources. Adding state forests to the list essentially double-counts these public recreational opportunities, while ignoring the fact that the vast state forests in the project area are rarely used as recreational areas.
	Land Use Compatibility	The dominant land cover type is presented in the table to highlight the most abundant resource within the Route/Alternative.
	Land Ownership	
	Public	All public lands are added together for this comparison. Public lands include Federal, State, and County lands.
	Private	Private land is calculated by subtracting public lands from the total number of acres within the ROW for a particular Route/Alternative. A more accurate count of acres of private land and number of private landowners crossed could be made by using County Tax Assessor parcel data.
Land-Based Economies	Agriculture	Acres of agricultural land within 1,500 feet is used for this comparison to account for effects on agricultural land and practices that would likely occur beyond just the 200-foot ROW. GAP Landcover data was used to determine acres of agriculture because prime farmland soils are less accurate in identifying actual agricultural land uses.
	Forestry	Only acres of State Forest land within the ROW is used for these comparisons. It should be noted that corporate lands (such as Blandin) could also be included to the extent they are available.
	Mining & Mineral Leases	There are several occurrences where the acres of mining and mineral leases exceed the total number of acres within the ROW of a particular Route/Alternative. These numbers are highlighted in red in the tables. Minnesota Power is unsure about the source of this error and has not attempted to correct it.
Rare and Unique Natural Resources	Rare Species	Minnesota Power removed aquatic species from this calculation in light of the Chapter 6 text (for each Variation Area) consistently stating that PWI, non-PWI, trout, and impaired streams will be spanned and no structures will be placed within the waterbodies.
	Rare Communities	Acres of MBS Sites of Biodiversity and MBS Native Plant Communities include only the "high" or "outstanding" values where the data has been finalized. In other areas, the preliminary total of all ranks is used.
Corridor Sharing	Paralleling Existing Infrastructure	Minnesota Power included only existing high-voltage transmission lines in this analysis because they are the only corridor sharing opportunities that would potentially provide any environmental benefit.
Electrical System Reliability		This assessment of the electrical system reliability impacts of each of the Routes and Variations performed by Minnesota Power's engineers takes into account specifically the locations where the proposed line parallels or crosses existing Manitoba – Minnesota tie lines. For the particular case of the GNTL Project, no other common corridor or line crossing scenarios involving 69 kV, 115 kV, or 230 kV lines that do not connect Manitoba and the United States has any significant impact on electrical system reliability, regardless of how many transmission lines are involved.



Proposed Routes
- Blue/Orange Route

Alternatives
- Roseau Lake WMA Variation 1
- Roseau Lake WMA Variation 2

Existing Transmission Lines
- 69 or 115 kV
- 230 kV
- 500 kV

Streets and Highways
- State Trunk Highway
- County State Aid Highway
- Local Road
- Variation Area
- Municipal Boundary
- International Boundary

Note:
Anticipated alignments are shown offset for display purposes only. Please refer to more detailed maps for precise alignment placement.

The Applicant will be issued a Route Permit with a specific route width. The proposed route widths are shown in Appendix S.

Miles
2.5 0 2.5

Map 4-4

ROSEAU LAKE WMA VARIATION AREA
Great Northern Transmission Line
Draft Environmental Impact Statement

Relative Merits			Roseau Lake WMA Variations						
Factor	Element	ROI	Proposed Blue / Orange Route (30.7 miles)		Roseau Lake WMA Variation 1 (44.1 miles)		Roseau Lake WMA Variation 2 (37.5 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
Human Settlement	**Aesthetics**								
	Residences	1,500 feet	12	-	50	-	23	-	Roseau Lake WMA Variation 1 could potentially impact more than four times as many residences as the Blue/Orange Route.
	Historic Architectural Sites	5,280 feet	0	-	1	-	2	-	The Blue/Orange Route would not impact any known architectural sites within 5,280.
	State Scenic Byways	1,500 feet	1	-	1	-	1	-	All Alternatives would cross State Highway 11 - Waters of the Dancing Sky Scenic Byway.
	Trails		1	-	1	-	1	-	All Alternatives would cross one snowmobile trail.
	Land Use Compatibility								
	Dominant Land Cover Type	1,500 feet	7,350 ac of Forested and/or Swamp	64.9%	12,616 ac of Agricultural Land	78.2%	8,783 ac of Agricultural Land	63.8%	The Blue/Orange Route's major land cover type is Forested and/or Swamp which would result in a long-term change in land use for areas currently forested and/or swamp land, but these changes would be limited in extent, and there would still be extensive forest and swamp lands in the surrounding area; so these changes are expected to have a minimal impact on land use (pg. 272). The Variations' major land cover type is Agriculture.
	Land Ownership	200 feet	744 acres total		1,069 acres total		909 acres total		The Blue/Orange Route contains more acres of public land but would potentially impact the fewest private landowners.
	Public		453	60.9%	6	0.6%	145	15.9%	
	Private		291	39.1%	1,063	99.4%	764	84.0%	
Land-Based Economies	Agriculture	1,500 feet	3,364	29.7%	12,616	78.2%	8,783	63.8%	Variation 1 would potentially impact four times as many acres of agricultural land than the Blue/Orange Route.
	Forestry	200 feet	334	44.9%	6	0.6%	52	5.7%	The Blue/Orange Route contains more acres of State Forest land.
	Mining & Mineral Leases		0	0.0%	0	0.0%	0	0.0%	No Alternatives would impact any mining or mineral leases.
Archaeology and Historic Architectural Resources	Historic Architectural Sites	5,280 feet	0	-	1	-	2	-	The Blue/Orange Route would not impact any known architectural sites within 5,280 nor would it impact any known archaeological sites within 1,500 feet.
	Archaeological Sites	1,500 feet	0	-	3	-	3	-	
Water Resources	PWI Waters	Crossings or 200 feet	2	-	10	-	3	-	All Alternatives would cross a number of waterbodies; however, it is anticipated that these crossings are spannable (crossings would be less than the average spanning length of 1,250 feet) and structures would not be placed in them.
	Non-PWI Waters		23	-	38	-	33	-	
	Impaired Waters		1	-	2	-	2	-	
	Floodplains		321	43.1%	202	18.9%	307	33.8%	All Alternatives contain a similar number of acres of FEMA-designated floodplains and all will require structure placement within floodplains.

Relative Merits			Roseau Lake WMA Variations						
Factor	Element	ROI	Proposed Blue / Orange Route (30.7 miles)		Roseau Lake WMA Variation 1 (44.1 miles)		Roseau Lake WMA Variation 2 (37.5 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
	NWI Wetlands		547	73.5%	102	9.5%	272	29.9%	The Blue/Orange Route would potentially impact twice as many acres of NWI-mapped wetlands as Variation 2. While direct, adverse impacts to forested and shrub wetlands are permanent and may change wetland functions within the ROW, they are expected to be minimal because of the amount of surrounding forested and shrub wetlands in the region (pg. 279).
Vegetation	North American Boreal Flooded & Swamp Forest	200 feet	388	52.1%	61	5.7%	165	18.1%	The Blue/Orange Route contains a greater amount of forest land; the two Variations contain a greater amount of herbaceous agricultural vegetative cover. While direct, adverse impacts to forested areas would be long-term, contiguous forest is abundant in the region surrounding the Project (pg. 280).
	North American Boreal Forest		73	9.8%	30	2.8%	57	6.3%	
	Herbaceous Agricultural		196	26.3%	866	81.0%	531	58.4%	
	Other		87	11.7%	112	10.5%	156	17.2%	
Wildlife	WMAs	200 feet	69	9.3%	0	0.0%	44	4.8%	The Blue/Orange Route and Variation 2 contain similar acres of WMA. Variation 2 contains the most acres of Grassland Bird Conservation Areas; however, ongoing vegetation management of the ROW in early successional vegetative state, would be compatible with grassland bird species' habitat requirements (pg. 282).
	Grassland Bird Conservation Areas		131	17.6%	40	3.7%	220	24.2%	
Rare and Unique Natural Resources	Rare Species	1 mile (aquatic species not included)	7	-	2	-	3	-	The Blue/Orange Route is located within one mile of seven documented rare species. Surveys will be performed on the final 200-foot ROW to determine if any of these species are present within the permitted ROW. Any indirect impacts to rare species from the proposed Project are expected to be minimal because of the amount of surrounding forested habitat and woody vegetation. Through the use of Applicant proposed avoidance and minimization measures, direct impacts to rare species are not expected (pg. 284).
	State Rare Communities	200 feet							
	MBS Sites of Biodiversity		107	14.4%	7	0.7%	77	8.5%	The Blue/Orange Route contains more acres of MBS Sites of Biodiversity, HCVF, and MBS Native Plant communities.
	High Conservation Value Forest		22	3.0%	6	0.6%	6	0.7%	
	MBS Native Plant Communities		39	5.2%	0	0.0%	22	2.4%	
Corridor Sharing	Paralleling Existing Infrastructure	-	-	33.0%	-		-	27.0%	The Blue/Orange Route parallels existing transmission lines for approximately 1/3rd of its length.

Relative Merits			Roseau Lake WMA Variations						
Factor	Element	ROI	Proposed Blue / Orange Route (30.7 miles)		Roseau Lake WMA Variation 1 (44.1 miles)		Roseau Lake WMA Variation 2 (37.5 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
Electrical System Reliability		-		-		-		-	The Blue/Orange Route and Variation 2 both parallel one existing Manitoba – Minnesota tie line for part of their length, while Variation 1 does not parallel any existing Manitoba – Minnesota tie lines.
Cost	Total Cost	-	$33,247,089	-		-		-	Variation 1 would cost the most to construct.

Proposed Regeneration Site

Proposed Routes

Blue/Orange Route

Alternatives

Cedar Bend WMA Variation

Hop 1

Hop 2

Hop3

Proposed Series Compensation Station

Wildlife Managment Area

USFWS Interest Land

Existing Transmission Lines

69 or 115 kV

230 kV

500 kV

Streets and Highways

State Trunk Highway

County State Aid Highway

Local Road

Variation Area

Municipal Boundary

County Boundary

Note:
Anticipated alignments are shown offset for display purposes only. Please refer to more detailed maps for precise alignment placement.

The Applicant will be issued a Route Permit with a specific route width. The proposed route widths are shown in Appendix 5.

Miles

1.5 0 1.5

Map 4-5

CEDAR BEND WMA VARIATION AREA

Great Northern Transmission Line
Draft Environmental Impact Statement

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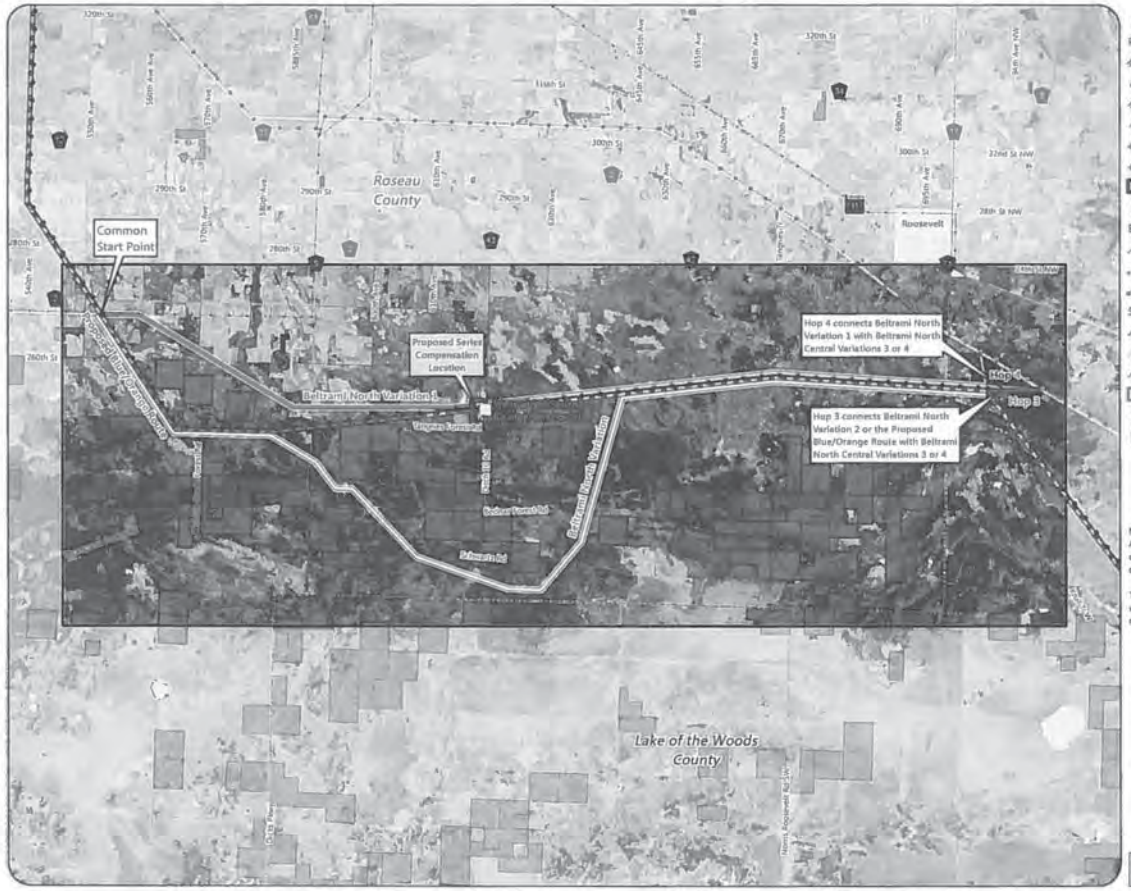
Relative Merits			Cedar Bend WMA Variation				
Factor	Element	ROI	Proposed Blue / Orange Route (24.7 miles)		Cedar Bend WMA Variation (19.6 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
Human Settlement	**Aesthetics**						
	Residences	1,500 feet (within ROW)	11 (0)	-		-	The Cedar Bend WMA Variation would potentially impact ten times as many residences as the Blue/Orange Route and contains 4 homes within the ROW.
	Historic Architectural Sites	5,280 feet	0	-	8	-	The Cedar Bend WMA Variation has a higher potential to impact eight known architectural sites within 5,280 feet; however, the permitted Route width will be less than 5,280 feet so some sites may not be impacted.
	State Scenic Byways	1,500 feet	1	-	1	-	Both Alternatives would cross State Highway 11 - Waters of the Dancing Sky Scenic Byway. Both Alternatives would cross the scenic byway adjacent to existing transmission lines of similar design.
	Trails		2	-	2	-	Both Alternatives would cross two snowmobile trails.
	Land Use Compatibility						
	Dominant Land Cover Type	1,500 feet	8,045 ac	88.1%	4,180 ac	57.3%	Both Alternatives' major land cover type is Forested and/or Swamp. Both Alternatives would result in a long-term change in land use for areas currently forested and/or swamp land, but these changes would be limited in extent, and there would still be extensive forest and swamp lands in the surrounding area; so these changes are expected to have a minimal impact on land use (pg. 291).
	Land Ownership	200 feet	599 acres total		475 acres total		The Blue/Orange Route contains more than five times as many acres of public land; however, it would potentially impact the fewest private land owners.
	Public		447	74.6%	84	17.7%	
	Private		152	25.4%	391	82.3%	
Land-Based Economies	Agriculture	1,500 feet	844	9.2%	2,625	36.0%	The Cedar Bend WMA Variation would potentially impact three times as many acres of agricultural land than the Blue/Orange Route.
	Forestry	200 feet	372	62.1%	78	16.4%	The Blue/Orange Route contains more than four times as many acres of State Forest land than the Variation.
	Mining & Mineral Leases		97	16.2%	0	0.0%	The Blue/Orange Route would potentially impact more mining and mineral lease lands.
Archaeology and Historic Architectural Resources	Historic Architectural Sites	5,280 feet	0	-	8	-	The Cedar Bend WMA Variation has a higher potential to impact eight known architectural sites within 5,280 feet; however, the permitted Route width will be less than 5,280 feet so some sites may not be impacted. The Cedar Bend WMA Variation also has a higher potential to impact two known archaeological sites within 1,500 feet.
	Archaeological Sites	1,500 feet	0	-	2	-	
	PWI Waters		4	-	5	-	Both Alternatives would cross a number of waterbodies, however, it is anticipated that these crossings are spannable (crossings would be less than the average spanning length of 1,250 feet) and structures would not be placed in them.
	Non-PWI Waters		12	-	11	-	
	Impaired Waters		2	-	3	-	

Relative Merits			Cedar Bend WMA Variation				
Factor	Element	ROI	Proposed Blue / Orange Route (24.7 miles)		Cedar Bend WMA Variation (19.6 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
Water Resources	Floodplains	Crossings or 200 feet	0	0.0%	32	6.7%	The Cedar Bend WMA Variation would potentially impact a FEMA-designated floodplain as it would require construction and placement of transmission structures within Zone A of two floodplain areas. Impacts to floodplains are expected to be minimal (pg. 298).
	NWI Wetlands		466	77.8%	154	32.4%	The Blue/Orange Route would potentially impact three times as many acres of NWI-mapped wetlands and the Cedar Bend WMA Variation. While direct, adverse impacts to forested and shrub wetlands are permanent and may change wetland functions within the ROW, they are expected to be minimal because of the amount of surrounding forested and shrub wetlands in the region (pg. 299).
Vegetation	Boreal Flooded & Swamp Forest	200 feet	338	56.4%	117	24.6%	The Blue/Orange Route contains a greater amount of forest land and Cedar Bend Variation contains a greater amount of agricultural land. While direct, adverse impacts to forested areas would be long-term, contiguous forest is abundant in the region surrounding the Project (pg. 300).
	Boreal Forest		110	18.4%	57	12.0%	
	Cool Temperate Forest		37	6.2%	28	5.9%	
	Eastern Flooded & Swamp Forest		58	9.7%	64	13.5%	
	Herbaceous Agricultural		41	6.8%	186	39.1%	
	Other		15	2.5%	23	4.8%	
Wildlife	WMAs	200 feet	44	7.3%	0	0.0%	The Blue/Orange Route contains more acres of WMA and crosses one DNR shallow lake. Both Alternatives contain similar amounts of Grassland Bird Conservation Areas; however, ongoing vegetation management of the ROW in early successional vegetative state, would be compatible with grassland bird species' habitat requirements (pg. 302).
	Shallow Lakes		1	0.2%	0	0.0%	
	Grassland Bird Conservation Areas		50	8.4%	10	2.1%	
Rare and Unique Natural Resources	Rare Species	1 mile (aquatic species not included)	2	-	0	-	The Blue/Orange Route is located within one mile of two documented vascular plants. Surveys will be performed on the final 200-foot ROW to determine if any of these species are present within the permitted ROW. Any indirect impacts to rare species from the proposed Project are expected to be minimal because of the amount of surrounding forested habitat and woody vegetation. Through use of Applicant proposed avoidance and minimization measures, direct impacts to rare species are not expected (pg. 304).
	State Rare Communities	200 feet					
	MBS Sites of Biodiversity		43	7.2%	0	0.0%	The Blue/Orange Route contains the most MBS Sites of Biodiversity, HCVF, and MBS Native Plant Communities.
	High Conservation Value Forest		8	1.3%	0	0.0%	

Relative Merits			Cedar Bend WMA Variation				
Factor	Element	ROI	Proposed Blue / Orange Route (24.7 miles)		Cedar Bend WMA Variation (19.6 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
	MBS Native Plant Communities		22	3.7%	0	0.0%	
Corridor Sharing	Paralleling Existing Infrastructure	-	-	100.0%	-	100.0%	Both Alternatives parallel existing transmission lines for 100% of their lengths.
Electrical System Reliability		-		-		-	Both Alternatives parallel one existing Manitoba – Minnesota tie line for their entire length, but the Cedar Bend WMA Variation would establish two new crossings of the existing 500 kV tie line that are not necessary for the Blue/Orange Route and is also routed unacceptably close to at least two existing transmission substations.
Cost	Total Cost	-	$27,197,850	-	$23,202,312	-	The Blue/Orange Route would cost the most to construct. *Cost for the Cedar Bend WMA have been updated since the initial data request.*



Proposed Regeneration Site

Proposed Routes

Blue/Orange Route

Alternatives

Beltrami North Variation 1

Beltrami North Variation 2

Hop 3

Hop 4

Proposed Series Compensation Station

USFWS Interest Land

Existing Transmission Lines

69 or 115 kV

230 kV

500 kV

Streets and Highways

State Trunk Highway

County State Aid Highway

Local Road

Variation Area

Municipal Boundary

County Boundary

Note:
Anticipated alignments are shown offset for display purposes only. Please refer to more detailed maps for precise alignment placement.

The Applicant will be issued a Route Permit with a specific route width. The proposed route widths are shown in Appendix S.

Miles

1.5 0 1.5

Map 4-6

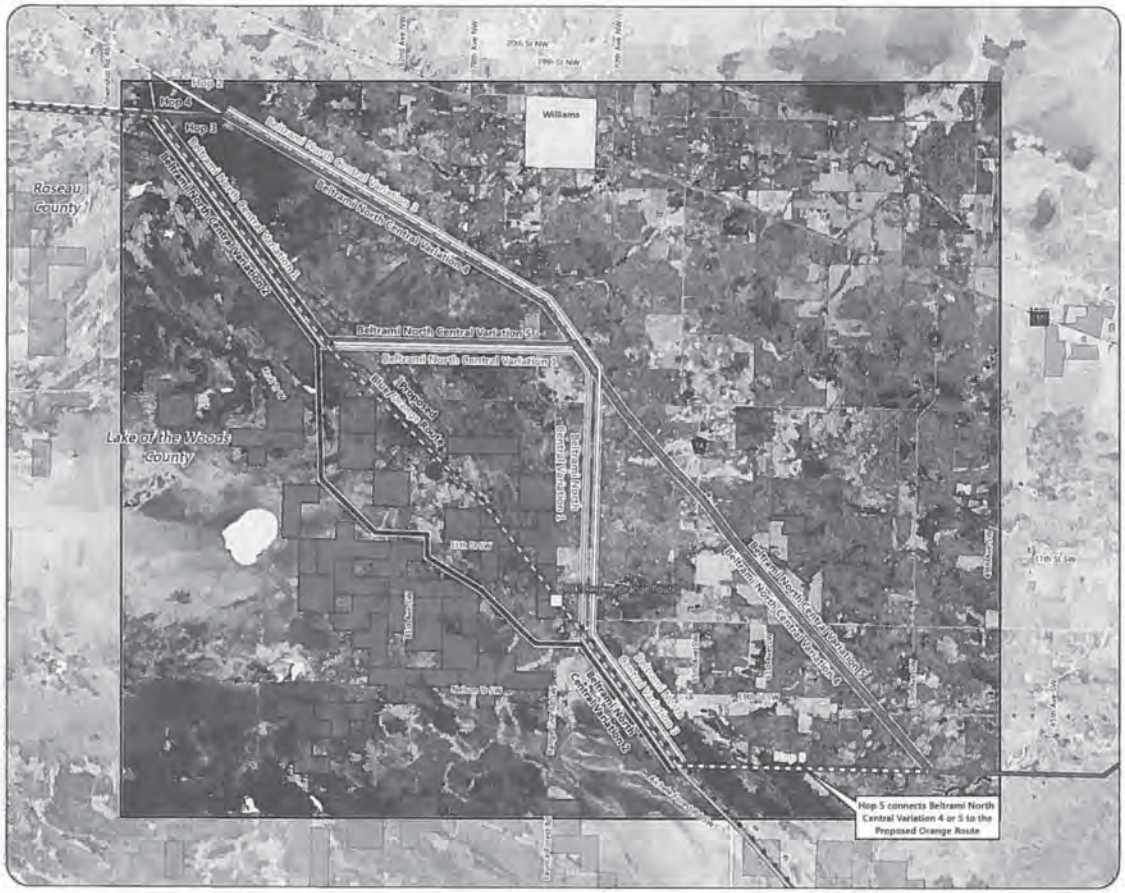
BELTRAMI NORTH VARIATION AREA

Great Northern Transmission Line
Draft Environmental Impact Statement

Relative Merits			Beltrami North Variations						
Factor	Element	ROI	Proposed Blue / Orange Route (16.5 miles)		Beltrami North Variation 1 (15.8 miles)		Beltrami North Variation 2 (19.7 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
Human Settlement	**Aesthetics**								
	Residences	1,500 feet	3	-	6	-	1	-	Variation 1 would potentially impact more residences than the other Alternatives.
	Historic Architectural Sites	5,280 feet	0	-	0	-	2	-	Variation 2 has a higher potential to impact 2 known architectural sites within 5,280 feet; however, the permitted Route width will be less than 5,280 feet so some sites may not be impacted.
	Trails	1,500 feet	2	-	2	-	2	-	All Alternatives would cross two snowmobile trails.
	Land Use Compatibility								
	Dominant Land Cover Type	1,500 feet	5,961 ac	97.0%	5,391 ac	91.4%	7,190 ac	98.5%	All Alternatives' major land cover type is Forested and/or Swamp. All Alternatives would result in a long-term change in land use for areas currently forested and/or swamp land, but these changes would be limited in extent, and there would still be extensive forest and swamp lands in the surrounding area; so these changes are expected to have a minimal impact on land use (pg. 311).
	Land Ownership	200 feet	400 acres total		383 acres total		478 acres total		Variation 2 contains more acres of public land than the other Alternatives and the fewest acres of private land.
	Public		372	93.0%	297	77.5%	462	96.7%	
	Private		28	7.0%	86	22.5%	16	3.4%	
Land-Based Economies	Agriculture	1,500 feet	84	1.4%	358	6.1%	22	0.3%	Variation 1 would potentially impact four times as many acres of agricultural land than the Blue/Orange Route.
	Forestry	200 feet	372	93.0%	291	76.0%	462	96.7%	Variation 2 contains the most acres of State Forest; Variation 1 contains the fewest.
	Mining & Mineral Leases		97	24.3%	97	25.3%	152	31.8%	Variation 2 would potentially impact more mining and mineral lease lands than the Blue/Orange Route and Variation 1.
Archaeology and Historic Architectural Resources	Historic Architectural Sites	5,280 feet	0	-	0	-	2	-	Variation 2 has a higher potential to impact two known architectural sites within 5,280 feet; however, the permitted Route width will be less than 5,280 feet so some sites may not be impacted. Variation 2 also has a higher potential to impact two known archaeological sites within 1,500 feet.
	Archaeological Sites	1,500 feet	0	-	0	-	2	-	
Water Resources	PWI Waters	Crossings or 200 feet	4	-	9	-	3	-	All Alternatives would cross a number of waterbodies; however, it is anticipated that these crossings are spannable (crossings would be less than the average spanning length of 1,250 feet) and structures would not be placed in them.
	Non-PWI Waters		7	-	4	-	12	-	
	Impaired Waters		2	-	6	-	2	-	
	Floodplains		0	0.0%		0.0%	0	0.0%	No Alternatives would impact FEMA-designated floodplains.
	NWI Wetlands		323	80.8%	294	76.8%	391	81.9%	All Alternatives would potentially impact a similar amount of NWI-mapped wetlands. While direct, adverse impacts to forested and shrub wetlands are permanent and may change wetland functions within the ROW, they are expected to be minimal because of the amount of surrounding forested and shrub wetlands in the region (pg. 316).

Relative Merits			Beltrami North Variations						
Factor	Element	ROI	Proposed Blue / Orange Route (16.5 miles)		Beltrami North Variation 1 (15.8 miles)		Beltrami North Variation 2 (19.7 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
Vegetation	North American Boreal Flooded & Swamp Forest	200 feet	242	60.5%	221	57.7%	300	62.8%	All Alternatives would potentially impact a similar amount of forested land. While direct, adverse impacts to forested areas would be long-term, contiguous forest is abundant in the region surrounding the Project (pg. 318).
	North American Boreal Forest		94	23.5%	84	21.9%	117	24.5%	
	Eastern North American Cool Temperate Forest		27	6.8%	24	6.3%	21	4.4%	
	Eastern North American Flooded & Swamp Forest		26	6.5%	38	9.9%	35	7.3%	
	Other		11	2.8%	54	14.1%	40	8.4%	
Wildlife	Shallow Lakes	200 feet	1	-	0	-	1	-	Variation 2 contains more acres of land designated as an Important Bird Area and the Blue/Orange Route and Variation 2 both cross one DNR Shallow Lake. Short-term indirect impacts are expected to be minimal because of the large amount of similar habitat in the surrounding region, and the long-term direct impacts are expected to be minimized through use of Applicant-proposed minimization measures (Section 2.13) (pg. 319).
	Important Bird Areas		0	0.0%	0	0.0%	23	4.8%	
Rare and Unique Natural Resources	Rare Species	1 mile (aquatic species not included)	2		1	-	7	-	Variation 2 is located within one mile of seven documented vascular plants. Surveys will be performed on the final 200-foot ROW to determine if any of these species are present within the permitted ROW. Any indirect impacts to rare species from the proposed Project are expected to be minimal because of the amount of surrounding forested habitat and woody vegetation. Through use of Applicant proposed avoidance and minimization measures, direct impacts to rare species are not expected (pg. 322).
	State Rare Communities	200 feet							
	MBS Sites of Biodiversity		0	0.0%	6	1.6%	30	6.3%	Variation 2 contains the most amount of MBS Sites of Biodiversity, Blue/Orange has the fewest. All Alternatives contain relatively few or no acres of HCVF and MBS Native Plant Communities.
	High Conservation Value Forest		8	2.0%	0	0.0%	8	1.7%	
	MBS Native Plant Communities		0	0.0%	0	0.0%	8	1.7%	

Relative Merits			Beltrami North Variations						
Factor	Element	ROI	Proposed Blue / Orange Route (16.5 miles)		Beltrami North Variation 1 (15.8 miles)		Beltrami North Variation 2 (19.7 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
Corridor Sharing	Paralleling Existing Infrastructure	-	-	100.0%	-	72.0%	-	53.0%	The Blue/Orange Route parallels existing transmission lines for 100% of its length; Variation 1 for 72%; and Variation 2 for 53%. All three Alternatives share a similar corridor for most of their lengths; when that similar corridor is removed from consideration; Variation 2 would not parallel any existing transmission lines.
Electrical System Reliability		-		-		-		-	All Alternatives all parallel one existing Manitoba – Minnesota tie line for a significant part of their length.
Cost	Total Cost	-	$18,984,370	-	$19,591,668	-		-	Variation 2 would cost the most to construct. *Cost for Variation 1 have been updated since the initial data request.*



Proposed Regeneration Site

Proposed Routes

- Blue/Orange Route
- Blue Route
- Orange Route

Alternatives

- Beltrami North Central Variation 1
- Beltrami North Central Variation 2
- Beltrami North Central Variation 3
- Beltrami North Central Variation 4
- Beltrami North Central Variation 5
- Hop 2
- Hop 3
- Hop 4
- Hop 5
- USFWS Interest Land

Existing Transmission Lines

- 69 or 115 kV
- 230 kV
- 500 kV

Streets and Highways

- State Trunk Highway
- County State Aid Highway
- Local Road
- Variation Area
- Municipal Boundary
- County Boundary

Note
Anticipated alignments are shown offset for display purposes only. Please refer to more detailed maps for precise alignment placement.

The Applicant will be issued a Route Permit with a specific route width. The proposed route widths are shown in Appendix S.

Miles
1.2 0 1.2

Map 4-7

BELTRAMI NORTH CENTRAL VARIATION AREA
Great Northern Transmission Line
Draft Environmental Impact Statement

U.S. DEPARTMENT OF ENERGY
COMMERCE

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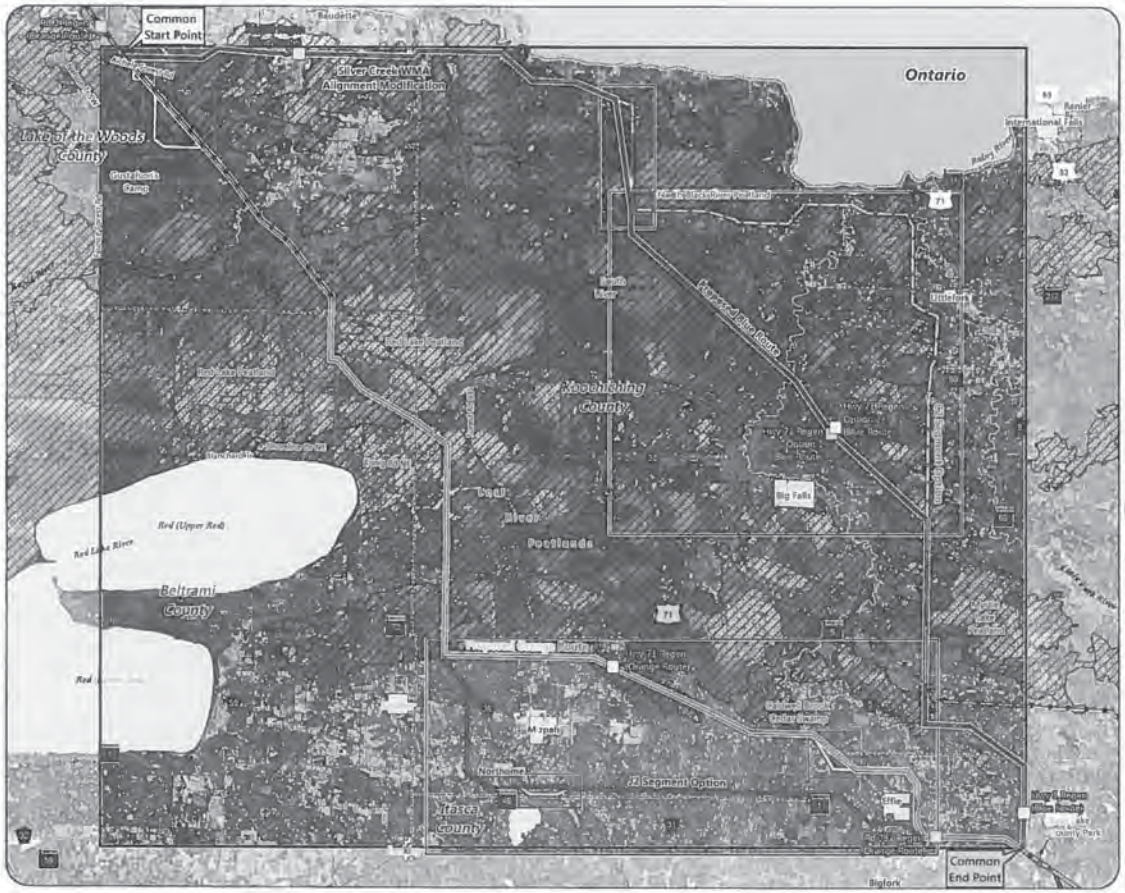
Relative Merits			Beltrami North Central Variations												
Factor	Element	ROI	Proposed Blue / Orange Route (11.6 miles)		Beltrami North Central Variation 1 (13.7 miles)		Beltrami North Central Variation 2 (12.6 miles)		Beltrami North Central Variation 3 (12.2 miles)		Beltrami North Central Variation 4 (13.5 miles)		Beltrami North Central Variation 5 (15.0 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
Human Settlement	**Aesthetics**														
	Residences	1,500 feet	3	-	2	-	2	-	4	-	10	-	8	-	Beltrami North Variation 4 would potentially impact the most residences within 1,500 feet.
	Historic Architectural Sites	5,280 feet	0	-	0	-	0	-	0	-	1		1	-	Variations 4 and 5 have a potential to impact one known historic site within 5,280 feet, however, the permitted Route width will be less than 5,280 feet so some sites may not be impacted.
	Trails	1,500 feet	1	-	1	-	1	-	1	-	1	-	1	-	All Alternatives would cross one snowmobile trail.
	Land Use Compatibility														
	Dominant Land Cover Type	1,500 feet	4,305 ac	98.7%	5,005 ac	97.7%	4,553 ac	98.8%	4,460 ac	97.2%	4,674 ac	92.0%	5,219 ac	92.9%	All Alternatives' major land cover type is Forested and/or Swamp. All Alternatives would result in a long-term change in land use for areas currently forested and/or swamp land, but these changes would be limited in extent, and there would still be extensive forest and swamp lands in the surrounding area; so these changes are expected to have a minimal impact on land use (pg. 330).
	Land Ownership	200 feet	281 acres total		332 acres total		acres total		296 acres total		327 acres total		364 acres total		All Alternatives contain similar amounts of public land.
	Public		242	86.1%	237	71.4%	56	83.8%	184	62.2%	178	54.4%	230	63.3%	
	Private		39	13.9%	95	28.6%	50	16.4%	112	37.9%	149	45.5%	154	42.4%	
Land-Based Economies	Agriculture	1,500 feet	1	0.0%	49	1.0%	0	0.0%	49	1.1%	276	5.4%	277	4.9%	The Blue/Orange Route and Variation 2 would potentially impact the fewest acres of agricultural land whereas Variations 4 and 5 would potentially impact the most.
	Forestry	200 feet	224	79.7%	237	71.4%	55	83.3%	184	62.2%	178	54.4%	230	63.3%	All Alternatives contain similar amounts of State Forest land.
	Mining & Mineral Leases		0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	No Alternatives would impact any mining or mineral leases.
Archaeology and Historic Architectural Resources	Historic Architectural Sites	5,280 feet	0	-	0	-	0	-	0	-	1	-	1	-	Variations 4 and 5 have a potential to impact one known historic site within 5,280 feet; however, the permitted Route width will be less than 5,280 feet so some sites may not be impacted. No Alternatives would impact any known archaeological sites within 1,500 feet.
	Archaeological Sites	1,500 feet	0	-	0	-	0	-	0	-	0	-	0	-	
			0	-	0	-	1		2		2		2	-	All Alternatives would cross a number of waterbodies; however, it is anticipated that these crossings are spannable (crossings would be less than the average spanning length of 1,250 feet) and structures would not be placed in them.
			6	-	6	-	6		4		6		7	-	
			1	0.4%	1	0.6%	1		1		1		1	0.6%	All Alternatives would cross FEMA-designated floodplains; however, these crosses are spannable and structures would not be placed within the floodplain.
			[illegible]	96.7%		94.5%	[illegible]		[illegible]				[illegible]	92.7%	All Alternatives would potentially impact a similar amount of NWI-mapped wetlands. While direct, adverse impacts to forested and shrub wetlands are permanent and may change wetland functions within the ROW, they are expected to be minimal because of the amount of surrounding forested and shrub wetlands in the region (pg. 337).
			[illegible]	62.9%	60		[illegible]		[illegible]		[illegible]		63	44.8%	All Alternatives would potentially impact similar amounts of forested land. While direct, adverse impacts to forested areas would be long-term, contiguous forest is abundant in the region surrounding the Project (pg. 338).
			[illegible]	23.5%	[illegible]	31.3%	78		[illegible]		[illegible]		[illegible]	31.6%	
			[illegible]	10.7%	[illegible]	10.2%	42		[illegible]		[illegible]		[illegible]	15.1%	
			[illegible]	2.8%	1	4.2%	7		[illegible]		[illegible]		[illegible]		

Relative Merits			Beltrami North Central Variations												
Factor	Element	ROI	Proposed Blue / Orange Route (11.6 miles)		Beltrami North Central Variation 1 (13.7 miles)		Beltrami North Central Variation 2 (12.6 miles)		Beltrami North Central Variation 3 (12.2 miles)		Beltrami North Central Variation 4 (13.5 miles)		Beltrami North Central Variation 5 (15.0 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
Wildlife	Important Bird Areas	200 feet	117	41.6%	31	9.3%	157	51.4%	31	10.5%	33	10.1%	33	9.1%	The Orange/Blue Route and Variation 2 contain more acres of designated Important Bird Area lands than the other Variations. Short-term indirect impacts are expected to be minimal because of the large amount of similar habitat in the surrounding region, and the long-term direct impacts are expected to be minimized through use of Applicant-proposed minimization measures (Section 2.13) (pg. 339).
Rare and Unique Natural Resources	Rare Species	1 mile (aquatic species not included)	4	-	4	-	4	-	4	-	0	-	3	-	All Alternatives (except Variation 4) are within one mile of three to four documented vascular plants. Surveys will be performed on the final 200-foot ROW to determine if any rare species are present within the permitted ROW. Any indirect impacts to rare species are expected to be minimal because of the amount of the surrounding habitat. Through use of Applicant-proposed avoidance and minimization measures, direct impacts to rare species are not expected (pg. 341).
	State Rare Communities	200 feet													
	MBS Sites of Biodiversity		101	35.9%	15	4.5%	115	37.6%	15	5.1%	0	0.0%	0	0.0%	The Blue/Orange and Variation 2 contain similar amounts of MBS Sites of Biodiversity; however it should be noted that not all biodiversity significance ranks have been determined for Lake of the Woods County.
Corridor Sharing	Paralleling Existing Infrastructure	-	-	100.0%	-	48.0%	-	49.0%	-	70.0%	-	92.0%	-	70.0%	The Blue/Orange Route parallels existing transmission lines for 100% of its length.
Electrical System Reliability		-		-		-		-		-		-		-	The Blue/Orange Route and the five Variations all parallel one existing Manitoba – Minnesota tie line for a significant part of their length. Variations 1 and 3 also establish two new crossings of the existing 500 kV tie line that are not necessary for the Blue/Orange Route.
Cost	Total Cost		$12,574,123	-	$14,368,602	-	$14,478,550	-		-		-		-	Variation 4 would cost the most to construct. *Costs for Variations 1, 3, 4, and 5 have been updated since the initial data request.*



- Proposed Regeneration Site

Proposed Routes
- Blue/Orange Route
- Blue Route
- Orange Route
- C2 Segment Option
- J2 Segment Option

Alternatives
- Silver Creek WMA Alignment Modification
- Scientific and Natural Area (SNA)
- Peatland Complex

Existing Transmission Lines
- 69 or 115 kV
- 230 kV
- 500 kV

Streets and Highways
- US Highway
- State Trunk Highway
- County State Aid Highway
- Local Road
- Variation Area
- Municipal Boundary
- County Boundary
- International Boundary

Note
Anticipated alignments are shown offset for display purposes only. Please refer to more detailed maps for precise alignment placement.

The Applicant will be issued a Route Permit with a specific route width. The proposed route widths are shown in Appendix 5.

Miles
6.5 0 6.5

Map 4-9

PINE ISLAND VARIATION AREA
Great Northern Transmission Line
Draft Environmental Impact Statement

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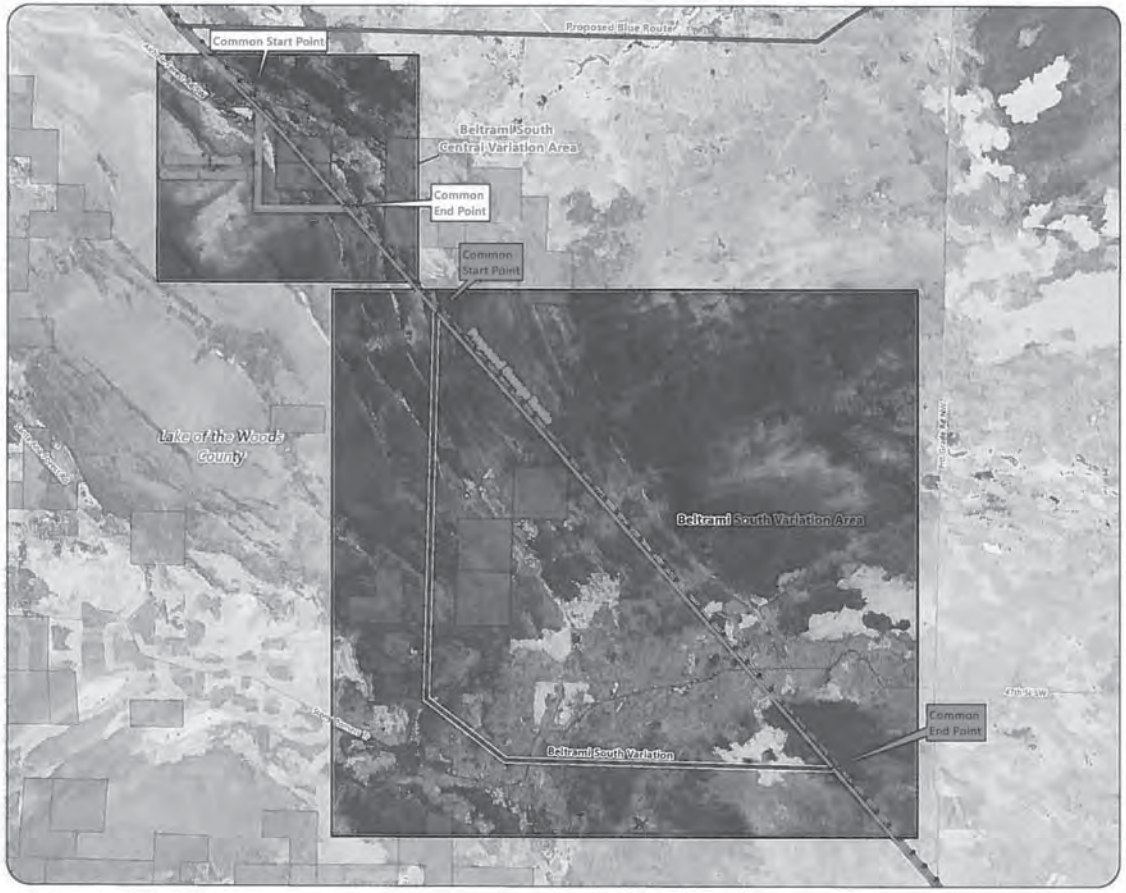
Relative Merits			Pine Island Variation Area				
Factor	Element	ROI	Proposed Blue Route (109.8 miles)		Proposed Orange Route (105.4 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
Human Settlement	**Aesthetics**						
	Residences	1,500 feet	14	-	2	-	The Blue Route would potentially impact more residences than the Orange Route.
	Historic Architectural Sites	5,280 feet	2	-	7	-	The Orange Route has a higher potential to impact known historic architectural sites within 5,280 feet; however, the permitted Route width will be less than 5,280 feet so some sites may not be impacted.
	Trails		5		8		Both Alternatives would cross one state trail and one water trail. The Orange Route would cross one more snowmobile trail than the Blue Route.
	Land Use Compatibility						
	Dominant Land Cover Type	1,500 feet	38,203 ac	95.4%	37,685 ac	98.0%	Both Alternatives' major land cover type is Forested and/or Swamp. Both Alternatives would result in a long-term change in land use for areas currently forested and/or swamp land, but these changes would be limited in extent, and there would still be extensive forest and swamp lands in the surrounding area; so these changes are expected to have a minimal impact on land use (pg. 384-385).
	Land Ownership	200 feet	2,662 acres total		2,555 acres total		Both Alternatives contain similar amounts of public and private lands.
	Public		2,299	86.4%	2,326	91.0%	
	Private		363	13.6%	229	9.0%	
Land-Based Economies	Agriculture	1,500 feet	985	2.5%	305	0.8%	The Blue Route would potentially impact almost three times as many acres of agricultural land.
	Forestry	200 feet	2,291	86.1%	1,980	77.5%	Both Routes contain similar amounts of State Forest lands.
	Mining & Mineral Leases		1,205	45.3%	370	14.5%	The Blue Route would potentially impact over three times as many acres of mining and mineral leases than the Orange Route.
Archaeology and Historic Architectural Resources	Historic Architectural Sites	5,280 feet	2	-	7	-	The Orange Route has a higher potential to impact known historic architectural sites within 5,280 feet; however, the permitted Route width will be less than 5,280 feet so some sites may not be impacted. The Blue Route is within 1,500 feet of a known archaeological site.
	Archaeological Sites	1,500 feet	1	-	0	-	
Water Resources	PWI Waters	Crossings or 200 feet	18	-	25	-	Both Alternatives would a similar number of PWI, non-PWI, and impaired waters; however, it is anticipated that these crossings are spannable (crossings would be less than the average spanning length of 1,250 feet) and structures would not be placed in them.
	Non-PWI Waters		48	-	48	-	
	Impaired Waters		1	-	1	-	
	Trout Stream		1		0		
	Floodplains		20	-	11	-	Both Routes would cross FEMA-designated floodplains; however, crossings would be less than the average spanning length of 1,250 feet and structures would not be placed in them.

Relative Merits			Pine Island Variation Area				
Factor	Element	ROI	Proposed Blue Route (109.8 miles)		Proposed Orange Route (105.4 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
	NWI Wetlands		2,102	79.0%	1,875	73.4%	The Orange Route would potentially impact slightly more acres of NWI-mapped wetlands than the East Bear Lake Variation. While direct, adverse impacts to forested and shrub wetlands are permanent and may change wetland functions within the ROW, they are expected to be minimal because of the amount of surrounding forested and shrub wetlands in the region (pg. 391).
Vegetation	North American Boreal Flooded & Swamp Forest	200 feet	1,372	51.5%	1,323	51.8%	Both Alternatives would potentially impact a similar amount of forested land. While direct, adverse impacts to forested areas would be long-term, contiguous forest is abundant in the region surrounding the Project (pg. 393).
	North American Boreal Forest		785	29.5%	769	30.1%	
	Eastern North American Flooded & Swamp Forest		366	13.8%	358	14.0%	
	Other		139	5.2%	1,232	48.2%	
Wildlife	WMAs	200 feet	49	1.8%	274	10.7%	The Blue Route contains fewer acres of WMA than the Orange Route.
	Important Bird Areas		1,405	52.8%	1,722	67.4%	Both Alternatives contain a similar amount of land designated as an Important Bird Area. Short-term indirect impacts are expected to be minimal because of the large amount of similar habitat in the surrounding region, and the long-term direct impacts are expected to be minimized through use of Applicant-proposed minimization measures (Section 2.13) (pg. 395).
Rare and Unique Natural Resources	Rare Species	1 mile (aquatic species not included)	6	-	13	-	The Orange Route is within one mile of more than twice as many documented rare species than the Blue Route. Surveys will be performed on the final 200-foot ROW to determine if any rare species are present within the permitted ROW. Any indirect impacts to rare species are expected to be minimal because of the amount of the surrounding habitat. Through use of Applicant-proposed avoidance and minimization measures, direct impacts to rare species are not expected (pg. 397).
	State Rare Communities	200 feet					
	Ecologically Important Lowland Conifers		29	1.1%	5	0.2%	Both Routes contain few acres of Ecologically Important Lowland Conifers; however, the Blue Route would pass through more acres than the Orange Route.
	MBS Sites of Biodiversity		1,514	56.9%	1,839	64.1%	Both Routes contain similar amounts of MBS Sites of Biodiversity.
Corridor Sharing	Paralleling Existing Infrastructure	-	-	39.0%	-	23.0%	The Blue Route parallels existing transmission lines for 39% of its length; the Orange Route for 23% of its length

Relative Merits			Pine Island Variation Area				
Factor	Element	ROI	Proposed Blue Route (109.8 miles)		Proposed Orange Route (105.4 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
Electrical System Reliability		-		-		-	Both proposed routes parallel one existing Manitoba – Minnesota tie line for a significant part of their length. The Blue Route also establishes two new crossings of the existing 500 kV tie line that are not necessary for the Orange Route.
Cost	Total Cost	-	$118,878,237	-	$113,672,041	-	The Blue Route would cost the most to construct. *The cost of the Blue Route has been updated since the initial data request.*



Proposed Routes
- Blue/Orange Route
- Blue Route
- Orange Route

Alternatives
- Beltrami South Central Variation
- Beltrami South Variation
- USFWS Interest Land

Existing Transmission Lines
- 500 kV

Streets and Highways
- Local Road
- Variation Area

Note:
Anticipated alignments are shown offset for display purposes only. Please refer to more detailed maps for precise alignment placement.

The Applicant will be issued a Route Permit with a specific route width. The proposed route widths are shown in Appendix 5.

Miles
0.8 0 0.8

Map 4-10

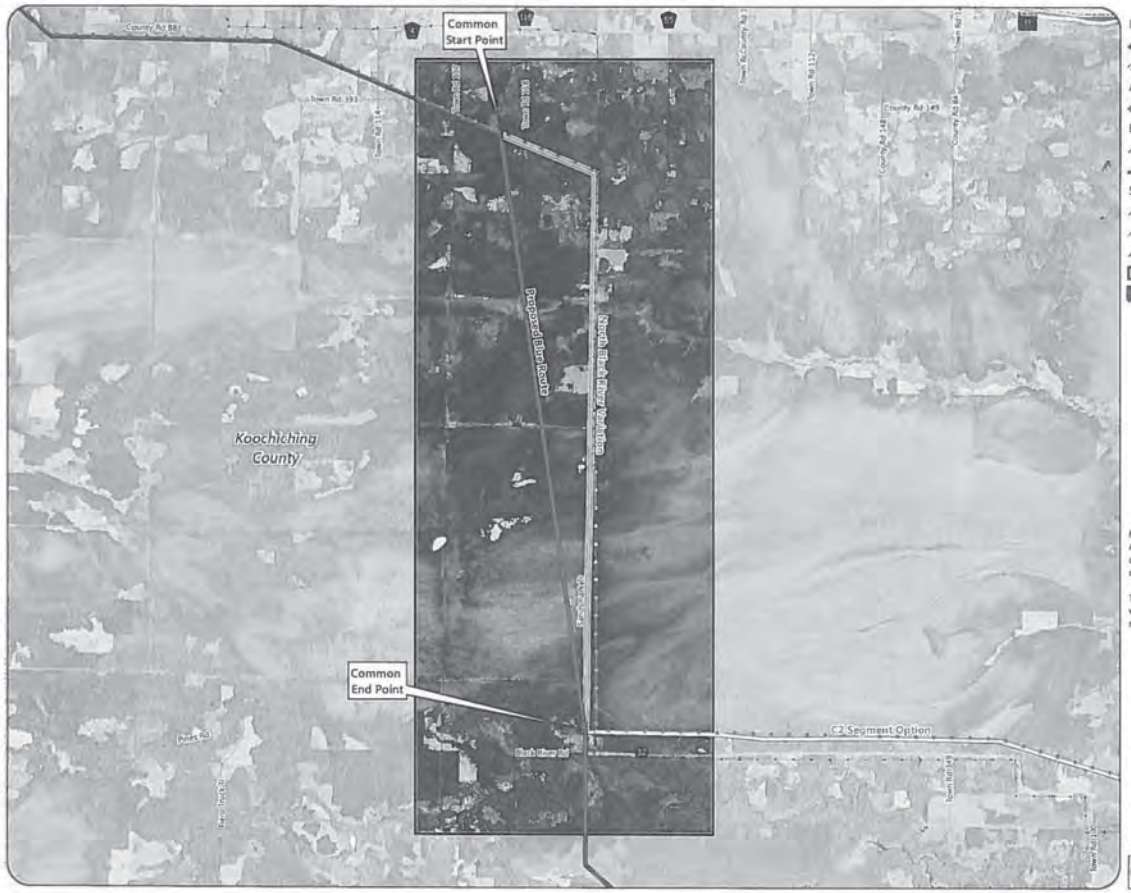
BELTRAMI SOUTH CENTRAL AND BELTRAMI SOUTH VARIATION AREAS
Great Northern Transmission Line
Draft Environmental Impact Statement

Relative Merits			Beltrami South Central Variations				
Factor	Element	ROI	Proposed Orange Route (1.2 miles)		Beltrami South Central Variation (1.7 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
Human Settlement	**Aesthetics**						
	Residences	1,500 feet	0	-	0	-	Neither Alternative would impact residences within 1,500 feet.
	Historic Architectural Sites	5,280 feet	0	-	0	-	Neither Alternative would impact any known architectural sites within 5,280 feet.
	Trails	1,500 feet	1	-	1	-	Both Alternatives would cross one snowmobile trail.
	Land Use Compatibility						
	Dominant Land Cover Type	1,500 feet	598 ac	98.8%	779 ac	99.2%	Both Alternatives' major land cover type is Forested and/or Swamp. Both Alternatives would result in a long-term change in land use for areas currently forested and/or swamp land, but these changes would be limited in extent, and there would still be extensive forest and swamp lands in the surrounding area; so these changes are expected to have a minimal impact on land use (pg. 402).
	Land Ownership	200 feet	29 acres total		41 acres total		Both Alternatives are entirely located within public lands and neither would impact private land owners.
	Public		30	103.1%	43	104.4%	
	Private		0	0.0%	0	0.0%	
Land-Based Economies	Agriculture	1,500 feet	0	0.0%	0	0.0%	Neither Alternative would impact agricultural land.
	Forestry	200 feet	30	103.1%	43	104.4%	Both Alternatives are entirely located within State Forest lands.
	Mining & Mineral Leases		0	0.0%	0	0.0%	Neither Alternative would impact any mining or mineral leases.
Archaeology and Historic Architectural Resources	Historic Architectural Sites	5,280 feet	0	-	0	-	Neither Alternative would impact any known historic architectural sites or archaeological sites.
	Archaeological Sites	1,500 feet	0	-	0	-	
Water Resources	PWI Waters	Crossings or 200 feet	0	-	0	-	Neither Alternative would cross any PWI, non-PWI, or impaired waters.
	Non-PWI Waters		0	-	0	-	
	Impaired Waters		0	-	0	-	
	Floodplains		0	-	0	-	Neither Alternative would impact FEMA-designated floodplains.
	NWI Wetlands		30	103.1%	43	104.4%	Both Alternatives would potentially impact a similar amount of NWI-mapped wetlands. While direct, adverse impacts to forested and shrub wetlands are permanent and may change wetland functions within the ROW, they are expected to be minimal because of the amount of surrounding forested and shrub wetlands in the region (pg. 406).
Vegetation	North American Boreal Flooded & Swamp Forest	200 feet	24	82.5%	32	77.7%	Both Alternatives would potentially impact similar amounts of forest land. While direct, adverse impacts to forested areas would be long-term, contiguous forest is abundant in the region surrounding the Project (pg. 406).
	Other		5	17.2%	9	21.8%	

Relative Merits			Beltrami South Central Variations				
Factor	Element	ROI	Proposed Orange Route (1.2 miles)		Beltrami South Central Variation (1.7 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
Wildlife	Important Bird Areas	200 feet	30	103.1%	43	104.4%	Both Alternatives are entirely located within lands designated as Important Bird Areas. Short-term indirect impacts are expected to be minimal because of the large amount of similar habitat in the surrounding region, and the long-term direct impacts are expected to be minimized through use of Applicant-proposed minimization measures (Section 2.13) (pg. 409).
Rare and Unique Natural Resources	Rare Species	1 mile (aquatic species not included)	4	-	4	-	Both Alternatives would be located within one mile of four vascular plants. Surveys will be performed on the final 200-foot ROW to determine if any rare species are present within the permitted ROW. Any indirect impacts to rare species are expected to be minimal because of the amount of the surrounding habitat. Through use of Applicant-proposed avoidance and minimization measures, direct impacts to rare species are not expected (pg. 409).
	State Rare Communities	200 feet					
	MBS Sites of Biodiversity		30	103.1%	43	104.4%	Both Alternatives contain similar amounts of MBS Sites of Biodiversity.
Corridor Sharing	Paralleling Existing Infrastructure	-	-	100.0%	-	[illegible]	The Orange Route parallels existing transmission lines for 100% of its length.
Electrical System Reliability		-		-		-	The Orange Route parallels one existing Manitoba – Minnesota tie line for its entire length while the Variation does not parallel any existing Manitoba – Minnesota tie lines.
Cost	Total Cost	-	$1,214,573	-	[illegible]	-	Beltrami South Central Variation would cost the most to construct. *These costs have been updated since the initial information request.*

Relative Merits			Beltrami South Variations				
Factor	Element	ROI	Proposed Orange Route (5.6 miles)		Beltrami South Variation (7.5 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
Human Settlement	**Aesthetics**						
	Residences	1,500 feet	0	-	0	-	Neither Alternative would impact residences within 1,500 feet.
	Historic Architectural Sites	5,280 feet	0	-	0	-	Neither Alternative would impact any known architectural sites within 5,280 feet.
	Trails	1,500 feet	0	-	0	-	Neither Alternative would cross any trails.
	Land Use Compatibility						
	Dominant Land Cover Type	1,500 feet	2,186 ac	99.5%	2,887 ac	99.7%	Both Alternatives' major land cover type is Forested and/or Swamp. Both Alternatives would result in a long-term change in land use for areas currently forested and/or swamp land, but these changes would be limited in extent, and there would still be extensive forest and swamp lands in the surrounding area; so these changes are expected to have a minimal impact on land use (pg. 415).
	Land Ownership	200 feet	136 acres total		182 acres total		Both Alternatives are entirely located within public lands and neither would impact private land owners.
	Public		136	100.1%	183	100.7%	
	Private		0	0.0%	0	0.0%	
Land-Based Economies	Agriculture	1,500 feet	0	0.0%	0	0.0%	Neither Alternative would impact agricultural land.
	Forestry	200 feet	136	100.1%	183	100.7%	Both Alternatives are entirely located within State Forest lands.
	Mining & Mineral Leases		58	42.7%	287	157.9%	There are more acres of mineral leases within Beltrami South Variation than the total number of acres within the ROW. Regardless, the Beltrami South Variation would potentially impact more mining and mineral leases than the Orange Route.
Archaeology and Historic Architectural Resources	Historic Architectural Sites	5,280 feet	0	-	0	-	Neither Alternative would impact any known historic architectural sites or archaeological sites.
	Archaeological Sites	1,500 feet	0	-	0	-	
Water Resources	PWI Waters	Crossings or 200 feet	0	-	0	-	Neither Alternative would cross any PWI, non-PWI, or impaired waters.
	Non-PWI Waters		0	-	0	-	
	Impaired Waters		0	-	0	-	
	Floodplains		0	-	0	-	Neither Alternative would impact FEMA-designated floodplains.
	NWI Wetlands		136	100.1%	183	100.7%	Both Alternatives would potentially impact a similar amount of NWI-mapped wetlands. While direct, adverse impacts to forested and shrub wetlands are permanent and may change wetland functions within the ROW, they are expected to be minimal because of the amount of surrounding forested and shrub wetlands in the region (pg. 418).

Relative Merits			Beltrami South Variations				
Factor	Element	ROI	Proposed Orange Route (5.6 miles)		Beltrami South Variation (7.5 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
Vegetation	North American Boreal Flooded & Swamp Forest	200 feet	114	83.9%	139	76.5%	Both Alternatives would potentially impact similar amounts of forest land. While direct, adverse impacts to forested areas would be long-term, contiguous forest is abundant in the region surrounding the Project (pg. 420).
	North American Boreal Forest		16	11.8%	35	19.3%	
	Other		22	16.2%	43	23.7%	
Wildlife	Important Bird Areas	200 feet	136	100.1%	183	100.7%	Both Alternatives are entirely located on lands designated as Important Bird Areas. Short-term indirect impacts are expected to be minimal because of the large amount of similar habitat in the surrounding region, and the long-term direct impacts are expected to be minimized through use of Applicant-proposed minimization measures (Section 2.13) (pg. 420).
Rare and Unique Natural Resources	Rare Species	1 mile (aquatic species not included)	1	-	2	-	Beltrami South Variation is within one mile of two vascular plants; the Orange Route is within one mile of one vascular plant. Surveys will be performed on the final 200-foot ROW to determine if any rare species are present within the permitted ROW. Any indirect impacts to rare species are expected to be minimal because of the amount of the surrounding habitat. Through use of Applicant-proposed avoidance and minimization measures, direct impacts to rare species are not expected (pg. 422).
	State Rare Communities	200 feet					
	MBS Sites of Biodiversity		120	88.4%	161	88.6%	Both Alternatives contain similar amounts of MBS Sites of Biodiversity.
Corridor Sharing	Paralleling Existing Infrastructure	-	-	100.0%	-		The Orange Route parallels existing transmission lines for 100% of its length.
Electrical System Reliability		-		-		-	The Orange Route parallels one existing Manitoba – Minnesota tie line for its entire length while the Beltrami South Variation does not parallel any existing Manitoba – Minnesota tie lines.
Cost	Total Cost	-	$5,805,518	-		-	Beltrami South Variation would cost the most to construct. *These costs have been updated since the initial information request.*



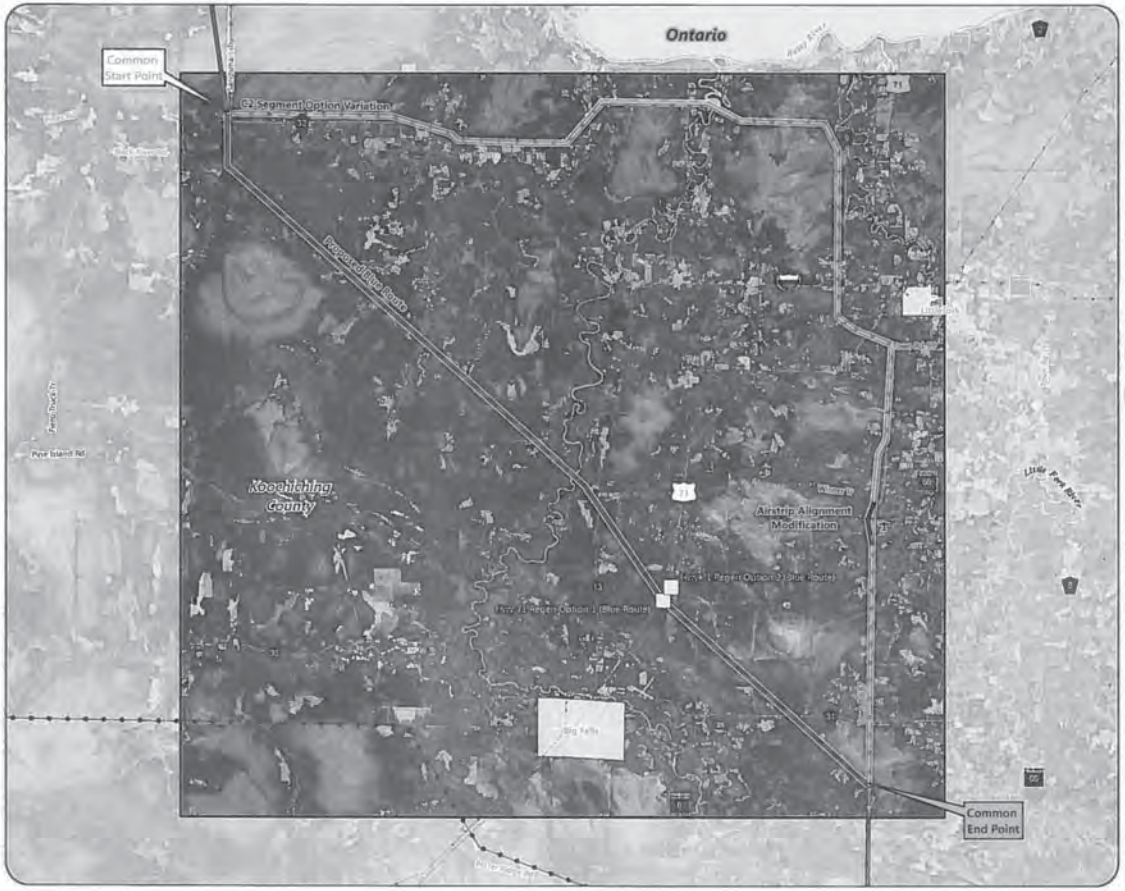
Map 4-11

NORTH BLACK RIVER VARIATION AREA

Great Northern Transmission Line
Draft Environmental Impact Statement

Relative Merits			North Black River Variations				
Factor	Element	ROI	Proposed Blue Route (6.4 miles)		North Black River Variation (9.2 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
Human Settlement	**Aesthetics**						
	Residences	1,500 feet	1	-	5	-	North Black River Variation would potentially impact more residences than the Blue Route.
	Historic Architectural Sites	5,280 feet	0	-	0	-	Neither Alternative would impact any known architectural sites within 5,280 feet.
	Trails	1,500 feet	2	-	2	-	Both Alternatives would cross two snowmobile trails.
	Land Use Compatibility						
	Dominant Land Cover Type	1,500 feet	3,190 ac	99.4%	3,296 ac	94.3%	Both Alternatives' major land cover type is Forested and/or Swamp. Both Alternatives would result in a long-term change in land use for areas currently forested and/or swamp land, but these changes would be limited in extent, and there would still be extensive forest and swamp lands in the surrounding area; so these changes are expected to have a minimal impact on land use (pg. 428).
	Land Ownership	200 feet	204 acres total		223 acres total		Both Alternatives contain a similar amount of public lands; however, the Blue Route would not impact any private land owners.
	Public		188	92.3%	158	70.9%	
	Private		16	7.9%	65	29.1%	
Land-Based Economies	Agriculture	1,500 feet	0	0.0%	69	2.0%	The Blue Route would not impact agricultural land.
	Forestry	200 feet	188	92.3%	156	70.0%	Both Alternatives contain a similar amount of State Forest land.
	Mining & Mineral Leases		405	198.9%	362	162.3%	There are more acres of mineral leases within both Alternatives than the total number of acres within the 200-foot ROW.
Archaeology and Historic Architectural Resources	Historic Architectural Sites	5,280 feet	0	-	0	-	Neither Alternative would impact any known historic architectural sites or archaeological sites.
	Archaeological Sites	1,500 feet	0	-	0	-	
Water Resources	PWI Waters	Crossings or 200 feet	0	-	0	-	Both Alternatives would cross few non-PWI waters; however, it is anticipated that these crossings are spannable (crossings would be less than the average spanning length of 1,250 feet) and structures would not be placed in them.
	Non-PWI Waters		4	-	4	-	
	Impaired Waters		0	-	0	-	
	Floodplains		0	-	0	-	Neither Alternative would impact FEMA-designated floodplains.
	NWI Wetlands		193	94.8%	198	88.8%	Both Alternatives would potentially impact a similar amount of NWI-mapped wetlands. While direct, adverse impacts to forested and shrub wetlands are permanent and may change wetland functions within the ROW, they are expected to be minimal because of the amount of surrounding forested and shrub wetlands in the region (pg. 434).

Relative Merits			North Black River Variations				
Factor	Element	ROI	Proposed Blue Route (8.4 miles)		North Black River Variation (9.2 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
Vegetation	North American Boreal Flooded & Swamp Forest	200 feet	144	70.7%	114	51.1%	Both Alternatives would potentially impact a similar amount of forest land. While direct, adverse impacts to forested areas would be long-term, contiguous forest is abundant in the region surrounding the Project (pg. 435).
	North American Boreal Forest		47	23.1%	49	22.0%	
	Eastern North American Flooded Swamp & Forest		12	5.9%	29	13.0%	
	Other		60	29.5%	109	48.9%	
Wildlife	Important Bird Areas	200 feet	191	93.8%	214	96.0%	Both Alternatives contain a similar amount of land designated as an Important Bird Area. Short-term indirect impacts are expected to be minimal because of the large amount of similar habitat in the surrounding region, and the long-term direct impacts are expected to be minimized through use of Applicant-proposed minimization measures (Section 2.13) (pg. 436).
Rare and Unique Natural Resources	Rare Species	1 mile (aquatic species not included)	0	-	0	-	Neither Alternative is located within one mile of a documented rare species. Surveys will be performed on the final 200-foot ROW to determine if any rare species are present within the permitted ROW. Any indirect impacts to rare species are expected to be minimal because of the amount of the surrounding habitat. Through use of Applicant-proposed avoidance and minimization measures, direct impacts to rare species are not expected (pg. 437).
	State Rare Communities	200 feet					
	MBS Sites of Biodiversity		165	81.0%	109	48.9%	Both Alternatives contain similar amounts of MBS Sites of Biodiversity.
Corridor Sharing	Paralleling Existing Infrastructure	-	-		-	100.0%	The North Black River Variations parallels existing transmission lines for 100% of its length.
Electrical System Reliability		-		-		-	The North Black River Variation parallels one existing Manitoba – Minnesota tie line for its entire length while the Blue Route does not parallel any existing Manitoba – Minnesota tie lines.
Cost	Total Cost	-	$9,893,580	-	$10,552,560	-	The North Black River Variations would cost the most to construct. *This cost has been updated since the initial information request.*

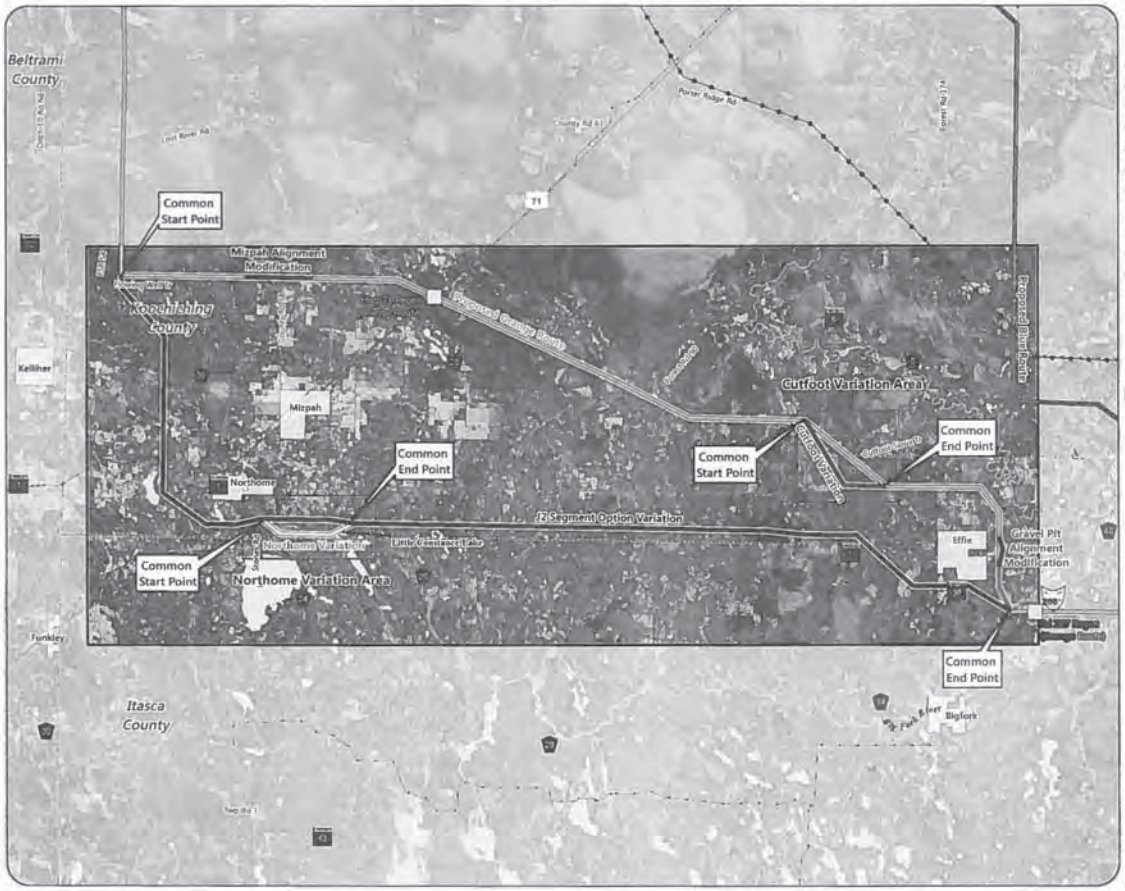


Map 4-12

C2 SEGMENT OPTION VARIATION AREA
Great Northern Transmission Line
Draft Environmental Impact Statement

Relative Merits			C2 Segment Option Variation Area				
Factor	Element	ROI	Proposed Blue Route (32.8 miles)		C2 Segment Option (46 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
Human Settlement	**Aesthetics**						
	Residences	1,500 feet	0	-	29	-	C2 would potentially impact 29 more residences than the Blue Route.
	Historic Architectural Sites	5,280 feet	0	-	0	-	Neither Alternative would impact any known architectural sites within 5,280 feet.
	Trails	1,500 feet	4	-	3	-	Both Alternatives would cross one water trail and one state trail. The Blue Route would cross one more snowmobile trail than C2.
	Land Use Compatibility						
	Dominant Land Cover Type	1,500 feet	11,922 ac	98.5%	16,121 ac	95.5%	Both Alternatives' major land cover type is Forested and/or Swamp. Both Alternatives would result in a long-term change in land use for areas currently forested and/or swamp land, but these changes would be limited in extent, and there would still be extensive forest and swamp lands in the surrounding area; so these changes are expected to have a minimal impact on land use (pg. 441-442).
	Land Ownership	200 feet	795 acres total		1,115 acres total		Both Alternatives contain a similar amount of public lands; however, the Blue Route would not impact any private land owners.
	Public		797	100.2%	654	58.8%	
	Private		0	0.0%	461	41.4%	
Land-Based Economies	Agriculture	1,500 feet	0	0.0%	167	1.0%	The Blue Route would not impact agricultural lands whereas C2 would potentially impact 167 acres.
	Forestry	200 feet	797	100.2%	274	24.6%	The Blue Route is located entirely within State Forest land.
	Mining & Mineral Leases		16	2.0%	67	6.0%	C2 would potentially impact four times as many mining and mineral leases than the Blue Route.
Archaeology and Historic Architectural Resources	Historic Architectural Sites	5,280 feet	0	-	0	-	Neither Alternative would impact any known historic architectural sites or archaeological sites.
	Archaeological Sites	1,500 feet	0	-	0	-	
Water Resources	PWI Waters	Crossings or 200 feet	5	-	3	-	Both Alternatives would cross a number of PWI, non-PWI, and impaired waterways; however, however, it is anticipated that these crossings are spannable (crossings would be less than the average spanning length of 1,250 feet) and structures would not be placed in them.
	Non-PWI Waters		12	-	5	-	
	Impaired Waters		1	-	2	-	
	Floodplains		8	-	28	-	C2 would potentially impact more acres of FEMA-designated floodplain; however, both Alternatives would require construction and placement of transmission structures in Zone A floodplains of the Black and Big Fork Rivers, respectively (pg. 448).
	NWI Wetlands		728	91.5%	829	74.3%	Both Alternatives would potentially impact similar amounts of NWI-mapped wetlands. While direct, adverse impacts to forested and shrub wetlands are permanent and may change wetland functions within the ROW, they are expected to be minimal because of the amount of surrounding forested and shrub wetlands in the region (pg. 449).

Relative Merits			C2 Segment Option Variation Area				
Factor	Element	ROI	Proposed Blue Route (32.8 miles)		C2 Segment Option (46 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
Vegetation	North American Boreal Flooded & Swamp Forest	200 feet	464	60.9%	728	65.3%	C2 impacts almost twice as many acres of forest land than the Blue Route. While direct, adverse impacts to forested areas would be long-term, contiguous forest is abundant in the region surrounding the Project (pg. 450).
	North American Boreal Forest		248	31.2%	162	14.5%	
	Eastern North American Flooded Swamp & Forest		56	7.0%	185	16.6%	
	Other		311	39.1%	387	34.7%	
Wildlife	Important Bird Areas	200 feet	469	59.0%	406	36.4%	Both Alternatives contain a similar amount of land designated as an Important Bird Area. Short-term indirect impacts are expected to be minimal because of the large amount of similar habitat in the surrounding region, and the long-term direct impacts are expected to be minimized through use of Applicant-proposed minimization measures (Section 2.13) (pg. 452).
Rare and Unique Natural Resources	Rare Species	1 mile (aquatic species not included)	0	-	2	-	C2 is within one mile of two document rare species. Surveys will be performed on the final 200-foot ROW to determine if any rare species are present within the permitted ROW. Any indirect impacts to rare species are expected to be minimal because of the amount of the surrounding habitat. Through use of Applicant-proposed avoidance and minimization measures, direct impacts to rare species are not expected (pg. 453).
	State Rare Communities	200 feet					
	Ecological Important Lowland Conifers		7	0.9%	6	0.5%	Both Routes would potentially impact similar amounts of the same DNR Ecologically Important Lowland Conifer stand.
	MBS Sites of Biodiversity		642	80.7%	510	45.7%	Both Alternatives contain similar amounts of MBS Sites of Biodiversity; the Blue Route contains slightly more acres than C2.
Corridor Sharing	Paralleling Existing Infrastructure	-	-		-	81.0%	The Blue Route does not parallel existing transmission lines whereas C2 parallels existing transmission for 81% of its length.
Electrical System Reliability		-		-		-	C2 parallels one existing Manitoba – Minnesota tie line for its entire length. The Blue Route does not parallel any existing Manitoba – Minnesota tie lines.
Cost	Total Cost	-	$35,789,239	-		-	C2 Segment would cost the most to construct.


Beltrami County
Koochiching County
Itasca County
Common Start Point
Mizpah Alignment Modification
Proposed Orange Route
Proposed Blue Route
Cutfoot Variation Area
Common End Point
Common Start Point
Common End Point
Mizpah
Northome
J2 Segment Option Variation
Northome Variation
Northome Variation Area
Little Cressbeck Lake
Common Start Point
Effie
Gravel Pit Alignment Modification
Common End Point
Bigfork
Kelliher
Funkley
71
Porter Ridge Rd
Proposed Regeneration Site
Proposed Routes
Blue Route
Orange Route
Alternatives
J2 Segment Option Variation
Northome Variation
Cutfoot Variation
Alignment Modification
Existing Transmission Lines
69 or 115 kV
230 kV
500 kV
Streets and Highways
US Highway
State Trunk Highway
County State Aid Highway
Local Road
Variation Area
Municipal Boundary
County Boundary
Note:
Anticipated alignments are shown offset for display purposes only. Please refer to more detailed maps for precise alignment placement.
The Applicant will be issued a Route Permit with a specific route width. The proposed route widths are shown in Appendix S
Miles
3.5
0
3.5
Map 4-13
J2 SEGMENT OPTION, NORTHOME AND CUTFOOT VARIATION AREAS
Great Northern Transmission Line
Draft Environmental Impact Statement
U.S. DEPARTMENT OF ENERGY
COMMERCE
69

Relative Merits			J2 Segment Option Variation Area				
Factor	Element	ROI	Proposed Orange Route (42.2 miles)		J2 Segment Option (45.2 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
Human Settlement	**Aesthetics**						
	Residences	1,500 feet	0	-	6	-	J2 would potentially impact six more residences than the Orange Route.
	Historic Architectural Sites	5,280 feet	2	-	7	-	J2 would potentially impact more known historical architectural sites; however, the permitted Route width will be less than 5,280 feet so some sites may not be impacted.
	Scenic Byway	1,500 feet	0		2		J2 would cross Scenic Byways 46 and 38.
	Trails	1,500 feet	3	-	5	-	Both Alternatives would cross one state trail; J2 would cross four snowmobile trails and the Orange Route would cross two.
	Land Use Compatibility						
	Dominant Land Cover Type	1,500 feet	15,110 ac	97.4%	15,860 ac	94.1%	Both Alternatives' major land cover type is Forested and/or Swamp. Both Alternatives would result in a long-term change in land use for areas currently forested and/or swamp land, but these changes would be limited in extent, and there would still be extensive forest and swamp lands in the surrounding area, so these changes are expected to have a minimal impact on land use (pg. 459).
	Land Ownership	200 feet	1,023 acres total		1,096 acres total		Both Alternatives are primarily located on public lands; however, J2 would potentially impact almost three times as many acres of private land than would the Orange Route.
	Public		945	92.4%	868	79.2%	
	Private		78	7.6%	228	20.8%	
Land-Based Economies	Agriculture	1,500 feet	153	1.0%	164	1.0%	Both Alternatives contain similar amounts of agricultural lands.
	Forestry	200 feet	851	83.2%	715	65.2%	Both Alternatives contain similar amounts of State Forest lands.
	Mining & Mineral Leases		82	8.0%	73	6.7%	Both Alternatives would potentially impact a similar amount of mining and mineral lease land.
Archaeology and Historic Architectural Resources	Historic Architectural Sites	5,280 feet	2	-	7	-	J2 would potentially impact more known historical architectural sites; however, the permitted Route width will be less than 5,280 feet so some sites may not be impacted. Neither Alternative would impact any known archaeological sites.
	Archaeological Sites	1,500 feet	0	-	0	-	
Water Resources	PWI Waters	Crossings or 200 feet	6	-	3	-	Both Alternatives would cross a number of PWI and non-PWI waters; however, it is anticipated that these crossings are spannable (crossings would be less than the average spanning length of 1,250 feet) and structures would not be placed in them.
	Non-PWI Waters		24	-	38	-	
	Impaired Waters		0	-	0	-	
	Floodplains		3	-	0	-	The Orange Route would cross a Zone A floodplain; however, crossings would be less than the average spanning length of 1,250 feet and structures would not be placed in them.
	NWI Wetlands		509	49.8%	353	32.2%	The Orange Route would potentially impact slightly more acres of NWI-mapped wetlands than J2. While direct, adverse impacts to forested and shrub wetlands are permanent and may change wetland functions within the ROW, they are expected to be minimal because of the amount of surrounding forested and shrub wetlands in the region (pg. 466).

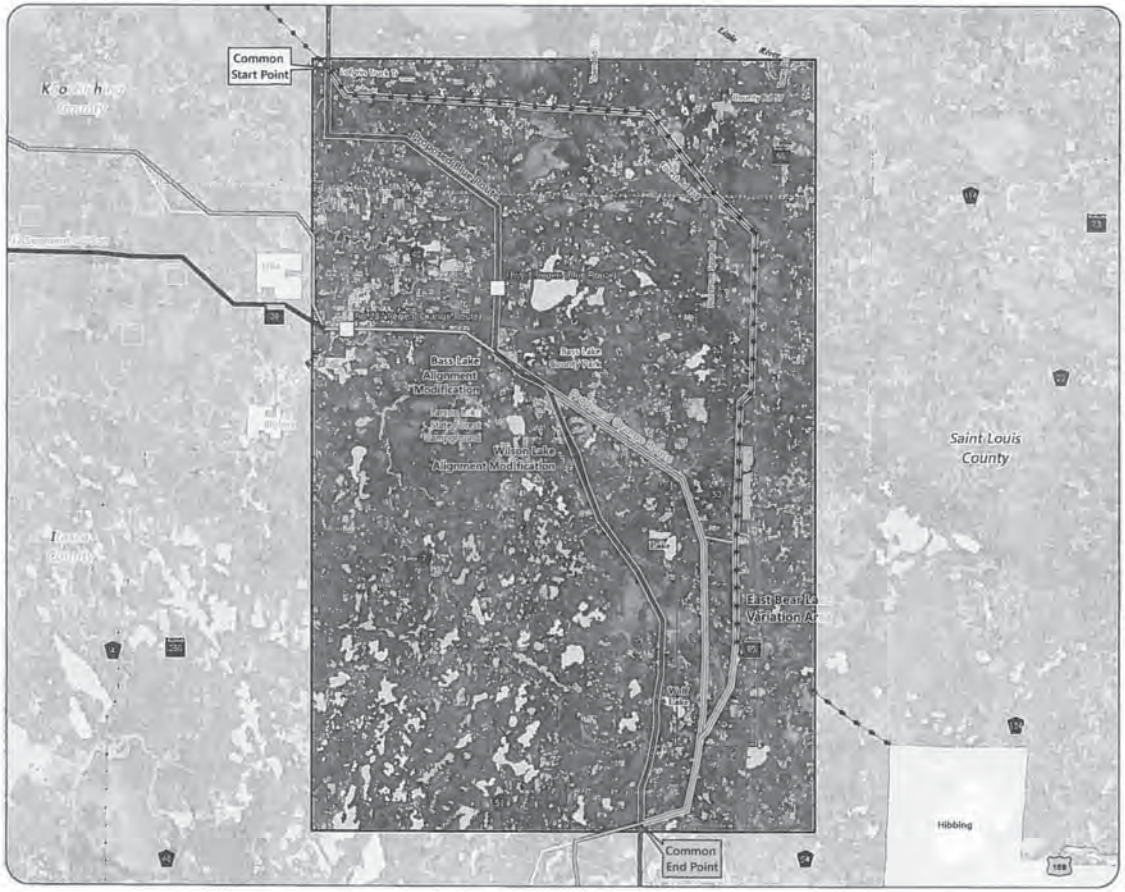
Relative Merits			J2 Segment Option Variation Area				
Factor	Element	ROI	Proposed Orange Route (42.2 miles)		J2 Segment Option (45.2 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
Vegetation	North American Boreal Flooded & Swamp Forest	200 feet	319	31.2%	124	11.3%	Both Alternatives would potentially impact a similar amount of forest land. While direct, adverse impacts to forested and shrub wetlands are permanent and may change wetland functions within the ROW, they are expected to be minimal because of the amount of surrounding forested and shrub wetlands in the region (pg. 467).
	North American Boreal Forest		477	46.6%	650	59.3%	
	Eastern North American Flooded Swamp & Forest		176	17.2%	191	17.4%	
	Eastern North American Cool Temperate Forest		36	3.5%	98	9.0%	
	Other		704	68.8%	972	88.7%	
Wildlife	Important Bird Areas	200 feet	262	25.6%	72	6.6%	The Orange Route contains more acres of land designated as an Important Bird Area. Short-term indirect impacts are expected to be minimal because of the large amount of similar habitat in the surrounding region, and the long-term direct impacts are expected to be minimized through use of Applicant-proposed minimization measures (Section 2.13) (pg. 468).
Rare and Unique Natural Resources	Rare Species	1 mile (aquatic species not included)	3	-	2	-	The Orange Route is within one mile of three vascular plant species whereas J2 is within one mile of one vascular plant species and one colonial water bird nesting site (animal assemblage). Surveys will be performed on the final 200-foot ROW to determine if any rare species are present within the permitted ROW. Any indirect impacts to rare species are expected to be minimal because of the amount of the surrounding habitat. Through use of Applicant-proposed avoidance and minimization measures, direct impacts to rare species are not expected (pg. 470).
	State Rare Communities	200 feet					
	MBS Sites of Biodiversity		489	47.8%	185	16.9%	The Orange Route would potentially impact more acres of MBS Sites of Biodiversity Significance.
Corridor Sharing	Paralleling Existing Infrastructure	-	-		-		Neither Alternative parallels existing transmission lines.
Electrical System Reliability		-		-		-	Neither Alternative parallels or crosses any existing Manitoba – Minnesota tie lines.
Cost	Total Cost	-	$48,706,841	-	$52,128,879	-	J2 Segment would cost the most to construct.

Relative Merits			Northome Variation Area				
Factor	Element	ROI	J2 Segment Option (3.7 miles)		Northome Variation (4 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
Human Settlement	**Aesthetics**						
	Residences	1,500 feet	0	-	0	-	Neither Alternative would impact any residences within 1,500 feet.
	Historic Architectural Sites	5,280 feet	0	-	0	-	Neither Alternative would impact any known architectural sites within 5,280 feet.
	Scenic Byway	1,500 feet	0		0		Neither Alternative would cross a Scenic Byway.
	Trails	1,500 feet	0	-	0	-	Neither Alternative would cross any trails.
	Land Use Compatibility						
	Land Cover of Forested and/or Swamp	1,500 feet	1,418 ac	93.1%	1,555 ac	95.3%	Both Alternatives' major land cover type is Forested and/or Swamp. Both Alternatives would result in a long-term change in land use for areas currently forested and/or swamp land, but these changes would be limited in extent, and there would still be extensive forest and swamp lands in the surrounding area; so these changes are expected to have a minimal impact on land use (pg. 474).
	Land Ownership	200 feet	90 acres total		97 acres total		The Northome Variation contains more public lands than private lands; J2 contains more acre of private lands than Northome Variation.
	Public		67	74.7%	81	83.5%	
	Private		23	25.6%	16	16.5%	
Land-Based Economies	Agriculture	1,500 feet	64	4.2%	0	0.0%	J2 would impact few acres of agricultural land whereas the Northome Variation does not impact agricultural lands.
	Forestry	200 feet	0	0.0%	0	0.0%	Neither Alternative contains State Forest lands.
	Mining & Mineral Leases		0	0.0%	0	0.0%	Neither Alternative would impact mining or mineral leases.
Archaeology and Historic Architectural Resources	Historic Architectural Sites	5,280 feet	0	-	0	-	Neither Alternative would impact any known architectural sites. Northome Variation would potentially impact one archeological site; however, the permitted Route width will be less than 5,280 feet so some sites may not be impacted.
	Archaeological Sites	1,500 feet	0	-	1	-	
Water Resources	PWI Waters	Crossings or 200 feet	0	-	1	-	Both Alternatives would cross very few PWI and non-PWI waters; however, it is anticipated that these crossings are spannable (crossings would be less than the average spanning length of 1,250 feet) and structures would not be placed in them.
	Non-PWI Waters		6	-	1	-	
	Impaired Waters		0	-	0	-	
	Floodplains		0	-	0	-	Neither Alternative would impact FEMA-designated floodplains.
	NWI Wetlands		23	25.8%	14	14.4%	Both Alternatives would potentially impact very few acres of NWI-mapped wetlands. While direct, adverse impacts to forested and shrub wetlands are permanent and may change wetland functions within the ROW, they are expected to be minimal because of the amount of surrounding forested and shrub wetlands in the region (pg. 479).

Relative Merits			Northome Variation Area				
Factor	Element	ROI	J2 Segment Option (3.7 miles)		Northome Variation (4 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
Vegetation	North American Boreal Forest	200 feet	71	79.2%	81	83.5%	Both Alternatives would potentially impact a similar amount of forested land. While direct, adverse impacts to forested areas would be long-term, contiguous forest is abundant in the region surrounding the proposed Project (pg. 480).
	Eastern North American Cool Temperate Forest		10	11.1%	10	10.3%	
	Other		19	21.2%	16	16.5%	
Wildlife	Shallow Lakes	200 feet	0	-	1	-	The Northome Variation would cross one DNR Shallow Lake.
Rare and Unique Natural Resources	Rare Species	1 mile (aquatic species not included)	1	-	2	-	One colonial waterbird nesting site is listed within one mile of J2 and two nesting sites are listed within one mile of the Northome Variation. Surveys will be performed on the final 200-foot ROW to determine if any rare species are present within the permitted ROW. Any indirect impacts to rare species are expected to be minimal because of the amount of the surrounding habitat. Through use of Applicant-proposed avoidance and minimization measures, direct impacts to rare species are not expected (pg. 482).
	State Rare Communities	200 feet					
	MBS Sites of Biodiversity		0	0.0%	0	0.0%	There are no MBS Sites of Biodiversity within either Alternative.
Corridor Sharing	Paralleling Existing Infrastructure	-	-		-		Neither Alternative parallels existing transmission lines.
Electrical System Reliability		-		-		-	Neither Alternative parallels or crosses any existing Manitoba – Minnesota tie lines.
Cost	Total Cost	-	$4,192,842	-		-	The Northome Variation would cost the most to construct.

Relative Merits			Cutfoot Variation Area				
Factor	Element	ROI	Proposed Orange Route (4.2 miles)		Cutfoot Variation (4.8 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
Human Settlement	**Aesthetics**						
	Residences	1,500 feet	0	-	0	-	Neither Alternative would impact any residences within 1,500 feet.
	Historic Architectural Sites	5,280 feet	0	-	0	-	Neither Alternative would impact any known architectural sites within 5,280 feet.
	Scenic Byway	1,500 feet	0		0		Neither Alternative would cross a Scenic Byway.
	Trails	1,500 feet	0	-	0	-	Neither Alternative would cross any trails.
	Land Use Compatibility						
	Dominant Land Cover Type	1,500 feet	1,652 ac	97.3%	1,874 ac	99.3%	Both Alternatives' major land cover type is Forested and/or Swamp. Both Alternatives would result in a long-term change in land use for areas currently forested and/or swamp land, but these changes would be limited in extent, and there would still be extensive forest and swamp lands in the surrounding area; so these changes are expected to have a minimal impact on land use (pg. 485).
	Land Ownership	200 feet	102 acres total		116 acres total		Both Alternatives are located entirely within public land.
	Public		103	101.2%	116	99.7%	
	Private		0	0.0%	0	0.0%	
Land-Based Economies	Agriculture	1,500 feet	0	0.0%	0	0.0%	Neither Alternative would impact agricultural land.
	Forestry	200 feet	103	101.2%	116	99.7%	Both Alternatives are entirely located within State Forest lands.
	Mining & Mineral Leases		29	28.5%	4	3.4%	The Orange Route contains more acres of mining and mineral leases than the Cutfoot Variation; however both would impact aggregate mining resources.
Archaeology and Historic Architectural Resources	Historic Architectural Sites	5,280 feet	0	-	0	-	Neither Alternative would impact any known historic architectural or archaeological sites.
	Archaeological Sites	1,500 feet	0	-	0	-	
Water Resources	PWI Waters	Crossings or 200 feet	0	-	0	-	The Orange Route would cross very few, if any, PWI and non-PWI waters; however, it is anticipated that these crossings are spannable (crossings would be less than the average spanning length of 1,250 feet) and structures would not be placed in them. The Cutfoot Variation would not cross any waterbodies.
	Non-PWI Waters		2	-	0	-	
	Impaired Waters		0	-	0	-	
	Floodplains		0	-	0	-	Neither Alternative would impact FEMA-designated floodplains.
	NWI Wetlands		57	56.0%	67	57.6%	Both Alternatives would potentially impact very few acres of NWI-mapped wetlands. While direct, adverse impacts to forested and shrub wetlands are permanent and may change wetland functions within the ROW, they are expected to be minimal because of the amount of surrounding forested and shrub wetlands in the region (pg. 490).

Relative Merits			Cutfoot Variation Area				
Factor	Element	ROI	Proposed Orange Route (4.2 miles)		Cutfoot Variation (4.8 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
Vegetation	North American Boreal Flooded &Swamp Forest	200 feet	28	27.5%	30	25.8%	Both Alternatives would potentially impact a similar amount of forest land. While direct, adverse impacts to forested areas would be long-term, contiguous forest is abundant in the region surrounding the Project (pg. 492).
	North American Boreal Forest		30	29.5%	64	55.0%	
	Eastern North American Flooded & Swamp Forest		39	38.3%	20	17.2%	
	Other		74	72.7%	86	73.9%	
Wildlife	All/Any	200 feet	0	0.0%	0	0.0%	Neither Alternative would impact recognized wildlife resource areas.
Rare and Unique Natural Resources	Rare Species	1 mile (aquatic species not included)	0	-	0	-	Neither Alternative is located within one mile of a documented rare species.
	State Rare Communities	200 feet					
	MBS Sites of Biodiversity		43	42.2%	60	51.5%	Both Alternatives would potentially impact similar amounts of MBS Sites of Biodiversity.
Corridor Sharing	Paralleling Existing Infrastructure	-	-		-		Neither Alternative parallels existing transmission lines.
Electrical System Reliability		-		-		-	Neither Alternative parallels or crosses any existing Manitoba – Minnesota tie lines.
Cost	Total Cost	-	$5,840,638	-	$8,222,257	-	The Cutfoot Variation would cost the most to construct.



Proposed Regeneration Site

Proposed Routes

- Blue/Orange Route
- Blue Route
- Orange Route
- J2 Segment Option

Alternatives

- Effie Variation
- Alignment Modification

Existing Transmission Lines

- 69 or 115 kV
- 230 kV
- 500 kV

Streets and Highways

- US Highway
- State Trunk Highway
- County State Aid Highway
- Local Road
- Variation Area
- Municipal Boundary
- County Boundary

Note:
Anticipated alignments are shown offset for display purposes only. Please refer to more detailed maps for precise alignment placement.

The Applicant will be issued a Route Permit with a specific route width. The proposed route widths are shown in Appendix S.

Miles
3.8 0 3.8

Map 4-15

EFFIE VARIATION AREA
Great Northern Transmission Line
Draft Environmental Impact Statement

U.S. DEPARTMENT OF ENERGY
MINNESOTA DEPARTMENT OF COMMERCE

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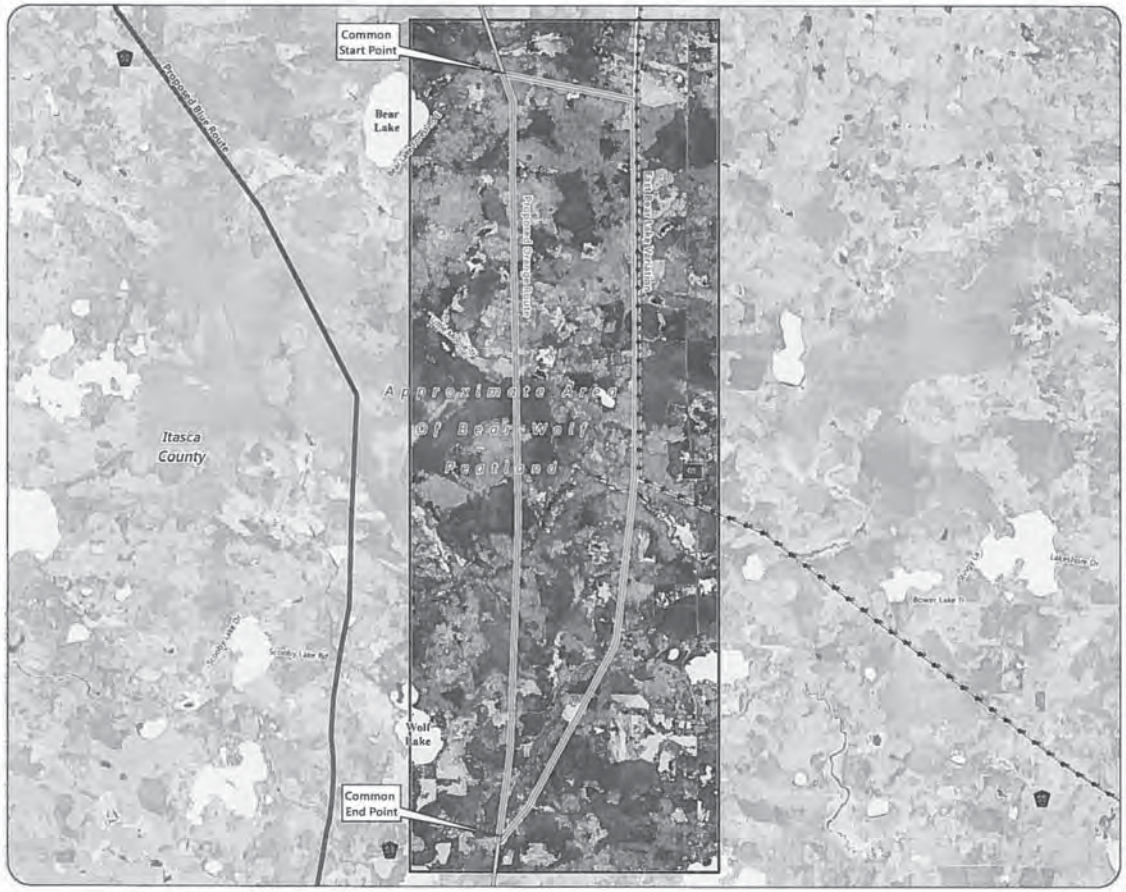
Relative Merits			Effie Variation						
Factor	Element	ROI	Proposed Blue Route (41.1 miles)		Proposed Orange Route (44.6 miles)		Effie Variation (49.8 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
Human Settlement	**Aesthetics**								
	Residences	1,500 feet	4	-	5	-	14	-	The Effie Variation impacts generally three times as many residences as the Blue or Orange Routes.
	Historic Architectural Sites	5,280 feet	1	-	1	-	3	-	Both the Blue and Orange Routes would potentially impact one historic architectural site within 5,280 feet. The Effie Variation would potentially impact three sites; however, the permitted Route width will be less than 5,280 feet so some sites may not be impacted.
	Parks	1,500 feet	1		1		0		Both the Blue and Orange Routes would potentially impact one County Park; the Effie Variation would not.
	Trails	1,500 feet	6	-	7	-	5	-	All Alternatives would cross at least five state or snowmobile trails.
	Water Access	1,500 feet	0	-	0	-	1	-	The Blue and Orange Routes would not impact any water access points; the Effie Variation would potentially impact one water access.
	Land Use Compatibility								
	Dominant Land Cover Type	1,500 feet	14,723 ac	97.6%	15,601 ac	96.7%	17,696 ac	96.8%	All Alternatives' major land cover type is Forested and/or Swamp. All Alternatives would result in a long-term change in land use for areas currently forested and/or swamp land, but these changes would be limited in extent, and there would still be extensive forest and swamp lands in the surrounding area; so these changes are expected to have a minimal impact on land use (pg. 465, 555).
	Land Ownership	200 feet	996 acres total		1,081 acres total		1,207 acres total		All Alternatives are almost entirely located on public lands. The Effie Variation contains the most acres of private land.
	Public		919	92.2%	962	89.0%	1,086	90.0%	
	Private		77	7.7%	119	11.0%	121	10.0%	
Land-Based Economies	Agriculture	1,500 feet	0	0.0%	0	0.0%	0	0.0%	None of the Alternatives would impact agricultural land.
	Forestry	200 feet	909	91.2%	958	88.6%	1,086	90.0%	All Alternatives are mostly located within State Forests; the Effie Variation would potentially impact the most acres of State Forest.
	Mining & Mineral Leases		647	64.9%	819	75.7%	824	68.3%	All Alternatives contain numerous acres of mining and mineral leases; the Effie Variation contains the most acres of mining and mineral leases.
Archaeology and Historic Architectural Resources	Historic Architectural Sites	5,280 feet	1	-	1	-	3	-	Both the Blue and Orange Routes would potentially impact one historic architectural site within 5,280 feet. The Effie Variation would potentially impact three sites; however, the permitted Route width will be less than 5,280 feet so some sites may not be impacted. The Blue and Orange Routes would not impact any known archaeological sites; the Effie Variation would potentially impact two sites.
	Archaeological Sites	1,500 feet	0	-	0	-	2	-	
	PWI Waters		10	-	13	-	13	-	All Alternatives will require crossing a number of waterbodies; however, it is anticipated that these crossings are spannable (crossings would be less than the average spanning length of 1,250 feet) and structures would not be placed in them.
	Non-PWI Waters		9	-	11	-	15	-	
	Impaired Waters		0	-	0	-	0	-	

Relative Merits			Effie Variation						
Factor	Element	ROI	Proposed Blue Route (41.1 miles)		Proposed Orange Route (44.6 miles)		Effie Variation (49.8 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
Water Resources	Floodplains	Crossings or 200 feet	3	0.3%	3	0.3%	0	0.0%	The Effie Variation would not impact any FEMA-designated floodplains. The Blue and Orange Routes would cross a Zone A floodplain; however, the crossings would be less than the average spanning length of 1,250 feet. Therefore, it would be expected that the floodplain crossings would be spanned and transmission structures would not be placed in them (pg. 544).
	NWI Wetlands		443	44.5%	391	36.2%	413	34.2%	All Alternatives would potentially impact similar acres of NWI-mapped wetlands. While direct, adverse impacts to forested and shrub wetlands are permanent and may change wetland functions within the ROW, they are expected to be minimal because of the amount of surrounding forested and shrub wetlands in the region (pg. 544).
Vegetation	North American Boreal Forest	200 feet	473	47.5%	569	52.6%	558	46.1%	All Alternatives would potentially impact a similar amount of forest land. While direct, adverse impacts to forested areas would be long-term, contiguous forest is abundant in the region surrounding the Project (pg. 546).
	North American Boreal Flooded & Swamp Forest		399	40.0%	339	31.4%	364	30.1%	
	Eastern North American Cool Temperate Forest		25	2.5%	40	3.7%	35	2.9%	
	Eastern North American Flooded & Swamp Forest		81	8.1%	99	9.2%	208	17.2%	
	Other		18	1.8%	133	12.3%	252	20.9%	
Wildlife	Important Bird Areas	200 feet	69	-	69	-	0	-	The Blue and Orange Routes contain 69 acres of land designated as an Important Bird Area. Short-term indirect impacts are expected to be minimal because of the large amount of similar habitat in the surrounding region, and the long-term direct impacts are expected to be minimized through use of Applicant-proposed minimization measures (Section 2.13) (pg. 547).
Rare and Unique Natural Resources	Rare Species	1 mile (aquatic species not included)	3	-	4	-	2	-	All Alternatives are within one mile of a colonial waterbird nesting site and at least one vascular plant. The Orange Route is within one mile of the greatest number of species. Surveys will be performed on the final 200-foot ROW to determine if any rare species are present within the permitted ROW. Any indirect impacts to rare species are expected to be minimal because of the amount of the surrounding habitat. Through use of Applicant-proposed avoidance and minimization measures, direct impacts to rare species are not expected (pg. 550).
	State Rare Communities	200 feet							
	MBS Sites of Biodiversity		422	42.4%	490	45.3%	427	35.4%	All Alternatives would potentially impact a similar number of acres of MBS Sites of Biodiversity; the Orange Route would pass through the most acres (pg. 551).

Relative Merits							Effie Variation		
Factor	Element	ROI	Proposed Blue Route (41.1 miles)		Proposed Orange Route (44.6 miles)		Effie Variation (49.8 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
Corridor Sharing	Paralleling Existing Infrastructure	-	-	-	-	-	-	80.0%	The Blue and Orange Routes would not parallel any existing transmission lines; however the Effie Variation would parallel two existing transmission line for approximately 80% of its length.
Electrical System Reliability		-		-		-		-	The Blue and Orange Routes do not parallel any existing Manitoba – Minnesota tie lines. The Blue Route would establish one new crossing of the existing 500 kV tie line. The Effie Variation would establish one new crossing of the existing 500 kV tie line and, more significantly, parallel both the 500 kV tie line and the 230 kV tie line in the same corridor for a significant part of its length, which would result in unacceptable risk to northern Minnesota loads.
Cost	Total Cost	-	$46,649,800	-	$49,488,323	-		-	Both the Orange Route and Effie Variation would cost more to construct than the Blue Route.



Proposed Routes
- Blue Route
- Orange Route

Alternatives
- East Bear Lake Variation

Existing Transmission Lines
- 230 kV
- 500 kV

Streets and Highways
- State Trunk Highway
- County State Aid Highway
- Local Road
- Variation Area

Note:
Anticipated alignments are shown offset for display purposes only. Please refer to more detailed maps for precise alignment placement.

The Applicant will be issued a Route Permit with a specific route width. The proposed route widths are shown in Appendix S.

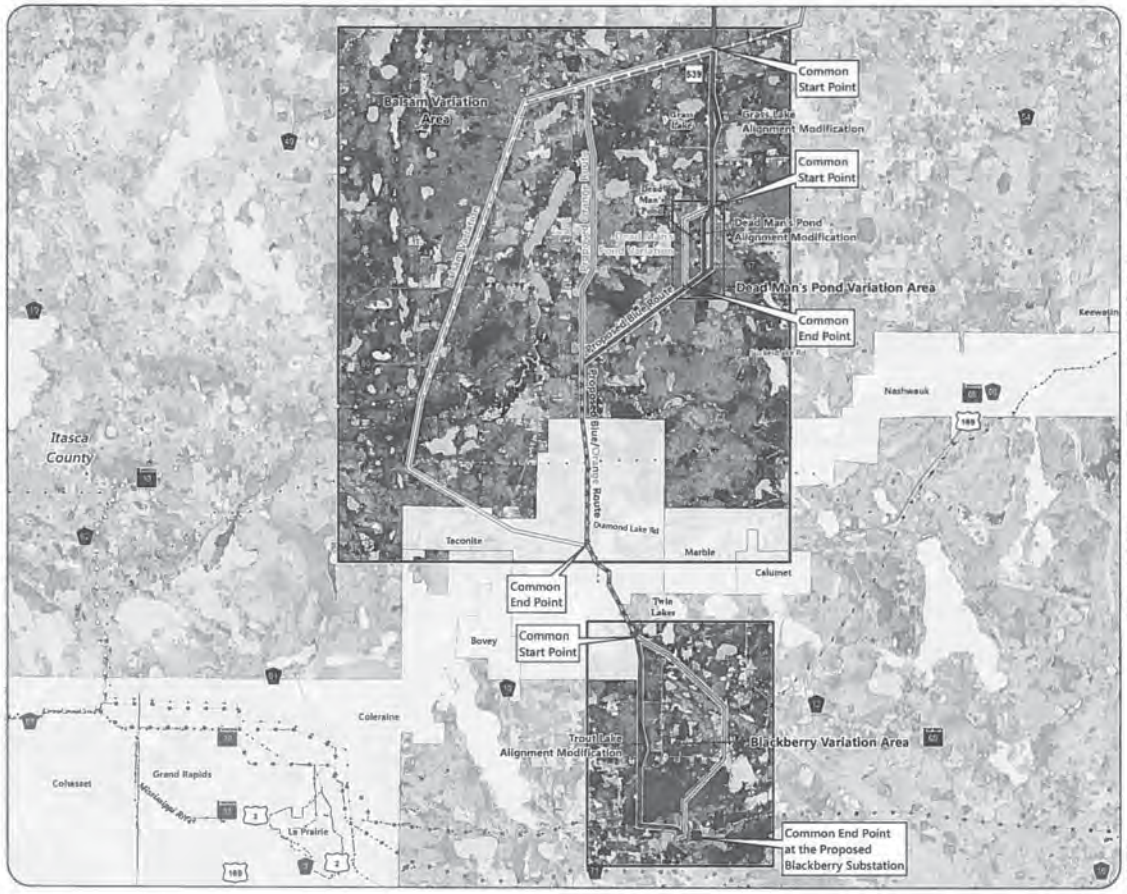
Miles
1 0 1

Map 4-16

EAST BEAR LAKE VARIATION AREA
Great Northern Transmission Line
Draft Environmental Impact Statement

Relative Merits			East Bear Lake Variation Area				
Factor	Element	ROI	Proposed Orange Route (8.9 miles)		East Bear Lake Variation (10.5 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
Human Settlement	**Aesthetics**						
	Residences	1,500 feet	0	-	0	-	Neither Alternative would impact any residences.
	Historic Architectural Sites	5,280 feet	0	-	0	-	Neither Alternative would impact any known historic architectural sites.
	Scenic Byway	1,500 feet	0		0		Neither Alternative would impact any Scenic Byways
	Trails		4		4		Both Alternatives would potentially impact one state trail and three snowmobile trails.
	Water Access Points		0	-	1	-	The East Bear Lake Variation would potentially impact one water access point.
	Land Use Compatibility						
	Dominant Land Cover Type	1,500 feet	3,381 ac	99.2%	3,910 ac	98.2%	Both Alternatives' major land cover type is Forested and/or Swamp. Both Alternatives would result in a long-term change in land use for areas currently forested and/or swamp land, but these changes would be limited in extent, and there would still be extensive forest and swamp lands in the surrounding area, so these changes are expected to have a minimal impact on land use (pg. 555).
	Land Ownership	200 feet	216 acres total		255 acres total		Both Alternatives are entirely located within public lands.
	Public		217	100.6%	256	100.6%	
	Private		0	0.0%	0	0.0%	
Land-Based Economies	Agriculture	1,500 feet	0	0.0%	0	0.0%	Neither Alternative would impact agricultural land.
	Forestry	200 feet	217	100.6%	256	100.6%	Both Alternatives are entirely located within State Forest lands.
	Mining & Mineral Leases		96	44.5%	193	75.8%	The East Bear Lake Variation would potentially impact nearly double the acres of mining and mineral leases than the Orange Route.
Archaeology and Historic Architectural Resources	Historic Architectural Sites	5,280 feet	0	-	0	-	Neither Alternative would impact any known historic architectural or archaeological sites.
	Archaeological Sites	1,500 feet	0	-	0	-	
Water Resources	PWI Waters	Crossings or 200 feet	4	-	2	-	Both Alternatives would cross a small number of PWI and non-PWI waters; however, it is anticipated that these crossings are spannable (crossings would be less than the average spanning length of 1,250 feet) and structures would not be placed in them.
	Non-PWI Waters		0	-	3	-	
	Impaired Waters		0	-	0	-	
	Floodplains		0	-	0	-	Neither Alternative would impact any FEMA-designated floodplains.

Relative Merits			East Bear Lake Variation Area				
Factor	Element	ROI	Proposed Orange Route (8.9 miles)		East Bear Lake Variation (10.5 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
	NWI Wetlands		104	48.2%	89	35.0%	The Orange Route would potentially impact slightly more acres of NWI-mapped wetlands than the East Bear Lake Variation. While direct, adverse impacts to forested and shrub wetlands are permanent and may change wetland functions within the ROW, they are expected to be minimal because of the amount of surrounding forested and shrub wetlands in the region (pg. 561).
Vegetation	North American Boreal Forest	200 feet	103	47.7%	140	55.0%	Both Alternatives would potentially impact a similar amount of forested land. While direct, adverse impacts to forested areas would be long-term, contiguous forest is abundant in the region surrounding the Project (pg. 562).
	North American Boreal Flooded & Swamp Forest		94	43.6%	77	30.3%	
	Other		113	52.4%	115	45.2%	
Wildlife	All/Any	200 feet	0	0.0%	0	0.0%	Neither Alternative would impact recognized wildlife resource areas.
Rare and Unique Natural Resources	Rare Species	1 mile (aquatic species not included)	1	-	1	-	Both Alternatives would be located within one mile of a state-listed special concern vascular plant. Surveys will be performed on the final 200-foot ROW to determine if any rare species are present within the permitted ROW. Any indirect impacts to rare species are expected to be minimal because of the amount of the surrounding habitat. Through use of Applicant-proposed avoidance and minimization measures, direct impacts to rare species are not expected (pg. 564).
	State Rare Communities	200 feet					
	MBS Sites of Biodiversity		217	100.6%	255	100.2%	Both Alternatives are entirely located within MBS Sites of Biodiversity; the East Bear Lake Variation would pass through more MBS Sites (pg. 565).
Corridor Sharing	Paralleling Existing Infrastructure	-	-		-	42.0%	The East Bear Lake Alternative parallels existing transmission line for approximately 42% of its length.
Electrical System Reliability		-		-		-	The Orange Route does not parallel any existing Manitoba – Minnesota tie lines. The East Bear Lake Variation would parallel both the 500 kV tie line and the 230 kV tie line in the same corridor for a significant part of its length, which would result in unacceptable risk to northern Minnesota loads.
Cost	Total Cost	-	$9,736,790	-		-	The East Bear Lake Variation would cost the most to construct.



Proposed Blackberry Substation Location

Proposed Routes

- Blue/Orange Route
- Blue Route
- Orange Route

Alternatives

- Balsam Variation
- Dead Man's Pond Variation
- Alignment Modification
- Abandoned 230 kV Transmission Line Corridor

Existing Transmission Lines

- 69 or 115 kV
- 230 kV

Streets and Highways

- US Highway
- State Trunk Highway
- County State Aid Highway
- Local Road
- Variation Area
- Municipal Boundary

Note:
Anticipated alignments are shown offset for display purposes only. Please refer to more detailed maps for precise alignment placement.

The Applicant will be issued a Route Permit with a specific route width. The proposed route widths are shown in Appendix 5.

Miles
2 0 2

Map 4-17

BALSAM, DEAD MAN'S POND, AND BLACKBERRY VARIATION AREAS
Great Northern Transmission Line
Draft Environmental Impact Statement

Relative Merits			Balsam Variation Area						
Factor	Element	ROI	Proposed Blue Route (12.9 miles)		Proposed Orange Route (13.7 miles)		Balsam Variation (17.8 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
Human Settlement	**Aesthetics**								
	Residences	1,500 feet	7	-	21		11	-	The Orange Route has the highest potential to impact residences; the Balsam Variation has 11 residences within 1,500 feet and the Blue Route has the lowest potential impact to residences.
	Historic Architectural Sites	5,280 feet	13	-	24		28	-	The Orange Route and Balsam Variation have the highest potential to impact architectural sites; however, the permitted Route width will be less than 5,280 feet so some sites may not be impacted.
	Scenic Byway	1,500 feet	0		0		0		No Alternatives would impact Scenic Byways.
	Trails		2		2		3		The Blue and Orange Routes would potentially impact two snowmobile trails; Balsam Variation would impact three.
	Land Use Compatibility								
	Land Cover of Forested and/or Swamp	1,500 feet	4,541 ac	93.5%	4,828 ac	94.1%	5,189 ac	93.2%	All Alternatives' major land cover type is Forested and/or Swamp. All Alternatives would result in a long-term change in land use for areas currently forested and/or swamp land, but these changes would be limited in extent, and there would still be extensive forest and swamp lands in the surrounding area; so these changes are expected to have a minimal impact on land use (pg. 572).
	Land Ownership	200 feet	313 acres total		332 acres total		432 acres total		All Alternatives are generally located on a majority of private lands. The Balsam Variation would potentially impact the most acres of private land.
	Public		67	21.4%	53	16.0%	107	24.8%	
	Private		246	78.7%	279	84.0%	325	75.2%	
Land-Based Economies	Agriculture	1,500 feet	4	0.1%	70	1.4%	72	1.1%	The Blue Route would potentially impact the fewest acres of agricultural land; the Balsam Variation would impact the most.
	Forestry	200 feet	0	0.0%	0	0.0%	0	0.0%	No Alternatives would be located in State Forest lands.
	Mining & Mineral Leases		0	0.0%	0	0.0%	[illegible]	20.6%	The Blue and Orange Routes would not impact mining and mineral leases; the Balsam Variation would potentially impact 69 acres. It should be noted that an **active** mine would impede the construction and operation of the Balsam Variation and therefore it is no longer feasible.
Archaeology and Historic Architectural Resources	Historic Architectural Sites	5,280 feet	13	-	24		28	-	The Orange Route and Balsam Variation have the highest potential to impact known architectural sites. The Blue and Orange Routes would not impact any known archaeological sites; however, the permitted Route width will be less than 5,280 feet so some sites may not be impacted.
	Archaeological Sites	1,500 feet	0	-	0		1	-	
	PWI Waters		7	-	5		4	-	All Alternatives would cross a small number of PWI and non-PWI waters; however, it is anticipated that these crossings are spannable (crossings would be less than the average spanning length of 1,250 feet) and structures would not be placed in them.
	Non-PWI Waters		1	-	4		3	-	
	Impaired Waters		0	-	0		0	-	

Relative Merits			Balsam Variation Area						
Factor	Element	ROI	Proposed Blue Route (12.9 miles)		Proposed Orange Route (13.7 miles)		Balsam Variation (17.8 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
Water Resources	Floodplains	Crossings or 200 feet	0	-	26		22	-	The Blue Route would not impact FEMA-designated floodplains whereas the Orange Route and Balsam Variation would require construction and placement of transmission structures within Zone A floodplain.
	NWI Wetlands		54	17.3%	69	20.8%	98	22.2%	The Balsam Variation would potentially impact the most acres of NWI-mapped wetlands. While direct, adverse impacts to forested and shrub wetlands are permanent and may change wetland functions within the ROW, they are expected to be minimal because of the amount of surrounding forested and shrub wetlands in the region (pg. 578).
Vegetation	North American Boreal Forest	200 feet	205	65.6%	208	62.6%	234	54.2%	The Balsam Variation would pass through more forested land than the Blue and Orange Routes. While direct, adverse impacts to forested areas would be long-term, contiguous forest is abundant in the region surrounding the Project (pg. 580).
	North American Boreal Flooded & Swamp Forest		12	3.8%	15	4.5%	40	9.3%	
	Eastern North American Cool Temperate Forest		53	16.9%	47	14.2%	60	13.9%	
	Eastern North American Cool Temperate Flooded & Swamp Forest		29	9.3%	47	14.2%	68	15.8%	
	Other		108	34.5%	124	37.3%	198	45.9%	
Wildlife	All/Any	200 feet	0	0.0%	0	0.0%	0	0.0%	No Alternatives would impact recognized wildlife resource areas.
Rare and Unique Natural Resources	Rare Species	1 mile (aquatic species not included)	1	-	0	0.0%	0	-	The Blue Route is located within one mile of a state-listed special concern vascular plant. Surveys will be performed on the final 200-foot ROW to determine if any rare species are present within the permitted ROW. Any indirect impacts to rare species are expected to be minimal because of the amount of the surrounding habitat. Through use of Applicant-proposed avoidance and minimization measures, direct impacts to rare species are not expected (pg. 582).
	State Rare Communities	200 feet							
	MBS Sites of Biodiversity		78	24.9%	105	31.8%	95	22.0%	The Orange Route would potentially impact the most acres of MBS Sites of Biodiversity; the Blue Route would potentially impact the fewest.
Corridor Sharing	Paralleling Existing Infrastructure	-	-	15.0%		14.0%	-		The Blue and Orange Routes would parallel existing transmission lines for 15 and 14% of their lengths, respectively; the Balsam Variation would not parallel existing transmission lines.

Relative Merits			Balsam Variation Area						
Factor	Element	ROI	Proposed Blue Route (12.9 miles)		Proposed Orange Route (13.7 miles)		Balsam Variation (17.8 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
Electrical System Reliability		-		-				-	No Alternatives parallel or cross any existing Manitoba – Minnesota tie lines.
Cost	Total Cost	-	$15,121,621	-	$16,018,490			-	Both the Orange and the Balsam Variation would cost more to construct than the Blue Route.

Relative Merits			Dead Man's Pond Variation Area				
Factor	Element	ROI	Proposed Blue Route (2.2 miles)		Dead Man's Pond Variation (2.3 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
Human Settlement	**Aesthetics**						
	Residences	1,500 feet	2	-	4	-	Dead Man's Pond Variation would potentially impact more residences within 1,500 feet.
	Historic Architectural Sites	5,280 feet	1	-	1	-	Both Alternatives would potentially impact a historic architectural site within 5,280 feet; however, the permitted Route width will be less than 5,280 feet so some sites may not be impacted.
	Scenic Byway	1,500 feet	0		0		Neither Alternative would cross a Scenic Byway.
	Trails	1,500 feet	0	-	0	-	Neither Alternative would cross any trails.
	Land Use Compatibility						
	Dominant Land Cover Type	1,500 feet	905 ac	94.2%	925 ac	93.7%	Both Alternatives' major land cover type is Forested and/or Swamp. Both Alternatives would result in a long-term change in land use for areas currently forested and/or swamp land, but these changes would be limited in extent, and there would still be extensive forest and swamp lands in the surrounding area; so these changes are expected to have a minimal impact on land use (pg. 588).
	Land Ownership	200 feet	53 acres total		56 acres total		The Blue Route is mostly located on private land whereas the Dead Man's Pond Variation is mostly located on public land.
	Public		19	35.6%	37	66.3%	
	Private		34	63.8%	19	34.1%	
Land-Based Economies	Agriculture	1,500 feet	0	0.0%	2	0.2%	The Blue Route would not impact agricultural land.
	Forestry	200 feet	0	0.0%	0	0.0%	Neither Alternative would impact State Forest lands.
	Mining & Mineral Leases		0	0.0%	0	0.0%	Neither Alternative would impact any mining or mineral leases.
Archaeology and Historic Architectural Resources	Historic Architectural Sites	5,280 feet	1	-	1	-	Both Alternatives would potentially impact a historic architectural site within 5,280 feet; however, the permitted Route width will be less than 5,280 feet so some sites may not be impacted. There are no known archaeological sites within one mile of either Alternative.
	Archaeological Sites	1,500 feet	0	-	0	-	
Water Resources	PWI Waters	Crossings or 200 feet	0	-	0	-	Neither Alternative would cross any PWI, non-PWI, or impaired waters.
	Non-PWI Waters		0	-	0	-	
	Impaired Waters		0	-	0	-	
	Floodplains		0	-	0	-	Neither Alternative would impact FEMA-designated floodplains.
	NWI Wetlands		14	26.3%	4	7.2%	Both Alternatives would potentially impact very few acres of NWI-mapped wetlands. While direct, adverse impacts to forested and shrub wetlands are permanent and may change wetland functions within the ROW, they are expected to be minimal because of the amount of surrounding forested and shrub wetlands in the region (pg. 592).

Relative Merits			Dead Man's Pond Variation Area				
Factor	Element	ROI	Proposed Blue Route (2.2 miles)		Dead Man's Pond Variation (2.3 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
Vegetation	North American Boreal Forest	200 feet	34	63.8%	43	77.1%	Both Alternatives would potentially impact a similar amount for forested land. While direct, adverse impacts to forested areas would be long-term, contiguous forest is abundant in the region surrounding the proposed Project (pg. 593).
	Eastern North American Cool Temperate Forest		14	26.3%	6	10.8%	
	Other		19	35.6%	13	23.3%	
Wildlife	All/Any	200 feet	0	0.0%	0	0.0%	Neither Alternative would impact recognized wildlife resource areas.
Rare and Unique Natural Resources	Rare Species	1 mile (aquatic species not included)	0	-	0	-	Neither Alternative is located within one mile of a documented rare species.
	State Rare Communities	200 feet					
	MBS Sites of Biodiversity		0	0.0%	0	0.0%	There are no MBS Sites of Biodiversity within either Alternative.
Corridor Sharing	Paralleling Existing Infrastructure	-	-		-		Neither Alternative parallels existing transmission lines.
Electrical System Reliability		-		-		-	Neither Alternative parallels or crosses any existing Manitoba – Minnesota tie lines.
Cost	Total Cost	-	$2,873,223	-		-	The Dead Man's Pond Variation would cost the most to construct.

Relative Merits			Blackberry Variation Area				
Factor	Element	ROI	Proposed Blue Route (5.4 miles)		Proposed Orange Route (6.1 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
Human Settlement	**Aesthetics**						
	Residences	1,500 feet	11	-	22	-	The Orange Route has twice as many homes (22) within 1,500 feet as the Blue Route (11).
	Historic Architectural Sites	5,280 feet	6	-	1	-	The Blue Route has a higher potential to impact historic architectural sites within 5,280 feet; however, the permitted Route width will be less than 5,280 feet so some sites may not be impacted.
	Scenic Byway	1,500 feet	0		0		Neither Route would cross a Scenic Byway.
	Trails	1,500 feet	1	-	1	-	Both Routes would cross one snowmobile trail.
	Land Use Compatibility						
	Dominant Land Cover Type	1,500 feet	2,004 ac	94.2%	1,982 ac	84.2%	Both Routes' major land cover type is Forested and/or Swamp. Both Routes would result in a long-term change in land use for areas currently forested and/or swamp land, but these changes would be limited in extent, and there would still be extensive forest and swamp lands in the surrounding area; so these changes are expected to have a minimal impact on land use (pg. 599).
	Land Ownership	200 feet	131 acres total		148 acres total		Both Routes contain a similar number of acres of public and private lands.
	Public		41	31.3%	54	36.5%	
	Private		90	68.8%	94	63.6%	
Land-Based Economies	Agriculture	1,500 feet	50	2.4%	192	8.2%	The Blue Route would potentially impact fewer acres of agriculture than the Orange Route.
	Forestry	200 feet	0	0.0%	0	0.0%	Neither Route would impact State Forest lands.
	Mining & Mineral Leases		37	28.3%	33	22.3%	Both Routes would potentially impact a similar acres of mining and mineral leases.
Archaeology and Historic Architectural Resources	Historic Architectural Sites	5,280 feet	6	-	1	-	The Blue Route has a higher potential to impact historic architectural sites within 5,280 feet; however, the permitted Route width will be less than 5,280 feet so some sites may not be impacted. There are no known archaeological sites within one mile of either Route.
	Archaeological Sites	1,500 feet	0	-	0	-	
Water Resources	PWI Waters	Crossings or 200 feet	0	-	0	-	Both Routes would cross a small number non-PWI and impaired waters; however, it is anticipated that these crossings are spannable (crossings would be less than the average spanning length of 1,250 feet) and structures would not be placed in them (pg. 603-604).
	Non-PWI Waters		1	-	3	-	
	Impaired Waters		1	-	1	-	
	Floodplains		0	-	0	-	Neither Route would impact FEMA-designated floodplains.
	NWI Wetlands		51	39.0%	40	27.0%	Both Routes would potentially impact very few acres of NWI-mapped wetlands. While direct, adverse impacts to forested and shrub wetlands are permanent and may change wetland functions within the ROW, they are expected to be minimal because of the amount of surrounding forested and shrub wetlands in the region (pg. 604).

Relative Merits			Blackberry Variation Area				
Factor	Element	ROI	Proposed Blue Route (5.4 miles)		Proposed Orange Route (6.1 miles)		Notes
			Count / Acres	Percent of ROI	Count / Acres	Percent of ROI	
Vegetation	North American Boreal Forest	200 feet	80	45.8%	52	35.2%	The Blue and Orange Routes would pass through a similar amount of forested land. While direct, adverse impacts to forested areas would be long-term, contiguous forest is abundant in the region surrounding the Project (pg. 606)
	North American Boreal Flooded & Swamp Forest		30	22.9%	26	17.6%	
	Eastern North American Cool Temperate Forest		33	25.2%	49	33.1%	
	Other		71	54.2%	96	64.9%	
Wildlife	All/Any	200 feet	0	0.0%	0	0.0%	Neither Route would impact recognized wildlife resource areas.
Rare and Unique Natural Resources	Rare Species	1 mile (aquatic species not included)	2	-	3	-	Both Routes are within one mile of two threatened vascular plants; the Orange Route is within one mile of a special-concern bird listing. Surveys will be performed on the final 200-foot ROW to determine if any rare species are present within the permitted ROW. Any indirect impacts to rare species are expected to be minimal because of the amount of the surrounding habitat. Through use of Applicant-proposed avoidance and minimization measures, direct impacts to rare species are not expected (pg. 608).
	State Rare Communities	200 feet					
	MBS Sites of Biodiversity		57	43.5%	79	53.4%	Loss or conversion of native vegetation would likely be similar between the Blue and Orange Routes (pg. 608).
Corridor Sharing	Paralleling Existing Infrastructure	-	-	20.0%	-	37.0%	The Orange Route parallels existing transmission lines for 37% of its length; the Blue Route parallels existing transmission lines for 20%.
Electrical System Reliability		-		-		-	Neither Alternative parallels or crosses any existing Manitoba – Minnesota tie lines.
Cost	Total Cost	-	$8,380,880	-		-	The Orange Route would cost the most to construct.

WINTHROP & WEINSTINE

ATTORNEYS AND COUNSELORS AT LAW

August 4, 2015

Eric F. Swanson
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Direct Fax: (612) 604-6811
eswanson@winthrop.com

VIA E-FILING

The Honorable Ann O'Reilly
Office of Administrative Hearings
P.O. Box 64620
St. Paul, MN 55164-0620

RE: In the Matter of the Request of Minnesota Power for a Route Permit for the Great Northern Transmission Line
MPUC Docket No. E-015/TL-14-21
OAH Docket No. 65-2500-31637

Dear Judge O'Reilly:

On behalf of Minnesota Power, enclosed please find the Relative Merits Table to be filed in the above-referenced docket. Also attached is our Affidavit of Service.

Very truly yours,

WINTHROP & WEINSTINE, P.A.

/s/ Eric F. Swanson

Eric F. Swanson

Enclosure

10704676v1

0193-1

0193-1
The relative merits table provided by the Applicant used different methodology and is included in the comment appendix of the EIS.

No changes are made to the EIS in response to this comment.

BEFORE THE MINNESOTA OFFICE OF ADMINISTRATIVE HEARINGS
600 North Robert Street
St. Paul, Minnesota 55101

FOR THE MINNESOTA PUBLIC UTILITIES COMMISSION
121 Seventh Place East, Suite 350
St. Paul, Minnesota 55101-2147

In the Matter of the Request by Minnesota Power for a Route Permit for the Great Northern Transmission Line	MPUC Docket No. E-015/TL-14-21 OAH Docket No. 65-2500-31637

AFFIDAVIT OF SERVICE

STATE OF MINNESOTA)
) ss.
COUNTY OF HENNEPIN)

Mary G. Holly, of the City of Lake Elmo, County of Washington, the State of Minnesota, being first duly sworn, deposes and says that on the 4th day of August, 2015, she served the attached **Relative Merits Table** to all said persons on the attached Service List, true and correct copies thereof, by E-Filing.

/s/ Mary G. Holly
MARY G. HOLLY

Subscribed and sworn to before me this
4th day of August, 2015.

/s/ Jane E. Justice
Notary Public

My Commission Expires: January 31, 2020

10704728v1

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Bret	Eknes	bret.eknes@state.mn.us	Public Utilities Commission	Suite 350 121 7th Place East St. Paul, MN 551012147	Electronic Service	Yes	OFF_SL_14-21_Official CC Service List
Linda	Jensen	linda.s.jensen@ag.state.mn.us	Office of the Attorney General-DOC	1800 BRM Tower 445 Minnesota Street St. Paul, MN 551012134	Electronic Service	Yes	OFF_SL_14-21_Official CC Service List
Michael	Kaluzniak	mike.kaluzniak@state.mn.us	Public Utilities Commission	Suite 350 121 Seventh Place East St. Paul, MN 55101	Electronic Service	Yes	OFF_SL_14-21_Official CC Service List
David	Moeller	dmoeller@allete.com	Minnesota Power	30 W Superior St Duluth, MN 558022093	Electronic Service	No	OFF_SL_14-21_Official CC Service List
Ann	O'Reilly	ann.oreilly@state.mn.us	Office of Administrative Hearings	PO Box 64620 St. Paul, MN 55101	Electronic Service	Yes	OFF_SL_14-21_Official CC Service List
Deborah	Pile	Deborah.Pile@state.mn.us	Department of Commerce	Suite 500 85 7th Place East St. Paul, MN 551012198	Electronic Service	Yes	OFF_SL_14-21_Official CC Service List
Janet	Shaddix Elling	jshaddix@janetshaddix.com	Shaddix And Associates	Ste 122 9100 W Bloomington Frwy Bloomington, MN 55431	Electronic Service	Yes	OFF_SL_14-21_Official CC Service List
Tracy	Smetana	tracy.smetana@state.mn.us	Public Utilities Commission	121 7th Place East Suite 350 St. Paul, MN 55101	Electronic Service	Yes	OFF_SL_14-21_Official CC Service List
William	Storm	bill.storm@state.mn.us	Department of Commerce	Room 500 85 7th Place East St. Paul, MN 551012198	Electronic Service	Yes	OFF_SL_14-21_Official CC Service List
Eric	Swanson	eswanson@winthrop.com	Winthrop Weinstine	225 S 6th St Ste 3500 Capella Tower Minneapolis, MN 554024629	Electronic Service	No	OFF_SL_14-21_Official CC Service List

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Daniel P	Wolf	dan.wolf@state.mn.us	Public Utilities Commission	121 7th Place East Suite 350 St. Paul, MN 551012147	Electronic Service	Yes	OFF_SL_14-21_Official CC Service List

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Sarah	Beimers	sarah.beimers@mnhs.org	Minnesota Historical Society	345 Kellogg Boulevard West St. Paul, MN 55102	Electronic Service	No	SPL_SL_14-21_Agency Reps 14-21
Tamara	Cameron	tamara.e.cameron@usace.army.mil	U.S.Army Corps of Engineers	180 5th St # 700 Saint Paul, MN 55101	Electronic Service	No	SPL_SL_14-21_Agency Reps 14-21
Travis	Germundson	travis.germundson@state.mn.us		Board of Water & Soil Resources 520 Lafayette Rd Saint Paul, MN 55155	Electronic Service	No	SPL_SL_14-21_Agency Reps 14-21
Susan	Heffron	susan.heffron@state.mn.us	MN Pollution Control Agency	520 Lafayette Rd Saint Paul, MN 55155	Electronic Service	No	SPL_SL_14-21_Agency Reps 14-21
Kari	Howe	kari.howe@state.mn.us	DEED	332 Minnesota St, #E200 1ST National Bank Bldg St. Paul, MN 55101	Electronic Service	No	SPL_SL_14-21_Agency Reps 14-21
Ray	Kirsch	Raymond.Kirsch@state.mn.us	Department of Commerce	85 7th Place E Ste 500 St. Paul, MN 55101	Electronic Service	No	SPL_SL_14-21_Agency Reps 14-21
Stacy	Kotch	Stacy.Kotch@state.mn.us	MINNESOTA DEPARTMENT OF TRANSPORTATION	395 John Ireland Blvd. St. Paul, MN 55155	Electronic Service	No	SPL_SL_14-21_Agency Reps 14-21
Debra	Moynihan	debra.moynihan@state.mn.us	MN Department of Transportation	395 John Ireland Blvd MS 620 St. Paul, MN 55155-1899	Electronic Service	No	SPL_SL_14-21_Agency Reps 14-21
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Margaret	Rheude	Margaret_Rheude@fws.gov	U.S. Fish and Wildlife Service	Twin Cities Ecological Services Field Office 4101 American Blvd. E. Bloomington, MN 55425	Electronic Service	No	SPL_SL_14-21_Agency Reps 14-21

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Jamie	Schrenzel	jamie.schrenzel@state.mn.us	Minnesota Department of Natural Resources	500 Lafayette Road Saint Paul, MN 55155	Electronic Service	No	SPL_SL_14-21_Agency Reps 14-21
David	Seykora	dave.seykora@state.mn.us	MN Department of Transportation	395 John Ireland Boulevard Mail Stop 130 St. Paul, MN 55155-1899	Electronic Service	No	SPL_SL_14-21_Agency Reps 14-21
Bruce	West	Bruce.West@state.mn.us	Department of Public Safety	Box 145 444 Cedar Street St. Paul, MN 55151	Electronic Service	No	SPL_SL_14-21_Agency Reps 14-21
Jonathan	Wolfgram	Jonathan.Wolfgram@state.mn.us	Department of Public Safety	445 Minnesota Street Suite 147 St. Paul, MN 55101-1547	Electronic Service	No	SPL_SL_14-21_Agency Reps 14-21

MINNESOTA DEPARTMENT OF NATURAL RESOURCES
NORTHEAST REGION
1201 E HWY 2
GRAND RAPIDS, MN 56744
218-327-4455

MNDNR

08/07/2015

Bill Storm, Environmental Review Manager
Minnesota Department of Commerce
85 7th Place East, Suite 500
St. Paul, MN 55101

RE: DNR Comments to the Draft Environmental Impact Statement (DEIS) for the Great Northern Transmission Line. DOE/EIS-0499, E015/TL-14-21

Dear Mr. Storm:

The Minnesota Department of Natural Resources (DNR) has reviewed the Draft Environmental Impact Statement (DEIS) for the Great Northern Transmission Line. The DEIS describes the potential for environmental effects in an objective manner for activities associated with the transmission line thus should provide an example of future energy review in Minnesota. The DNR appreciates the early coordination opportunities that were provided to assist in development of the proposed project. In the early coordination phase, including our most recent August 15, 2014 Scoping/Route Permit comments, we provided information to assist in the adequacy of addressing natural resource impacts. From our review, we believe there remain areas where additional or more representative information would assist in development of the final document. We offer the following suggestions for inclusion in the Final EIS. Future comments to the Office of Administrative Hearings will focus on suggested routing and permit conditions.

Mining and Mineral Resources

Mining and mineral resource topics are found in the Summary section, in most of the Chapters, and in some of the Appendices of the Draft Environmental Impact Statement (DEIS) for the Great Northern High Voltage Transmission Line. The DEIS provides some discussion of mining and mineral resources for route alternatives and variations, and includes a requested comparative analysis for an area in northwest Koochiching County – the North Black River Variation Area.

Overall, simplifying assumptions made in Chapter 5 carry over into the comparative analyses in Chapter 6, into the Route Analysis Data Tables in Appendix E, and into the Summary. The general impression is that the simplifying assumptions made in Chapter 5 over-state risk of mineral resource/transmission line

co-location in areas having little certainty of mineral occurrence and under-state risk of mineral resource/transmission line colocation in areas containing known mineral occurrence. The comments below tie to specific sections of Chapters 4 and 5 of the DEIS where possible, but carry through to derived analyses and statements in Chapter 6, in Appendix E, and the Summary.

Section 4.3.2.4:
The primary mineral issues identified by commenters in this variation area were, a) potential for electromagnetic fields associated with Blue Route alignment to mask or otherwise prevent geophysical detection of mineral resources in an area already known to contain mineral occurrence; and b) elevated risk of mineral resource/transmission line co-location should mineral-occurrence advance to mineral-development.

The DEIS text misclassifies the level of metallic mineral occurrence in this variation area as "reserves". Text here would be clearer and more accurate if the phrase "...avoidance of non-ferrous mineral reserves..." were replaced with a phrase like "...avoidance of the non-ferrous mineral area...." Application of the term "reserves" at other locations in the DEIS should likewise be revised where appropriate.

Sections 5.3.2, 5.4.2 and 5.5.2
The last sentence in the first paragraph of 5.3.2 might benefit by being identical to similar sentences in 5.4.2 and 5.5.2. As stated in 5.3.2, 5.4.2 and 5.5.2, transmission line structures could affect access to mineral resources. These sections of text should also note that, in addition to the physical structures, electromagnetic fields associated with transmission line operations may mask or prevent geophysical detection of mineral resources.

The simplifying assumption that the "MnDNR Division of Lands and Minerals, All State Mineral Leases mapping" represents mining and mineral resources results in over-statement of mineral resource/transmission line co-location risk in areas having little certainty of mineral occurrence, and results in under-statement of mineral resource/transmission line co-location risk in areas containing known mineral occurrence. State metallic mineral leases are not mineral resources (for instance as stated in Table 6-69 and similar tables "Land-Based Economy Resources"). Terminated state metallic mineral leases are not "inactive" leases (as described in section 6.2.1.2 and similar sections and in the mapping legends). Terminated leases are not "held" by companies (as described in section 6.2.3.2 and similar sections), and the footprint of historical terminated state metallic mineral leases is not "State Mining Land" as described in Figure 6-26 and similar figures. These miscorrelations carry through to affect the characterization of mineral importance in Chapter 6, in Appendix E, in the Summary, and in the red-yellow-green summary tables within the Relative Merits section (for instance section 6.4.6).

Presence of transmission lines proximal to mineral resources can be beneficial so long as they do not interfere with mineral operations. Along most of the route alternatives and variations, the location of undiscovered mineral resources in the landscape is so speculative that selection of one route, variation, or alignment over another does not result in meaningful reduction of co-location risk, or improvement of proximity benefit. At the following three locations, mineral resource information may be important.

0194-1
The text is revised to "avoidance of non-ferrous mineral area" in Section 4.4.1.4 of the EIS.

0194-1

0194-2
The text is revised in Sections 5.3.2.3, 5.4.2, and 5.5.2 to be similar and provide information regarding geophysical detection of mineral resources.

0194-3
The MnDNR provided the download URLs (email from Kevin Hanson at the request of Jamie Schrenzel, MnDNR, 12/2/2014) for the GIS data used in this EIS. The downloaded data included the active and expired/terminted leases, exploration and engineering drill corel ocations store at MN DNR Drill Core Library, areas offered for nonferros metallic minerals leasing, MGS statewide bedrock geologic map and data. This data is used for the discussion of mineral resources throughout the EIS.

0194-2

This downloaded data was used to develop the acreages in the tables "Land-Based Economy Resources..." In these tables, the text is revised for "State Mineral Leases" to "State Mineral Leases (active and/or expired/termined)." The text is also updated throughout the Summary, Chapter 6, and the relative merit tables that clarifies if there are active leases in the variation areas.

0194-3

When the MN PUC selects the route, the Applicant will need to coordinate with the MnDNR Land and Minerals to identify and mitigate for the active mineral leases present in the ROW.

0194-4

0194-4
The text is revised in Sections 5.3.2.3, 5.4.2.3, and 6.2.1.2. The legend for Maps 5-4, 5-11, and 5-18 are revised and the term "inactive" leases is changed to "expired/terminated leases".

0194-5

The text is revised throughout Chapter 6 to remove the reference to expired/terminated leases being "held" by companies.

Tables in Chapter 6 that used the term "State Mineral Leases" are updated to "State Mineral Leases (active and/or expired/terminated)". The text is updated in the summary, Chapter 6, and the relative merit tables for each variation area to identify if

there is any active or expired/terminated leases. Appendix E indicates that total acres of mineral lease lands within the ROW and route width for each alternative.

0194-5
Thank you for your comment. Revisions were made to the EIS as described in Comments 213-6 and 213-7.

1.) The North Black River Variation Area comparative analysis was requested for mineral occurrence reasons, as a location where meaningful reduction of geophysical mineral resource detection risk might be achieved by co-locating the route with existing transmission line(s).

2.) In the south half of the Effie Variation Area, the Orange Route and the East Bear Lake Variation intersect active state metallic mineral leases and intersect additional state lands being considered for a fall, 2015 state metallic mineral lease sale. The Blue Route does not presently intersect active state metallic mineral leases or upcoming lease offerings. Where active state metallic mineral leases are present, conditions of the lease carry a requirement for coordination and consultation with lessees and an "undue interference" determination by DNR. The Blue Route is not subject to these requirements since no active state metallic mineral leases are present. The Blue Route does not intersect parcels being considered for metallic mineral lease sale in fall of 2015. The level of resource certainty in the south half of the Effie Area variation is insufficient to favor one route over another from a minerals perspective.

Collection of baseline geophysical data prior to construction and operation of the transmission line may provide a means to partly mitigate risk of transmission line interference with geophysical mineral exploration techniques, particularly where new line segments are not co-located with existing utilities (typically a helicopter-borne geophysical survey). Collection of baseline geophysical data could partly mitigate the State mineral risk imposed by applicant's preferential routing onto state-owned lands.

3.) Impacts of the proposed Balsam Variation on iron resources in iron-bearing basins and stockpiles needs to be described in the DEIS for the portion of the Balsam Variation located south of the Minnesota Power 28 Line, or roughly the last 4.5 miles of the variation. In this area the DEIS should describe and compare potential for impact on iron resources and access to iron resources.

The Blue/Orange route alternatives merge to cross the Mesabi Iron Range as a single route, at a location where state-owned surface and mineral interests are not known to be present. Privately owned surface and mineral interests in the Mesabi Iron Range crossing area may be impacted by transmission line alignment.

In areas of known mineral resources such as the Mesabi Iron Range, a 200 foot Region of Influence (ROI) (as described in section 5.3.2.3 and similar sections) may not be sufficient for impact analysis. When considering the Mesabi Iron Range crossing, an ROI of 1,000' or more on either side of the alignment may be more appropriate for impact analysis, since equipment and infrastructure presence can impact mining development planning and operations at distances of a quarter mile or more. Section 6.4.3 may also benefit from this comment.

Public Waters, Fish and Wildlife and Forestry, General

The document appears to lack additional information for minimizing or mitigating environmental impacts for public waters, fish and wildlife and forestry impacts. The DNR requested this analysis in Scoping/Route Permit comments in our August 15, 2014 letter.

0194-6

0194-6
Text is added to Section 6.4.3.2 of the EIS to address the reduction of geophysical resource detection risk.

0194-7

0194-7
Text is added to Section S.10.3.2 and 6.4.2.2 to indicate the active state mineral leases for the Proposed Orange Route and the East Bear Lake Variation.

0194-8

0194-8
When the MN PUC selects the route, the Applicant would coordinate with the MnDNR to discuss the collection of baseline geophysical data.

No changes are made to the EIS in response to this comment.

0194-9

0194-9
The southern portion of the Balsam Variation crosses know state mineral resources leased by the MnDNR. The area is within the property boundary for Magnetation as shown on the map at http://www.magnetation.com/home/wp-content/uploads/2014/05/Land-Plant4JLOPropBound300dpi.pdf. While transmission lines cannot be constructed on active mine features, the 3,000 foot route width could allow flexibility to site the transmission line to avoid the feature. Construction of transmission lines could affect futre mining operations if the transmission line or structures encumber the lease or interfere with access to mineable resources or the ability to remove these resources. However, if a conflict were to arise, then the transmission line and structures would need to be relocated to allow access to the mineral resource.

0194-10

0194-11

Sections S.10.3.3, 6.4.3.2 and 7.2.2.4 of the EIS are updated with information related to the Balsam Variation and mining.

0194-12

0194-10
When the MN PUC selects the route, the Applicant would need to coordinate with private landowners as discussed in Section 2.9 of the EIS.

No changes are made to the EIS in response to this comment.

0194-11
Although the EIS uses a 200 foot ROI, Appendix E of the EIS provides the state mineral lease acreage for the 200 foot ROI (also the ROW) as well as the 3,000 foot route width.

0194-12
The Applicant will work with the MnDNR and other appropriate resource agencies through permitting to minimize and/or mitigate potential impacts to public waters, fish and wildlife, and forestry as discussed in Chapters 5 and 6 of the EIS. Table 2-2 provides the Applicant's proposed measures to minimize environmental impacts. In addition, conditions in the MN PUC Route Permit could require the Applicant to prepare plans for vegetation management, etc. as identified in the draft Route Permit in Appendix B of the EIS.

No changes are made to the EIS in response to this comment.

Wetlands, General

Construction activities, including the establishment and use of temporary access roads, staging, and stringing areas, may require access across wetlands and other water resources to facilitate construction of parts of the proposed project that are not easily accessible by public roadways. Preparing the site and installing structures may have short-term impacts on 0.92 acres per structure (200 feet by 200 feet) by soil compaction associated with concentrating surface disturbance and equipment use (Minnesota Power 2014, reference (123)). Impacts in stringing and staging areas will be determined once the final route has been selected by the MN PUC.

The DEIS does not address access across wetlands using matting and equipment that is not low ground pressure in non-frozen conditions. It also does not address what the maximum depth of wetland rutting would be using matting in non-frozen conditions. Impacts to water resources could be minimized or mitigated through use of construction matting to traverse wetlands, limiting crossing of watercourses and using the shortest practical route, timing construction in these areas to take place during frozen conditions, and use of low ground pressure equipment to the extent practical. Construction access through wetlands could also be minimized through the use of helicopters to assist with construction activities, as appropriate. This will help to protect the sites for soil damage, but would also aid in site access. Much of the route crosses classified wetlands, so access during the warm months would be difficult at best for many locations.

The document should include a vegetation plan especially in terms of how damage to peatland vegetation will affect hydrology and peatland quality and mitigation for those effects.

State Approvals, Rare Natural Communities

As stated in the document any native plant community having a conservation status rank of S1, S2, or S3 or any native plant community within a MBS Site of Outstanding or High Biodiversity Significance may qualify as a rare natural community under the Wetland Conservation Act (WCA, see attached). In addition, even though they have not yet been delineated, any native plant community within a preliminary MBS Site of Outstanding or High Biodiversity Significance may also qualify as a rare native plant community under WCA. Because this is a provision of the WCA, it generally applies to wetland native plant communities or other communities affected by activities authorized under or required by a WCA replacement plan. The proposed route will impact Minnesota Biological Survey (MBS) Sites (and Preliminary) of Biodiversity Significance and Old Growth forest. Additional field work will be needed in order to determine potential impacts to native plant communities and to ensure compliance with the Wetland Conservation Act

State-listed species

Please continue to coordinate with Lisa Joyal, Endangered Species Review Coordinator, regarding the proposed surveys for state-listed species.

0194-13
The suggested wetland impact minimization methods are included in Chapter 5 of the EIS.

0194-13 A Vegetation Management Plan is not available at this time. Chapter 6 of the EIS identifies that the MN PUC Route Permit could also require the development of a Vegetation Management Plan as a permit condition, which could include plant surveys along the permitted ROW, incorporate vegetation clearing, and management of invasive species. The MN PUC typically requires the Applicant to prepare a plan in coordination with the MnDNR as a condition of the Route Permit.

No changes are made to the EIS in response to this comment.

0194-14
The Applicant will work with the MnDNR and appropriate local governmental units during the permitting phase to ensure compliance with the Wetland Conservation Act regarding native plant communities.

No changes are made to the EIS in response to this comment.

0194-15
The Applicant will also continue to work with Lisa Joyal (MnDNR) regarding potential impacts to rare species and native plant communities.

0194-14

0194-15

Forestry

Section 5.3.2.2. Forestry, General Impacts, page 169-170

In this section, the draft EIS states that, "Impacts to timber harvesting operations could be mitigated by prudent routing (i.e., by selecting routes that avoid forest lands by following existing infrastructure ROWs, access road ROWs, and property lines). ROW maintenance could be managed to reduce impacts on forestry resources. … In addition, increasing the time between line maintenance in forested areas could result in harvestable products." Also, the project's Right-of-Way fact sheet states that, "trees and shrubs with the potential to exceed 15 feet in height are generally not permitted within the ROW." The draft EIS should not give the impression that right-of-way maintenance may be timed to allow tree species to potentially grow to merchantable size for typical uses in the paper and wood industry. If other harvestable products are possible they should be mentioned and explained. The DNR would also expect compensation or repair to our Forest Road System due to the use of the roads during the construction phase.

Other General Comments

Section S.9.2. Route Specific Impacts to Central Section, page S21.

The area around Larson and Bass Lakes appear to be within 1500 feet of the anticipated alignment. This was not mentioned as part of this section. It would be helpful to add a view-shed for anticipated view impacts Larson (31-0317) and Bass Lakes (31-0316) as well as state and county campground locations.

Section 2.1, Proposed Project, page 15 and Map 2-01.

The DEIS identifies a compensation station that will be located in Roseau County We are unable to determine if this is being proposed to be located on or adjacent to state land. According to the DEIS, the series compensation station will permanently impact approximately 60 acres.

Chapter 5

Chapter 5 discusses the introduction or spread of invasive species and the potential impacts it may have on existing landscapes and new corridors. The DEIS does not address how the project will mitigate the spread of invasive species/noxious weeds especially in peatland watershed protection areas. An Appendix with a Noxious Weed and Invasive Species Control Plan should be part of the Final EIS.

Chapter 6

In viewing the ownership tables and associated figures in Chapter 6, it would be easy to mistakenly conclude that no private lands are intersected by the route alternatives or variations.

In the document, tabular distinction between School Trust land acres, Tax Forfeit land acres, and County Fee land acres would be helpful. "State Forest" is a management category, not an ownership category.

0194-16

The text referred to in this comment is removed from Section 5.3.2.2 of the EIS.

0194-16 The Applicant would need to abide by NERC standards. Utilities must certify that vegetative clearance requirements are met annually to insure reliability.

0194-17

Although areas around Larson Lake and Bass Lake appear to be within 1,500 feet of the proposed Orange and Blue routes, the shared alignment of these routes is approximately 1,800 feet from the southern-most shoreline of Bass Lake and approximately 3,000 feet from the northern shoreline of Larson Lake. The Bass Lake Alignment Modification would adjust this alignment approximately 750 feet farther from Bass Lake and the same distance closer to Larson Lake at its farthest distance from the alignment of the proposed Orange and Blue routes. Although it is possible the transmission line would be visible from areas in the vicinity of these lakes, it is likely that dense forest in the area would partially or fully screen views of the transmission line.

0194-17

Viewshed maps for specific areas have not been prepared as part of the EIS. The assessment of visual impacts relies on the idea stated in Section 5.3.1.1 that, "The 1,500 foot ROI for aesthetic resources was identified because the proposed Project is most likely to be visible within this near-foreground distance zone and views of the proposed Project from aesthetic resources within this distance zone have the greatest potential to result in visual impacts for sensitive viewers." Visual simulations, provided in Appendix N, Photo Simulations, of the EIS, were prepared for seven viewpoints within the study area to represent typical views of the proposed Project. These simulations are intended to provide reviewers with a sense of what the transmission line would look like from various distances and in various landscape settings within the study area.

0194-18

0194-19

No changes are made to the EIS in response to this comment.

0194-20

0194-18

Maps 6-11 and 6-13 in the EIS show that the compensation station would be adjacent to state lands.

No changes are made to the EIS in response to this comment.

0194-19

Chapter 6 of the EIS identifies that the MN PUC Route Permit could also require the development of a Vegetation Management Plan as a permit condition, which could include plant surveys along the permitted ROW, incorporate vegetation clearing, and management of invasive species. The MN PUC typically requires the Applicant to prepare a plan in coordination with the MnDNR as a condition of the Route Permit.

No changes are made to the EIS in response to this comment.

0194-20
Tables in Chapter 6 of the EIS are updated for clarity.

The document should include a robust wildfire response plan, both during construction and in the future. Minimum Impact Suppression Tactics (MIST) is suggested when fighting fires on peatland SNAs. It would be good for the applicant to reference MIST. The DNR can assist in providing this information.

Please include a definition of *Residence*, whether it refers to full time or seasonal occupancy, or both and whether that distinction affects the outcome of the analysis.

If interphase spacers are used for this project, the document should describe the timing, where and how they will be installed.

The DNR also plans to comment during the next phase of the routing record. We intend to provide more information regarding the routing decision and/or preference as well as routing conditions such as plans needed for permit conditions or other remarks to assure we have provided a complete project review. Thank you for the opportunity to comment on the DEIS for the Great Northern Transmission Line Project and let me know if you have any questions.

Sincerely,

Lori Dowling-Hanson

Lori Dowling-Hanson
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Enclosures: 2

C: Julie Smith, US Department of Energy
Jim Atkinson, Minnesota Power
Greg Nelson, DNR Northwest Region Director

0194-21

0194-21 The Applicant provided the following response (September 9, 2015): In terms of wildfire management during construction activity, the Applicant expects that the contractor(s) will follow industry standard protocol for fire prevention including but not limited to:

0194-22

a. Maintain orderly work sites.

b. Regularly inform workers on fire danger, particularly in high fire danger seasons and areas.

0194-23

c. Identify and communicate emergency contact information for the appropriate work location.

d. Fire extinguishers available on all equipment.

e. Fire spotters in place during hot work (welding, grinding, etc.).

f. Conduct open burning only by and in accordance with burning permit.

g. Act expeditiously to extinguish wildfires, see excerpt for previous line construction contract: "The Contractor shall do everything reasonably within its power, both independently and on request of any duly-authorized representative of the United States, to prevent and suppress fires on or near the job-site, including making available such construction personnel and equipment as may be reasonably obtainable for the suppression of such fires."

These protocols will be further defined in the project general conditions.

In terms of wildfire management after the line is in service: The Applicant regularly inspects all transmission lines. The Applicant desires to be informed of any wildfire that impacts a transmission right-of-way so that a special inspection can be made to evaluate line integrity. Generally, there is more concern for damage to lines constructed with wood poles; however, all impacted lines should be inspected. If the responding fire department or agency utilizes aerially applied chemical fire retardants to control the fire, the Applicant may request more information on the chemical fire retardants used to evaluate and address possible corrosive effects and insulator contamination issues these agents may have on the transmission facility.

No changes are made to the EIS in response to this comment.

0194-22

For purposes of the EIS, a residence is defined as a structure that is capable of human habitation based on aerial photographs and

public input, irregardless of whether somebody is currently living there.

No changes are made to the EIS in response to this comment.

0194-23
The Applicant provided the following response (September 9, 2015): Generally on transmission voltage level projects, the use of interphase spacers is a remedial action to mitigate an unforeseen conductor problem, not part of the initial design. Interphase spacers are used to maintain phase to phase clearance between conductors, particularly during a wind induced conductor movement phenomenon known as galloping. One of the primary concerns in a galloping event is that, if not properly designed, two phases could contact each other or a ground wire and cause an outage. The proposed Project, and most transmission line designs in general, utilize a combination structure size, phase spacing, insulator configuration, span length, and conductor tension to minimize the probability that conductors will contact during galloping. Installation of interphase spacers on transmission facilities is complicated, expensive, and rare. The use of interphase spaces for the proposed Project is not anticipated or desired. The Applicant may apply interphase spacers or other remedial measures only to mitigate severe problems as necessary; however, the timing, location, and methodology of such remedial measures would be determined during detailed final design.

WETLAND CONSERVATION ACT

Rare Natural Communities

BWSR/DNR Technical Guidance, January 31, 2011

Overview

Rule Reference: **MN Rule 8420.0515, Subpart 3.**

Applicability: **This guidance provides the Department of Natural Resource's (DNR) criteria for identifying rare natural communities insofar as the applicable WCA rule section assigns that responsibility to the DNR. It should be used as a supplement to the WCA rule.**

Intended Use: **To communicate the DNR's criteria for determining "rare natural communities" to Technical Evaluation Panels (TEPs), Local Government Units (LGUs), landowners, and applicants, and to provide guidance on its application.**

Rare natural communities are one of several "Special Considerations" listed in the WCA rules for wetland replacement plans.

Background

Within the general topic of "Wetland Replacement," the rules for the Wetland Conservation Act (WCA) contain the following provision under "Special Considerations":

> ***Minn. Rule 8420.0515 Subp. 3. Rare natural communities. A replacement plan for activities that involve the modification of a rare natural community as determined by the Department of Natural Resources' natural heritage program must be denied if the local government unit determines that the proposed activities will permanently adversely affect the natural community.***

The DNR's Natural Heritage and Nongame Research Program (NHNRP), in collaboration with the Minnesota County Biological Survey (MCBS) identifies, describes and maps rare and high quality native plant communities in the Natural Heritage Information System (NHIS).[1] Since the term "rare natural community" is not defined in the WCA rule, this guidance is provided to clarify which native plant communities are applicable to the rule section above. Rare natural communities identified under this WCA rule provision often support endangered and threatened species. However, please note that there is a separate "Special Consideration" in the WCA rules pertaining to listed species (8420.0515, Subpart 2) .

Rare natural community example: Ephemeral wetlands associated with a Southern Bedrock Outcrop native plant community.

[1] For additional information, see: http://www.dnr.state.mn.us/eco/nhnrp/nhis.html

Criteria for Identifying Rare Natural Communities

Native plant communities. Native plant communities in Minnesota are classified according to the Minnesota Native Plant Community Classification System developed by the DNR.[2] The DNR's Natural Heritage and Nongame Research Program has determined that the following native plant communities qualify as "rare natural communities" for the purposes of Minn. Rule 8420.0515, Subp. 3.

Rare Natural Communities are:

"Native plant communities having a conservation status rank of S1, S2, or S3 that are mapped or determined by the NHNRP or MCBS to be eligible for mapping in the Natural Heritage Information System;

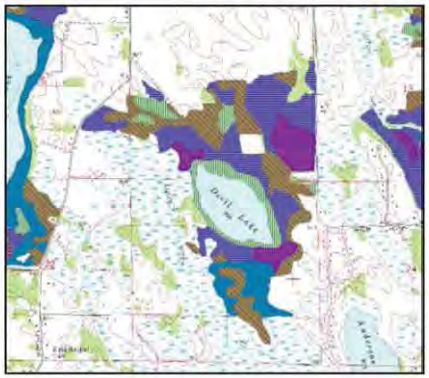
or

Any native plant community that is contained within an area mapped or determined by the MCBS to be eligible for mapping in the Natural Heritage Information System as having an Outstanding or High biodiversity significance ranking."

Conservation status ranks. Conservation status ranks of native plant communities reflect the extent and condition of the community type in Minnesota (shaded rows qualify for "rare natural community" status):

S1	Critically imperiled
S2	Imperiled
S3	Vulnerable to extirpation
S4	Apparently secure, uncommon but not rare
S5	Secure, common, widespread and abundant

A list of native plant communities and their associated conservation status ranks can be found at: http://files.dnr.state.mn.us/natural_resources/npc/s_ranks_npc_types_&_subtypes.pdf



GIS data layers of mapped native plant communities and sites of biodiversity significance are available for download from the DNR Data Deli at:
http://deli.dnr.state.mn.us/index.html

Biodiversity significance ranks. Biodiversity significance ranks are a measure of the statewide importance of MCBS sites for native biological diversity[3] (shaded rows qualify for "rare natural community" status) :

Outstanding	Sites containing the best occurrences of the rarest species, the most outstanding examples of the rarest native plant communities, and/or the largest, most intact functional landscapes.
High	Sites containing very good quality occurrences of the rarest species, high-quality examples of rare native plant communities, and/or important functional landscapes.
Moderate	Sites containing occurrences of rare species, moderately disturbed native plant communities, and/or landscapes that have a strong potential for recovery.
Below	Sites below the minimum threshold for statewide biodiversity significance; lack occurrences of rare species and natural features.

[2] For additional information, see: http://www.dnr.state.mn.us/npc/classification.html
[3] For additional information, see: http://www.dnr.state.mn.us/eco/mcbs/biodiversity_guidelines.html

Guidance on Applying the WCA Rule

How to know if a Rare Natural Community is present.
There are several avenues for determining if a rare natural community is present at a specific site:

1. **GIS Data Layers.** Applicants, LGU staff, and TEP members can consult the publicly available GIS data layers referenced above to determine if any native plant communities or sites of biodiversity significance have been mapped at the site in question. If a native plant community has been mapped, check its conservation status rank at the web site listed previously to see if it has a status rank of S1, S2, or S3.

2. **NHIS Data Request.** Applicants may submit a Natural Heritage Information System search request. The DNR will conduct a search of the NHIS and provide a report of any features present at the site. For information on how to submit such requests, go to: http://www.dnr.state.mn.us/eco/nhnrp/nhis.html There is a fee for having the DNR conduct these searches.

3. **Local Knowledge.** LGU staff and TEP members are encouraged to become familiar with the native plant communities that may be present in their area in order to recognize candidate rare natural communities.[4] Although the NHIS data layers are useful for determining whether any rare natural communities are present at a specific location; the absence of a mapped feature in the GIS data layers does not necessarily mean that a rare natural community is not present.

4. **DNR Review.** The DNR is on the mailing list to receive WCA notices of application and, based on their review, may notify LGUs of the presence of existing or potential rare natural communities at a site.

Rare natural community example: Northern Wet Prairie in Polk County.

[4] The DNR's web site at http://www.dnr.state.mn.us/npc/index.html is an excellent resource on native plant communities and also contains ordering information for a series of field guides on native plant communities in Minnesota.

What to do if a Rare Natural Community is present.

If a rare natural community is present at a site or a candidate community is present, contact your local DNR TEP representative, the regional DNR environmental assessment ecologist,[5] or the DNR Division of Ecological and Water Resources Wetland Program Coordinator (651-259-5125). A TEP meeting should be called, with a specific invitation to the DNR to participate. The TEP may want to consider inviting additional DNR representatives that have specific expertise. The DNR will work with the TEP, applicants, and LGUs to assess potential impacts and, if possible, help design projects to avoid permanent adverse effects.

It is the LGU's responsibility to officially determine whether the proposed activity will "permanently adversely affect" the rare natural community. However, the DNR will often submit a written finding or opinion to the LGU. Potential mitigation measures may be considered in the determination of overall effects. If the LGU finds that the rare natural community will be permanently adversely affected, by rule the application must be denied.

The "Special Considerations" provisions in the WCA rule, including the one for Rare Natural Communities, apply to potential impact *and* wetland replacement sites.

BWSR/DNR Guidance, January 31, 2011

The primary author of this guidance is:

- Doug Norris, Wetlands Program Coordinator, MnDNR, Division of Ecological and Water Resources, 651-259-5125, doug.norris@state.mn.us

This document is available on the BWSR website and may be revised periodically. Check the web site for the most current version: www.bwsr.state.mn.us/wetlands.

For more information, contact your local Board of Water and Soil Resources wetland specialist or the DNR, Division of Ecological and Water Resources Wetland Program Coordinator.

[5] http://www.bwsr.state.mn.us/contact/WCA_areas.pdf

Minnesota Department of Natural Resources
500 Lafayette Road • St. Paul, MN • 55155-40_

August 15, 2014

Bill Storm, Environmental Review Manager
Minnesota Department of Commerce
85 7th Place East, Suite 500
St. Paul MN 55101

Re: In the Matter of the Application of Minnesota Power for a Route Permit for the Great Northern Transmission Line Public Utilities Commission
(PUC) Docket Number: E-015/TL-14-21
DNR ERDB Number: 20130195

Dear Mr. Storm:

The Minnesota Department of Natural Resources (DNR) has reviewed the Application for a Route Permit for the Great Northern Transmission Line Project and provides the following comments regarding the application content, impact assessment that should be scoped into the upcoming Draft Environmental Impact Statement (DEIS), mineral resources, and route alternatives for further review in the DEIS.

1. Comments on the Route Permit Application

General Comment:

In general, the route permit application was well written in an objective manner and accurately describes most of the impacts associated with construction and maintenance of a high voltage transmission line (HVTL). **The route permit application should be used as a primary source of information in preparing the EIS.** The following specific comments refer to information in the route permit application and include requests for additional analysis in the EIS.

Specific Comments:

3.4.2 State Approvals
This section indicates that the project is expected to be exempt under MN Rule 8420.0420 Subpart 6, yet estimated direct wetland impacts are described as exceeding the minimum .5 acre requirement that must be met in order to qualify for the exemption. Furthermore, wetland impact estimates are based on National Wetlands Inventory Mapping (NWI) mapping and/or other offsite methods which many times underestimate actual areal extent. **The DEIS should describe wetland exemptions requirements that must be met and how the project is expected to meet those requirements.**

Many of the native plant communities in the project area also are considered *rare natural plant communities* under the Wetland Conservation Act (WCA) (MN Rule 8420.0515). Guidance on Rare Natural Plant Communities under the WCA can be found on the Board of Water and Soil Resources - BWSR webpage. **The EIS should assess impacts on rare natural plant communities and compliance with associated WCA provisions.**

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4.1.2 Border Crossing Options

This section largely describes informal early coordination efforts between Minnesota Power (the applicant) and Manitoba Hydro and resulting mutual decisions regarding preferred crossing locations. **The EIS should summarize how border crossing alternatives may be affected by Manitoba Hydro and Manitoba/Canadian government decision making and review processes.**

Alternative border crossing locations are included in Section 4 of this letter. We understand that due to constraints at the proposed border crossing, it is possible that other commenters may also provide one or more alternatives for analysis in the EIS. The following features have the possibility of being impacted by routing in the vicinity of the proposed border crossing and should be addressed in the EIS as applicable: SNAs, Watershed Protection Areas associated with SNAs and fens, High Conservation Value Forest within state forest lands, a Great Grey Owl Management Area, WMAs, MBS sites of biodiversity significance, avian impacts, and fragmentation of large block habitats.

6.10.2 Recreation Area Users

Page 6.10-7 mentions potential visual impacts to users of the Big Bog State Recreation Area and that additional study is required to determine potential impacts. DNR agrees and is concerned about visual impacts to users of both the boardwalk and the Big Bog Recreation Area Fire Tower associated with the Orange Route. **A viewshed analysis (with scaled visual renditions of what one would expect to see) should be prepared as part of the EIS for these areas as well as other recognized viewsheds.**

6.17.2 Public Waters

The DEIS should describe short and long-term impacts of crossing streams (trout streams or other) and what measures would be taken to mitigate such impacts. Any plans for alternative construction and/or right-of-way management should also be described. On other projects DNR has recommended that water crossings should be avoided to the extent possible and if they are crossed consider neck downs in clearing widths as well as preservation and maintenance of woody buffers in riparian zones as a means to lessen impacts.

6.18 Wetland Impacts

Section 6.18.2 indicates that peat soils tend to be highly compressible, that compressed peat is slow to regenerate, and that vegetation communities could be impacted if soils are compressed and sunken. The DNR agrees with this. Experience has shown that construction in peat soils often times requires multiple layers of construction matting to create a stable work surface. After these mats are removed, the peat remains sunken/compressed and the area at times re-vegetates to an ecologically unsuitable open water wetland community (many times cattails).

The EIS should describe and account for compression of peat soils in determining impacts (also relates to whether project qualifies for exemption under MN Rule Chapter 8420) and mitigation requirements. Also, these and other types of impacts to vegetation and wetlands should be addressed as part of an overall vegetation management plan and included in the EIS.

This section also mentions that the route options would cross one or more Peatland SNA Watershed Protection Areas (WPAs) and that coordination with DNR will be required to determine whether effects may occur to calcareous fens. Any increase or change in groundwater movement in the WPAs could have significant and deleterious effects upon calcareous fen and SNA integrity. Primary concerns regarding the development of utility corridors within Peatland SNA WPAs include the alteration of hydrological processes during construction/maintenance of the corridor and the introduction of invasive

exotic species into otherwise undisturbed ecosystems. **To better inform route decisions and meet the purpose of environmental review, the EIS should include assessments with enough detail to better understand potential impacts to calcareous fens and WPAs.**

Section 6.18.3 indicates that the applicant will work with the USACE to develop a mitigation approach that meets compensatory mitigation requirements of the agency. **The EIS should disclose all plans for mitigation and recognize this as an opportunity to mitigate for a variety of ecological functions that will be degraded or lost as a result of the project.**

Section 6.18.3 also indicates that BMPs such as matting, ice roads, and low ground pressure equipment will be used to the extent practical to minimize wetland impacts during construction. **The EIS should include a plan that specifies protocols for usage of matting, ice road, and low ground pressure equipment in wetlands. The plan should also identify times that – due to site conditions – work will be halted to avoid impacts and comply with protocols.**

6.19 Wildlife Impacts

Section 6.19.3 includes several mitigation measures to avoid or minimize impacts to birds. **An Avian Mitigation Plan should be developed and included as an avian impact risk mitigation strategy as part of the EIS. As part of the plan, high risk areas and areas planned for bird diverter line marking should be included.** The EIS should provide a discussion on whether guy wires may also need to be marked.

Section 6.19.3 includes mitigation actions that are currently limited to birds. **The EIS should be expanded to include mitigation items for wildlife (i.e. methods to mitigate habitat loss, conversion, degradation, and fragmentation).**

Routes will fragment large blocks of contiguous habitats, some of which will be in critical deer yard habitat. The DNR has been assisting the applicant by providing potential compensatory wetland mitigation options to offset the functional losses associated with the conversion of forested wetland impacts that will require mitigation by the United States Army Corps of Engineers (USACE) 404 permit. The DNR and Minnesota Power are working together to establish wetland preservation areas adjacent to existing WMA deer wintering areas and the DNR appreciates the applicant's patience as the Department works through the proper internal mechanisms necessary to fulfill our divisional and departmental responsibilities.

6.25 Forestry Impacts

The route permit application describes extensive direct habitat loss and conversion of forests and shrub lands to herbaceous cover (2,745 and 2,680 acres of right-of-way for the Orange and Blue routes respectively) and corresponding changes in wildlife communities. The loss of nearly 4 square miles of forested land is significant and permanent. This should be noted in the Executive Summary as well as analysis of the effect of proposed deforestation on forest industry in MN.

The net loss of these specific habitat cover types is significant. **The EIS should assess way to compensate for what are viewed as significant impacts to forest habitat functions. Following are some potential options that should be included as mitigation options in the EIS:**

- Preservation and Maintenance Options – The EIS should cite specific requirements for HVTL right-of-way maintenance and include additional options that meet minimum requirements and minimize fragmentation and/or edge type effects. Management of the proposed corridor should

be studied to see how leaving small fruiting trees, shrubs, and mechanical versus chemical vegetation management will help mitigate loss of forest cover and forest fragmentation. The DNR can work with the applicant in determining areas to implement different vegetation management concepts.

- The DNR is interested in learning about the length of time between line maintenance in forested areas, to explore the possibility of leaving species long enough to have a harvestable product at the time of maintenance.

- The EIS should include any areas where, due to elevation, a line could be spanned high enough over an area to avoid forest clearing. For example, certain wetland and riparian areas in northern Itasca County are surrounded by elevation changes that may result in a scenario where no trees would need to be cleared. Also, certain species growing in bogs may not grow to a height that requires clearing. The EIS should assess these methods of reducing clearing.

- Replacing or providing substitute habitats - DNR has been assisting the applicant by providing them potential compensatory wetland mitigation options to help offset the functional losses associated with the conversion of forested wetland impacts. This is intended to facilitate what potential United States Army Corps of Engineers (USACE) 404 permit mitigation requirements.

- We believe that the EIS provides an opportunity to identify mitigation that would mutually compensate for the loss of forested wetland functions and the extensive direct habitat loss and conversion of upland forests and shrub lands to herbaceous cover. The EIS should differentiate between the two to determine net functional loss, significance of that loss, and remaining compensatory mitigation needs.

Section 6.25.2 limits the assessment of forestry impacts to acreage lost to conversion of cover type and indicates that impacts will be minor relative to the overall acreage affected. **Since the loss of forest cover will also diminish the long-term production capacity of these lands, loss of forestry revenue should also be assessed in the EIS. This analysis should include impacts to Consolidated Conservation ("Con-Con") Lands and School Trust Lands.**

The DNR also asks that the applicant address "Danger Trees" as soon as possible and account for estimated impacts to forests. These are trees outside of the proposed ROW that may need to be removed. The DNR wishes to avoid writing special permits for removal of trees that may fall into the ROW.

6.26 Mineral Resources

Chapter 6 of the Route Permit Application includes a preliminary discussion of mining existing conditions, transmission line direct and indirect effects on mining, and mitigation (section 6.26 of the application). This section of the EIS might be better titled "Mining and Mineral Resources." The discussion should be expanded to address potential conflict in areas of known but undeveloped mineral occurrence. These potential conflicts include both reduction of development potential where route alternatives intersect inactive or undeveloped resource areas and reduction of mineral exploration effectiveness where high voltage lines interfere with electrical and magnetic survey techniques.

The preferred and alternative routes proposed in the application incur the necessity of crossing the known iron resource area of the Mesabi iron range, the necessity of crossing a zone of known

nonferrous mineral occurrence in NE Itasca County that is undergoing active state metallic mineral leasing and exploration, and deviation from existing corridor in NW Koochiching County to cross another zone of known nonferrous mineral occurrence. Crossings of the Mesabi iron resource area and the two mineral occurrence zones carry elevated risk for eventual mineral resource/transmission line conflict. The risks to both the transmission line applicant and mineral rights owners are significant, carrying exceptional consequence (transmission line re-routing and/or loss of economic resource) in the event of occurrence. The EIS should describe the likelihood and consequence of mineral resource/transmission line conflict for known and undeveloped mineral resource areas. The risk of mineral resource/transmission line conflict should be transferred to the transmission line applicant and not be absorbed by School Trust, Tax Forfeit Trust and other state-owned land beneficiaries. The EIS should describe mechanisms that will be used to ensure that incurred risk is transferred to the transmission line applicant, and mitigation steps (perhaps engineering considerations) that can be used now to minimize conflict in the event that rerouting becomes necessary in the event of mineral development.

Peat, Sand/Gravel Aggregate, Crushed Stone

It is likely that state-owned surface estate mineral resources (peat, sand/gravel aggregate, crushed stone, clay, etc.) may eventually be encumbered by transmission line structures. Best practice will be to avoid unnecessary impact on these resources. Once a route is finalized, state-owned lands affected by the route will be evaluated (at applicant expense) to determine if and where compensation will be required for encumbrance of surface estate mineral resources.

Metallic Minerals Outside the Mesabi Iron Range

In northwestern Koochiching County, a segment of the route (vicinity of Township 159 North, Range 27 West) deviates away from existing corridor and transects an area of recent and historical metallic mineral occurrence, leasing and exploration. Absent more significant siting factors, continuation of the route along existing corridor (Black River comparative alternative) to the southeast corner of Section 10 and then south along existing corridor would be less likely to impede future exploration for metallic mineral resources. We request that this alternative be considered included for comparative analysis in the EIS.

From the vicinity of Effie, and for the next roughly 25 miles to the southeast the preferred route and alternatives (including the Effie alternative) cross a volcanic belt that hosts known metallic mineral occurrences (gold, copper-zinc-lead, iron). All of these routes cross active state metallic mineral leases in zones having high potential to host metallic mineral resources. The zone of high mineral potential generally extends southwest into the Chippewa National Forest and northeast into the Lake Vermilion area. State-issued metallic mineral lease agreements are also surface leases when the state-owned mineral interest is coincident with state-owned surface ownership. State metallic mineral lease agreements allow for state issuance of additional leases, permits or licenses where state surface ownership is present at a mineral lease, provided that the mineral lessee is consulted and that issuance of such additional leases, permits or licenses is determined to not unduly interfere with lessee's exploration or mining development. The Department recommends that transmission line applicant, State, and mineral lessee meet together to better characterize preferred and alternative route impacts in this area and to solicit additional input from the mineral lessee on exploration and development risks, prior to DNR "unduly interfere" determination (MN Rules 6125.07, item number 5). At first glance, the Blue route has the smallest interference footprint for crossing the volcanic belt and lease area. The "Effie" alternative produces a longer interference footprint but is co-located with an existing transmission line.

Mesabi Iron Range

The applicant's route proposal to cross the Mesabi Iron Range does not encumber known state mineral resources.

The Mesabi Iron Range is an area of known iron resources, along a trend of enriched iron formation which at many other locations has been developed into economic resource. The Department would have concerns if alternative routes were proposed that would encumber state-owned mineral resources on the Mesabi Iron Range.

2. Additional impact assessments that should be scoped into the EIS

Large Block Habitats

The Route Permit Application thoroughly describes habitats species usage, direct and indirect habitats loss, habitat scarcity conversion, degradation, fragmentation, and edge effects. However large blocks of contiguous habitats still appear to be impacted. **The DEIS should assess project effects on wildlife areas, lost forested acres, and other natural features as well as describe planned compensatory mitigation measures.**

The DNR understands that some areas of large block habitats are un-avoidable and there are trade-offs with every route. **In addition to mitigation, the proposed route corridor impacts to large block habitats could be lessened with other route alternatives or alignments that utilize existing corridors.** The following resources (MBS Sites, Wildlife and Forestry) relate to large block habitat and describe in more detail our more specific areas of concern and comments.

Minnesota Biological Survey (MBS) Sites of Biodiversity Significance

Proposed routes will impact Minnesota Biological Survey (MBS) Preliminary Sites of Biodiversity Significance and Old Growth forest. The preliminary sites have not been fully designated. The document mentions the impact on Native Plant Communities specifying potential impacts to Ecologically Important Lowland Conifers (EILC); however it is unclear whether Preliminary MBS ranking was used in assessing data or route selection and what mitigation or minimization of impacts will result. **The DNR recommends avoidance of all MBS sites old growth and old growth special management zones (≥330' surrounding the entire old growth perimeter) to the extent practical.**

MBS data for much of the project area has yet to be collected or is not yet publically available through the DNR data deli. Earlier correspondence (August 8, 2012 DNR Letter) indicated the DNR Heritage Review Coordinator should be contacted for obtaining any preliminary shapefiles (see attached for MBS data status). MBS Map and Guidelines have also been previously provided to Minnesota Power.

We encourage the applicant to consider project route and alignment alternatives that would avoid direct impacts to these ecologically significant areas. The DNR has offered alternative routes to avoid these areas and offers other alternatives in this review. In some instances there may be an opportunity to place the line closer to the edge of the proposed corridor or provide a slightly wider right of way corridor to minimize impacts.

Additional Recreation Analysis

Anticipated noise levels are not indicated in the document since transformers have not been selected

yet and other engineering considerations have not been determined. Noise levels can be heard in the vicinity of substations. It would be beneficial to know if there are increased noise levels and if audible distance will be increased from the substation as a result of the project.

Proposed routing provides only one alternative near Bass (31-316) and Larson (31-317) lakes in Itasca County. The proposed line would pass between these two lakes which each have public camping facilities. The attraction to this area of the George Washington State Forest is the remoteness, old growth pine un-fragmented forests and secluded lakes. This area is depicted in the mapbook on page 41 of 94. The Executive Summary under Cultural Values indicates that tourism is not likely to be affected by the transmission line; other route alternatives and further analysis of impacts to tourism in this area also should be explained.

Alternatives Screening

Minn. Stat. 116D.04(6): "No state action significantly affecting the quality of the environment shall be allowed, nor shall any permit for natural resources management and development be granted, where such action or permit has caused or is likely to cause pollution, impairment, or destruction of the air, water, land or other natural resources located within the state, so long as there is a feasible and prudent alternative consistent with the reasonable requirements of the public health, safety, and welfare and the state's paramount concern for the protection of its air, water, land and other natural resources from pollution, impairment, or destruction. Economic considerations alone shall not justify such conduct."

MN Environmental Rules require that DNR and other governmental units use environmental documents as guides in issuing permits and carrying out other responsibilities (4410.0300 & 4410.7055).

In order for the EIS to be effective as a guide in decision making (and to assist in documenting compliance with the above mentioned prohibitions); it is important that the EIS clearly document screening criteria used to determined practicality and feasibility of alternatives considered.

Approach to Mitigation of Project Impacts (adapted from CEQ guidelines)

General Comments:

The EIS should describe all impacts described in the application along with additional resource impacts described in this review. For all impacts; the mitigation discussion should be expanded to describe all of the following mitigation principles in descending order of priority (current mitigation discussions in the application focus on 1-3 below):

1. Avoiding the impact altogether by not taking a certain action or parts of an action.
2. Minimizing impacts by limiting the degree or magnitude of the action and its implementation.
3. Rectifying the impact by repairing, rehabilitating, or restoring the affected environment.
4. Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
5. *Compensating for the impact by replacing or providing substitute resources or environments.

**For impacts considered major/significant*

Specific Comments:

Third Party Independent Monitors

It is our understanding that under the current proposal; only company Environmental Inspectors (EIs) will be used. Ensuring effective communication regarding permit conditions with the various subcontractors and across the multiple spreads is an enormous enterprise.

On past large utility projects, third-party agency monitors have been used to work with and supplementing agency field presence. These monitors would also satisfy reporting expectations, help to ensure that impacts to protected resources are avoided and/or minimized.

The EIS should regard usage of independent third party environmental monitors as an overall mitigation strategy. The DNR is also interested in discussing various models of funding and oversight for a third party monitors during this environmental review and routing process.

Access to DNR Administered Lands

- **The EIS should describe any impacts to accessing state administered lands.** This transmission line should not affect public / DNR access to state land. Following existing corridors could reduce this problem.
- DNR wild rice leases exist in the vicinity of the Waskish Area. Leaseholders have expressed concerned about flights from the local airport being affected. **The EIS should assess project impacts on all airport related traffic (e.g. normal flights, agricultural chemical application, etc.).**
- Wildfire issues. More power lines running through forest land have a potential for igniting additional wildfires and therefore require a response to control them. **The EIS should acknowledge the potential for increased wildfires and necessary response actions.**

WMA Impacts

General Impacts:

The route alternative would traverse a number of DNR Wildlife Management Areas (WMAs). The EIS should describe why avoidance of each WMA is not feasible. **In order to better inform the DNR licensing process (and better meet the purpose of environmental review), we recommend that the EIS include specific information regarding the feasibility of route alternatives that avoid WMA crossings.**

Directly related, the EIS should also discuss how project routes comply with MN Rules 6135, which contain specific standards for route design. For crossings that are determined to be unavoidable (determined there is no feasible alternative route), the EIS should then assess impacts and the need for mitigation for each WMA. Following are a list of general WMA impacts that should be included in the EIS.

- Impacts to fire management/burning – Prescribed fire management is an important tool in maintaining and enhancing habitats on public lands in this area. Section 6.4.2 indicates that controlled burns are used in both Cedar Bend and Carp Swamp WMAs and that maintenance of vegetation would be accomplished by using mechanical methods rather than controlled burns. **The EIS should clarify that controlled burns are also used in Roseau Lake WMA and Roseau River WMA. The EIS should also clarify what impact to WMA management would result from the project.**

- Recreational usage
- Visual impacts

Specific WMA Uses, Resources and Impacts that should be included in the EIS:

Roseau River WMA

- RRWMA has been acknowledged to be an IBA (Important Bird Area) by Audubon.
- RRWMA contains an area of Preliminary Outstanding Biodiversity (as determined by the MN Biological Survey), which is contained largely within Pool 2 but extends to the eastern boundary or RRWMA. The primary feature of this area of outstanding biodiversity is a large fen complex, which contains rare plant and animal species associated with such habitats.
- An area of Preliminary High Biodiversity is located north and west of RRWMA headquarters. This area was an HCVF candidate, and is comprised of (1) a mix of aspen and jackpine forest with a significant component of oak and (2) a lowland conifer complex consisting of a mix of tamarack, black spruce, and white cedar with shrub inclusions of willow and alder. The proposed route of the transmission line, if within the WMA, would result in forest fragmentation detrimental to various species of forest Wildlife and would introduce invasive plant species where none currently exists.
- Another area of High Biodiversity occurs in Pools 1 East and 1 West. Waterbird assemblages that include up to 5 species of grebes, common loons, and trumpeter swan in open water areas that grade to assemblages of yellow rails and Nelson's sharptailed sparrow in the upper reaches of these pools are the primary features of this area. A transmission line near or within these habitats would have a detrimental effect on populations of species using these areas.
- The RRWMA pools are attractive to a number of species of birds during migration. Larger birds that soar into the pools from great distances and heights, such as bald eagles, Canada geese, snow geese, sandhill cranes, and American white pelicans, would be susceptible to mortality from transmission line collisions.
- A moist soils unit consisting of 6 cells containing ~110 acres was developed south and west of the headquarters in recent years. It primarily attracts ducks, geese and shorebirds and has provided a missing habitat component of shallow, food-rich wetlands in proximity to quality nesting cover. Dabbler duck production on Pool 2 has improved ever since the moist soils unit became operational. These benefits would be diminished by a transmission line nearby that would allow perch sites for predators and would fragment the shallow marsh habitat.
- A bald eagle nest exists in the middle of the moist soils unit cited above; the nest has been there for at least 15 years.
- Prescribed fire management is an important tool in maintaining and enhancing habitats on RRWMA. The transmission line would restrict the use of fire under and near the line. It is estimated that the use of fire as a management tool could be curtailed in up to 13 burn units covering ~1500 acres.
- The proposed route of the transmission line, if within the WMA, is in the heart of the most heavily used (all seasons) portion of the WMA. Hunting, deer antler shed hunting, trapping, berry picking, wildlife viewing, hiking, snowmobiling, snowshoeing, and cross-country skiing are among the activities enjoyed by the public. A controlled hunting zone for goose hunting that was developed decades ago exists along the southeastern boundary of the WMA.
- Invasive plant species, few of which are currently on the WMA (the ones that are under control) will increase within a transmission line ROW.

Roseau lake WMA

- Areas within this WMA are being considered for a large wildlife habitat enhancement/flood control project that would partially restore the historic Roseau Lake. Restoration of this lake bed would significantly increase bird and wildlife usage of this unit. Additional migrating birds may also be killed and/or injured by the additional line and tower collisions in this new location. **The EIS should consider impacts to the future planned restoration of the historic Roseau Lake.**

Great Gray Owls

The following information should be used to augment the EIS:

Great Gray Owls (Strix nebulosa) have been studied in Northern Roseau County for over 33 years. While not endangered, this owl is a nongame species of significance, both as a migrant and a breeding bird. Both breeding birds and winter visitors are present in greater numbers in this small corner of Minnesota than in any other location in the state.

A management plan was written in 1987 and updated in 2006 that provided management directions for an area that conformed to the Watershed Protection Area (WPA) of the Sprague Creek Peatland Scientific and Natural Area (SNA), and was also located within Lost River State Forest. Management recommendations included: 1) extended rotation in the lowland conifer types, 2) more intensive regular rotation management in traditional managed areas of the WPA, 3) less intensive management close to the SNA, and 4) a "reserve area" where nesting concentration was very high.

Additional Information regarding the Roseau Bog Owl Management Unit and Great Gray Owl Reserve Area can be found in plans written by Katie Haws entitled MANAGEMENT RECOMMENDATIONS FOR THE ROSEAU BOG OWL MANAGEMENT UNIT (1987) and the SPRAGUE CREEK PEATLAND WATERSHED PROTECTION AREA INTERIM MANAGEMENT PLAN FOR TIMBER AND GREAT GRAY OWLS (2006, attached).

Ecologically Important Lowland Conifers (EILCs) and Lowland Conifer Old Growth (LCOG)

The following information should be used to augment the EIS.

Currently the proposed pipeline routes cross at least 8 Ecologically Important Lowland Conifers (EILC) stands in Agassiz Lowlands and Littlefork-Vermillion Uplands Subsections; none in Chippewa Plains nor Pine Moraines subsections. It crosses at least 20 Lowland Conifer Old Growth (LCOG) provisional designated complexes (note, at least seven (7) of these are in WPAs also being crossed at that location).

The Department has a place-holder for old growth conifer forests found in lowlands. It is called Ecologically Important Lowland Conifers (EILC). We are responsible to manage these "placeholder" stands as if they are designated Old Growth (OG). Management in OG is generally not allowed. The exceptions are for management that will maintain the integrity of the old growth stand and its ecological function. Logging activities do not fit that definition and are not allowed. If roads/trails were in place through the OG stand prior to its designation and someone wants to use the road/trail again, then either an interdisciplinary team or the Regional Old Growth team makes a decision on acceptable use.

At this time, the Department is in the process of assessing and designating LCOG, which will replace EILC. Final designations will not likely be complete prior to this project going out for review. Currently, there is a set of provisional designated LCOG complexes. These provisional complexes will be "set-aside" with no management allowed until designations are finalized. Those complexes that become fully designated will follow the management guidelines in place for currently designated OG. Those

complexes that do not get designated will be released back to regular management, including standard forest management practices (unless there are other labels/designations upon these stands).
The EIS should include this updated information. Please contact DNR Regional Ecologist Becky Marty at becky.marty@state.mn.us for the most current information about EILC and LCOG.

The DNR will provide a shapefile for EILC in the St. Louis Moraines, areas being considered for LCOG in the Nashwauk Uplands, and LCOG in the Littlefork-Vermillion Uplands.

3. DNR Land and Water Crossing Licenses

The review and issuance of DNR land and water crossing licenses are coordinated by the Division of Lands & Minerals. The proposed project spans five counties in two DNR regions (NW and NE). The Lands & Minerals Regional Supervisor in Itasca and Koochiching County is Joe Rokala (218/999-7894) and the Lands & Minerals Regional Supervisor in the NW Region for Beltrami, Lake of the Woods and Roseau Counties is Cindy Buttleman (218/308-2627). When the route is more certain, we recommend that the project proposer schedule a pre-application meeting with Joe and Cindy to discuss administrative procedures for submitting the land and water crossing applications for this project.

The project proposer should allow adequate time for review and modification of the license applications. For most large projects, applicants submit draft license applications during environmental review and PUC permitting although the licenses will not be issued until those processes are complete.

The following information should be included in the license applications:

1. Length and width of each proposed state land and public water depicted on maps and plan sheets. Each crossing must be identified by legal description to the forty.

2. Clearing activities, construction methods, schedule, and staging of operations including equipment and materials storage proposed on state land or in public waters.

3. Permanent and temporary access routes to the proposed ROW crossing state land or public waters.

4. Temporary work areas on state land adjacent to the ROW that may be needed during construction. These areas should be clearly delineated and identified in the application materials.

5. Location of existing utility lines or transportation ROWs within or near the proposed ROW on state land or in public waters. Provide overview maps identifying the areas of co-location with existing utilities and a detailed map that shows the location of the Great Northern HVTL right-of-way in relation to the existing utility right-of-way on state lands.

6. State trails or Grant in Aid trails proposed to be crossed.

7. Location and design of tower structures including proposed installation methods and proposed plans for disposal of earthen materials resulting from the excavation of the tower footings.

8. Describe the conditions that would require geotechnical evaluations for tower placement on state land or public waters.
9. Construction plans that clearly describe how the licensee proposes to adapt their construction methods and schedule for different seasons and extreme seasonal weather changes in Minnesota such as extremes in snow cover, frozen conditions, extremely low temps, persistence of winter beyond normal ranges and the converse – hot, wet, and dry.

10. Restoration methods including proposed seed mixes and invasive species control measures.

11. Describe measures for minimizing rutting and the protocols for use of matting.

12. Identify the state land and public water crossings where flight diverters will be used and describe the type.

13. ROW maintenance methods and schedule on state land or in public waters.

14. ROW width needs to take into consideration current and future danger tree management.

15. ROW width needs to include the area necessary for guy wire anchors.

In addition, the project proposer should be aware of the following points related to the licensing of state land and public water crossings:

1. The licensee is responsible for invasive species management on the license area for the term of the license (50 years). The licensee must provide a plan for managing invasive species during the construction phase as well as over the license term. Because of the large amount of greenfield proposed to be crossed by this project, introduction of invasive species is a serious concern. The plan should describe methods for inventory, prevention, monitoring, and control on the license area.

2. Certain pesticides are restricted from use on certified forest lands. Written requests for herbicide or pesticide use on state lands is required and only approved herbicides will be allowed.

3. Use of native species for re-vegetation and clean weed free straw for mulch will be required on state land and public water crossings.

4. In-stream work on certain public waters (trout streams, for example) must be avoided at prescribed times to accommodate fish spawning.

5. Active nests or other features that have a no-disturbance window will need to be taken into consideration in the construction schedule.

6. The routes under review cross several types of state land including trust lands. DNR has a fiduciary responsibility to manage trust lands for the benefit of the school trust. The EIS should consider the general economic impact the power line ROW may have on the potential to generate future revenue for the trust.

7. State lands purchased with the assistance of various Federal grant programs will require mandatory federal aid review and approval before the license can be issued. Supplemental information from the applicant may be required for the federal review. If federal approval is required, additional time may be needed to process the application.

8. If a state land parcel becomes isolated due the construction of the ROW, the project proposer must provide access to the isolated state land across the ROW.

9. A monitoring fee will be assessed for DNR Lands & Minerals projected reasonable costs for monitoring the construction of the utility line and preparing special terms and conditions of the license to ensure proper construction. Independent environmental monitors may also be required during construction.

10. Permission for temporary access to the ROW across state land is considered a separate transaction and may be granted through a lease. Requests for temporary access are subject to review and approval, and in some cases may not be granted. Allow adequate time for processing access lease requests.

11. The applicant/licensee will be required to provide the licensor with as built drawings for state land and public water crossings upon completion of initial construction. The drawings for each crossing will be required to have forty lines and descriptions, utility ROW boundaries, structures and other utility improvements located on state land and public water crossings.

12. Site specific surveys and plans may be required if there are site specific resource concerns for certain crossings.

Proposed Public Water Crossings

Under Water Resources and Floodplains in the Executive Summary, the document indicates that Minnesota Power proposes to cross Grass Lake (31-144) in Itasca County and a PWI basin in Roseau County.

"Direct impacts on surface water resources likely will occur at the unnamed PWI basin in Roseau County and at Grass Lake in Itasca County. The span width of the unnamed PWI basing in Roseau County wetland is approximately 2,118 feet wide, which may require one or more structures to be placed within this basin. The span width of Grass Lake in Itasca County will be approximately 1220 feet, which may require one or more structures to be placed within this basin."

Under Minnesota Rules we are to; "avoid lakes, but where there is no feasible and prudent alternative route, minimize the extent of encroachment by crossing under the water." (Also see below).

There are regulations that limit the ability to cross public waters. Please refer to the following that pertains to these concerns. For a complete reference please refer to: LICENSES FOR UTILITY CROSSINGS OF PUBLIC LANDS AND WATERS ACCORDING TO MINNESOTA RULES CHAPTER 6135 [Rules Effective July 1, 2004].

6135.1000 **PROTECTING THE ENVIRONMENT.**

Subpart 1. **Policy.** It is essential to regulate utility crossings of public lands and waters in order to provide maximum protection and preservation of the natural environment and to minimize any adverse effects which may result from utility crossings. These standards and criteria provide a basic framework of environmental considerations concerning such a proposed crossing. The standards deal with route design, structure design, construction methods, safety considerations, and right-of-way maintenance.

Subpart 2. **Application content.** For each environmental standard listed in these parts, the applicant shall indicate whether the applicant is satisfying the standard, where applicable, or if not, why not. In dealing with route design standards, the application must, where applicable, also supply data on relevant site conditions. Except when the Commissioner determines that it is not feasible and prudent, or not in the best interests of the environment, the applicant shall comply with the following standards in designing, constructing, and maintaining utility crossings.

6135.1100 **STANDARDS FOR ROUTE DESIGN.**

Subpart 4. **Crossing public waters.** With regard to crossing of public waters:

A. avoid streams, but if that is not feasible and prudent, cross at the narrowest places wherever feasible and prudent, or at existing crossings of roads, bridges, or utilities; and

B. Avoid lakes, but where there is no feasible and prudent alternative route, minimize the extent of encroachment by crossing under the water.

Crossings on or under the beds of streams designated by the Commissioner as trout waters shall be avoided unless there is no feasible alternative. When unavoidable, maximum efforts shall be taken to minimize damage to trout habitat.

4. Route Alternatives and Segment Options Recommended for Inclusion in the EIS

As indicated in past correspondence, DNR encourages routing that would have the least amount of impacts to natural resources, outdoor recreation opportunities and sustainable commercial usages of natural resources. DNR also understands that as the MN Public Utilities Commission (PUC) permits specific routes for high voltage transmission line project (HVTLs), the PUC must consider broad range of potential impacts (beyond natural resources) and understands there are impact trades-offs with every route decision.

Prior DNR correspondence to Minnesota Power ALLETE highlighted concerns regarding new greenfield routes that increase impacts to natural resources. The Application for a Route Permit indicates that there has been an effort to avoid resources, for which the DNR is appreciative. However, in some areas it is clear that resources will be significantly impacted along the route. To provide options for mitigating impacts, the DNR provides the following route alternatives to consider for EIS analysis.

Including a variety of routes in the EIS (which provides an alternatives analysis and a way to demonstrate impact avoidance and minimization requirements) will assist decision makers in complying with requirements for avoidance and minimization (MN Stats 116D.04 Subd. 6) as well as requirements for equal consideration of environmental values, economics, and technical aspects in decision making (MN Stats 116D.03). **The DNR recommends the following routes be further analyzed in the EIS.** ***The DNR is not advocating these routes as preferred routes. We wish to review further assessment of these routes in order to fully understand their impacts on natural resources.***

Note that alignments are approximate and the DNR intends that, except where otherwise stated, the customary route width be included in the EIS for analysis and flexibility of siting.

The DNR will provide shapefiles of alternatives to EIS writers. Also, see the attached resource maps showing additional resources not depicted in the figures below.

Co-Location Border Crossing Alternatives

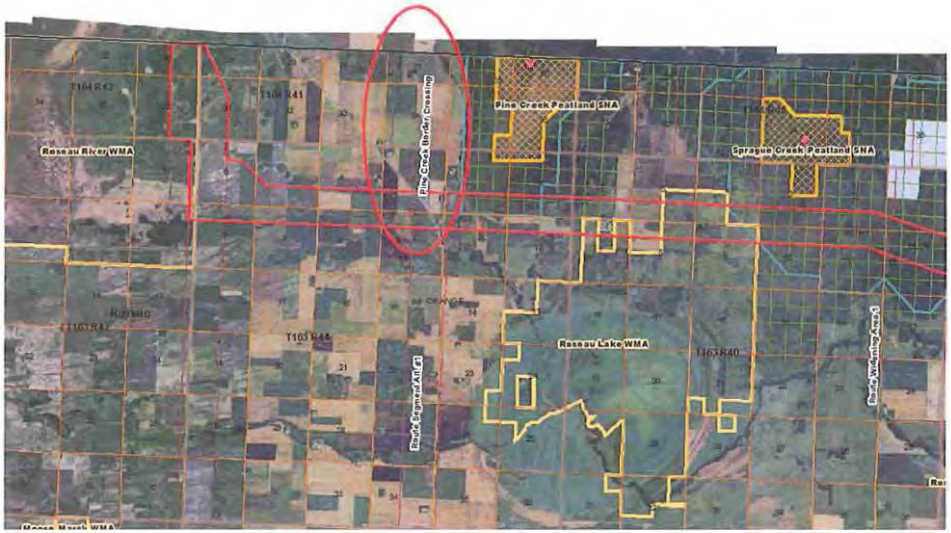
The following figure shows existing border crossing locations for a Minnkota Power 230 kV and an Excel/Manitoba Hydro Interconnect 500 kV line. Use of either of these corridors (or a combination of the two) should be included for assessment in the EIS as they would:

- Reduce overall Greenfield impacts by taking better advantage of existing corridors of disturbance (i.e. co-location).
- Avoid encroachment and associated impacts to the Roseau River and Roseau lake WMAs
- Avoid an Audubon Society Important Bird Area.
- Ecologically Significant Lowland Conifers (EILCs)
- Areas of Preliminary Biodiversity Significance ranked as Outstanding associated with Pine and Sprague Creek Peatland SNA's
- Watershed Protection Areas associated with fens in Pine Creek and Sprague Creek Peatland Scientific and Natural Areas (SNAs)

Pine Creek Border Crossing Alternative

This route segment alternative was originally considered as part of the applicant's project screening. This alternative should be carried forward for additional review in the EIS for the following reasons:

- Minimization of green field routing and associated impacts (e.g. fragmentation, habitat loss, etc.).
- Avoidance of high value resources such as WMAs, Peatland SNA WPAs, Areas of Preliminary Biodiversity Significance, HCVF, EILS, etc. (see attached Roseau County Resources Map).



Route Segment Alt. #1

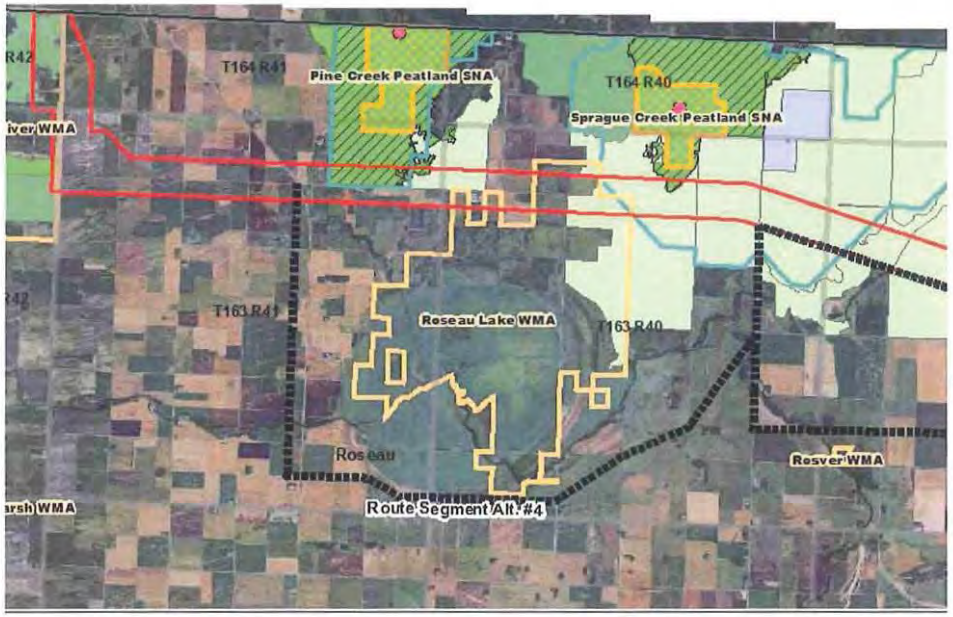
This route segment alternative was originally considered as part of the applicant's project screening. This alternative should be carried forward for additional review in the EIS for the following reasons:

- Minimization of green field routing and associated impacts (e.g. fragmentation, habitat loss, etc.).
- Avoidance of high value resources such as WMAs, Peatland SNA WPAs, Areas of Preliminary Biodiversity Significance, High Conservation Value Forests (HCVF), Ecologically Important Lowland Conifers (EILC), etc. (see attached Roseau County Resources Map).

Route Segment Alternative #1A

This route segment alternative is a variation on Route Segment Alternative #1, and is intended to provide more options in the vicinity of the border crossing to balance natural resource impacts and other important siting criteria. This alternative should be carried forward for additional review in the EIS for the following reasons:

- Minimization of green field routing and associated impacts (e.g. fragmentation, habitat loss, etc.).
- Avoidance of high value resources such as WMAs, Peatland SNA WPAs, Areas of Preliminary Biodiversity Significance, HCVFs, EILCs, etc. (see attached Roseau County Resources Map).



Route Widening Area #1

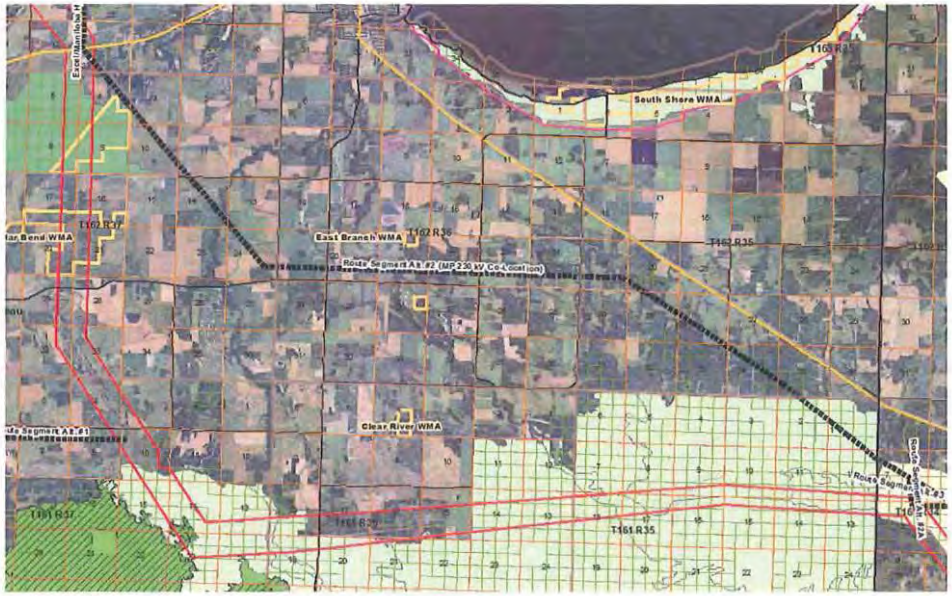
This alternative should be carried forward for additional review in the EIS for the following reasons:

- Potential avoidance of more than 8 miles of green field routing and associated impacts (e.g. fragmentation, habitat loss, etc.).
- Allow for minimization of impacts to high value resources such Areas of Preliminary Biodiversity Significance (up to 8 miles of avoidance), Sprague Creek Peatland SNA WPA wetlands (1.5 miles), forestry lands, etc. (see attached Roseau County Resources Map).

Route Segment Alt. #2

This route would begin north of Cedar Bend WMA and travel southeasterly along an existing 230kV HVTL to a point near the Roseau County and LOTW County Border. From that point is could continue southeast along route segment #3 (see below) using Route Segment Alt. 2A or re-join the applicant Blue/Orange route. This alternative should be carried forward for additional review in the EIS for the following reasons:

- Allow for minimization of impacts and further fragmentation of high value resources such Areas of Preliminary Biodiversity Significance (areas of outstanding, moderate, and high), wetlands, Cedar Bend WMA, and forestry land (~15 miles).
- An additional co-location option (would co-locate with an existing Minnesota Power 230 kV HVTL)



Route Segment Alt. #2A

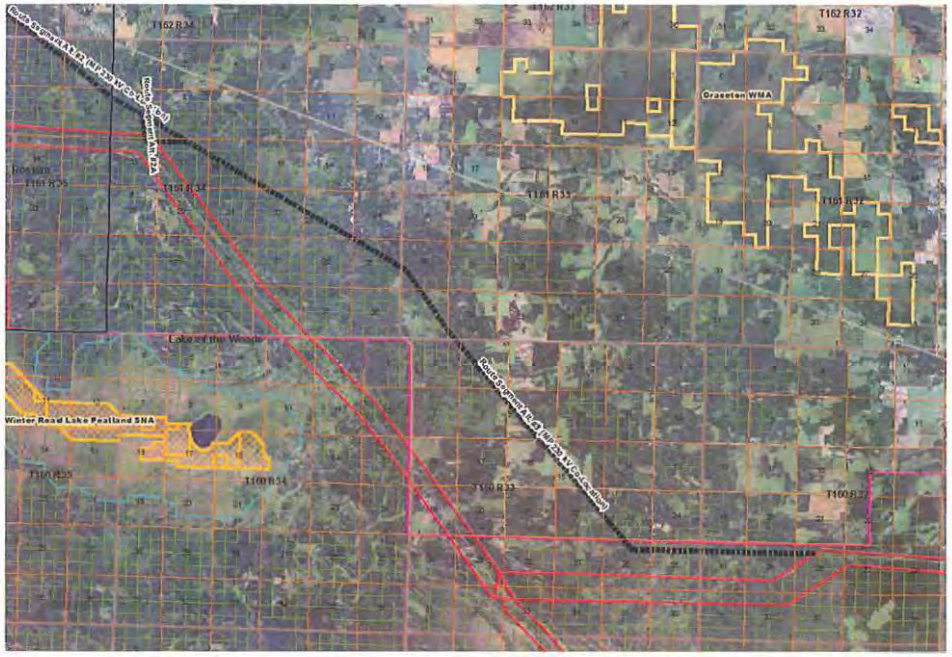
Inclusion of the Route Segment Alternative provides flexibility to consideration a combination of route applicant and DNR proposed additional co-location alternatives.

Route Segment Alt. #3

This alternative would either begin near the Roseau County and LOTW County border staring from the applicant's preferred Blue/orange Route or continue on from Route Segment Alt. #2 described above.

This alternative should be carried forward for additional review in the EIS for the following reasons:

- Continuation from Route Segment Alt. 2 into this Route Segment Alternative would avoid approximately 7 miles of green field crossing and associated impacts.
    - Applicants route includes a greenfield crossover in T160N, R33W, Sections 25-29 and T160N, R32W, Sections 28-30
- Using this route segment in combination with segment #2A would avoid approximately 6 miles of green field impacts (route segment 2A would re-introduce approximately 1 mile of greenfield impact).
- Avoidance and minimization of impacts to high value resources such as Important Bird Areas (~ 4mi. vs. 10 mi.), forestry lands.



The Effie Route

The DNR previously worked with Minnesota Power to review the Effie Route, depicted below, following an existing 230/500 kV transmission line. Minnesota Power did not carry the Effie Route forward to the application due to concerns about greater length and greater environmental impacts than the Orange or Blue routes. The DNR has reviewed a thorough point to point comparison provided by Minnesota Power and has remaining concerns regarding the proposed routes in the application in comparison to the Effie Route. The DNR would like to propose for further analysis the Effie Route discussed during early coordination for the following reasons:

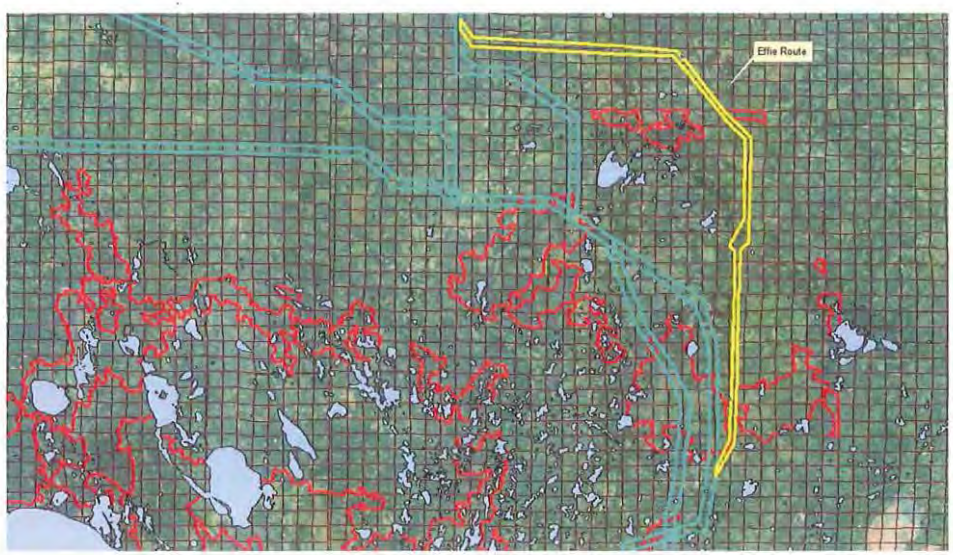
- Though the analysis previously provided describes increased impacts to natural resources and greater length, the results may not fully capture the impacts of the proposed Orange and Blue Routes due to fragmentation.
- Creating a new ROW in the area of the proposed routes may have more impact that increasing the size of the existing ROW along the Effie Route.
- Critical Habitat Impacts - The Effie Route contains the most critical habitat (i.e., this refers to USFWS critical habitat areas identified for the Canada Lynx). However, comparing the acres of critical lynx habitat impacted by each route is not an adequate comparison because the quality of the critical habitat that will be impacted is an important factor. The critical lynx habitat along the Effie Route is already degraded in quality due to the current fragmentation impacts of the existing transmission line. Whereas, the critical lynx habitat in the proposed routes is currently of higher quality because it is intact and not impacted by a transmission line corridor. The impact of a creating a new ROW through critical lynx habitat is greater than the impact of increasing the size of the ROW through critical habitat that is already impacted by a transmission line.
- Wetland Impacts – Early coordination from Minnesota Power indicated that the Blue Route, Orange Route, and Effie Route will cross through 373, 349, and 412 acres of wetlands respectively. However, comparing the acres of wetlands impacted by each route is not an adequate comparison because the type of wetland that will be impacted is an important factor. The wetlands along the Effie Route are already impacted by an existing transmission line so they are already somewhat degraded in quality. Whereas the wetlands in the two proposed routes are currently intact, unfragmented wetlands with no transmission line impacts. Impacts of a new transmission line include fragmentation of habitat, decreased habitat value for wildlife, increased conversion of habitat (i.e., changes from forested wetlands to open or shrub wetlands), and risk of introduction of invasive species. The impact of a new transmission line through intact wetlands may be greater than the impact of adding a transmission line to a wetland that is already impacted by an existing transmission line.
- Old Growth Impacts – Early coordination with Minnesota Power indicated that the Effie Route will impact 41 acres of old growth. The impacts would occur in two separate old growth areas. One old growth area is on the east side of the Effie Route and the other is on the west side of the Effie Route. These old growth areas could be avoided by expanding the ROW in the opposite direction away from the old growth areas.
- Large Blocks of Forest Impacts - Impacts to large blocks of forest would be significantly reduced with the Effie Route. The blocks of forest that the Effie Route passes through are already fragmented due to the existing transmission line. Adding a new transmission line will increase the width of the ROW and the amount of impacted area, but these areas are already degraded

due to the existing transmission line. For the two proposed routes, blocks of forest that are currently not impacted would be opened up to fragmentation and edge effects. Impacts of a new transmission line include fragmentation of habitat, reduction of core habitat in adjacent forests due to edge effects, decreased habitat value for wildlife, increased conversion of habitat (i.e., from forest to grass or shrub areas), and risk of introduction of invasive species. The impact of a new ROW on intact forests may be greater than the impact of increasing the ROW in forests that already are impacted by fragmentation effects.

- Rare Resource Impacts - The two proposed routes will cut through two preliminary MBS sites: Coon Creek (Outstanding site) and Bear-Wolf Peatland (High site). These two sites contain significant biodiversity values. MBS sites are identified based on the occurrence of rare species, rare plant communities, and intact and high quality landscapes. The biodiversity significance of these sites will be impacted by the fragmentation impacts of a transmission line.
- Recreation Impacts - The proposed route passes near two lakes with public camping facilities (Bass 31-316) and (Larson 31-317 a designated trout lake) in Itasca County.

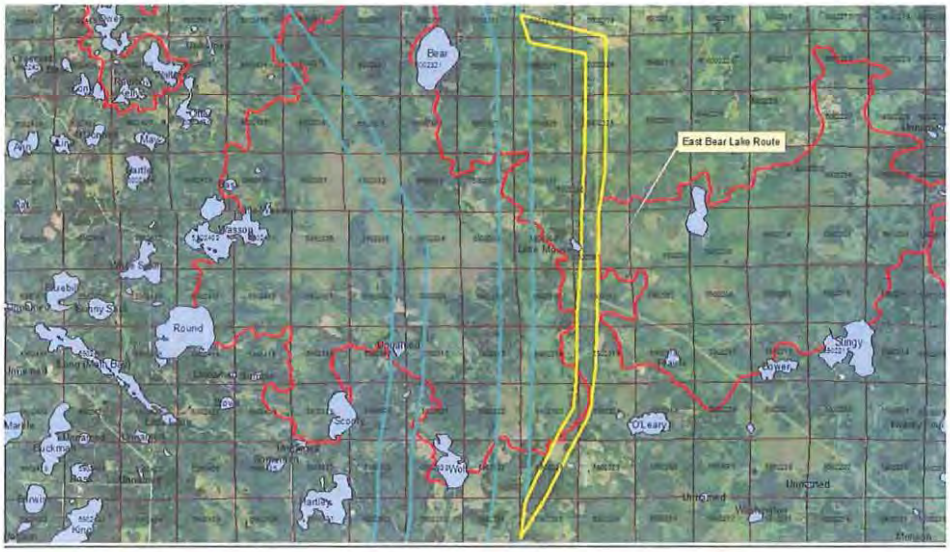
In summary, after reviewing summaries provided by Minnesota Power and GIS data, the Effie Route, following an existing transmission line, may have less impact on wildlife habitat including, impacts on wetlands, large blocks of forest, and preliminary areas of biodiversity significance. Strictly comparing number of acres impacted does not address the distinction between impacts to acres that are already degraded vs. impacts to acres that are intact and of higher quality. Therefore, the DNR recommends including the Effie Route in the EIS for further comparative analysis with the proposed routes.

The Effie Route would parrallel the 230/500kv segment near Effie, Minnesota and connect back to the Orange Route in eastern Itasca County. Note that the connection back to the Orange Route may be slightly different than what was previously analyzed by Minnesota Power because the currently described alterantive route attempts to avoid most of the Bear – Wolf Peatland Preliminary Site of Biodiversity as it connects back to the proposed Orange Route.



East Bear Lake Route

Using this connection east of Bear Lake (31-157) would nearly completely avoid a large preliminary MBS Site of high biodiversity significance (Bear-Wolf Peatland). This is approximately a 1 mile cross over to the existing 500/230 kv line and connecting back to proposed orange route right of way as described in the Effie Route alternative. A wide route width corridor is provided for flexibility. The route is in Townships 59 and 60 Range 23.

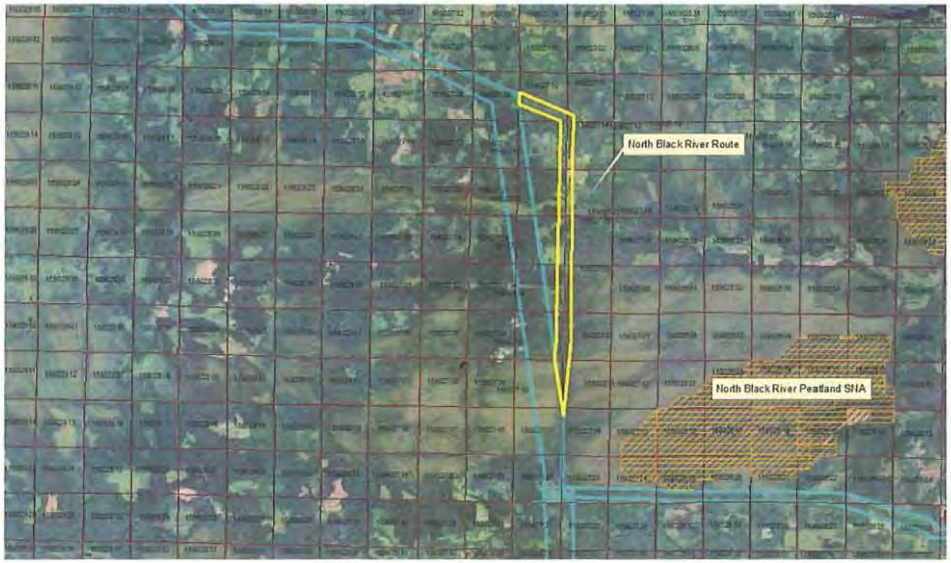


The North Black River Route

The DNR proposes analysis of the existing Minnkota Power 230 and 69 kv right of way (ROW) to minimize impacts to state owned minerals as well as fragmentation impacts to a nearby Scientific and Natural Area (SNA). The DNR has indicated Mineral concerns in this area and most recently habitat in the Watershed Proteciton Area in the adjacent SNA. Following the existing transmission route would reduce impacts to these resources.

- A six-township area in the vicinity of Township 159 North, Range 27 West has experienced repeated episodes of mineral leasing and exploration. Within this area the most frequent intercepts of mineralization have been encountered within Township 157 North, Range 27 West, and particularly within Sections 15, 16 and 21 of Township 159N, R27W, where eighteen exploratory boreholes have been drilled in parcels touching the B-0 route alternative. These boreholes, the most recent in 2011, have established at least two separate trends of zinc-copper or copper-nickel-platinum mineralization. It is very probable that exploration of these known occurrences will continue. This is the basis for the request to consider using existing corridor a mile further east of this site.

- Watershed Protection Areas (WPA) are important to adjacent SNAs and often contain similar habitat types. The Blue/Orange route crosses important habitats and is within the WPA of the North Black River SNA. The biodiversity significance of these sites would be affected by the fragmentation impacts of a transmission line. The impact of a new ROW on intact forests and wetlands is expected to be greater than the impact of increasing the ROW in areas that already are impacted by fragmentation effects. For these reasons, the DNR proposes analysis of the existing transmission line ROW. This route shown below in yellow.



Thank you for the opportunity to provide comments regarding the Great Northern Transmission Line Project. Please contact me with any questions.

Sincerely,

Jamie Schrenzel
Principal Planner
Environmental Review Unit
(651) 259-5115

Enclosures: 3

C: Julie Smith, US Department of Energy
Christopher Lawrence, US Department of Energy
Michael Kaluzniak, MN Public Utilities Commission
Bill Baer, US Army Corps of Engineers
Jim Atkinson, Minnesota Power

COMMENTS SUBMITTED

RED LAKE BAND OF CHIPPEWA INDIANS

Aesthetics

According to the Draft EIA, the ROI for long-term impacts on aesthetics is 1,500 feet on either side of the anticipated alignment of the proposed routes and variations and within 1,500 feet from the footprint of the proposed Blackberry 500 kV Substation. The estimation of distance is far too lenient in terms of visual disturbances and impacts to region aesthetics.

Studies conducted by the US Bureau of Land Management for other similar projects have shown that facilities for 500kV lattice structures were visible to the unaided eye at a maximum distance of approximately 17 mi (27 km) .[1] They also were judged to strongly attract visual attention at distances of up to 3 mi (5 km).[2] The results of this study have important implications for determining appropriate distances from transmission facilities for visual impact assessments, and for the siting of transmission facilities to reduce visual impacts on visually sensitive lands, such as those Red Lake Tribal lands in the vicinity of the Great Northern Transmission Line. The BLM ultimately recommended a minimum distance for visual impact analysis for 500 kV lattice tower facilities to be 10 mi (16 km), and a more conservative distance would be 12–13 mi (19–21 km).[3]

Prior to implementation of the project, coordination should be completed with the Red Lake Nation Department of Natural Resources and Tribal Historic Preservation Office to ensure that visual impacts to Tribal lands are mitigated adequately or that in places where visual impacts could have a disturbance that measures are taken to reduce visual elements that would increase contrast and observation of the towers by casual viewers.

[1] BLM, 1986a, Visual Resource Contrast Rating, BLM Manual Handbook 8431-1, Release 8-30, U.S. Department of the Interior, Washington, D.C.
[2] BLM, 1986b, Visual Resource Inventory, BLM Manual Handbook 8410-1, Release 8-28, U.S. Department of the Interior, Washington, D.C.
[3] BLM, 2013, Best Management Practices for Reducing Visual Impacts of Renewable Energy Facilities on BLM-Administered Lands, Bureau of Land Management, Cheyenne, Wyoming. 342pp, April.

0195-1

0195-1
As stated in Section 5.3.1.1, "The 1,500 foot ROI for aesthetic resources was identified because the proposed Project is *most likely* to be visible within this near-foreground distance zone and views of the proposed Project from aesthetic resources within this distance zone have the *greatest potential* to result in visual impacts for sensitive viewers" (*emphasis added*). The EIS also states, in Section 5.3.1.1, that "Aesthetic impacts are likely to be greatest for views of the proposed Project in the foreground distant zone (i.e., up to about 0.5 miles from the proposed Project), but impacts can also be substantial for views from greater distances." Thus, 1,500 feet provides a reasonable distance within which aesthetic resources may be identified and compared for the different route variations and modifications to assess potential aesthetic impacts, but the EIS does not identify that aesthetic impacts would only occur within this distance. In addition, while distance is an important factor in determining the level of aesthetic impact, a variety of other factors in combination contribute to determining aesthetic impacts. As stated in Section 5.3.1.1, "Impacts on aesthetics are assessed based on the extent of changes to landscape character and scenic quality, the level of contrast introduced by the proposed Project, its proximity to viewers, and the visual sensitivity related to views of the proposed Project."

In Section 2.13, the EIS identifies Applicant proposed measures to minimize potential environmental impacts, including aesthetic impacts, that could be implemented to minimize aesthetic impacts on Red Lake Tribal lands. These include, among others:

Design to minimize visible impacts at specific sites (e.g., travel ways, recreation sites, Big Bog State Recreation Area, and bodies of water with access and residences);

Shifts in alignment to avoid construction over existing wells, aesthetic impacts, floodplains, wetlands and bird concentration sites to the extent practical and avoidance of cultural resources in accordance with the PA;

Adjustment of span and pole placement to avoid waterways (perpendicularly), wetlands, sensitive resources, and transportation corridors to the extent practical and to avoid of cultural resources in accordance with the PA; and

Agency Coordination in development of the PA with DOE and consulting parties.

Additionally, the PA that is developed for the proposed Project in accordance with Section 106 of the National Historic Preservation Act (NHPA; 36 CFR 800.4(b)(2)) will ensure that the definition of the APE within which cultural resources investigations will be

conducted to identify cultural resources (including traditional cultural properties), evaluate their NRHP-eligibility, and mitigate any adverse effects on historic properties if appropriate, will include the entire construction footprint for the proposed Project. It is anticipated that through the PA, DOE, the Applicant, and other appropriate parties will continue to coordinate with the Red Lake Nation Department of Natural Resources and Tribal Historic Preservation Office regarding minimizing aesthetic impacts to Triba lands.

No changes are made to the EIS in response to this comment.

Possible Effects on Game Species (Ungulates)

The Red Lake Band foresees four possible negative influences on ungulates from the established power line: 1) physiological effects from electromagnetic fields; 2) disturbing noise originating from electrical discharge or wind action on lines or masts; 3) frightening visual effects from physical structures and disturbances from installation, monitoring and maintenance work on the lines; and 4) higher incidents of predator takes that could result from access and movement along cleared powerline corridors.

Data supporting these possible effects can be found in research conducted in several European studies, such as one that detailed powerline effects on moose[4], deer[5], and other species[6].

Any (or all) of these factors could affect game movements in areas that could affect the ability of the Red Lake Band of Chippewa and its members to exercise traditional hunting on lands surrounding the Great Northern Transmission Line.

To our knowledge, no observational report exists that records and evaluates the long-term effects of large-scale powerlines on ungulate and other animal species. In view of the plans for new transmission lines and reinforcement of current lines, we believe that such information is urgently needed and may require long-term monitoring. Such monitoring should be noted in the Final EIS and any measures should be coordinated with the Red Lake Band of Chippewa Department of Natural Resources and Minnesota Department of Natural Resources.

The above recommendation should be included as a mitigation measure for Wildlife Resources.

[4] Bartzke, Gundula S., 2014, Effects of power lines on Moose (Alces alces) habitat selection, movement, and feeding activities, Norwegian University of Science and Technology, Department of Biology, Trondheim.

[5] Bartzke, Gundula S., 2014, The effects of power lines on ungulates and implications for power line routing and rights-of-way management, Norwegian University of Science and Technology, Department of Biology, Trondheim.

[6] Bevanger, K., et.al, 2010, Optimal design and routing of powerlines; ecological, technical and economic perspectives, Norwegian Institute for Nature Research, Trondheim.

0195-2

0195-2

Thank you for providing this information. The references are added to Chapter 9 of the EIS. We have reviewed the documents that you referenced regarding ungulates and smaller animals and their use of transmission line corridors. The studies indicate that ungulates cross transmission line corridors unlike road corridors which act as barriers. Predators may use the corrdors more often which would deter use by ungulate and other smaller animals. In addition, animals with young will avoid corridors of any type because they don't provide cover for their young to hide from predators. The results are inconclusive for reindeer for the selected study areas - but there were extenuating circumstances (roads and dams) which may limit their need to cross the tranmission line corridors.
The documents provide some methods to reduce the effects of corridors on ungulates, which primarily involve returning the corridor back to an intermediate level of successional forest that provides more habitat (cover, food, etc.).

Following full review of the studies pointed to by the commenter for any new information relevant to the proposed Project, no changes are made to the EIS in response to this comment.

Temporary Access Roads and Staging Areas

It is stated that the Applicant will have to construct temporary access roads outside of the ROW. It should be clearly detailed how the Applicant will ensure that these temporary roads do not become permanent roads that could lead to a change in land use patterns or otherwise affect resources. It must be clearly stated how long "temporary" is (i.e. months? years?).

Plans for mitigation and restoration of these roads back to their previous state should also be discussed. In addition, effects to cultural and natural resources should be addressed through survey and possible mitigation for these temporary roads and staging areas.

0195-3

0195-3
Section 2.13 describes applicant proposed measures to minimize environmental impacts, including restoration measures. As part of the wetland permitting process, USACE and MnDNR typically issue permit conditions that establish a timeframe for which temporary project features, such as access roads, may be left in place.

No changes are made to the EIS in response to this comment.

GTNL website comments report

These comments were submitted via the comment form on Great Northern Transmission Line EIS website[http://www.greatnortherneis.org/Home/Comments]

ID	42
ProjectPhase	DEIS
Comment	I am a landowner located inside of the West Section, Scoping decision route running west to east between highway 89 near Dieter township and 310 in Roseau. The property I own is near CR-123 and 28 including farmland, homes, drying and storage warehouses and an active use Quonset. The current proposed route would affect several of our farming properties including the other structures I have just mentioned and future planned building sites. Please remove this route from consideration as this would greatly effect the operations of our farming including the lives of the people living in the homes at CR-123 and 28. I am proposing that the line either be moved, removed or run east to west further north near the border to minimize private property
File	
FirstName	Terry
LastName	Kveen
Email	terrykveen@yahoo.com
Org	
Title	
Addr1	N69 W20473 Orchard Ct
Addr2	
City	Menomonee Falls
State	WI
Zip	53051
Country	US
ContactPref	Email
Protect	YES
Date	2015-07-09 11:25:51.620

0198-1

0198-1
Thank you for your comment. Once a route is selected and a permit is issued, the Applicant would contact landowners to gather information about their property and their concerns and discuss how the ROW would best proceed across the property.

No changes are made to the EIS in response to this comment.

GTNL website comments report

These comments were submitted via the comment form on Great Northern Transmission Line EIS website[http://www.greatnortherneis.org/Home/Comments]

ID	45
ProjectPhase	DEIS
Comment	Please be aware that the proposed routing nearest Hiway 65 a0pproximately 5 miles south of Littlefork negatively impacts pilots using the private airstrip located there. Any of the routings farther west would be preferable.
File	
FirstName	Mark
LastName	Meester
Email	mmeester@bartlettassociates.com
Org	
Title	
Addr1	501 Third Street
Addr2	
City	INTERNATIONAL FALLS
State	MN
Zip	56649
Country	US
ContactPref	Email
Protect	
Date	2015-08-10 10:46:58.683

0199-1

0199-1
The EIS identifies airports and airstrips near the alternatives and potential impacts in Chapter 6.

No changes are made to the EIS in response to this comment.

GTNL website comments report

These comments were submitted via the comment form on Great Northern Transmission Line EIS website[http://www.greatnortherneis.org/Home/Comments]

ID	43
ProjectPhase	DEIS
Comment	With regards to the alignment of the proposed power line in the area east of Wasson Lake (approximately T.59N / R.23W), co-locating the line (Red Route) with the existing line(s) that follows Highway 65 would be the best and least impactful - visually and otherwise. At minimum, I feel that for a modest cost by moving the route from Blue to Orange the protection of a highly significant area of biodiversity (see Map 5-23) can be better served. Thank you.
File	
FirstName	John
LastName	Hoshal
Email	jachmjf@msn.com
Org	
Title	
Addr1	3820 Edmund Blvd.
Addr2	
City	Minneapolis
State	MN
Zip	55406
Country	US
ContactPref	Email
Protect	Yes
Date	2015-08-09 22:56:10.517

0200-1

0200-1
Thank you for your comment. Potential impacts to MBS Sites of Biodiversity Significance are discussed in Section 5.3.5.

No changes are made to the EIS in response to this comment.

July 23, 2015

Bill Storm
Environmental Review Manager
MN Department of Commerce
85 7th Place East, Suite 500
St. Paul MN 55101

RECEIVED
JUL 2 9 2015
MAILROOM

RE: Great Northern Transmission Line: TL-14-21

Dear Bill Storm

With all due respect, I oppose the Minnesota Public Utility Commission's proposed Balsam Variation alternative route of the Great Northern Transmission Line for the following reasons:

0202-1

1. The Balsam Variation route is not cost effective compared to Minnesota Power's preferred Blue Line route. The Blue Line route, as you know, is a straight line route. The Balsam Variation route zig-zags to take advantage of a 65 foot right-of-way that currently exists. However, an additional 135 feet of right-of-way will still have to be cleared to accommodate the new transmission line.

0202-2

2. The Advisory Task Force appointed for this project indicated that minimization of impacts to private land and landowners were a priority and the Balsam Variation route developed during Scoping does not satisfy this recommendation. The Balsam Variation route would impact a lot more private land and landowners than the Blue Line route.

0202-3

3. Also, the Balsam Community Center, Balsam Volunteer Fire Department, Balsam Bible Chapel, parsonage, community playground, tennis courts, softball/baseball field would all be included in the middle of the Balsam Variation right-of-way.

0202-4

4. As a part owner of 84 acres of undeveloped property located entirely within the Balsam Variation right-of-way, which includes approximately 3,000 feet of undeveloped lakeshore, I am concerned about the impact this new transmission line would have the valuation of our property.

0202-5

5. In addition, I would like to know what impact this transmission line would have on our ability to sell our property at fair market value should we decide to sell at some point in the future.

0202-6

6. Minnesota Power's intent was to design the transmission line route to maximize separation from existing homes and cabins. The Blue Line accomplishes that goal. The Balsam Variation route right-of-way would run right behind my family's hunting shack which is on a hill overlooking Snaptail Lake.
7. The transmission line is capable of producing an audible noise produced by corona discharges from transmission line conductors. Minnesota Power states that this noise, which resembles a subtle crackling sound is typically only within the threshold of human hearing during rainy or foggy conditions. They also stated that during light rain, dense fog, snow and other times there is moisture in

0202-1
The EIS provides cost comparisons for the proposed routes compared to the variations in Chapter 6. Cost or cost effectiveness is not usually treated as an impact in DOE EISs but is used in considering practicability, such as for determining reasonable alternatives. All alternatives will require new ROW for its entire length. While some alternatives parallel existing transmission lines, none of the alternatives share ROWs with existing transmission lines.

No changes are made to the EIS in response to this comment.

0202-2
Comment noted. The EIS analyzes potential impacts to land use and land ownership for each alternative in the range of reasonable alternatives.

No changes are made to the EIS in response to this comment.

0202-3
As shown Map 120 in Appendix S of the EIS, these facilities are located within the Balsam Variation route width, not the ROW.

No changes are made to the EIS in response to this comment.

0202-4
A discussion about the potential effects of transmission lines on property values is included in the EIS in Section 5.2.1.4. This includes a summary of the potential range of property value effects attributed to transmission lines. Further, Appendix J, Property Values Supplement provides a summary of the literature regarding the relationship between transmission lines and property values used to develop the property values analysis in Section 5.2.1.4.

No changes are made to the EIS in response to this comment.

0202-5
Comment noted.

No changes are made to the EIS in response to this comment.

0202-6
Noise levels from corona discharge are discussed in Section 5.2.1.2 of the EIS and would not be expected to adversely impact hunting. Impacts to hunting are not expected to be impacted by the proposed Project. Studies regarding ungulates and smaller animals and their use of transmission line corridors indicate that ungulates cross transmission line corridors unlike road corridors which act as barriers. Predators may use the corridors more often which would deter use by ungulate and other smaller animals. In addition, animals with young will avoid corridors of any type because they don't provide cover for their young to hide from predators. The results are inconclusive for reindeer for the selected study areas - but there were extenuating circumstances (roads and dams) which may limit their need to cross the transmission line corridors. The documents provide some methods to reduce the effects of corridors on ungulates, which primarily involve returning the corridor back to an intermediate level of successional forest that provides more habitat (cover, food, etc.).

No changes are made to the EIS in response to this comment.

the air, the proposed transmission lines may produce audible noise higher than the background noise levels in some rural areas. Deer hunting on our property has been a tradition for over 50 years and I am concerned how this will impact my family's deer hunting success in the future.

8. From a health and safety point of view, Minnesota Power also refers to "induced voltage", which occurs when an electric field reaches a nearby conductive object, such as a vehicle or metal building and it induces a voltage on the object. Then, if the object is insulated or partially insulated from the ground and a person touches that object, a small current would pass through the person's body to the ground. This might be accompanied by a spark discharge and mild shock, similar to what can occur when a person walks across a carpet and touches an object. Minnesota Power states induced voltage normally is not a problem. Again, this transmission line will impact my family's hunting land due to the fact that it will reduce the amount of land my family will be able to hunt on.

   Summarizing noise and potential voltage (shock) issues, we find it hard to believe that these are NOT health issues. One of our deer hunters was never comfortable with the emissions from the old power line and a new higher voltage power line would, in her mind, make that area unusable for anything including deer hunting.

9. When Minnesota Power removed the existing transmission line, they told us we could do whatever we wanted to do with our property, such as plant trees. Trees along with an apple orchard were planted and we had every intention of using our property to its fullest. Now, once again, we face the threat of not being able to use our property the way we want to.

10. There is an existing osprey nest on the property adjoining our property and if you were to drive where roads/highways intersect with the proposed power line right-of-way, you would see a great number of nesting sites.

Based on the reasons stated above, I am respectfully asking you to remove the Balsam Variation from consideration for the Great Northern Transmission Line.

Thank you!

Kathy Krook

Kathy Krook
2362 Diane Ln
Grand Rapids MN 55744

41259 Scenic Highway
Bovey MN 55709

0202-6 Continued

0202-6 cont'd

0202-7

0202-7

Section 5.2.2.4 in the EIS discusses induced voltage. Section 5.2.1.2 of the EIS presents the estimated audible noise levels from the from the proposed 500 kV transmission lines under rainy conditions (worst case scenario for noise generated from corona effect). Section 5.2.2.8 of the EIS discusses public safety hazards associated with the proposed Project including electrical shocks.

No changes are made to the EIS in response to this comment.

0202-8

0202-8

As discussed in Section 1.3.1.4 of the EIS, once a route is selected and a permit is issued, the Applicant would contact landowners to gather information about their property and their concerns and discuss how the ROW would best proceed across the property.

No changes are made to the EIS in response to this comment.

0202-9

0202-9

As discussed in Section 2.11.1 of the EIS, the Applicant would incorporate industry best practices to minimize impacts to migratory birds, which are consistent with the Avian Powerline Interaction Committee (APLIC's) 2012 guidelines. In addition, the MN PUC Route Permit could require that the Applicant develop and implement an Avian Protection Plan. The Applicant would coordinate with the MnDNR and other appropriate agencies in the development of an Avian Protection Plan.

No changes are made to the EIS in response to this comment.

0203-1
Thank you for your comment. Please refer to comment 0183 for responses to the email on page 2.

Sent: Monday, August 10, 2015 10:31 PM
To: kepeters@midco.net; bill.storm@state.mn.us; Smith, Julie A (OE) <JulieA.Smith@hq.doe.gov>
Cc: don.peterson72@gmail.com; jtpeterson2010@gmail.com
Subject: Re: DEIS comments

Awesome! great work!

Anne Marguerite Coyle (Margi)

-----Original Message-----
From: kepeters <kepeters@midco.net>
To: bill.storm <bill.storm@state.mn.us>; juliea.smith <juliea.smith@hq.doe.gov>
Cc: Anne Marguerite Coyle <flyfreege@aim.com>; Don Peterson <don.peterson72@gmail.com>; jason Peterson <jtpeterson2010@gmail.com>

0203-1

Sent: Sun, Aug 9, 2015 3:12 pm
Subject: DEIS comments

Hello Mr. Storm and Dr. Smith,

In reference to Docket number TL-14-21 and DOE number EIS-0499.

I have reviewed the DEIS for the Great Northern Transmission Line and offer the following comments:

On Summary page 15- There's a statement that says the line is not expected to affect property values and cites a couple of references. I wonder if these studies included recreational property? From my perspective, the value of my property will be greatly diminished if this power line is constructed on or near my property. Things such as solitude and views unobscured by power lines may be hard to put a value on, but affect the things I value about my property nonetheless. I'd like to see more discussion and recognition of the impacts of the proposed power line on these types of values.

I am most familiar with the area near my property (T. 63 N. R. 27 W, S. 35, SE of SE) as I have recreated in this area for 20 years. A lot of timber has been harvested in this area in the past 15 years, resulting in large blocks of younger aged forest. Much of the remainder is old-growth cedar which provides thermal protection for deer in the winter and moose in the summer. The proposed route (Orange) goes right through one of the largest such stands of cedar in the area. This stand provided critical habitat for deer during the recent harsh winters, in fact was the only place you could find a deer track during the winter months. The Cutfoot variation would save one of these stands, but would impact another equally important stand located just to the south. The statement in S.10.2.8 "....proposed orange route has less potential impact on critical habitat designated for grey wolf " seems based solely on the fact that the Cutfoot variation is slightly longer. Instead, the amount of critical habitat affected by both routes should be measured (quantified) so that a meaningful comparison between the two routes can be made. Taking this a step further, I'd like to see a similar comparision between the Orange and Blue routes (i.e. which route will have more or less impact on old growth cedar stands which provide critical habitat for many species of wildlife including grey wolf.

On summary page 55 S.11.2.4 Natural Resources: In my opinion, the summary understates the localized impacts to wildlife. If critical habitat is lost (e.g. old-growth cedar stands are converted to open right-of-ways which fragment the forest and provide no thermal cover the wildlife that lives there will be negatively impacted. Fewer deer will survive the harsh winters, ultimately resulting in fewer wolves. I'd like more discussion of these potential impacts in the DEIS.

Thank you for the opportunity to comment.

Regards,
Kevin

Message scanned by the Symantec Email Security service. If you suspect that this email is actually spam, please send it as an ATTACHMENT to spamsample@messagelabs.com

DOCKET NUMBER 1421

Bill Storm
MN Department Of Commerce
85 7th Place East, Suite 500
St. Paul, MN 55101

Carol Kveen
N69 W20473 Orchard Ct.
Menomonee Falls, WI 53051

Dear Bill Storm,

My Name is Carol Kveen and I am a landowner located within the east to west Scoping Decision Route on and south of the Roseau River near roads 28 and 123. I would ask that my property be removed from the route for consideration. I do however question why the route is being run into the United States in the manner it is. It would seem to me it would be better to run through the land in Canada East to West before needing to be run south through private land in the United States. This would remove the majority of the privately owned land inside the United States and remove a majority of the objections of the landowners affected by this.

I do realize the Advisory Task Force is attempting to minimize the impacts to private landowners and I hope my recommendation assists in this. Under the current route I have several properties, including a Quonset with nearby homes.

Thank you for your consideration,

Carol Kveen

Carol Kveen

0204-1

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0204-1
Thank you for your comment. No changes are made to the EIS in response to this comment.

DOCKET NUMBER 1421

Bill Storm
MN Department Of Commerce
85 7th Place East, Suite 500
St. Paul, MN 55101

Tim Kveen
1920 Sunkist Ave
Waukesha, WI 53188

Dear Bill Storm,

My Name is Tim Kveen and I am a landowner located within the east to west Scoping Decision Route on and south of the Roseau River near roads 28 and 123. I would ask that my property be removed from the route for consideration. I do however question why the route is being run into the United States in the manner it is. It would seem to me it would be better to run through the land in Canada East to West before needing to be run south through private land in the United States. This would remove the majority of the privately owned land inside the United States and remove a majority of the objections of the landowners affected by this. 0205-1

I do realize the Advisory Task Force is attempting to minimize the impacts to private landowners and I hope my recommendation assists in this. Under the current route I have several properties, including a Quonset with nearby homes.

Thank you for your consideration,

Tim Kveen

RECEIVED
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0205-1
Thank you for your comment. No changes are made to the EIS in response to this comment.

From: Bill latady [mailto:blatady@boisforte-nsn.gov]
Sent: Tuesday, July 21, 2015 09:50 AM
To: Smith, Julie A (OE)
Subject: UTAC Traditional Properties Survey.fnl

Julie;
Please find attached three examples of traditional properties surveys conducted by the Bois Forte Band at iron mine extension projects. Two were conducted for MinTac and one for UTac. Both mines are within ceded territory (1854 Treaty). Clearly, the projects are not within any of the proposed GNTL rights-of-way, but as you are aware the concerns expressed by the interviewees extend to any project within ancestral territory. I hope the remainder of your week goes well and the public meetings are well attended. Thanks for coming to Bois Forte to consult with the Bois Forte Band. 0206-1

Bill

Message scanned by the Symantec Email Security service. If you suspect that this email is actually spam, please send it as an ATTACHMENT to spamsample@messagelabs.com

0206-1
Thank you for your comment and information. Chapter 5 and 6 discussions related to cultural resources, as well as those discussions about traditional and subsistence use of vegetation and wildlife resources, are updated to include this information.

Identification of Historic Properties of Traditional Religious and Cultural Significance to The Bois Forte Band in the Minntac Progression Project Area of Potential Effect

By
William R. Latady
Marybelle Isham

Bois Forte Tribal Historic Preservation Office
1500 Bois Forte Road
Tower, MN 55790

September 2013

Prepared for

United States Steel Corporation
Minnesota Ore Operations
PO Box 417
Mt. Iron, MN 557686
Hoyt Lakes, MN 55750

Introduction

This report presents the results of a survey to identify historic properties of spiritual and cultural significance to the Bois Forte Band within the Minntac Progression project Area of Potential Effect (APE). The survey was conducted by interviewing Bois Forte elders during April and May 2013.

In the fall of 2012, a Programmatic Agreement was developed among the St Paul District Corps of Engineers, the Minnesota State Historic Preservation Office (SHPO), the Bois Forte Band of Ojibwe, the Grand Portage Band of Ojibwe, the Fond du Lac Band of Ojibwe and U.S. Steel concerning the western progression of the Minntac Taconite Mine to address concerns about Historic Properties that will be affected by the project. The document was signed in December 2012 by the Corps of Engineers and Minnesota SHPO. Work began after the agreement created by the Bois Forte Tribal Historic Preservation Office (THPO) was approved by the Reservation Tribal Council and US Steel in April 2013.

In an effort to help US Steele comply with federal regulations to identify and document historic properties of traditional religious and cultural significance to Tribes, the Bois Forte THPO proposed to document places visited by Band members. The proposal grew out of consultation between the Ojibwe Bands and the US Army Corps of Engineers. The survey was designed to document and evaluate historic properties of significance to the Band within the APE located near Mountain Iron in St Louis County, Minnesota. These properties include, but are not limited to, off-reservation treaty resources within the 1854 Ceded Territory, such as maple sugaring areas, wild rice waters, sites with spiritual significance, trails, village sites, fishing areas and other places where usufructuary rights are practiced.

Project Setting

The project area is located on the southern flank of the Mesabi Iron Range near Mountain Iron in St Louis County. The first surveyors employed by the US Government to survey the area where the Minntac Mine and APE are now located described the Townships as well timbered with aspen, birch, pine, spruce and tamarack. The surveyor’s notes go on to state that the land is rolling to broken with swamps between ridges, dense undergrowth and poor soils. The sole exception was T60N, R18W where much of the timber had been destroyed by fires that ravaged the area several years before the survey.

Wildlife typically found in this area includes black bear, white tail deer, ruffed grouse, small mammals and migratory birds including ducks and geese. Water bodies including Sandy Lake, the Dark River and Sand River contain a variety of fish including bluegill, crappie and northern and walleye pike. Many, if not all of the taxa, are economically significant to Bois Forte Band members, and in some instances have special spiritual import. Wild rice was once abundant in Big and Sandy Lakes (Twin Lakes).

Methods

Obtaining information on historic properties of religious and cultural significance to Indian tribes is complex. Sharing information on resources that comprise cultural identity with outsiders is carefully considered by tribal members because history has shown the information may be misused and exploited at the expense of the individual, tribe or resource. In some instances it is taboo to discuss activities with others and considered rude for another to ask. This methodological and sampling challenge results in the under-representation of historic properties of spiritual and cultural significance to Indian tribes in resource inventories.

Twenty elders were contacted following an initial letter to all Bois Forte elders explaining that the Bois Forte THPO wanted to speak with anyone who was willing to share knowledge or information about the project area. Eighteen elders contacted the THPO and provided at least some information about the APE. Two elders who indicated they had information were not interviewed due to project time constraints.

During April and May, 2013 the Bois Forte Tribal Historic Preservation Office conducted interviews of Bois Forte Band members with knowledge of the project area. The actual interviews were carried out by one of the authors, Marybelle Isham, a Band elder, who has worked on similar projects (Latady and Isham 2011, 2012). Interviews were conducted at individuals' homes and recorded when allowed. Six open-ended questions were asked during the course of the interview:

1. Do you know of trails or routes that passed through the area?
2. Did you or anyone in your family use the area for collecting medicinal plants?
3. Can you tell me anything about places used for fishing, sugar bush, gathering bark, ricing or hunting?
4. What kinds of sacred areas have you heard about from the area?
    - How do you remember these ceremonies taking place or changing over time?
5. What stories do you remember about the area?
6. Do you recall traditional names of lakes, streams, outcrops, hills, important views?

In addition to interviews, the authors reviewed the archives at the Bois Forte Heritage Museum, the Gale Family Library at the Minnesota Historical Society and Minnesota Discovery Center archives. Archival research centered on the Trygg Collection at the Heritage Museum and the Minnesota Historical Society and an assortment of legal and background papers related to William Trygg's work as an appraiser for the Indian Claims Commission. Included are tree tallies, land sale information, abstracts from U.S. Land Surveyors' field notes, printed reports, court exhibits and names of native and local informants.

Interviews

American Indians have resided in northeastern Minnesota for time out of mind. Archaeological investigations indicate people arrived in the vanguard of retreating glacier's more than 10,000 years ago. The earliest inhabitants hunted large game and left behind evidence of their lives in the form of beautifully crafted spear points and other stone tools.

The most recent Bands to reside in the project area are the Anishinabe (Ojibwe or Chippewa). The ancestor's of modern Anishinabe living in northeastern Minnesota originated on the east coast and migrated to the area before the United States became a nation. The journey to Minnesota began when the Anishinabe followed the vision received by an elder in a dream warning him to leave the homeland on the east coast (probably at or near the mouth of the St Laurence River) and journey west to find "the food that grows on water" or manoomin (wild rice). The first historical reference to the Anishinabe in the area appears in the journal of a French Explorer, Pierre de la Verendrye, in which he mentions an encampment of Saultier (French term for Ojibwe encountered at Sault St. Marie) on the Vermilion River in 1731 (Lamppa 1996, Richner 2002).

French Fur Traders referred to the Ojibwe in Northeastern Minnesota as Bois Forte or "strong wood" a reference to the thick, almost impenetrable, forests covering much of the area where these people lived (Richner 2002). An Ojibwe village was probably established at Vermilion Lake around 1800 and by the middle of the century there were hundreds of families in the vicinity who traded almost exclusively with the British Hudson Bay Company (Lamppa, 1996).

Wild Rice was abundant in the shallow bays of Lake Vermilion and along the Pike River and its tributaries—including Twin Lakes. The LaPointe Treaty of 1854 referred to the residents of the area as the "Bois Forte of Vermilion Lake" and granted rights to the lake in addition to yearly annuities in trade goods and provisions, but ceded more than five million acres to the United States including the project area. In 1865 gold was discovered at Vermilion and fears of confrontation between Band members and prospectors lead to the Bois Forte Treaty of 1866. This treaty terminated Band rights to Lake Vermilion and ceded another two million acres to the United States in return for annuities and a 103,000 acre reservation at Nett Lake.

Gold prospectors had left the area by 1868 because there was little of the precious metal to be found and Band members returned to the Lake Vermilion and once again roamed the surrounding forests, streams, rivers and lakes. The Band members living at Lake Vermilion held no legal title to the land, but most refused to leave the lake and move to the Nett Lake Reservation. In 1881 President Chester Arthur signed an Executive Order establishing the Vermilion Lake Reservation which became a gathering place for small bands of Ojibwe living across northern Minnesota.

After 1900, following traditional ways of life became increasingly difficult for Band members; traveling was restricted as land became privately owned. Logging reduced the forests to pitiful remnants and areas formerly used for berry picking, hunting fishing and ricing became

homesteads and lake homes. Limited mobility infringed on basic subsistence practices, which eventually resulted in families leaving the area and scattering to other communities. Some families moved to Nett Lake while others moved to other reservations including across the border into Canada. Many moved to cities and towns and a very few lived comfortably after finding wage work (Lamppa 1996). Those who remained often followed a seasonal round in order to survive; whenever possible gathering wild rice in the fall, berry picking in the summer and sugaring in early spring on and off the reservation. In spite of these and many other challenges, today there are more than 200 people living on the Vermilion Sector and 600 at Nett Lake.

The outline presented above is sketchy, in part because existing documentation on the history of the Bois Forte Band is not well organized and exists as scattered references or the occasional footnote in publications describing the history of Minnesota. The struggle for survival and connections to one another and other communities in the face of rapid change have been overlooked in texts and ignored by the dominant culture. Here we present some of the recollections of the past, the stories told by elders whose interviews and reflections appear below.

Priscilla Morrison

Priscilla spoke of her grandma King picking birch bark. She said she was too young to remember ceremonies and grave sites, but remembers her parents going to gather rice around Ely--how they spoke of portaging into the little lakes up there and where they would camp. “I remember when the mining started, ‘cause a lot of guys from here went to work there on the range. The opinion I have, is that they should be very sure they are not destroying any historical sites, whether it be graves or mounds, and that includes any place in Minnesota I know I sound judgmental.”

(Marybelle) “How do you see the changes taking place playing a role in the Bands future?”

“Oh I don’t know, I think there’s going to be more of the modern progress going on-and they are going to keep digging wherever they want to dig regardless of what the find. And there are so many people now a day’s way more than there was back then.”

Gene Goodsky

“I’m an elder here at Bois Forte, Nett Lake. I’ve lived here at Sugar Bush all my life. I’ve done a lot of ricing, but mostly on Nett Lake. We were teenagers in the early fifties-when we riced on Twin Lakes and Big Rice Lake. We would ride back and forth with the old man; his name was Ed Foster, who was a wild rice buyer and processor. We averaged two Bemis bags a day that was a good harvest. We’d go in to get to the lake at the Laurentian Divide. There was always a lot of the Tower people at these little lakes. Berry picking was mostly in the hilly area like the big mountain in Virginia[1], there were a lot of berries of every kind back in them days.”

[1] Misabe Widjiw

Justin Boness

"My name is Justin Boness, I'm from the Nett lake reservation, Bois Forte. I'm going to talk about ricing and the lakes in the Virginia area. I'm talking about Big Rice Lake, there used to be a lot of long-kernelled rice there. Now there is nothing on that lake, maybe a patch here and there on the shoreline. And I don't see a future for that lake to ever produce rice again due to the mining I would say. The mining drain offs onto that lake, and all the little lake around there. Twin Lakes used to be full of rice. Twin Lakes north of Virginia, and there used to be other little lakes in there that had rice, but not anymore. I riced up on Vermilion River, that's up by Crane Lake, them bays used to be full of rice the outer edges were thick with green rice. It was good ricing in the bays, now it's green rice in the mouth of the bays. They rice too early there and the white people go and whack it all up so it never gets a chance to ripen up. Birch Lake too used to have rice but there isn't much, its dwindling around Orr. There was rice in Mud Lake, some in Pelican. I guess that's the only places I riced: Just west of Virginia and east of Virginia. There's only weeds now where the rice should be. We would camp a few days when we rode with the rice buyer, Ed Foster, he would carry our boats too."

Luanne Drift

"My name is Luanne Drift, wife of Justin. I started ricing with Justin about 30 years ago, when we riced in those lakes around Virginia they used to be full of rice, but not anymore. I have nothing else to say."

Stanley Day

"I was born here in Nett Lake, I am 67 years old. We left the reservation when I was 15 years old. We lived in Sand Lake near Virginia for a few years. There were lakes there in that vicinity southwest of Sand Lake that had wild rice, we riced on these Lakes, especially one in particular, one that was hard to find, it was eight to nine miles from where we lived. This lake had real good rice. I need to find out the name of that lake. My father and mother who are both Bois Forte band members, they both spoke Ojibwe as their first language, for unknown reasons, they did not teach us. We riced a lot of lakes in that area, at Big Rice Lake which was north of that area and at Echo Trail and the Boundary Waters area. I can recall getting a lot of rice which was for our winter use for food. There was always berries we picked to put away. They were always plentiful."

(Marybelle) "Were there plants that were gathered for medicine or spiritual use?"

"That would have been from a generation before me, but there weren't many areas that wouldn't have these sacred plants used for medicines and people that knew where to get what they needed."

Ronald King

"My name is Ronald King, my father and mother were Luverne and Gwendolyn King. I lived in Nett Lake briefly as a small child, but basically grew up in Virginia, Minnesota. I remember when they would go ricing on Nett Lake. I personally have riced on Pike River near Biwabik, Big Rice Lake, another lake just out of Ely. I did a lot of hunting over by the Laurentian Divide by Big Rice Lake. Now I'm fifty-seven years old and no longer rice there. I don't know if it was the way the crop was beat up so bad, but I haven't went back, maybe fifteen years now. I still rice on the Vermilion River. There's a site at the Laurentian Divide where there is a rock right next to the freeway where my father would put out tobacco whenever he made a trip whether it be a plane, road trip, train or whatever and I have had people who I loved and honored who went to this place to put tobacco."

(Marybelle) "How do you see the area playing a role in the Band's future?"

"I know a lot of Kings that were still workers, a lot of guys that have worked in the mines have gotten sick from the dust, mesothelioma, when I was young. I worked with Johnny Matson who is a logger; we went in to clear cut before the mining started. There was a lot of animals, deer, wolves, beaver, because no one could hunt there, so it created a place where the animals couldn't be bothered. The animals left when the trees were cleared away, wet lands were gone, where the holes were made. The holes have water now, but they are too deep. The population has changed; land is gone where the homes were removed. Re-routing highway 53, which is a good possibility that it will take out Midway. The population there will have to move. It's going to destroy the business in that area because people will by-pass those places, so it's ruining the economy. I think it's just a greed thing; the mining company needs more money. This affects hundreds of miles, when they set the dynamite off the wind catches the dust and goes many, many miles, it settles in the lakes that in turn destroys part of our rice crop. It's not global warming, we get plenty of rain; it's the mining company."

Alma Lumbar

'Hello-I'm Alma Lumbar, and I want to say a little bit of the ricing long ago. We riced at Twin Lakes, two little lakes and Big Rice Lake. We used to travel with Ed Foster; he would take people to go ricing carrying our canoes so he could buy our rice and we'd get enough rice, some to eat and some to sell, so we could buy groceries or things we needed. We would go out all day long, but we'd come back each day, he had a pick-up truck and a trailer to carry our boats. The amount of rice we got usually depended on the weather. We'd get back to his store about six or seven and we would parch rice maybe a little that evening or next day, whenever we could. Then we'd be back out there ricing again until it was too beaten up. Anyway, it was a lot of fun when the rice was good; people had rice."

(Marybelle) "Do you remember any ceremonies taking place at that time?"

"No, just in the early morning, my grandpa would put tobacco in the water and say a prayer in Indian before we went out. That's all I know."

Rick Anderson

"My grandmother Mary was born in 1899 or 1900 on Burntside Lake, where she lived all of her life-died 1999. She would tell us how her family would travel to Big Lake every fall to hunt and gather wild rice in LaPond and Big Rice Lakes near Big Lake. My father and I continued this ricing tradition into the 1960's, when we quit going by the early '70's because the rice crop was so greatly diminished."

"The last time I went into these lakes was about 20 years ago, just to check them out for rice and to look for some decoys that my grandfather and father had stashed on Big Rice lake in the early 1940's before my dad went to serve in WWII-didn't find them! There was literally no rice on either LaPond or Big Rice. Water levels were high, many beaver houses. I went back again about 15 years ago moose hunting; again, no rice on these lakes. There were once very productive rice lakes full of ducks, as far as I know; they were very unproductive for rice."

Tim O'Leary

"I am Tim O'Leary. My native background goes back many years in this area. My father was Donald O'Leary, my mother was Sharon Poynter. Our family has picked wild rice since time began. Since mining has began here in this part of the world, our rice lakes have been becoming fewer and fewer, even since I have been a child. If this continues our generations in years to come may lose this great right and ability."

"It is a great concern of mine that if higher standards of water stability isn't met we will lose wild rice as well as drinking water. Without good water our land is worth nothing. Please take great concern and voice our safety and safety of our little ones."

Eileen Villebrun Barney

"We riced Big Rice Lake near Virginia when I was about 18-19. We had to carry our canoes about a mile to the lake. There was so many people there. We didn't get much rice, not enough to barely cover our expenses. Lots of people didn't know how to rice and ruined it. We used to get about 30 cents a lb."

"We riced other lakes in the area. Most of these lakes didn't have much, maybe because they opened the lake too early and the rice was green."

John Day

"When I riced with my mom, she would talk about ricing in the Boundary Waters. They would move all the way south down to the area near Virginia; Big Rice, Twin Lakes and all the local lakes-then towards Grand Rapids."

Karen Drift

"The only thing I remember about when I was eight years old, I was taken along when my mom & dad riced on Big Rice Lake-Herbert and Emma Strong were there, we'd camp there so we would wait all day until they came in. They would sell their rice, someone would come by

with beer that they could buy, and they would get drunk. I didn't like it there. We would go to Twin Lakes too. I seen your sister Obbic there, they must have brought her along to cook she was cooking over an open fire."

Lester Drift

"My parents were Raymond and (Jessie) Margaret Drift. I remember going to them lakes with my mom and dad when they were ricing. More than that -when I went to college and learned about this area, what I learned that any lake that had wild rice in it was sacred to the American Indian. We camped at Twin Lake for maybe a week. I learned that the trail of the Mii-gi-zi goes through that arrowhead region. So there might be a trail. It would be a good idea to send someone to Washington, or the Haskell Institute to check out this area here to see if there is sacred ground that was there even before any of us were here. When I was younger and going to college I was on the tribal council, I wanted to go to Kansas to research treaties and land held in trust by the United States Government. And at one time I believe all the lakes had wild rice on them, we would move from lake to lake and set up a camp, until we found Nett Lake and because of the reservation we were put on, we stayed here-but during the winter like it is now, we moved away from Nett Lake. That big swamp that's around here, that swamp goes from Lost River down to Mallard Bay. That was once part of Nett Lake so we are actually sitting on an island and thousands of years ago that swamp was a lake. I learned that in biology when I was in college, so we are sitting on that missing island, but there are some sacred trails that the Indians followed to go from Twin Lakes up to Nett Lake up toward Deer Creek that way. There were a lot of sacred trails that were used by American Indians and each one of them had a camp up there, or they would camp along the way, so we had blueberry camps in the area, winter camps, ricing camps, all them kinds of camps. There would be ceremonies there."

(Marybelle) "What do you know about plants being gathered for medicinal use?"

"Yes, there were many plants all over this area, there were plants we would go to get around Tower, MN that was used for heart medicine long time ago. It was called Ca-ke-ga-bug. There's a lot of medicines around here that Karen knows about-she uses it yet for certain ailments. I think each one of these lakes there's certain medicines. Trees that were used for making medicine, so this is a sacred area-we believed back then. We didn't own the earth, the earth owned us, because we are never going to leave here. And that's why we never put a value on anything, gold, copper, iron ore-anything like that, few cares then. Now we are able to get to these lakes and drive back the same day. Financially, no one had much money back then either - technology would be another-aluminum boats making life easier.

(Marybelle) "Can you talk more about trails?"

"There was a trail between Orr and Pelican Lake. It comes out in the swamp back here; it was used to go to Orr or maybe to the camp at Gheen Hill-the Sioux and the Chippewa had a fight up there-there is a battle ground there. There's another battle ground out here from the Palmquist homestead site to the sawmill. My uncle John Strong said there was bodies laying all over out there. So, a lot of this area is sacred, because we traveled to wherever there was wild

rice and picked seasonal berries and medicinal plants. I used to say this when we had meetings with St. Louis County and Human Services, I bet all the big shots that are running the mining companies never once put out tobacco to thank mother earth. But we're paying for it now by being hard hit economically. Even the spring where we get spring water for drinking is sacred, because Karen puts out tobacco and says thank you whenever we take the water. That makes it a sacred place. All of the little lakes where we got wild rice is a sacred place to Native Americans. If we look close we would find trail all over or old roads where people hunted or went from place to place. So, I think no matter how many surveys are done and all the people say no, money is going to speak louder that our traditions, and they will go ahead and mine there anyway-so it doesn't make any difference, money will win out."

Sandy Walter

"In the area of the Laurentian Divide where my grandmother, my dad, Eugene Walter's mother would take us on, we would walk back in the woods I can't remember how far, she would catch water that was coming out of a pipe out of the rocks on the cliff face and we'd take some to the lake, and some to her house in Parkville and my grandfather, my dad's father, would take and walk to their cabin to their lake cabin in Parkville and he would walk through the woods, through where Minntac is now, and walked all the way to the cabin. He also walked from Parkville to the mines outside of Virginia to work almost every day. They hunted and fished most of the lakes around here including almost up to Rainy Lake. I never got to go ricing myself, but before my uncle Warner Wirta was enrolled, he was invited by the people of Bois Forte in Nett Lake to be a guest and go ricing on Nett Lake. My brother's got fortunate enough to take a week off of school-that's what the native kids got then-so he got to go ricing. I think he was probably about ten or twelve. That was quite an adventure for him, he really enjoyed that."

(Marybelle) "Can you tell me how you would ride on your horse over the hills before mining began?

"When I was a kid off of old hwy 169, my dad had a junk yard before he passed and my Mom started buying horses for us kids. I used to ride my horse bare back, barefoot through the woods, on deer trails-through the woods, almost to Sandy Lake, where the quarry was out at Minntac, which is now under water. I got kicked out many times for riding in their tailings' pond. I used to go to Buhl, Kinny, Parkville, Eveleth area through the woods on my horse. But now that's impossible I believe, with all the mines around now. I would stop in a meadow and lie down and let my horse graze just enjoying a nice afternoon. Now those meadows no longer exist. Just the mines-maybe someone lived there years and years before to have cleared the land. There was wild carrots we ate those, thorn apples, lots and lots of huge strawberries, raspberries, black berries-pretty good size crab apples, a few regular apple trees, wild plums, we found a lot of things back there; also, a lot of bears and mink. Oh! I used to see a lot of red fox they were beautiful, the first time I saw a possum I thought it was the hugest rat I ever saw. It's probably the best thing my ma did for me-was to buy those horses, it was the best part of childhood."

(Marybelle) "Was there any other Native American families around there?"

"Yes, the Francis Jordains and the DeSotos lived there, the Neson family also; there was the Roy family too."

(Marybelle) "Was there traditional ceremonies done there?"

"No, in the time I grew up if you were Native American you were pretty much nothing. We took a lot of garbage from other kids in school."

(Marybelle) "You told me all your adventurous times were on your horse-the hills were your playground."

"Yes, sometimes I would leave before it got light outside."

(Marybelle) "Did your family make Indian home remedies from plants that grew in the area?"

"No, my mom, that's where my Indian blood comes from, her mom died when she was eleven or so, she didn't have a lot of time with her mom to learn anything.

(Marybelle) "Well thank you Sandy for the nice recollection of your childhood in a place where it is no more."

"Yeah, when I drive through there now it makes me feel bad. I feel bad now."

Bernard O'Leary

"As you know, my mom and dad, Susie and Tom O'Leary lived at Nett Lake most of their lives. My Dad hunted and fished this area for many years, and every fall they went ricing. They riced for anywhere from 3 to 4 and maybe even 5 weeks every year. They processed their rice by hand. No machining was done. They riced at all of the area lakes-Big Rice, Twin Lakes, and Vermilion River, sometimes they would camp at one of these lakes for up to 7 days. Dad had a pick-up truck with a home-made rack on the back for hauling the canoe and camping gear. These lakes close to home had some of the best rice beds almost every year. And the rice was real good to eat. They also riced on some lakes down by Aiken, Minnesota; Aiken Lake and Big Sandy Flowage, and even Mille Lacs Lake. This was a time when ricing was good all over this area from the late 40's to middle 50's. I understand now that it is all gone. No rice in big rice and a lot of lakes around here. Our whole family depended on having wild rice for food year round. We also picked a lot of wild berries. Sometimes my mother would can 80 or 90 quarts of blueberries and 20 quarts of strawberries; we also picked pin cherries and chokecherries. Back then, I remember, there was a great abundance of these things. We also hunted in Nett Lake, riced and picked a lot of berries. In the late fall, we had wild mallards with wild rice for supper, but now, with the wild rice going away, so are the ducks. My daughter and I still pick rice together, but there's not much left."

Jim Gawboy

"I am 77 years old, I will be talking about the Indians using the land around here. This is according to what my father and grandfather told me, so it may be a little mixed up. I'll talk a little about the maple sugaring. Some of the Indians on the reservation used to go to Big Rice Lake to make maple sugar in the spring. Our side of the family the Gawboy's used to go up the

Embarrass River to make maple sugar up there--I never went, I was too little--but I suppose that would be around Giant's Ridge. There's a lot of maple trees up there and people still go to make maple sugar, but when the trains came through, the passenger train came. I remember my mother and father would get on the passenger train, and go to the Mesabi location which is north of Hoyt Lakes, just a few miles, and get off there where there's a good stand of trees there. They would just camp there until it was done. They brought everything back as sugar, which was much easier to keep. So, that area just north of that is taken up by a mine, I don't even know the name of it. The mine keeps changing hands; it was Erie when I worked up there. Then during ricing all the lake around here were where they riced. Big Rice Lake, Sandy Lake, now Twin Lakes, I remember it was about 1946, my father, my older brother and I, camped right between the two lakes-other Indians were also camped there. My Grandfather, Anna Knott, Joe Knott, and three of their teen-age kids, they had a wigwam put up, with tar paper over, we just had a tent that we slept in. Then there was an Indian woman that was with a white guy. We stayed there almost two weeks, some days we didn't pick at all; we'd decide to let it rest. Some of the rice was processed right there. They would parch the rice and jig it out-remove the hulls. The Knotts had a threshing machine that was made out of a fifty-five gallon drum. They would take off the back wheel of their car and attach the drum to the differential –they could thresh a lot of rice and threshed a lot for us too! We didn't have a threshing machine until the following year when John Whiteman of Nett Lake made one for us-then we were able to go into some pretty heavy threshing. So we just camped there, rested, cooked and ate. We wouldn't go out each day until the rice got dry. Sometimes we didn't go out for a few days, the committee, or the people that camped there would come to the decision. They talked about where the camp was before, but it was generally in the same place, but I would guess they've gone in there so long that there were quite a few old camps right in the two peninsulas mostly on the eastern peninsula is where the camps were. But the eastern end of the little narrow inlet between the two lakes, according to their talk they had used the lakes and camps for many years."

"A lot of people think the Indians just stayed in one place for a long time but when I was young I remembered we were always moving. I talked about going one place for rice, one for maple sugar. Of course they knew where everything was; going one place to another according to the seasons. Just before ricing on the Vermilion Reservation you'd see people loading up to go. When they were asked where they were going they would say "to the lake"-they would be going to the Trout Lake area. When they came back they had big baskets of berries and I mean big baskets full. Then they would wait for the wild rice season to open. After that they would prepare for hunting and trapping season, and because that was done away from the reservation they would go to the north side of Vermilion. My father used to take a dog up there; we had one giant dog that could pull four deer on a toboggan all at one time. A big black dog named 'Pluto' guard of the underworld because he was so black. He also carried the supplies and bait for the traps, the dogs had to be taught to leave the bait on the traps alone. In the spring they went to a different part of the lake to net fish, but they were moving all the time. Then there was talk they were going up the Pike River to get some birch bark then they were gone for two days to get a

large sample of birch bark. Whenever they went anywhere they traveled light-most of the food they needed was gotten along the way. Even on the portages they planted potatoes that were planted in the spring-when they came back from blueberry picking the potatoes would be ready. They just moved all the time, as a matter of fact, one of the reasons Nett Lake was made a reservation was because they were camped there making rice when someone said, do you live here? Someone answered, sure I live here, so they made a circle and the person said okay that's where you live, that's your reservation. And the people in Tower were supposed to go to Nett Lake too, but they wouldn't go. They said we're going to stay here although a lot of them weren't from there. Historically, my parents were from the Rainy Lake area then some of the people there were from the Burnside area on the Tower reservation, everyone seemed to be moving. There were small Indian trails and big Indian trails that were worthy of being put on a map."

Edward Isham 5/31/13

"It was about the year of 1985 and again in 1987 I riced at Big Rice Lake. There was not a very large rice area. One bay had rice, but a couple little patches were already riced out. I never seen such poor ricing conditions. Other people, some with three in a boat, were all whacking away at the rice. It didn't take long to beat it all down. We went back in again, maybe, in the 90's - we went back there wasn't any rice there at all then."

Marybelle Connor Isham

When I started this survey, I knew it was going to be a difficult task to find information about the project area. The people who really knew are no longer here. So I targeted people born in the 1930's through 1950's. The main activity talked about was harvesting wild rice, each change in the season causes a flurry of excitement with the Ojibwe people, in preparation of berry picking, gathering medicinal plants, harvesting birch bark and wild rice, duck hunting, preparation of getting enough wood for winter use, not forgetting meat for the freezer and of course trapping. At one time I was a participant in the traveling, caravan style, with my mom and dad in a big old bus with boats tied to a trailer behind, I was in my late teens, already married, my husband Ed and I were considered to be seasoned ricers because we could keep right up with the best ricers and we were very competitive. This was in the late 1950's. The lakes where we harvested wild rice are those within the potential affected area of the Minntac mine, Twin Lakes also known as Big Sandy and Little Sandy Lakes, Big Rice Lake and Hay Lake had rice growing in them. They are also within lands ceded by the Bands in the Treaty of September 30, 1854 at La Pointe, Wisconsin.

In reading the "Trygg files," I learned some of the history and origins of our ancestors. What we see as terrible hardship was their way of life, which probably made them stronger and the way it is intended to be. The leaders made decisions with wisdom and generosity that affects us today. I hope we can be as brave and dignified when dealing with change as they were.

Results

The interviews indicate that through the early 1980's vestiges of the ancient Ojibwe settlement and subsistence pattern were pursued to the extent possible. Admittedly, patterns had been extensively disrupted by changes in landownership, poverty, reservation life and the lack of economic opportunity. However when feasible, Band members followed traditional behavior through hunting and gathering of seasonably available resources both on and off the reservation.

Reviewing the interviews in the context of resource availability, access and use, the interviewees provided information about the project area and utilization by Band members until almost 30 years ago, when resources critical to Band members were no longer available or accessible within the APE. Two Band members noted that trails were used for travel to specific locales for hunting, fishing and plant gathering. Lester Drift, mentioned trails several times during his interview, describing a specific trail, the "Mii-gi-zi that goes through that arrowhead region" and may be one of the trails depicted by Trygg (1966). He also noted there were a number of sacred trails that were used to access resources such as blueberries and rice, but also led to camps. More importantly, or probably more accurately, he notes ceremonies were also performed in conjunction with subsistence activities or camping. Jim Gawboy notes there were both large and small "Indian Trails" important enough to be put on a map. He is referring to the GLO maps which were used by Bill Trygg when compiling the information that appears on the composite maps published in 1966. Gawboy also indicates that traditional routes of travel such as waterways were abandoned, at least by his family, when going to and from the sugar bush. Extrapolation of this information suggests that some traditional means of access were used less frequently once other modes of transportation became available. By the time many of the elders interviewed during the course of this project were born, the traditional routes were used sparingly, if at all, which probably helps explain the lack of specifics on trail location and specific function (other than for travel).

Subsistence activities; hunting, fishing and plant gathering, were noted by everyone. Many recalled use of the project area by themselves and relatives. Specific activities such as making rice in the lakes north of Virginia, including Twin Lakes, were mentioned. Some spoke of gathering and hunting in the general area specifically noting maple sugar, berries, and birch bark. Most indicated that resources were obtained during day trips, but a few described camping overnight. Jim Gawboy was the only one who remarked upon staying at Twin Lakes while ricing with his family. He noted where the family and others camped and also explained that the ricers took time off from gathering the rice so that it could recover before the harvest resumed. Evidence of his family's camp (and those of other ricers) between the two lakes may still be extant despite high water levels that are probably due to the construction of a large tailings basin concurrent with building of the U.S Steel Minntac plant. Evidence of use of Twin Lakes by Band members in addition to specific reference to the locations where families camped indicates the Twin Lakes (Little Sandy Lake and Sandy Lake) meet the definition of a Traditional Cultural Property established by the National Park Service in Bulletin 38.

Other support for practicing usufructuary rights within the project area occurs in a particularly poignant account by Sandy Walter who spoke of her childhood and grandparent's residence in Parkville. She describes her grandfather walking through the woods where Minntac is now located. Her grandparents and parents hunted and fished most of the lakes around Virginia, but she was never able to join them due to her youth. She further relates how she used to ride her horse through the project area on deer trails and at times rode to Buhl, Kinny, Parkville and the Eveleth area. These excursions lead to being "kicked out many times" for riding in Minntac's tailings pond. The areas where she used to ride no longer exist as they have been replaced by the mines. The woods, animals, meadows, berries and fruit trees exist now only in her childhood memories.

The topic of ceremonies was addressed by three interviewees. The sacred nature of the land was acknowledged and described by Lester Drift and two others who described offering tobacco before undertaking an activity as substantive acknowledgement of the spiritual connection of the Ojibwe to this area. Gene Goodsky referred to picking berries on Misabi Widju

Not surprisingly, the subject of graves was mentioned in only the most general terms and by only one person, Priscilla Morrison. Burials are an extremely sensitive issue and specific information on grave locations would only be revealed if the informant was certain that the knowledge would not be exploited and/or lead to desecration of the graves. It is unclear if Ms. Morrison knows specific grave locations, but she is adamant that they should be avoided.

Discussion

The survey of Band members with knowledge of historic use of cultural resources within the APE of the proposed Minntac Mine Progression Project provided information about the area and how and where usufructuary rights were practiced. The THPO was fortunate to learn the names of a number of families with ties to the area. Undoubtedly, had we been able to interview elders a generation or two prior to this one there would have been considerably more information.

The interviewees identified a number of activities that occurred in the area ranging from subsistence to spiritual. Band members identified medicinal plant gathering, harvesting wild rice, hunting and fishing as having occurred within the APE by relatives other Band members, and often themselves. Sacred/spiritual activities were also identified and included offering tobacco to gathering medicinal plants. The single reference to graves did not include a location. However, graves are often proximal to settlements, including campsites.

The Twin Lakes (Sandy and Little Sandy Lakes) is a Traditional Cultural Property and eligible for inclusion in the National Register of Historic Places as it is a tangible property associated with events that have made a significant contribution to the broad patterns of US history – in this case reservation period life ways of the Bois Forte Band (criterion a). In addition, the Twin Lakes Site also has yielded or is likely to yield information important in history (criterion d). Numerous references by informants to harvesting wild rice at these lakes

until a generation ago indicate this was a primary area for the practice of cultural activities related to subsistence and spirituality. Manoomin (wild rice) is not only an important food, but also the center of Ojibwe life as it is the reason for the westward migration, which for Bois Forte culminated in their arrival in northeastern Minnesota. Manoomin appeared in the vision received by an elder on the east coast that initiated the Anishinabe migration to find the food that grows on water. Furthermore one informant described in detail the location of his family's camp when they harvested wild rice and an inventory of the lakeshore would undoubtedly reveal the location of this camp as well as others that may exist.

Due to the limited time frame for this project and the length of winter and concomitant snow cover within the project area, the Bois Forte THPO was unable to ground check the trail noted on the 1882 GLO plat of T59N, R18W and plotted on the (1966) Trygg composite map. Despite this lack of ground verification, the Bois Forte THPO suggests the trail corridor is significant and eligible to the NRHP under criterion a. To the Ojibwe, trails are deeply imbedded in their culture and by extension, the indidual. The trail was used by Band members and also by early European settlers as evidenced by cabins plotted on the 1882 GLO plat map. Clearly field work is necessary to determine if the trail is discernible within the APE and constitutes a contributing segment.

One unanticipated outcome was the lack of specific information about areas in the western APE. Many interviewees mentioned Twin Lakes specifically. During discussions with the Corps of Engineers, before the project was initiated, the Bois Forte THPO and representatives from other Bands thought the Dark River and Dark Lake would have attracted Band members given these water bodies are tributaries of the Little Fork River—a well-documented travel corridor in the 18th and 19th centuries (and by extension used for many centuries before). Ms. Morrison describes her family hunting and fishing in an area extending from Parkville almost to Rainy Lake and one can infer that the Dark River and Dark Lake would have been included in that area.

Several individuals expressed concern and disappointment, indeed disgust, about the lack of rice in lakes where it was once abundant. Twin Lakes within the APE and Big Rice Lake six miles northeast on the old trail, but outside of the APE were cited as particular examples. The decline in rice was attributed to the actions of beaver and non-American Indians who did not know how to properly pick rice. At least one alluded to the mine's changing the landscape and thus impacting Band members ability to pursue their usufructuary rights within the ceded territory.

The loss of traditional life ways within the 1854 Ceded Territory is seen as not only affecting this generation, but also future generations. It is the responsibility of today's Band members to make decisions that will guarantee that seven generations in the future will have the means to not only survive, but prosper. The loss of rice waters affects all of us. However, the loss for the Ojibwe is considerably more significant, as manoomin provides physical and spiritual sustenance. Improper monitoring of the Minntac Western Progression Project will negatively affect not only water quality, but every living organism in the vicinity, including wild rice. The

loss of rice and everything connected with it will eventually result in the abrogation of treaty rights to hunt, fish and gather.

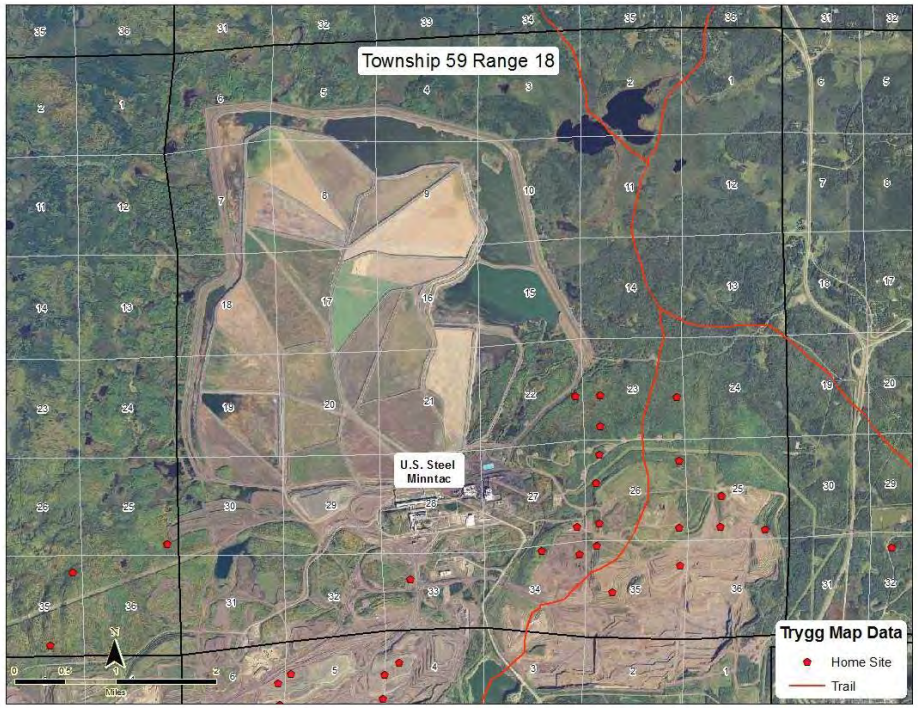

Figure 1. Illustration of the trails and homesteads (cabins) documented on Trygg (1966) Composite Map (Sheet 18) for T59N R18W and mapped on 2010 aerial photograph of Minntac Mine (Compiled by H. Fox).

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Identification of Historic Properties of Traditional Religious and Cultural Significance to The Bois Forte Band in the Minntac Extension Project Area of Potential Effect

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Introduction

This report presents the results of a survey to identify historic properties of spiritual and cultural significance to the Bois Forte Band within the Minntac Extension Project Area of Potential Effect (APE). This document builds upon findings described in the Minntac Progression project report (Latady and Isham 2013) and results from plans by US Steel to expand operations at its Minntac facility located north of Mountain Iron in St Louis County (Figure1).

In an effort to help US Steel comply with federal regulations to identify and document historic properties of traditional religious and cultural significance to Tribes, the Bois Forte THPO proposed to document places visited by Band members. The proposal grew out of consultation between the Ojibwe Bands and the US Army Corps of Engineers. The survey was designed to document and evaluate historic properties of significance to the Band within the APE located near Mountain Iron in St Louis County, Minnesota. These properties include, but are not limited to, off-reservation treaty resources within the 1854 Ceded Territory, such as maple sugaring areas, wild rice waters, sites with spiritual significance, trails, village sites, fishing areas and other places where usufructuary rights are practiced.

Work began after the agreement created by the Bois Forte Tribal Historic Preservation Office (THPO) was approved by the Reservation Tribal Council and US Steel in May 2014. The survey was conducted through interviews of Bois Forte elders in May, June and July 2014.

Project Setting (Latady and Isham 2013)

The project area is located on the southern flank of the Mesabi Iron Range and the Laurentian Divide near Mountain Iron in St Louis County. The first surveyors employed by the US Government to survey the area where the Minntac Mine and APE are now located, described the Townships as well timbered with aspen, birch, pine, spruce and tamarack. The surveyor's notes go on to state that the land is rolling to broken with swamps between ridges, dense undergrowth and poor soils. The sole exception was T60N, R18W where much of the timber had been destroyed by fires that ravaged the area several years before the survey.

Wildlife typically found in this area includes black bear, white tail deer, ruffed grouse, small mammals and migratory birds including ducks and geese. Water bodies including Sandy Lake, the Dark River and Sand River contain a variety of fish including bluegill, crappie and northern and walleye pike. Many, if not all of the taxa, are economically significant to Bois Forte Band members, and in some instances have special spiritual import. Wild rice was once abundant in Big and Sandy Lakes.

American Indians have resided in northeastern Minnesota for time out of mind. Archaeological investigations indicate people arrived in the vanguard of retreating glacier's more than 10,000 years ago. The earliest inhabitants hunted large game and left behind evidence of their lives in the form of magnificently crafted spear points and other stone tools.

Figure 1. Location of project area.

The most recent Bands to reside in the project area are the Anishinabe (Ojibwe or Chippewa). The ancestor's of modern Anishinabe living in northeastern Minnesota originated on the east coast and migrated to the area before the United States became a nation. The journey to Minnesota began when the Anishinabe followed the vision received by an elder in a dream warning him to leave the homeland on the east coast (probably at or near the mouth of the St Laurence River) and journey west to find "the food that grows on water" or manoomin (wild rice). The first historical reference to the Anishinabe in the area appears in the journal of a French Explorer, Pierre de la Verendrye, in which he mentions an encampment of Saultier (French term for Ojibwe encountered at Sault St. Marie) on the Vermilion River in 1731 (Lamppa 1996, Richner 2002).

French Fur Traders referred to the Ojibwe in Northeastern Minnesota as Bois Forte or "strong wood" a reference to the thick, almost impenetrable, forests covering much of the area where these people lived (Richner 2002). An Ojibwe village was probably established at Vermilion Lake around 1800 and by the middle of the century there were hundreds of families in the vicinity who traded almost exclusively with the British Hudson Bay Company (Lamppa, 1996).

Wild Rice was abundant in the shallow bays of Lake Vermilion and along the Pike River and its tributaries—including Twin Lakes. The LaPointe Treaty of 1854 referred to the residents of the area as the "Bois Forte of Vermilion Lake" and granted rights to the lake in addition to yearly annuities in trade goods and provisions, but ceded more than five million acres to the United States including the project area. In 1865 gold was discovered at Vermilion and fears of confrontation between Band members and prospectors lead to the Bois Forte Treaty of 1866. This treaty terminated Band rights to Lake Vermilion and ceded another two million acres to the United States in return for annuities and a 103,000 acre reservation at Nett Lake.

Gold prospectors had left the area by 1868 because there was little of the precious metal to be found and Band members returned to Lake Vermilion and once again roamed the surrounding forests, streams, rivers and lakes. The Band members living at Lake Vermilion held no legal title to the land, but most refused to leave the lake and move to the Nett Lake Reservation. In 1881 President Chester Arthur signed an Executive Order establishing the Vermilion Lake Reservation which became a gathering place for small bands of Ojibwe living across northern Minnesota.

After 1900, following traditional ways of life became increasingly difficult for Band members; traveling was restricted as land became privately owned. Logging reduced the forests to pitiful remnants and areas formerly used for berry picking, hunting fishing and ricing became homesteads and lake homes. Limited mobility infringed on basic subsistence practices, which eventually resulted in some families leaving the area and scattering to other communities. A number moved to Nett Lake and others moved to reservations, including across the border into Canada, where extended family resided. Many moved to cities and towns and a very few lived comfortably after finding wage work (Lamppa 1996). Those who remained often followed a seasonal round in order to survive; whenever possible gathering wild rice in the fall at area lakes

berry picking in the summer and sugaring in early spring on and off the reservation. In spite of these and many other challenges, today there are more than 200 people living on the Vermilion Sector and 600 at Nett Lake.

The outline presented above is sketchy, in part because existing documentation on the history of the Bois Forte Band is not well organized and exists as scattered references or the occasional footnote in publications describing the history of Minnesota. The struggle for survival and connections to one another and other communities in the face of rapid change have been overlooked in texts and ignored by the dominant culture. Here we present some of the recollections of the past, the stories told by elders whose interviews and reflections appear below.

Methods

Obtaining information on historic properties of religious and cultural significance to Indian tribes is complex. Sharing information on resources that comprise cultural identity with outsiders is carefully considered by tribal members because history has shown the information may be misused and exploited at the expense of the individual, tribe or resource. In some instances it is taboo to discuss activities with others and considered rude for another to ask. This methodological and sampling challenge results in the under-representation of historic properties of spiritual and cultural significance to Indian tribes in resource inventories.

Eighteen elders were contacted including two who were unable to contribute to the first Minntac traditional properties documentation survey, following a letter to all Bois Forte elders explaining that the Bois Forte THPO wanted to speak with anyone who was willing to share knowledge or information about the project area. Twelve elders contacted the THPO and provided at least some information about the area.

During May, June and July 2013 the Bois Forte Tribal Historic Preservation Office conducted interviews of Bois Forte Band members with knowledge of the project area. The interviews were conducted by Marybelle Isham, a Band elder and co-author of this report, who has worked on similar projects (Latady and Isham 2011, 2012, 2013). Interviews were conducted at individuals' homes and recorded when allowed. Six open-ended questions were asked during the course of the interview and contained in the letter requesting elder's participation:

1. Do you know of trails or routes that passed through the area?
2. Did you or anyone in your family use the area for collecting medicinal plants?
3. Can you tell me anything about places used for fishing, sugar bush, gathering bark, ricing or hunting?
4. What kinds of sacred areas have you heard about from the area?
    - How do you remember these ceremonies taking place or changing over time?
5. What stories do you remember about the area?
6. Do you recall traditional names of lakes, streams, outcrops, hills, important views?

Additional questions were sometimes asked in order to elucidate details or clarify points made by the interviewees, such as “did you or members of your family live in Parkview?”

In addition to interviews, the authors previously reviewed the archives at the Bois Forte Heritage Museum, the Gale Family Library at the Minnesota Historical Society and Minnesota Discovery Center (Latady and Isham 2013). Archival research centered on the Trygg Collection at the Heritage Museum and the Minnesota Historical Society and an assortment of legal and background papers related to William Trygg’s work as an appraiser for the Indian Claims Commission. Included are tree tallies, land sale information, abstracts from U.S. Land Surveyors’ field notes, printed reports, court exhibits and names of native and local informants.

In addition, avocational historians Todd Lindahl and Don Menuay of Two Harbors were consulted on July 25, 2014 regarding trails and other historic features in the project area. Both have spent years searching for historic features on the Iron Range and researching documents preserved in local historical societies. They have reported their findings to archaeologists from the Superior National Forest and the Minnesota Department of Natural Resources.

Interviews

Twelve elders were interviewed and their recollections appear below. Marybelle Isham, a coauthor of this and earlier reports, added her recollections.

Loren L. Connor

“I went ricing on Twin Lakes when I was very young, 11 or 12. I went with my step-father, Eugene Boshey Sr., Clyde Day, my uncle and Robert Ottertail. We drove there by car & boats. This was a good lake to rice on. We didn’t have very far to get to the rice bed.
It was dark outside the morning we left. We did pretty good for the time we had on the lake. I’m sorry for not remembering the roads we took. All I know is that we were going to rice on Twin Lakes. All the other guys passed away now. This was about 51 or 52 years ago.”

Sandy Walter

“I lived outside of Mt. Iron which was Kimross, all five of us kids used to play and run in the woods right where Minntac is now. Minntac you know, is tearing up all that land up there and heading toward Sandy Lake and Sand Lake, I think now they’re just a few miles from Sandy Lake aren’t they, from Little Sandy? My cousin Rick Gibson said that Minntac now has eaten up a good portion outside of Buhl and around Kinney too, and Hibtac now is closing in coming close to Kinney so Minntac and Hibtac are getting pretty close together now. I hate seeing that, kinda makes me sad to think about that especially when I used to play in tree houses, ride horses, and hunt and play in the streams; can’t do that anymore. I stopped there last summer and checked out the streams that aren’t too far off the highway, the water in them is green, full of algae. They used to be clear and clean streams when I was a kid. They’re nasty now; they’re poisoned from the mine (Sorry for my tears). It always makes me feel bad when I talk about that. Sand Lake

north shore that's changing its gotten so loaded down with people that I don't know, too much construction, too much pollution, the last time I was up there the lake was full of weeds it didn't look safe to swim in, and that's still a little ways away from where Minntac is, I'm not sure what Sandy Lake looks like, I haven't been there for years."

(Marybelle) "I'd like to know about the area of expansion, which would be south and some time back the mine bought the little town of Parkville. What do you know about that?"

"They've been buying that up for a long time. My brother Victor told me the part that was absorbed by the mining company is chain linked off. They chain linked it off to stop people like me, Victor, and Janet. We were going in to rescue plants in old gardens, that's where I got my rhubarb from and rose bushes, lilies, iris, but now that is chain linked off, we can't go in there anymore."

(Marybelle) "Did you know of other Native American families that lived in Parkville?"

"There were Natives living there, but they weren't band members, there was Jordaines they were full blood, but not band members. They lived on the other side of Mt. Iron and DeSotos, I think they were half. They were not enrolled either. The Nelson kids, I don't think they were enrolled either. The Roy family lived right across from us. I think they had seven children. There are a few of these people still around, that I see once in awhile?"

(Marybelle) "Looking at this Trygg map, do you recognize any trails?"

She recalled the trail going through where the mine is now. "Parkville was such a nice little town my dad's parents lived there and that's where I grew up. And we lived across the street from them. It was a nice safe little town. Grandpa Wirta used to cook at the camps so he, a short talking person, didn't say much, he was all Finn. My grandma was all native. But everyone would come when he'd make a big meal, making bread and all. He'd call each one and just say 'come to supper tomorrow' real short. He added this huge room onto the main house, and had this huge long table about twenty some feet long, so everybody could sit down. He'd invite you over to eat chicken only to find out it was really rabbit. You probably know this, my grandmother had died when my Mom was eleven, but her husband was a game warden and he was a lot of the time at the Iron Rail where he worked also. I think parts of that homestead is still there, it's a marker. I have some of his paperwork (something I'd like to submit to the Heritage Center too) commendation from the state and everything as a game warden. Some of that paperwork are the original copies of the book that was written about John Linklatter and his dealings with the state as a game warden."

(Marybelle) "Was Warner a native from Bois Forte?"

"Yes, he and my mother were half. The Wirtanen farm from Wirta, my mother's father, is one of the historical sites the 'Wirtanen Farm.' He had his name shortened from Wirtanen to Wirta, so it's the family history in these parts, in Northern Minnesota lots. Grandpa Wirta came from the old country, from Finland. I think he said he was sixteen when he came here. He landed at Ellis Island. He started working in the camps and saved his money to buy his farm. He raised turkeys and chickens and later on a few cattle and grain. So Mom grew up, and Warner, in a hard

like and the kids, farm kids, very hard workers, tough people--not very lovable, but hard working."

"Did you see the book that was written about the Linklatters?"

(Marybelle) "No, I didn't."

"I'll bring the papers out and let you see some of that; pretty interesting reading, pretty much his history. There's photos and there's sketches drawn by Warner's daughter for the book. It's just incredible what she did. Warner and some man had written it. The book is just a small paperback not very thick. I have one copy here. I don't know how many he had made and I have the original copies of the transcripts for the book. There could be a lot of information about his tracking around through northern Minnesota and he had something to do with Canada too. I'm not really sure. There's a lot of information we didn't get. What we got from Warner was what he wanted to feed out, what he wanted to write down. He talked and he took in a lot of things, but I think there's a lot of things he forgot, he never got to share with the family. He was so busy digging history, that he lost history, you know, because he dug into this family background for probably close to fifty years. That's a long time. He did interviews with people if people moved to another place, he went there and contacted them and got them documented, certified documentation. He did a lot of work, a lot of travel to get the information that's in that book."

(Marybelle) "There was probably more to Warner Wirta then most people will ever know."

"Yeah, Warner was such a great part of my life, he was like a replacement after my Dad died you know. He and my Uncle Bob were the only good male figures we had. So when Uncle Bob went, soon after Dad, Warner and all the things he's told us over the years, the places he's gone, information about other people and how they belong to Bois Forte, or are related. But everything he brought up, was something I'd never heard yet. His head was so full of information I hope somewhere it's in writing or recorded. Same time he'd be talking and say-oh here's something I wanted to tell you kids, and it would be something I had never heard before."

"The end for now."

Gordon Adams, Jr.

"My name is Gordon Adams, Jr. I've lived all my life on the Nett Lake sector of the Bois Forte reservation. I have been married to my wife, Kathleen (Patsy) Adams for thirty some years now. I have three children, Rebecca age twenty-eight and Gordy age twenty four and Tyla age seventeen who is still in high school."

"Today's date is May 18, 2014 and we are at Marybelle Isham's residence which is smack right in the middle of Nett Lake. When I was growing up in the early seventies, my mother was related to Mrs. Secola who resided in Parkville, Minnesota right next to the highway and right across the highway was the Minntac mine. At the time, being young, I never thought of any harmful effects or effects it would have on future developments or relating back to anything regarding the historical preservation act or anything in the Graves Native American Protection Act. What I know about the area is what I had learned from my mother, who was a very traditional Indian and which was related to Mrs. Secola and which they were both talking in the

Indian language and they truly enjoyed doing. Back then I remember those mine pits were off limits to just about anybody and everybody, but we used to go back there to explore, with Keith and his brothers when we were there to visit. And they would show us some of the deepest pits and ravines and a lot of places where the water collected. So that was quite limited, ‘cause being a young boy didn’t realize the full impact of what I was looking at or what impacts it would have on this generation and future generations.”

“I’m looking at the map now of the proposed mine expansion it looks like it is really intruding on the Parkville area and some of the trails we used to walk and ride bikes on. I don’t know the historical significance of those areas right now to me, but I do know that according to the Historical Preservation Act, that there should be someone doing test pits in these areas to find out what kind of historical significance are in the ground. By that I mean any clay pottery findings from the Clovis people, and fire pits, or anything of historical significance that would trigger the Historical Preservation Act to come into play and either limit, curtail or stop the pit extension proposed that is being forwarded to us. That would be my main opinion or request that something like that be done before this project continues.”

“Many times over and through historical facts and history, the non-native people have infringed upon Native lands and native burial sites, significant historical sites, so on and so forth. This right here is no different. We, as an Indian people, need to find out where and what historical significance is, if any are located in this area. And the way to do this is to do some test digging with a shovel, two feet or three it doesn’t need to be a giant hole. I think what they need to see is if there were any presence of Native Americans in that area, prior I believe, to the arrival of the Chippewa which would have been Sioux descendants. Prior to the Sioux descendants would have been far back. Five thousand years ago would have been the Clovis people who lived here long before the Sioux and long, long before the Ojibwe people. In which, we here in Nett Lake have presented evidence of Clovis culture that resided here even on the reservation and if they resided here, that tells me that they resided throughout Minnesota as well, and how the land looked prior to the excavation of these mines from the air. I’ll tell you it would change your mind about mining and what the impact that those mines have done to the area there.”

“I believe to me again, the Historical Preservation Act should have kicked in or was it bypassed, or maybe not even thought of back then. I think maybe it just came into law in the seventies or eighties. But again, it’s my opinion because of my experiences dealing with historical preservation and NAGPRA laws and things of that nature. I do believe that before any expansion is done, they need to really thoroughly comply with the American Preservation Act and also the NAGPRA Act, especially if they find any human remains of our ancestors, or of the Sioux people, or of the Clovis people if they can preserve that far back. I think that should automatically trigger NAGPRA into action to say, look this has to stop until we find the historical significance of these remains, where they came from and who they belong to, if possible. I believe that should be part of this. I don’t know if that has been done and completed, if there has been test sites that have checked out. I just don’t know the status of that. But, again

I'm of the opinion that entire Minnesota was occupied either by the Clovis people or the Sioux people prior to our arriving at some point in time. As Chippewa people and when we came, we came from the North and so that would be my recommendation; that the test sites be done and completed. If there are any findings I believe that should trigger other mechanisms within those two laws to investigate."

(Marybelle) "Do you know of any fishing, trapping, etc. done in that area?"

"This whole area prior to mining, whatever year that was, maybe the 20's, was open to hunting and fishing, not only families that resided in that area, but in the advent of mining and the establishment of huge mining companies claiming their stakes to this property pretty much just brushed aside those Indian families, back then. I know that we didn't all live on a reservation way back then, we lived as families we lived according to the time of the year, whether it be spring camps, summer camps, fall or winter. At one point in time must have been occupied, especially the lake areas, that these lakes were used for fishing or whatever native people did back then. I'm of the opinion that there was significant movement, camp grounds, travel routes throughout this entire area, but when the mining companies came in none of this was taken into consideration they just started mining these big areas out and pretty much forced any Indian families out of the area."

"I do believe these areas do have some significant evidence that our people occupied that area for hunting and for fishing. Indian people back then were very connected with the Great Spirit in which these ceremonies were conducted. Again during all times of the year, the four seasons of the year in which also, if there were camps there that's where they would bury their relatives, or bury people that died in these camps, back then they didn't bury people six feet into the ground, because of the lack of shovels or digging instruments, they used anything they had; where it be animal bones or antlers of whatever. They had to get them into the ground, so the graves weren't very deep and to me, a bulldozer wouldn't have no problem just pushing these graves over and not even realizing what they were doing. Yes, these trails and campsites did have religious significance to them in addition to also burying family members all throughout these whole campground site areas again, whether, summer, spring, fall or winter. That's where they were buried and remembered. I'm of the opinion that there has to be un-marked sites and graves throughout the whole area."

"I think the Federal Government in its complexity and its enormity, it has to pay specific and particular attention to the NAGPRA laws and also to the Historical Preservation Act laws which prevent this kind of thing that's happening. They are encroaching upon our sacred sites our ceremonial sites, our ancestral lands, our hunting and fishing areas. It's a continual encroachment and expansion on those lands. Indian people need to stand up and make a stand. We need to defend those lands and those sites because of their historical significance. I believe the law should be carried out all the way around by everybody."

Bernard O'Leary

"My name is Bernard O'Leary. My parents were Thomas O'Leary and Susan. I am

seventy-three years old. I am a Bois Forte band member. I used to live at the old CC Camp, out there we did a lot of hunting. My parents were really good ricers and they riced a lot. I guess we want to talk about natural resources, so I'll say the ricing, hunting and fishing were all a big part of what my parents and even today, what I and my kids do to help make a living. I have three kids, they all like to hunt; fish, moose, grouse, venison, ducks, because we believe this meat is more healthy than what we buy in the super markets. So that's really important to all of us at Bois Forte."

"I guess I can say my parents participated in harvesting wild rice, they went to all the lakes, Big Rice Lake, Twin Lakes, Vermilion River, Nett Lake, East Lake, they'd go to Cut Foot Sioux, Four mile lake, up the North Shore, just about every place that wild rice grew. They would pick rice all fall and sometimes we had a thousand pounds, even eleven hundred pounds and that was all hand finished by my mom and dad. And I still hand finish all my wild rice to this day. It seems it's no longer easy to get a deer, or what we need to eat. There is a lot less wild rice in the lakes. Some of these lakes are depleted, Big Rice Lake. I don't know what happened to that lake, but there's hardly any there if any, at all. Twin Lakes, I guess there is none at all. Even the best lake I ever knew for ricing is Nett Lake, and I don't believe the rice is as good there as it used to be."

"But there is a lot of stuff that is changing our environment. You know a lot of lakes have been ruined by pollution, air pollution, lots of other stuff. A guy said to me once, the fish in Lake Superior were going away, there are not hardly any lake trout left and this was when I worked in Duluth. One guy said the Indians are netting all the fish. My reply to him was the little bit of fish that the Indians take is not the problem with Lake Superior, it's the lamprey, all the foreign species, and the pollution is what's killing off the fish. It's the same way here in Vermilion, the Indians net fish; I'm one that nets fish. We net fish here under the 1854 Authority, but the fishing in Lake Vermilion right now is down. I don't know if it is going to come back. I don't know, but I can say that cause I've been fishing in this lake since 1972. Our family vacationed here before moving here. The fishing isn't even 25% of what it was in 1974, so that kind of tells you what is happening to our lakes. We've got some sort of red crab in here, we've got some foreign weed, and I used to fish the Fish Lake a lot near Duluth, and that's got some spinney water flea, milfoil and a lot of other things that is ruining our natural way of life."

"We used to eat all the game and fish-now it's getting more scarcer & scarcer all the time. I don't know what can be done about that you know. I tell you, you go down to any big city, Chicago, Duluth any big city, that all built their industrial plants on shore lines, and they all had a pipe going into the lake. I worked at a wood products plant in Superior, Wisconsin and that's what they had. Eventually the plant was closed and we no longer were putting no more of our processed water into Superior Bay, but for quite a few years there they did."

"It seems that every time anybody wants to build something that's what they do. I went to a meeting at Fortune Bay it had something to do with the Polymet thing. They said they were going to put like 1500 gallons of water or more into some river every hour. Well you shouldn't have to do that. There should be some other way to handle that water. I'm not a pollution expert,

but every time someone wants to do something they should not have to stick a pipe into a river or a lake, but I guess that's enough said about that."

(Marybelle) "Is there anything you would like to put in about historical sites?"

"Just last year I went with the elder's on a pontoon trip over here to the new State Park, and over there they showed us an old camp site where they recovered some old artifacts, spear heads, arrowheads, some old deer bones. And there was another spot there in Stuntz Bay where there was another ancient camp site. There are some spots like that where I believe they shouldn't disturb. I used to live in the Fond du Lac neighborhood of Duluth. Up the road there on Hwy 210 it goes up to the Jay Cooke Park. There's a spot right next to the Jay Cook Park line where there's an old Indian cemetery. I don't know who is supposed to be taking care of it, but it isn't being cared for very well. I don't know if the city is responsible or who it is, but that's one spot, and there are other spots in Nett Lake, like Big Point should be checked and preserved. When I was a kid back in the late 40's maybe 1946, there was some people that came to Big Point. I don't know where they were from, but they were archaeologists and they were finding a lot of artifacts. I don't know if anybody has ever explored that any more. But that's one spot where there are graves, campsites."

(Marybelle) "Do you remember these places changing over time?"

"Well they've put roads into some of these places like at the State park where there is a park there now. When I talked to the ranger there, the guy in charge, he said they are going to keep those spots isolated. So I guess they will take care of it, but I guess everything is subject to development wherever there were places, Indian campsites, or grave sites were replaced by roads or highways or whatever, the area now is far from being as pristine as it was if you want to look at a place like the St Louis River down at the Fond du Lac neighborhood. I have read books about Indian settlements there; way back a hundred years which was the Fond du Lac people they say was one of the most pristine places. The fish were plentiful and the water was crystal clear, but take a look at it now and that's pretty much of what's happening all around the country. All of our resources which were natural to us to survive are all depleted bad with pollution and logging. Everybody knows how many white pine there was in this state of Minnesota, but there is lots of logging going on. You know the moose, I'm sure the logging has something to do with the moose population and the deer and forest fires. It all adds up that there is nowhere near the natural resources left here for the native people like there was, even fifty years ago. The fishing is bad; the hunting is not good. Now we can't hunt moose. Everything that's taking place, like getting rid of a bunch of land or eliminate some forest, you're taking away from our food supply that's what it amounts to.

Marybelle "I know your heart is in your words, I guess that's life.

" Yes, but I hope somehow they can turn it around."

Jennie Woodenfrog

(Marybelle) "Can you tell me how you got to Twin Lakes when you riced there?"

"I think they used to haul us around in Gerald Sheehey's truck, they would haul us around, when there wasn't much rice on our lake. They would carry our boats."

(Marybelle) "Did you stay overnight?"

"Yeah, we camped on Twin Lakes for a few days with the Strongs; George Strong and his family. When Joanne Donald was a teenager she poled her grandpa around the lake, his name was Jim Boness. Her mother was Emma Bones who had two brothers, Frank & Charlie Boness. She lived with Herbert Strong. I was ricing with my mother, my brother William went along, also Billy & Mary Strong."

(Marybelle) "Did you sell your rice?"

"No, we brought ours home, a lot of people made their rice out there-just enough to eat while they were there. A different party took us when we went to Big Rice Lake. There was a rice buyer there, so we sold our rice. There was a lot of people there, Roy Boness and his wife Sadie, that's the only two times I went to outside lakes. The rest of the time I riced with my brother John on Nett Lake. My sister Mary and Billy riced in the Deer Lake area, one time-they used to go around with John Whiteman. A lot of people riced around in the Ely area. Someone mentioned Hay Lake that's around Virginia too-that's all I know, I hope I helped you."

Kenneth Boney

"My name is Kenneth Boney. I'm from the Bois Forte Reservation. I was born and raised here. Right now I'm a spiritual leader & healer here at Bois Forte."

Marybelle) "Are you familiar with medicines from the area in question?"

"There is a plant picked in July called Weekaa that is used for many things, like arthritis, smudging, for healing, like a salve. Long ago, all of the sicknesses were treated by a healer, or medicine man. When we were ricing at Twin Lakes, Frank Boness found where Weekaa was growing, he said he was going to come back, since he seen where it was growing. There was enough there to last for a couple of years."

(Marybelle) "Do you know if there were spiritual ceremonies done, during the gathering or medicine, or harvesting rice?"

"Yes, they have ceremonies first, to let the spirits know that they were going to go out down to the lake-or to get medicine."

(Marybelle) "When you harvested rice in Twin Lakes was there a lot of rice that year?

"Yes, there was quite a lot of rice on both sides and there was quite a few people there from Bois Forte."

(Marybelle) "What do you attribute to the rice not being there anymore?"

"I think it's the weather and all the other stuff like pollution even our lake is dying, and a lot of other lakes around here are dying from pollution, I attribute it to that, and there is nothing that can stop it. I'm concerned about that too, myself, you know. The old guys from long ago used to tell about this, they actually forecasted this, they knew that something was coming and that everything would be gradually poisoned, they knew about it. The water would be poisoned, they knew about it. That the water would be poisoned and that would be the end of the earth.

You know people can't live anymore if they can't have water. That's what they said long ago, they knew what was going to happen."

(Marybelle) Do you know about any particular trails?"

"There were trails all over. If a party of four got together to be gone for four or five days, they knew where they were going, whether it be North-south, east or west. They knew what they were going there for and what trail to travel on. They were guided by their spiritual dreams and were told what to look for as they went along, such as certain rocks or different things on the landscape. I remember this big old truck that had a canvas over the top, it could fit a lot of people back there, the truck belonged to Ed Foster he owned a store right off Hwy 53 he was also a rice buyer. He would drop his load of people off and make another trip to pick up more people. We would be left there for a couple days, and he would come back. He even had a processing plant to parch and thrash the rice in the back of his store. He'd hire three or four guys to work there. They knew what they were doing."

"This is the end of my story."

Marcella Drift

(Marybelle**)** Marcy was telling me that her grandpa built the first thresher for threshing wild rice ever used in Nett Lake-I responded saying, "Boy that sure saved a lot of work"

"Oh yeah, every day after ricing people would parch their rice at home then bring it to my grandpa. They would fan the rice (winnowing) (to remove the chaff) instead of taking money. He had a 83 lard bucket that he'd put into a bag and that's what we ate all winter and he's take the rice into Orr to barter at Lammis' or get hay with rice. All of us kids remember that. We were never hungry because my grandpa made sure we always had food and he'd even give some of the old people food to help them out. Grandpa had horses, two of them, he would cut wood and he told people to cut their wood and he would have it home for them. So he helped people. He was so generous, every Thanksgiving he'd put two long tables together and had all the old people come to eat. They had turkey, duck, deer meat, a lot of food to eat. Grandpa told us to 'never be lazy.' I asked him why our uncle was so poor, he said, because he is lazy. Grandpa even made a plow that the horses pulled, he'd plow the driveway, and he even filled barrels of water at the pump, so we didn't have to carry all the water such a long way. (Sigh) I retired not too long ago, but sometimes I wish I was still working because sometimes I don't have anything to do. I go for long walks. I walk downtown and if I stop for some groceries, I call dial-a ride."

(Marybelle) "Can you tell how you came to work for Minntac?"

I'm thankful for being hired. It all started when my cousin Benny said, Indian, you are always working. Why don't you go and put in an application where I work for the Minntac mining company. You would make more money, so I did. I later got a message that I was to attend some classes and later I was hired. I had a car, but after a while I worked with a lot of old guys that worked for US Steel in Duluth, but they had been laid off when they closed down in Duluth, so we all rode together in a van. I was the only lady in the van, but all the guys were so good and when I came up to Minntac all the people were good. I guess because I was a good worker or something. One electrician said yeah, everybody says how good you work. I said I had

a good teacher, my grandpa always told us, you gotta work, if you don't work you'll never have anything. Then I found out that was true, so I took care of my kids all by myself."

"When I first started working, I started downstairs, hosing all the pellets into a conveyor belt where they were carried to the trains and loaded up. After I was done cleaning there, I was sent upstairs, and I would push the pellets down to the floor where I was before. In time, I was sent to the tap floor where all the balls were crushed and put into drums that went round and round all the stuff fell out and went down to the balling floor where the pellets were made. I worked there awhile. Then I went to the back where they cooked the pellets. After that I'd been to each floor, I went back to the balling floor. I was making the chemicals and stuff to make the pellets, that's where I stayed. I liked it there the best. One time they asked me to be labor foreman, I said no I don't want to 'cause I know what guys are lazy or who is not. They might get to hate me, if I told them what to do, stayed on the same floor all those years. I finally said, I'm going to retire as soon as I get old enough to because I've worked all my life, my kids are all grown up now I can just take it easy for a while. Now I'm kind of tired of being home. I'd like to take care of the yard, but the landlady does all that. I tell my kids to be thankful for the mines- they supported us through those hard years. Miigwech"

Delano Gonier

"I am seventy three years old, and I was born and raised on the Nett Lake reservation and I would like to speak a little about the mining companies. Mining the land on the iron Range in particular, talking about Big Rice Lake that is producing very little wild rice whereas fifteen, twenty years ago I believe that there was a lot of wild rice being produced on Big Rice Lake. Now there isn't much, if any, rice out there. A few sparse stands, I believe this is all due to the mining going on, on the Iron Range because of the seepage going into the water system and chemicals are being mined also and they're being washed also into the lakes around here on the Iron Range. No, on the Bois Forte Reservation there doesn't seem to be as much rice either and the size of the rice is much smaller. And I believe also, that somehow something is getting into that lake, maybe run off from farms, and possibly from the mines reaching up that far because, all water runs north from the Laurentian Divide so there may be some chemicals also. And Little Rice Lake also, is not producer of rice anymore, as are lots of lakes on the Iron Range from Babbitt to the Hibbing area, Nashwauk. So I think something has to be done. I don't think these mining companies United Taconite, Reserve Mining and those companies should have free access to mining. As I say, I've been wild ricing for a long, long time when the lakes were pure – so I think the mining has a lot to do with what is happening to the wild rice. I thank you."

Phyllis Boshey

"I'm Phyllis Boshey, living at Lake Vermilion reservation and I'm originally from Nett Lake. My Dad was Albert Strong and my Mother, Mary Boness. They divorced, and I grew up with my grandmother and grandfather, aunties and uncles. I went to school in Nett Lake from kindergarten, eventually on to Orr High School. I went to work at Minntac for six and a half years, they shut down for a while. They called me in to do a physical exam so I thought I was

going to go back to work, but they never called me, so I called them. They said I was number 6 to be called back but instead of having 4,400 people they had 2,200 people so that's why I didn't make it, but I enjoyed working up there. I worked nine months inside the building and where it was dirty in there, every day I would clean it up and the next day come back, it would be dirty again, because the night crew didn't do anything, they didn't clean up, so we had to do their work on the day shift. But after nine months I was able to bid on different jobs. Anyway I was surprised to get the job I bid on, it was unloading rail cars and loading the pellets that were going out. So I did unload coal and unloaded bitrate that was used to make pellets. So I worked three different places and really enjoyed going outside. I smoked, and needed to go to my car to smoke, 'cause they wouldn't dare to have us smoke less than 20 feet from the building. So I'd go up to my car which was about 50 feet from the building. I'd start up my car, smoke there, and eat my lunch. So I finally got the job I wanted to be outside a little bit. I really enjoyed working there. They were saying the men wouldn't like us women working there, 'cause they already had some there, and hiring more women was against what they wanted, that the women would take over the taconite plant up there. We didn't do that, but, there was a lot of us women up there. I was there six and a half years. Then the plant shut down. There was four thousand four hundred working then at the time of the shut-down. When there was a call back there was only two thousand two hundred called back. I was number six from being called back to work. I was hoping I could retire from there, but my cousin Marcy got to retire from there. She was hired two to three years before I was so she had seniority. But I was able to draw up until five years ago. My money ran out from Minntac so I felt like I was living quite high for a while until money ran out. Now I just buy what I absolutely need."

"But anyway my husband Bob got two checks, so he was able to buy a new truck every two years. I was happy to get one of his trucks when he was done with it. I didn't have to pay for it (laugh). I was too cheap. I'm paying for his truck now 'cause Bob died just recently. I guess he forgot to make sure it was paid for through his insurance if something happened. But living away from the city, a person needs a reliable car."

"I riced with my mom and stepdad over in Twin Lakes and my uncle Calvin (Guam). We went everywhere with my mom and stepdad. There wasn't much rice there. If there was more than four canoes in there-we stayed only a couple hours, but the rice from there was real good and tasty. We riced in Big Rice Lake whenever there was rice there. I remember I was working at Minntac when I went to go ricing, they said where are you going? I said Big Rice Lake, oh maybe we'll try, we'll see you out there. I said yeah I'll be out there with my kids my partner was Rosemary (Glig's) wife. We had four canoes. Sure enough, them guys came pulling in to shore, two six packs, no rice in their canoes. I told them to look at the kid's rice. He asked her how old she was, she said twelve. He said twelve years old and you've got that much, I guess were not good pickers."

"I told them at work I was teaching my children to harvest wild rice, cause that was that age when I learned. That same year after we sold the rice, my dad made me help to buy school clothes and Sarah was just starting school that year, so grandma and I went shopping, we bought

winter boots-snow pants and a jacket. I felt so rich I even bought another jacket. My grandmother said, you give me sixty dollars and I will give you ten dollars every month-don't ask me for any more, make it last. So she was my banker. I got ten dollars on the first of every month."

(Marybelle) "Do you remember these places we've talked about, how have they changed over time?"

"Yes, my uncles, I can't remember what year it was-we were looking for rice, so we went to Twin Lakes. There was about four other boats in there, and we cleaned out that patch in two hours. We used to get three or four sacks, but not this time. So that was the last time we went there. My two uncles, Benny and Calvin and I riced with my brother Minge. Gerald Chicog and my ma and Jerry went out looking for rice; they didn't want to go to Twin Lakes. We had to walk from the road. We couldn't get a truck in there because of big ditches, big holes in the road I went as far as we could."

(Marybelle) "Did your grandparents live in the days that they would travel to harvest for winter use?)"

We picked every kind of berry that was edible. Then my grandma would make jam. The only berry we could eat out there was June berries because of the big seeds in them, but she never let us eat pin cherries, choke cherries and cranberries. We used to pick cranberries in Nett Lake too I believe, Windigo's landing, high bush cranberries. Then of course blueberries so we could pretty much eat fruit all winter long. With all the kids picking, we had a lot."

(Marybelle) "Was there ceremonies done at harvest time?"

"Yeah, we had two sides, my grandpa, my mother's dad lived on one side and we lived on the other side. Then there was a big waginagon in the front and then we had old man Pego who lived over here, his name was Jim Boness. Then my grandma's house was here, and we had a round one there too, where they did ceremonies."

(Marybelle) "Do they do the ceremonies, giving thanks for the rice crop, the berries and all that was provided?"

"Yeah, anyway the ceremonies were, well almost like a church you know, that they wanted you to live good, they were the same way, especially if you went through Midewewin. The elder's would all talk to you when you sat in front of them you can't do this, you can't do that, you know, they would tell you what you could do. I went through once. Bob went through two times, cause both of his grandpa's were medicine men. I can't think of the first name of his other grandpa, Pete was the last name. They moved here from Burnside. The reason they moved here was Joe Boshey's wife died, so all the kids left there and moved here. Bob's grandpa Joe Boshey would go there to stay for the summer and guide over there. They had an island, but they never went back, once in a while they would go there to have ceremonies. After that old lady died, they just couldn't stay there anymore. So there is quite a few graves on that island, but they all made their homes here.

(Marybelle) "What are your thoughts about the mining that's going to be done, concerning our natural resources?"

"Well, they destroy a lot of land, when I worked up there I used to load the train, and I'd look around me, at what was being done" (The tape ran out).

Jim & Becky Gawboy

"I'm Jim Gawboy, I was born 78 years ago, Lake Vermilion Reservation. Last time I talked about the Twin Lakes area. I guess sometimes it's called Big Sandy and Little Sandy. When I was a kid we picked wild rice there, and had wild rice camps north of Minntac. I don't know too much of south of Minntac but as far as rice camps go, when a person died, wherever they were, they had to bury that person right there before the time of Indian reservations. I heard the old people talk of graves being in that area, but I was too young to remember or if they even knew where the graves were. But, the mining companies tend to do what they want. At one time I spoke with a guy, John Make, was his name. He said he had an aunt and sister buried in Britt. He said if you've got a business in Virginia you just don't talk about what the mining companies do, but he did tell me about it. As far as the expansion goes it won't affect the Indians up here because all the water is flowing south. The first Indians affected will be Fond du Lac reservation, the Saint Louis River goes through the Fond du Lac reservation, but except for the fact that was an important trade route all the way up the St. Louis River into the Embarrass River, right into the Pike River-right into Lake Vermilion."

(Becky) "I'm Becky Gawboy. I was born and raised here. I'm 62. I have watched the mining companies swallow the land and poison the water. Even as I was a small child riding into Virginia, looking at the tailings ponds, we talked about there not being any birds or animals around there. My father talked about the land being poisoned and this was only what we could see from the road. And they could do what they wanted because they were rich. Now, I'm pretty sure that the US Steel or USX will say they're going to do an archeological survey of this area. They did one on the new State Park and they told the State Park people that there was no findings. So the elder's committee said you do more. This was after it became a State Park and there was thousands and thousands of artifacts there, and they discovered that Indian people had been living there for ten thousand years and that was the quarry for "chert" that had been found by archeologists for the last hundred years all over the country had been traded. That was a very rich resource and Minntac would have blasted a hole in it if it hadn't become a state park. They don't have any conscience about this land, they have no love for the land, they don't honor it, people that get rich from that, they don't live here, they live somewhere else. They will continue to do whatever they can do for more profit from this land. And they are not interested in what Indian people, or local people, or any people have to say about how they are poisoning the water and poisoning the land. Because their only interest is profit and that's why it is so important to speak truth to power about this and to explain that these are sacred grounds, just like all the lands here are sacred land. These are gifts from the Creator and we have no right to poison it. We have no right to stand by and watch big corporations do the same thing. Where they are talking about expanding, they are not going to tell anybody about what the impact will be, because they don't have to. That's how they feel. They don't have to because they are rich. And that has often been true over the years, but things are changing, people are listening, people are more concerned,

people are afraid because they know about the poisons. The people that are the fat takers the ones that take the best cut of everything, that take from the top of the pile from everything, that they are the ones that will take the earth away from our children's future. We need to stop and listen and take a look at this. The line has to be drawn now and it's very important for all of us to not be afraid of their lies. Because they will tell us that without them that we can't survive, but we know that is not true, because this land has all that we need as long as we take care of it. But as long as we continue to let it be poisoned, soon it won't be a fit place for anyone to live, just as all the fish, the birds, the animals, they leave when the mine companies come because it's poisoned, that's what we will have to do too"

(Jim) "The mining companies say they are there to provide jobs-they are not. They are there to make money! And if they can make money with fewer and fewer jobs, which is the history of the past, they will hire fewer and fewer people. So they will get by with as few people as they can."

(Becky) "And they bought off the unions, because they are saying, oh we need these people, we need them. But we don't need them; this land can support all of us in a good way, without them."

(Jim) When they used that river all the way to Lake Superior for transportation you could find good places to camp. If you were taking a canoe trip down there, you would find good places where the Indians would camp, just because it's a good place to camp. Just like the place at the state park, they wanted to build condos there when they found they couldn't because of there being too much ledge rock there. They chose that site for the condominiums because it was the most beautiful site, it was breezy, good access, and everything else. Well that is where they found all the artifacts and the chert Becky was talking about. That's the only place in the whole United States that it's found. It's a certain type of chert. They knew it was at Northern Minnesota some place, but they didn't know just where. They knew the further they got from Northern Minnesota, the less and less there was. In Wyoming at a village site, there was artifacts found there, or in Nebraska it was the same, but the closer you got to Minnesota, the more common it became archeological digs in Minnesota. The closer you got to Lake Vermilion the more there was because they not only mined it there, but they manufactured the little arrowheads there, then they took the little arrowheads out to trade, instead of taking big chunks of rock to other tribes, of course it was the finished product and there had to be a lot of craftsmen there to make these trade pieces that they traded out all over the whole United States."

(Becky) "What has happened is that the lies that the mining company have become the truth and the truth is buried. The lies are that this was all empty land, waiting for exploitation but, we all know that wasn't true. There was Indian people living all over Lake Vermilion, all along the river, in all of the good places, there was Indian people there. The fact that all those people were gone when the settlers came was simply the testament of the loss of life because of disease, the disease the French traders brought. Probably to 70-75 percent of the population was killed off because of those diseases, and there was few people left and many of those communities were gone. But it doesn't deny the fact that they existed and the history is still there

in the land and the resources that they used are still there for Indian people to use. The mining company comes in and claims the land for their own. It's land that was reserved by treaty for the Indian people to use, for hunting and gathering and things that they need to sustain themselves and it's a big lie that they don't have to follow those treaties. They are bound by those treaties, because they are not independent of the US Government, even though they try to be, they are part of this country and they have to follow those laws too."

(Marybelle) "Jim, do you know of any areas that were used for hunting, fishing and gathering or other activities in the time of going with your parents?"

(Jim) "I don't remember going south, although they did go south to Old Mesabi location to make maple sugar, that would be just south of where the Erie Mining company is now. They used to take a train there in the later days. I think earlier they probably walked there from Pike River. There is still evidence that they made maple sugar there, they also went to Big Rice Lake to make maple sugar our family only went to the Mesabi location once maple season came up, the people went to the traditional place where they have always went. Which is a little different then harvesting wild rice, wild rice is unpredictable, some years it is there, and others not-so. There is a mixture of people at the wild rice camp. Families go where the wild rice is growing. The area south of the plant I don't have much information."

(Becky) "Most of the land was logged off very early because there was all those lumber mills in Virginia early on at the turn of the century so there wasn't a stick of wood standing anywhere around the area. All the logs were cut off, so the land was spoiled initially the water wasn't, but the land was, so only along the river were there people traveling still."

(Jim) "I remember stories about the area called the "Thunderbird Trail" where the ridge goes. Well, it's probably on the bottom of the Minntac mine now, all the way up to Grand Portage, for the Thunderbird to travel back and forth. Indians still stop there on that rock just north of Virginia to put out tobacco on that place. Whenever we stop there we still see evidence that shows other people still stop there to put tobacco and small items on that rock, called The Laurentian Divide."

(Marybelle) "The maps show Indian trails going through where the mine is now and other trails from other directions coming in to that area, would you say that area was a point of Indian activity?

(Becky) Yes, I think so, I think they recognized the sacredness of the Laurentian they recognized that was the route the Thunderbird took was there, because of the power of that spot, now they are digging holes in it on the other side."

(Jim) "When they would travel to Duluth or from here south, they would go to Fond du Lac because I have relatives there was because there was travel all the way down the St Louis River, a two day paddle to Cloquet really and that wasn't a long way to travel in those days."

(Becky) "And there was Indian communities in between there, just where the reservations are, that's not only where Indian people lived, they lived everywhere. The illusion is that Indian people only live in Nett Lake or Tower, Lake Vermilion or Fond du Lac, but the fact is this was all Indian land. They were always moving, harvesting with the changing of the seasons."

(Jim) “I remember looking at old copies or re-prints of Biwabik Times way back at the end of the 1800’s where they talked about Indians picking blueberries or going down to Embarrass to pick blueberries. Well when they went on these routes they didn’t just stick to these routes they didn’t just say we’re going to Fond du Lac. They would go upstream, maybe hunt and fish for a while, stop and visit at different family groups staying in places for harvesting. It could take weeks to reach their destinations.”

(Becky) “This was a time when people were connected. It’s connections that has been broken. All the things, the stuff that people collect around their houses now, the junk and the things they buy, are a distraction from their connection. Their connection to the mother earth is the important connection. It’s the only thing that puts us in a peaceful place. They understood their part, what humans play in the world. They were not on top of anything; they were part of it and respectful of it. Then the Europeans came and they had the value that they could take, that they could take whatever they were strong enough to get, the fat takers.”

(Jim) “They had gardens they never had permanent places to grow a garden, now when we have a garden, we think we are pretty close to the earth with our garden and our animals, but we’re getting further and further away from it, like we’re waiting to go and pack up our ATV tonight (chuckle). When we talk about the medicines that all the Indians used they say; they must have had someone that specialized in that. I’d say, well to a limited extent they did. But they knew what they had to do, so everybody knew what had to be used for certain illnesses. I can remember what size of tire my pick-up used but I don’t know, I know maybe two dozen medicine plants, and they knew hundreds, so that’s the difference and everybody knew, not just the specialists. They did that because that was their life. But it was a life they knew, this life we have now is imposed on us by the greedy ones. They did some studying and figured that they only had to work about twenty hours a week to survive, that was including women with babies, so it wasn’t nearly as hectic, life as it is now. So they had time to make beautiful things and sing beautiful songs and tell stories and those are the things that are missing now and the reason why we can’t stay connected to all of the relatives now.”

Ronald King

“My name is Ronald King. My father and mother were LaVern King and Gwendolyn King. I basically grew up in Virginia, Minnesota. When I was a small child, 2 or 3 years old, we lived in Nett Lake. I remember when I was young my mom and dad ricing all the time on Nett Lake, about the state lakes, maybe Big Rice lake, it was so long ago. Personally, I riced on Pike River in Biwabik, Big Rice Lake. Up in Ely there’s a lake a little ways out of town on the north side. I riced there. I did a lot of hunting by the Laurentian Divide by Big Rice Lake, very beautiful country, but they’ve logged a lot of that out right now. My friend rented a cabin near Big Rice Lake. He leased the land so we took a lot of deer out of there, and also a lot of rice. When I was about twenty, my sister and I riced there. I’m now fifty seven and no longer rice there. I don’t know if it was the way the people beat the rice stock, it was beaten so often I basically quit ricing there. I haven’t been back there for at least fifteen years. The only places I

harvest rice now is Vermilion River and Nett Lake. I have only riced these two areas for the past ten years. There's a site at the Laurentian Divide where there's a rock right next to the freeway. My family would go there whenever anyone went anywhere whether it be a road trip or by plane, train or whatever. I have had people that I loved and honored, a woman who I loved very dearly was my second wife. She was making a plane trip out of the country, she was going to Jamaica and was deathly fearful of flying. So I went to the rock put out tobacco and prayed that she would have a safe trip and she did. I remembered that from my childhood. Also in my childhood, every ricing time we'd go up to Nett Lake from Minneapolis my parents had a little trailer house behind Bronco Villebrun's house. We lived there a couple weeks, ricing and parching the rice. I remember the roads were not paved at that time, I remember the people that would stop just to visit. They would tell stories. Some had musical instruments, sing music, just enjoy the heck out of themselves. Now they don't do that anymore, just wave. I've been up into the boundary waters and I heard stories about (I can't remember what lake it was about). They had a trail that went up to a rock. I think the hill was called "brave hill" in order for a young man to become a brave they needed to run up this trail to the top of the hill. It was a very long hill and steep on a rock. I was young, I tried to run up that hill didn't make it more than half way. I tried several times and never made it to the top. So this was one of the stories how a young man made it to the top of the hill, to earn his manhood. I guess I'm not a brave, I never made it (chuckle). Just things and stories like that are what made life interesting. I think the story came from Roger and Donnie King, they were both a little bit older that I am. We were all up there together and the hieroglyphics I seen up there on the rocks and they used to tell me about the route the Indian people would take coming in, how they got in there and that was one of the places they would have to stop. This was years ago, those people are no longer around. I have just moved up here, about two and a half years ago, to Indian Point and I do a lot of visiting with just the locals around here. It reminds me of when my father lived here on Indian Point, everybody would gather on the road with their morning coffee, or whatever, and just talk and visit. I laugh because my two sisters who have their homes right beside me, they tell me I have turned into my dad, because it's what he used to do. People used to come to him for advice on their vehicles now people come and ask the same of me for help and it's a real good feeling, it really is. To look back what he used to do and what I'm doing. I'm filling his shoes, basically. There are so many things, when I was young we would drive up here from Minneapolis every Fourth of July. There wasn't many houses on Indian Point, just a few and there would be one huge gathering over at the beach area. Uncle Bronc would bring his boat and we could water ski and go swimming. There was a hundred people there easy, these were not all family, but people from Nett Lake too, all mingling together and once again there was beer, guitars and music. But those are the kind of days I miss. I have family gatherings with my own family now; sons, grandson, sisters, nieces and nephews. The only stories we can tell is stories we heard when we were children about my parents. They are lovely stories, but we need to carry on some traditional value and by telling these stories to our children and grandchildren. They ask me questions now, like what was grandpa and grandma like? What did you do when you were a child? Things have changed a lot

what we used to do, what we do now it seems a lot different. It's the same kinda, but it seems different to me, maybe cause those elderly people that were there are just not there anymore. I don't know it just seems so different to me. And I'm just trying to carry on a little bit of what I know and unfortunately I was never raised on the reservation. I lived in the white world where I got a lot of grief from children in high school, since the schooling programs I went through I had a lot of fights just being Indian and being called that. There was a lot of problems as I was growing up with it. My children, my sons, went through a little bit of that, but as they got older it got better, much easier to deal with. They had more programs that were covered in the school systems. They had Indian programs set up for them and they were also, as I remember when they were small we were able to get help with clothing and shoes through the Indian programs. So they didn't have to dress funny because we couldn't afford good clothes. And the special Ed programs too, it was a lot easier to get into them at that time. I can't remember what it's called, but I do know the program still exists. I have a hard time thinking of things, but I do know things have changed quite a bit. When we started getting casinos built, we went through a thing of, why do we deserve things like that? But it's not of deserving it; it's something we earned and pushed to get, a better way of life and to get away from depending on the State of Minnesota and the Government programs. Although we still have that, but we are more an independent person so things have changed. I can only hope that things continue to change, that it gets better and better as life goes on, so that our children can grow up to be better people themselves."

(Marybelle) "I'd like to ask what you think of what changes do you think mining has made in our lives; the lives of the Bois Forte people in regards to the wild rice?"

I know that Donnie King and most of the men in that family worked in the mines. Roger, Donald, Danny, Dale, they were all steel workers and worked a lot in the mining companies, constructing buildings and putting up other things. I can't remember why they quit, but a lot of other people who worked for years got sick from the dust – mesothelioma or whatever they call that. I think the dust itself is hurting the wild life. I know I worked with Johnny Mattson when I was a kid of about seventeen. As a logger I ran a skidder for him, we went in to some of the mining companies to clear cut a lot of the wood and there was. I seen a lot of wildlife, deer, wolves, beaver a lot the animals were in there, because nobody could hunt there. So it created an environment for the animals so they couldn't be bothered. But they took away a lot of wetlands that were there; they dug a lot of holes all through. The pits are still there with water in them, so deep, it's taken away some of the population for the people, a lot of the land is gone; even now they are planning on re-routing Highway 53. Which is a good possibility it's gonna take over Midway between Virginia and Eveleth. The population here will have to move and it's going to destroy businesses in that area. People will bypass those places, so it's ruining the economy. I think it's just more of a greed thing. We need more money; the mining companies want to make more money. I realize they can go only so far down, but to expand and destroy the land around, taking out the woodland and creating big holes."

Ronald Geshick

"My name is Ronald Geshick. I was born in Nett Lake in February 1942. I went into the service when I just turned nineteen. There's a lot of things going on cultural wise with the Indians; pow-wows and ceremonies giving thanks for ricing, fishing and hunting. I came from a family of seven boys and three girls in which I was the youngest one, so I didn't get much training in Indian ways and language. My parents didn't teach me these ways, because they were intimidated into not doing any of those ways, but the ways were still going on, a lot of it was. I just wish I could have learned these things, the language I understand the language, I just don't talk it very much, or very well. Growing up we had hunting and fishing; fishing on Nett Lake, hunting on Nett Lake because that's the only world we knew was Nett Lake and it was a happy life that I had doing all these things as a young boy. Then when I went into the service I got to know the world a little bit better, a better understanding of it, but I still have my roots in Nett Lake and will always be there. Although I lived all over Minnesota, California, Chicago, I had, or I have this problem with alcohol, although I haven't drank for over twenty years. So that kind of kept me down as far as learning about things, but right now I feel pretty good about myself that I was able to quit drinking and look at life more spiritual. My spiritual life now is pretty good, it's growing. I think I've had it all along, but never used it until I sobered up again and it has helped me a lot."

(Marybelle) "Could you tell me what you experienced as a youngster going to harvest wild rice on outside lakes?"

"When I was young, a teenager, we used to go out quite a ways. There's a place called Twin Lake we went to and a place called Dora Lake it's over by Leech Lake and we riced on Vermilion River and Big Rice Lake. There was a lot of people at these lakes we rode on a big truck filled with people. I believe it was Ed Foster or Matt Holmes."

(Marybelle) "Did you camp there?"

"No, we came back the same day, but there was some people that would stay for days or weeks, ricing or picking blueberries."

(Marybelle) "Did you know, or hear of the Laurentian Divide being a spiritual place to the Indians, then and now?"

"They had full ceremonies up on that ridge many years ago. I think they knew that it was a dividing line, so that made it a sacred place where they would have ceremonies there at certain times of the year. I'm sure as I think more on this, I'll probably think of a lot more things. There used to be rice on Sand Lake here too! As I look at this map of the Minntac mine, I remember a friend of mine told me there was a little lake called Knuckey Lake and it was plumb full of rice. That was about four years ago. Moose Lake had rice on it too."

Marybelle Isham

"My recollection of harvesting wild rice on state lakes, outside of our reservation brings memories of my mom and dad, my husband, who have gone before me. Our preparation of packing lunches, making sure we had sunglasses which was very important for the protection of the eyes, because once the rice kernel hits the eyes, the whole kernel may stay in the eye, or just

the tail part which we call a “beard” which has ridges which are sharp and helps to move the beard in deeper, almost like it crawls, much like the porcupine quill. Another necessity is to wear good gloves, as the tools of harvest are rough wood, knocking sticks, used to flail the rice off of the rice stock into the boat, the push pole used in the back of the canoe to propel the canoe and steer or manipulate the canoe through the rice, and of course the paddles. Our destination was decided by rumors of amounts of wild rice on different lakes, or news reports, sometimes someone was sent ahead to check out the lakes, lakes that I remember, Mud Lake, Big Rice Lake, Twin Lakes, Moose Lake, Vermilion River. Dad was chosen to harvest a couple times on East Lake near McGregor MN. That’s how they handled that lake, almost like a lottery. I am a member of the Conservation Committee on our reservation; we observe the wild rice closely up to harvest time. Worms are a problem, we hope for the black birds to come back to help with the problem, the worms eat a lot of rice-we have noticed the rice kernel is somewhat smaller. I hope the great-great grandchildren will not be deprived of this wonderful cultural seed that is a part of who we are as Native Americans. Miigwech”

Results

Four of the 12 people interviewed during the course of the Minntac Extension project, Jim Gawboy, Ronald King, Bernard O’Leary and Sandy Walter, were consulted for the Minntac Progression project in 2013. As documented in the earlier project, the latest interviews confirm that through the early 1980’s, vestiges of the ancient Ojibwe settlement and subsistence pattern were pursued to the extent possible (Latady and Isham 2013). These interviews once again confirm that traces of the ancient lifeways remain imbedded in the Ojibwe worldview as respondents speak of ricing on the Vermilion River and when possible, State lakes, such as Twin Lakes a.k.a. Sandy and Little Sandy Lakes, in addition to Nett Lake.

Not surprisingly, interviewees again indicated that the area around the Minntac Mine had been in general use up to 30-40 years ago when resources became unavailable ostensibly due to the effects of mining. In the case of towns like Parkville people were forced to move because of the encroachment of the mine.

Subsistence activities such as ricing, maple sugaring or berry picking were noted by almost all of the interviewees. Those who did not speak of one or more of these actions alluded to them. Ricing was noted the most often followed by sugaring and berry picking. People riced as families or with family members, sometimes camping with other families and at other times making day trips to the lake(s). Often ricers were transported to the lakes, including Twin Lakes, by rice buyers; individuals who purchased rice from the harvesters and had a vested interest in making certain that transportation to and from rice lakes was available.

Phyllis Boshey spoke eloquently about berry picking stating: “We picked every kind of berry that was edible. Then my grandma would make jam. The only berry we could eat out there was June berries because of the big seeds in them, but she never let us eat pin cherries, choke cherries and cranberries. We used to pick cranberries in Nett Lake too I believe, Windigo’s landing, high bush cranberries. Then of course blueberries so we could pretty much eat fruit all

winter long. With all the kids picking, we had a lot." Berry picking was also mentioned by Jim and Becky Gawboy.

Maple sugaring was mentioned by Jim and Becky Gawboy, both locations they speak about are beyond the project boundaries, but it is noteworthy that people returned to the sugarbush where their families had sugared before. In contrast to ricing, where rice productivity is variable year to year and the harvest unpredictable which leads to a mixture of people at the rice camp and no one family returning annually to the same rice lake/river.

Other activities such as fishing and hunting were described. Deer hunting was mentioned specifically, by several interviewees as was fishing. One respondent, Bernard O'leary, laments the declining fish and game populations attributing the decline to pollution and introduced taxa. He also notes that wild game is important to his family explaining that wild game is healthier than meats purchased in a supermarket and emphasizing that usufructuary rights are important for his family's welfare.

Trails were mentioned by three Band members. Sandy Walters recalls a trail that went through where the mine is now and Ken Boney states that there were "Trails all over" and individuals or groups using the trails were guided by spiritual dreams. Jim Gawboy recalls the Thunderbird Trail, a spiritual journey along the Laurentian Divide. He also notes that trails were transportation networks and not confined to walking trails, but included, indeed often depended upon rivers, such as the St Louis. Becky Gawboy, comments that trails, in particular rivers, connected numerous native villages. Prior to the fur trade and the introduction of European diseases, native communities were ubiquitous; unlike now when native communities are confined to reservations.

Concern about the loss of usufructuary rights was expressed by the interviewees. Several noted the disappearance of rice or diminishing productivity and actual size of the rice grains. Some attributed the depletion to mining while others thought pollution, introduced taxa and climate were culprits. All expressed concern about the loss of resources and worried about the consequences if this trend is not reversed.

Another concern was historic preservation, in part due to the importance of conserving physical links to the past, but also because of the possibility that the physical remains of native people might be disturbed. Gordon Adams, Jr. and Becky and Jim Gawboy made it clear that federal laws pertaining to historic preservation should be followed by Minntac including the National Historic Preservation Act (NHPA) and the Native American Graves and Repatriation Act (NAGPRA). The Gawboys mentioned the work done at the Vermilion State Park by archaeologists as did Bernard O'Leary. It is of vital importance to these interviewees that the State acted as a responsible steward by identifying and preserving these connections to the past. They clearly feel Minntac has a similar responsibility to follow the letter and the spirit of the antiquities laws and regulations.

Spirituality was touched upon by five interviewees. Becky and Jim Gawboy acknowledged the sacred nature of the land and this theme was reiterated by Ken Boney and Ronal King. Jim Gawboy and Ronald King described a rock where tobacco and other offerings

are made at the intersection of Hwy 53 and the Laurentian Divide. This area is only a mile north of Sandy and Little Sandy Lakes. Ron Geshick, notes that ceremonies were conducted on the Laurentian Divide and also remarked that ceremonies were performed giving thanks for success in ricing, hunting and fishing at Nett Lake. Phyllis Boshey echoed Ronald's statement about ceremonies in Nett Lake.

The importance of medicinal plants to Band members was noted by Becky and Jim Gawboy and Ken Boney. The Gawboys explained that they knew the uses of perhaps only two dozen medicinal plants in the not too distant past Band members probably knew the uses of hundreds of medicinal plants and spiritual advisors knew even more. Ken Boney described and named a plant, "Weekaa," that he said grew near the Twin Lakes (Sandy and Little Sandy) which another Band member planned to harvest.

The topic of graves was mentioned by three interviewees, but in general terms. Burials are an extremely sensitive issue and specific information on grave locations would only be revealed if the informant was certain that the knowledge would not be exploited and/or lead to desecration of the graves. Gordon Adams and Becky and Jim Gawboy noted the association of graves and historic campsites used by Band members and Mr. Adams stressed that internments were not very deep. The other mention of graves was by Bernard O'Leary and he referred to areas on the Bois Forte Reservation.

Two interviewees, Phyllis Boshey and Marcella Drift, had worked for Minntac and several others noted that they knew or had family members who had worked in the mines. When queried about their experiences, Mrs. Boshey said that she had hoped to retire from Minntac, but had not been recalled after a layoff. Mrs. Drift noted some of her duties as an employee, but also noted that she was thankful that the mines helped support her family.

The interviews revealed that there are few specifics known or recalled by the interviewees within the Minntac Extension Project APE. Sandy Walter and Gordon Adams mentioned Parkville and their association with that community, but did not describe specific areas where traditional activities occurred. Sandy Walter described a trail that has since been swallowed by the Minntac Mine and that Parkville has been slowly consumed by mining activity.

Discussion

Band members with knowledge of historic traditional practices or resource use in the general area of the Minntac Extension project provided information about when, how and where usufructuary rights were practiced. The authors were fortunate that interviews conducted during Minntac Progression project identified individuals and families with ties to the area who could be interviewed a second time about activities in the Extension project. Unfortunately little is recalled about activities of Band members within the Extension APE. This deficiency in detail is a characteristic in the interviews of the eight other interviewees. Were we able to interview

elders from a generation or two prior to this one, there would have been considerably more information.

However, these interviews added considerably to what was established during the Progression project, namely that usufrutuary rights were practiced in the vicinity of the Minntac mine by Band members who lived both on and off the reservation. The four individuals, Jim Gawboy, Ronald King, Bernard O'Leary and Sandy Walter who were interviewed for both projects expanded upon their initial statements concerning the practice of usufructuary rights in to include their concerns about the effects of mine expansion and the loss of traditional resources.

Spiritual activities were another topic covered by interviewees. Band members identified medicinal plant gathering, offering tobacco and other ceremonies. Three interviewees, Jim Gawboy, Ronald Geshick and Ronald King touched upon the sacred nature of the Laurentian Divide; speaking of ceremonies and leaving tobacco along side of Hwy 53 where it crosses the Divide. Becky Gawboy noted that the land itself is sacred and is being harshly treated today. The references to graves did not include specific locations, but their proximity to settlements, eve short term camps was noted.

The Twin Lakes (Sandy and Little Sandy Lakes) came up in a number of interviews. Descriptions of ricing, transportation to and from the lakes and even if the rice was retained or sold and whether pickers spent the day or camped further corroborates the historic importance of these lakes to the Bois Forte Band (Latady and Isham 2013:14-16). An inventory of the lakeshores would probably reveal the location of camps used historically and in antiquity.

As noted in previous reports (Latady and Isham 2011, 2012, 2013) the importance of wild rice to the Bois Forte Band and indeed the Ojibwe as a whole cannot be overstated. Indeed, Latady and Isham (2013) affirm that "Manoomin (wild rice) is not only an important food, but also the center of Ojibwe life as it is the reason for the westward migration, which for Bois Forte culminated in their arrival in northeastern Minnesota. Manoomin appeared in the vision received by an elder on the east coast that initiated the Anishinabe migration to find the food that grows on water." The drastic reduction of wild rice in areas where it was once abundant is a continual concern to all Ojibwe and in this area of particular distress to Bois Forte Band members.

Another topic noted by interviewees is transportation, historically via foot trails and waterways, and in modern times through the use of motor vehicles along roads. Trails were used to access locations of different resources, such as berries, rice, maple groves hunting and fishing areas as well as associated camps. According to Kenneth Boney, individuals also were guided in their use trails by spiritual dreams, a statement that is similar to one uttered by Lester Drift in the Minntac Progression project report (Latady and Isham 2013:9-10) in which he notes ceremonies were also performed in conjunction with subsistence activities or camping. Traditional travel routes were abandoned once other forms of transportation became available. In the last 60 years Band members often travelled to ricing areas by vehicles, but once there used traditional harvest methods to pick rice. By the time many of the elders alive today were born, traditional travel

corridors and routes were rarely used and probably accounts for the lack of detail on the locations of trails.

The loss of traditional life ways within the 1854 Ceded Territory is an ongoing concern and is expressed in many of the interviews. The decline in wild rice, but also game animals and fish was attributed to pollution, climate changes and invasive species. One interviewee noted that the mines used a lot of land implying these actions impacted Band members ability to pursue their usufructuary rights within the ceded territory. Concern about mine impacts to traditional ways was also voiced by three interviewees who indicated Minntac should to adhere to federal historic preservation laws.

The lack of information about traditional activities within the Minntac Extension APE is a little surprising given that several of the interviewees either grew up in the area or visited families who lived in towns within the project area. During discussions with the Corps of Engineers before this project was initiated, the authors thought that Band members who grew up in Parkville, a community within the APE would have accessed specific areas to rice, pick berries or other plants and possibly hunt and fish. However, few specifics were mentioned and the anticipated information on trails and access routes in addition to specific resource localities did not materialize.

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Identification of Historic Properties of Traditional Religious and Cultural Significance to The Bois Forte Band in UTAC Tailings Basin 3 Project Area of Potential Effect

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Introduction

This report presents the results of a survey to identify historic properties of spiritual and cultural significance to the Bois Forte Band within the United Taconite (UTAC) Tailings Basin 3 Project Area of Potential Effect (APE). The survey was conducted by interviewing Bois Forte elders during the autumn of 2014 and results from plans by UTAC to expand its tailings Basin near Forbes, Minnesota, located south of Eveleth in St Louis County (Figure1).

In an effort to help UTAC comply with federal regulations to identify and document historic properties of traditional religious and cultural significance to Tribes, the Bois Forte Tribal Historic Preservation Office (THPO) proposed to document places visited by Band members. The proposal grew out of consultation between the Ojibwe Bands and the US Army Corps of Engineers. The survey was designed to document and evaluate historic properties of significance to the Band within the APE located near Forbes in St Louis County, Minnesota. These properties include, but are not limited to, off-reservation treaty resources within the 1854 Ceded Territory, such as maple sugaring areas, wild rice waters, sites with spiritual significance, trails, village sites, fishing areas and other places where usufructuary rights are practiced.

Work began after the agreement created by the Bois Forte THPO was approved by the Reservation Tribal Council and UTAC in early September, 2014. The survey was conducted through interviews of Bois Forte elders in the latter part of September, October and November 2014.

Project Setting

The project area is located near Forbes, Minnesota, south and east of the St Louis River in St Louis County. The first US Government survey of the area in which the United Taconite (UTAC) tailings basin is located occurred in 1875 by William Kindred. He described the Township as having uplands well suited to cultivation. Timber included pine, birch, ash, elm, aspen and tamarack. Kindred's notes go on to state that the lowlands are a "swamp," principally open with a few small trees 2-3 inches in diameter. Furthermore, the St Louis River was 8-10 feet deep with a rapid current and that the river, its branches and the lakes contained good clear water.

Wildlife typically found in this area includes black bear, white tail deer, ruffed grouse, small mammals and migratory birds including ducks and geese. Water bodies including Murphy Lake, the St Louis River and its tributaries contain a variety of fish including bluegill, small and largemouth bass, crappie and northern and walleye pike. Many, if not all of these taxa, are economically significant to Bois Forte Band members, and in some instances have special spiritual import. Wild rice is found in Perch Lake, Round Lake, Stone Lake, East Stone Lake, Anchor Lake and Elliot Lake. Historically, wild rice occurred along the entire length of the St Louis River (Jenks 1901).

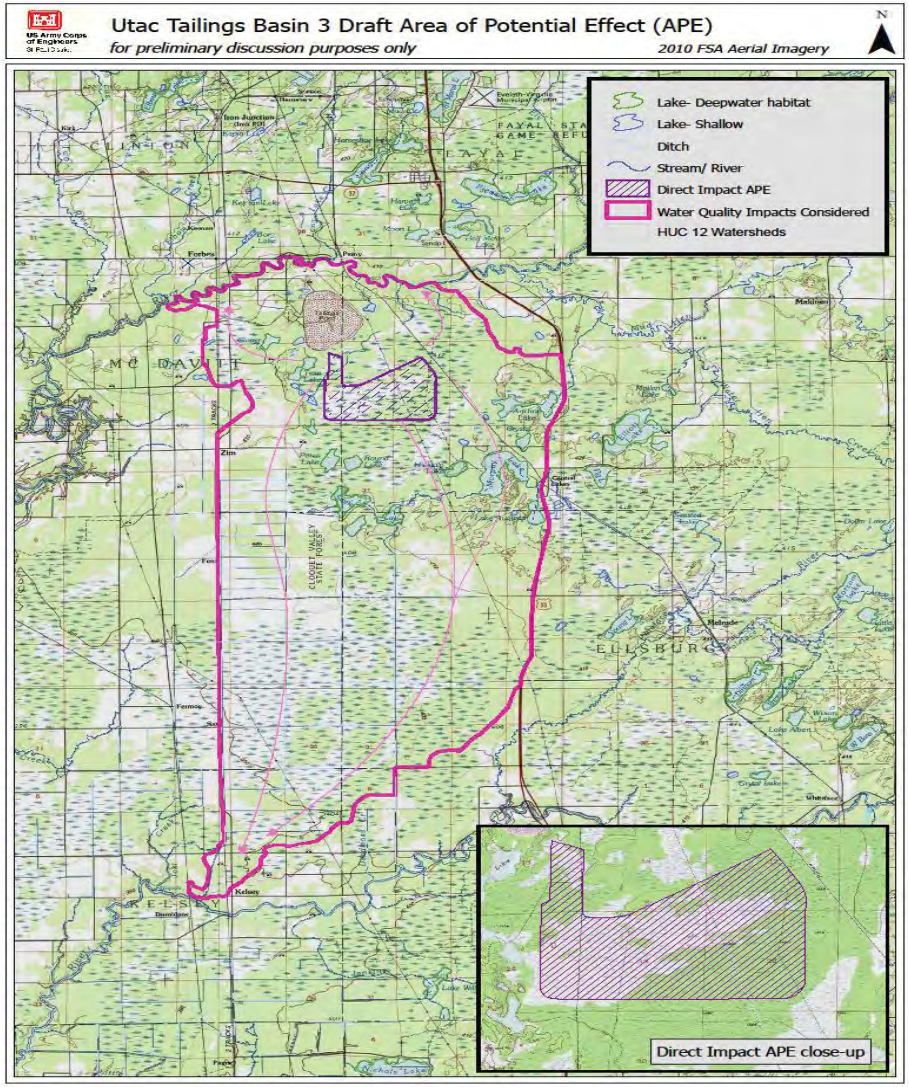

Figure 1. Location of Project area showing the Area of Potential Effect.

American Indians have resided in northeastern Minnesota for time immemorial. Archaeological investigations indicate people arrived in the vanguard of retreating glacier's more

than 10,000 years ago. The earliest inhabitants hunted large game and left behind evidence of their lives in the form of beautifully crafted spear points and other stone tools.

The most recent Bands to reside in the project area are the Anishinabe (Ojibwe or Chippewa). The ancestors of modern Anishinabe living in northeastern Minnesota originated on the east coast and migrated to the area before the United States became a nation (Warren 2009). The journey to Minnesota began when the Anishinabe followed the vision, received by an elder in a dream, warning him to leave the homeland on the east coast (probably at or near the mouth of the St Laurence River) and journey west to find “the food that grows on water” or manoomin (wild rice). The first European reference to the Anishinabe in the area appears in the journal of a French Explorer, Pierre de la Verendrye, in which he mentions an encampment of Saultier (French term for Ojibwe encountered at Sault St. Marie) on the Vermilion River in 1731 (Lamppa 1996, Richner 2002).

French Fur Traders referred to the Ojibwe in Northeastern Minnesota as Bois Forte or “strong wood” a reference to the thick, almost impenetrable, forests covering much of the area where these people lived (Richner 2002). An Ojibwe village was probably established at Vermilion Lake around 1800 and by the middle of the century there were hundreds of families in the vicinity who traded almost exclusively with the British Hudson Bay Company (Lamppa, 1996).

Wild Rice was abundant in the shallow bays of Lake Vermilion and along the Pike River and its tributaries. The LaPointe Treaty of 1854 referred to the residents of the area as the “Bois Forte of Vermilion Lake” and granted rights to the lake in addition to yearly annuities in trade goods and provisions, but ceded more than five million acres to the United States including the project area. In 1865 gold was discovered at Vermilion and fears of confrontation between Band members and prospectors lead to the Bois Forte Treaty of 1866. This treaty terminated Band rights to Lake Vermilion and ceded another two million acres to the United States in return for annuities and a 103,000 acre reservation at Nett Lake.

Gold prospectors had left the area by 1868 because there was little of the precious metal to be found and Band members returned to once again reside at Lake Vermilion and roam the surrounding forests, streams, rivers and lakes. Band members living at Lake Vermilion held no legal title to the land, but refused to leave and move to the Nett Lake Reservation. In 1881 President Chester Arthur signed an Executive Order establishing the 1,600 acre Vermilion Lake Reservation which became a gathering place for small Bands of Ojibwe living across northern Minnesota.

After 1900, following traditional ways of life became increasingly difficult for Band members; traveling was restricted as land became privately owned. Logging reduced the forests to pitiful remnants and areas formerly used for berry picking, hunting fishing and ricing became homesteads and lake homes. Limited mobility infringed on basic subsistence practices which eventually resulted in families leaving the area and scattering to other communities. Some moved to Nett Lake while others traveled to other reservations including crossing the border into Canada. Many moved to cities and towns and a very few lived comfortably after finding wage

work (Lamppa 1996). Those who remained often followed a seasonal round in order to survive; whenever possible gathering wild rice in the fall, berry picking in the summer and sugaring in early spring on and off the reservation. In spite of these and many other challenges, today there are more than 200 people living on the Vermilion Sector and 600 at Nett Lake.

The outline presented above is sketchy, in part because existing documentation on the history of the Bois Forte Band is not well organized and exists as scattered references or the occasional footnote in publications describing the history of Minnesota. The struggle for survival and connections to one another and other communities in the face of rapid change have been overlooked in texts and ignored by the dominant culture. Here we present some of the recollections of the past though the stories told by elders in interviews. Their reflections appear below.

Methods

Obtaining information on historic properties of religious and cultural significance to Indian tribes is complex. Sharing information with outsiders on resources that comprise cultural identity is carefully considered by tribal members because history has shown the information may be misused and exploited at the expense of the individual, tribe or resource. In some instances it is taboo to discuss activities with others and offensive to ask. This methodological and sampling challenge results in the under-representation of historic properties of spiritual and cultural significance to Indian tribes in resource inventories.

Elders are highly respected individuals who are 55 years or older and the traditional repositories of knowledge. For millennia they have passed the Band's beliefs, customs and traditions to succeeding generations and continue to do so today. It is to them that we who are requesting knowledge turn to first.

Seven elders were contacted following a letter to all Bois Forte elders explaining that the Bois Forte Tribal Historic Preservation Office (THPO) wanted to speak with anyone who was willing to share knowledge or information about the project area.

During late September, October, November and early December the Bois Forte THPO conducted interviews of Bois Forte Band members willing to share their traditional knowledge. The interviews were conducted by Marybelle Isham, a Band elder and co-author of this report, who has worked on similar projects (Latady and Isham 2011, 2012, 2013). Interviews were conducted at individuals' homes and recorded when allowed. Six open-ended questions were asked during the course of the interview and contained in the letter requesting elder's participation:

1. Do you know of trails or routes that passed through the area?
2. Did you or anyone in your family use the area for collecting medicinal plants?
3. Can you tell me anything about places used for fishing, sugar bush, gathering bark, ricing or hunting?
4. What kinds of sacred areas have you heard about from the area?

- How do you remember these ceremonies taking place or changing over time?

5. What stories do you remember about the area?
6. Do you recall traditional names of lakes, streams, outcrops, hills, important views?

Additional questions were sometimes asked in order to elucidate details or clarify points made by the interviewees, such as “did you or members of your family live near the project area?”

In addition to interviews, the authors previously reviewed the archives at the Bois Forte Heritage Museum, the Gale Family Library at the Minnesota Historical Society and Minnesota Discovery Center (Latady and Isham 2013). Archival research centered on the Trygg Collection at the Heritage Museum and the Minnesota Historical Society and an assortment of legal and background papers related to William Trygg’s work as an appraiser for the Indian Claims Commission. Included are tree tallies, land sale information, abstracts from U.S. Land Surveyors’ field notes, printed reports, court exhibits and names of native and local informants.

In addition, avocational historians Todd Lindahl and Don Menuay of Two Harbors, Minnesota were consulted in October, 2014 regarding trails and other historic features in the project area. Both have spent years searching for historic features on the Iron Range and researching documents preserved in local historical societies. They have reported their findings to archaeologists from the Superior National Forest and the Minnesota Department of Natural Resources.

Interviews

Seven elders were interviewed and their recollections appear below. Marybelle Isham, a coauthor of this and earlier reports, included her thoughts.

Harold “Dayshun” Goodsky

“My name is Dayshun Goodsky. I am from Sugar Bush and my parents used to do a lot of ricing for Ed Foster, he paid them really good, he paid them by the pound and he knew what lakes had rice on them, because Steve Gheen used to fly his plane for him. And Steve Gheen could land his plane on a can, he was really a good pilot! My dad trapped for him all over this area. Twin Lakes always stands out in my mind. We used to go to them lakes back there, we had tents and we would get firewood while they were out ricing. Most of the area there, well it’s pretty hard to tell now, cause it’s all urban and them Twin Lakes are dried up completely, nothing! I guess Minntac is losing about a million gallons a day, according to a source that lives right back there and there’s about six people that have cancer back there. The road run right through those Twin Lakes and we camped right on the end of it. Iris smoked a pipe, made medicine and we all prayed the Great Spirit would take care of them. I went up there about two months ago just to see if them lakes were there--there was nothing there. Them lakes were all weeds and swamps, but I remember them. We used to go there all the time, they used to pay a good price for rice-even the kids who tried to rice, he even bought from them. But, there is on

distinct place besides Nett Lake, where we always riced, did you ever hear of doo-dash-di-dabon? It's a river, Vermilion River, that's it!"

(Marybelle) "What does the word mean?"

(Dayshun) "Means a fire train, there are old railroad ties running right into Pelican Lake. Before they flooded Pelican here you used to be able to go all over back there, it was a waterway. I did that one summer, we used to talk about the Indian people, the Lakota the Sioux. They had a place over by Littlefork River. My dad used to stay there. They used to sing in the evening for the rice and that. Oh gosh, the only lakes I can talk about is those two lakes, Twin Lakes, they used to be chock full of rice, there used to be a river in between them where you could knock rice even there without losing anything, and there was real-real good rice on them lakes. We would camp, all the kids would have to get the wood; we all had something to do. Twin Lakes always sticks in my mind because of how hard we had to work."

(Marybelle) "What can you tell me about the Laurentian Divide?"

"There was a grant given by the University of Minnesota because they wanted people to know more about the history of the Ojibway people. I don't think many of you people utilize that. We have to hire a different people to come in and speak. I went up there a few days speaking to them people, speaking about the lands and how the big bucks ran through there years ago (So as far back as you can remember they have changed a lot from what they used to be) Oh yes, I went up to Nett River the other day just to take a ride, cause I've been staying in the house so much."

Lillian (Ruby) Boshey

(Marybelle) "Ruby started her interview in our native Ojibwe, I had to tell her I'm sorry, but I couldn't understand, or wouldn't be able to write down what she was telling me."

"Hello! My name is Lillian Boshey, my clan is the lynx. My Mum was from here, Tower, Minnesota. Her name was Mary Ellen Labotte Jourdain. She was born on Jackfish Bay. My Dad is from Koochiching, First Nation, his name was Andrew Jourdain, Sr. and they had 13 children. My Dad always pretended he couldn't talk our Ojibwe language, so we would talk English then we would talk half and half 'cause my Mum didn't understand English, so we would say it half and half so the both could understand. Later we found out that my Dad was fluent, that he was just making that up, learning both languages at once. He was the one that really pushed us to school. Our cousins would be playing outside and had come up the hill and yell to us "Jordain kids, 8:00" and we'd all have to go in, even if we were seventeen years old, he'd sit at the table and watch us do our homework. Then if we said we already did it, and didn't, then we'd have two days of school work to do. He really pushed us hard and we benefitted from it. We have five social workers in my family, four teachers and two lawyers. He really pushed us. When me and my husband got married, or when I was just going with him, he had come from Lake Vermilion here cause his mama died and his Granma and Grandpa raised him here on this rez, and he used to come and visit his dad at Lac LaCroix, then that's how I met him. When we got married we moved to Lake Vermilion here. Then we used to go ricing at Big Rice Lake. That guy that owned

the land around the lake, he'd let us camp there. We'd stay there three or four days ricing, then we'd come back and parch the rice with his grandpa and grandma. But, I haven't been there for many years. It must be about twenty years ago when I went ricing. My cousin Isabelle Strong-gosh we had a tough time-we almost tipped over when we first got out. She was paddling and I was knocking, but we still made thirty dollars for that day, cause we were so busy laughing. The other Indians from Vermilion said we were like Che-mook (white) women cause we couldn't paddle or rice. When we got our kids we used to pick berries and then take them camping. Then this one time we went with Bobby and Phyllis and their girls. By the time we got on the other side of the portage it was really dark, we couldn't see and we had six kids with us. We had to shine the light for the guys so they'd know where to go, then we went to a little island, we set up camp. Mosquito's galore! The first thing they did was build a fire, so the kids could sit around the fire while we set up the tents. We'd have a little wiener roast and send them to bed. Next day we'd go fishing all day; we'd come back and cook the fish and stay one more day. On Sunday we'd get back so our husbands could go to work at Minntac. Quite a few times we did that!! Then when we got our grandkids we started to teach them how to set net, how to pick blueberries and how to put your "asaima" (tobacco) down before you do anything, like ricing at Big Rice. We put "asaima" down in the water to give thanks for what we are going to get. My great grandson, he was only four, my Dad had passed away so we took my Mum out on the lake at Lac LaCroix, cause she was feeling bad, so we went blueberry picking and my Mum said make sure your grandson puts asaima down. I said he knows, so I gave him a pinch of tobacco, he went put it under a rock, he said this is for the makwa (bear), my doodem (totem). My Mum said "shaa" (expression for surprise or disgust) he's the one eating all our berries, so we can't pick them (laugh). All my grandkids know what to do-spiritually. Two of them live in Duluth. They call me all upset about things-I just tell them-you know what to do, grandma taught you what to do-ok, yeah, put out asaima by the tree-yeah that's what you do, the spirits understand you even if you don't talk Ojibwe. That's what they still do, they are young ladies now. Now my granddaughter who is eleven--I started teaching her how to bead when she was four and first used pony beads. By the time she was five, she was beading with my beads. They were here about a month ago. Her parents told me she made seventy dollars from her bead work. She called me, than they came to visit so she took more of my beads, thread and needles. She said she was going to have her other grandma teach her how to string the loom I bought for her. She wants to do loom work now. Then to pay her back I'm going to help her bead her mukluks here, she's only seven. She made a medallion for herself with a bear on it and she makes a lot of earrings and sold them. Now she's teaching the other little girls to bead. She said they are at the place I was when I started to use real beads. I told her not to supply the beads, let the parents buy their beads, because they are too expensive. But I really enjoy teaching my grandkids and the older three when they were young. I taught them to bead and make regalia. I'd tell them to come sit by me and watch what I'm doing. By the time you are fourteen, you're going to do it on your own, 'cause I'm not going to touch that sewing machine, or the needle. You are going to do it, unless you run into a problem. I'll advise you, but I'm not doing it 'cause grandma won't be making

anything for you anymore-you'll have to do it yourself. The seven year old said "but that won't be for seven more years grandma. Now I am teaching her the language. The other grandkids, my mum told me that's okay if they understand it, they don't have to talk it. So I followed what she told me. Now I'm sorry that I did. Now they can't teach their kids how to talk, they only understand and can't verbalize it. So that's my regret, cause I listened to my mummy, cause she said at least they'll know if someone is talking about them she said. I've been living here now since I got married. Only time I was out for nineteen years. I went to the university for four years then our deal was that I would have to come back to my Rez. to practice my teaching and help them out with teaching the kids, so I did that for fifteen years. Within that fifteen years I was taking summer courses and I got to earn a three degrees in education administrative, then I was teaching kindergarten and they told me that I have to get early childhood certificate cause my license was from grade one to grade eight, so I'd have to go back to school. So I went to Bemidji for three summers and I'm still short three credits to get my degree. I'm still going to try to get the credits through the internet, to get finished. I don't know why, but I just want to. I enjoy teaching; right now I'm enjoying reading native books, comparing our spirituality to what other tribes do. It's really interesting.

My great grandma, Nora Labotte Pete, was my mum's mom. I went to boarding school for seven years, every time we came home she would take us out on the lake and teach us the language, the medicines and the names of the animals, the birds and everything, cause we'd be out there with her all summer, until we had to go back to that boarding school. Then that's how I kept my language to keep it in my heart, not to let it go, or lose it, that's all. Miigwech (Thank you)"

Jim Gawboy

"This is Jim Gawboy. I have been asked if I can remember anything about the area where they are expanding this tailings basin. I don't know. I think maybe I've told everything I have in my head already, but I may as well. I'm not familiar with that area, but I did paddle that route from Murphy Lake to Stone Lake once back in, I'd say before 1965 and it was very hard to paddle as it was overgrown with brush. These routes that were used by Indians didn't have to be very wide three foot wide and a foot deep and a canoe could go through there, the only real problem we had was alder bush growing over each side of the creek, or river in the old days that was always cut clear so it was real usable. I suppose the reason I went in there was because it was my patrol area when I was working as a game warden for the State of Minnesota. It was a creek I had never been on. About half way through we were kind of regretting that decision, but we made it through. A lot of these small creeks were used as canoe routes and kept clear of this kind of brush. I suppose they would come up St Louis River to Anchor Lake and maybe portage into Murphy or maybe through Eliot Lake, cause there's a creek coming into Elliott Lake too that's probably usable. But the area they are going to use as a proposed tailings pond and proposed plant area is an already overburdened. But the place that's a tailings basin it looks by the map that it's all muskeg swamp which of course is sphagnum that holds water and lets out a

little at a time. So if everything was paved over, everything downstream would be flooded out the next day, but muskeg swamps hold all this water and other than being useful for cranberries and it's fairly close to the Saint Louis River and it drains north and almost every direction draining out too- into Round Lake. To be completely safe it would have to be waterproofed and I don't know how you'd make that area waterproofed cause I don't know how deep those muskegs go. Around Zim it would go twenty-thirty feet to the ground. I remember 20-30 years ago when they were putting a pipe line through that Zim Swamp. Just west of this map it might be right on the edge of the river. (Edge of this map) I remember when they were working on the pipeline, they parked a caterpillar-a bulldozer, on their work site. They came back the next day, it had disappeared. The muskeg gave way. It went down into the peat, they probed and couldn't find it. It's probably still down there. Those swamps are unlike nothing else in the whole United States. The swamps in Louisiana and Florida they all have solid bottoms, sandy bottoms. (Laugh) and these swamps here have muskeg that just goes down and down, the only way to keep the pipeline down, would be to weigh them down with concrete blocks as big as a house to keep them from popping up. It's really a unique area, a unique kind of swamp. There's probably other swamps like this in other parts of the world and Canada, but they're not as deep as around here. When the glacier left I think it filled in faster here than it did other places further north because of longer seasons. An ancient glacial lake that filled in a lot faster than the ones up north, so it would make the muskeg bogs much deeper. But I paddled the St Louis River all the way down too, on several occasions. I don't know how much leakage is going in there that wasn't going in there before, I don't have too much else to say around that area. I don't know of any old. My family never lived in that area, or moved through there. I've been through there a few times. I remember people talking about paddling the St Louis River going downstream on long trips. I suppose they were going down as far as Fond du Lac because I have relatives there too. My great grandparents had relatives there the last couple generations I don't even know. But I'm sure there were other people that used that area for a lot of things. Indians use a lot of medicines. Plants grow in bogs, there's swamp tea and other medicine plants besides cranberries. Of course they used spruce wood for a lot of things, but it wouldn't be too critical for spruce wood to disappear, other than that's about all I know of that area. My wife Becky has something to say."

Becky Gawboy

"The doubling of the tailings pond and the questions asked about the historic significance to Bois Forte, all of the land in the 1854 Treaty is historic and has religious significance. Any harm that is done to the land will hurt the people of Bois Forte because it is part of them. It's not just the complications of adding this to the tailings ponds is why this tailings pond is once again being expanded, it's because in other parts of the 1854 area, more land is being mined and more taconite is being taken out and if these tailings ponds weren't a risk or a danger, there wouldn't be a need for this study. If what they were putting back was harmless it could be put back anywhere but it isn't harmless, it is poisonous and does put all the rice lakes at risk. It puts the St Louis River at risk and it puts all the well water for all the people who live around there at risk,

and the question is, who profits from this? The people around there don't profit by this, the mining company, the multi-national. They're the ones who profit. This is all sacred land-every inch of it-because that's just the nature of the land-a lot of this land is still hunted and still riced by the people of Bois Forte and it will definitely make an impact on these people and the health of the rice. In fact, we just had rice from Stone Lake the other night because our boys riced there several years ago, they got three sacks. Stone Lake is a nice rice lake-good rice! Perch and Round Lakes are too"

(Marybelle) "I would like to know if Perch and Round Lake had any rice this year?"

The tailings pond will change the acidity of the waters, is anyone going to stop this because of those rice lakes? I don't know, I don't know what the process is, or if it matters you know, if anyone is going to do anything about this? Every time they move further into that swampland and take more land, which are full of plants and full of medicines that heal the people and the land, they diminish the resources left for Bois Forte people. That's all I have to say.

Lester Drift

"All the lakes that produce rice are sacred to us, we put medicine in the lake to keep it sacred, we do ceremonies around the lake to keep it sacred, we even had powwows in some areas because it is a sacred place to us. Any lake that has rice on it is food for the Native American and we treat it with high respect because it's fed us through the winter. There is probably a lot of individual ceremonies taking place. I do a ceremony every spring, every fall. I thank the Creator for giving us wild rice. I cook up some wild rice, I mix in some blueberries and maple sugar and talk to the Creator in the native language. We do the same thing at the sugar camp and the blueberry camp. We put tobacco down and talk to the ground area to tell it to bring back the blueberries next year and do the same at the maple sugar camp. We did a sacred ceremony at every place where we took or got something from that place, to sustain us in food or whatever it was for our winter use. Sugar we could keep, blueberries we could keep, wild rice we could keep. We are thankful for this food for our use. Up here in Nett Lake we still do the ceremonies, like myself, probably at every lake, at every Indian campground, wherever the Native American lived or moved there were sacred ceremonies. So to look at it realistically, the whole northern part of Minnesota is sacred to the American Indian, especially all the lakes that have wild rice. We know that as Native Americans we do not own the earth. The earth owns us, because we are only here for a short time. The earth is old, the universe is old. In the short time we are here we get to do sacred ceremonies. We are thankful for the part of the earth that gets into our systems through the blueberries, maple syrup and wild rice and all the plants that contain Indian medicine- and it grows all across the Iron Range and we know that there are plants out there, that there is a plant out there that can heal every sickness. We know as Native Americans that sooner or later we're going to run out of these medicines. Men and women know that it is fast disappearing, because nobody wants to believe that part of our life, but we know. I've tried as hard as I could. The sun, the moon, the wind, all the parts of the universe are sacred. They were here long before men were, but they are still a part of our life because if it wasn't for them I

don't think we would be here. I'll always be thankful for that, and anything that is taken from the earth, like minerals, a kind of gold, nickel, copper and all the kinds of mining that is going to go on, something should be put back, at least a little bit of tobacco. That's what we do; giving a little something back because if we don't do that, it will be taken away from us. Or if we abuse it, it will be taken away from us. Just like most of the lakes that had wild rice on them, they allow motor boats and everything else to go in them. Now there isn't any more rice on them lakes. That's a good example of when you abuse something, Creator takes it away, can't give it to you anymore! What traditional people used to do, ceremonies, talking all the time so everyone knew what they had to do; the warriors knew what to do, the chief's knew what to do, the ladies knew what to do, the elders knew what to do-even the kids, like if they were moving from one camp to another camp, everyone had a part so that the whole community moved together. We just didn't go one at a time, we moved all together, this brought the community closer together, cause we were all helping each other and that's the way we shared the blueberries and maple sugar and wild rice. We are all in this world together, so, let's help each other. What we take, put something back, be thankful, we didn't do that because we knew that belonged to Mother Earth, that's probably why we didn't grab the iron ore and all those other metals cause they didn't belong to us, they belonged to mother Earth. So the traditional Indians long time ago, did all kinds of sacred ceremonies, finally dropped the medicine and rights to protect them, to keep them safe. There's less and less of us doing that, so the lake is getting less and less rice out there, because nobody is being thankful-nobody is doing anything to help the lake anymore. It was hard work back then and it still is hard work, but we still do the ceremonies. After it's all over I do a ceremony here in the house. Hopefully, we will be given rice again next year. We keep taking, taking and not giving anything back. What I hope to see done is maybe pick the rice once or maybe twice then let it go, don't rice anymore, let that lake fill up again; guaranteed, in four or five years that lake will fill up again, guaranteed! But if we keep take, take, take and never put anything back, guaranteed, we will lose it-Creator will take it!"

Bernard O'Leary

"My name is Bernard O'Leary, I live at the Vermilion Reservation. I was born February 20, 1932 at the Cloquet Hospital. At the time, we were living in Nett Lake. I lived there from the day I was born up until the late 50's, even though we weren't living there we still came up here every year to pick rice, to pick berries, fished, we picked princess pine. We used to harvest pine cones, everything to use in various things we did, we sold the pine cones too. I guess if you've read history books of what the people at Bois Forte did, you'd find we sold a lot of blueberries and raspberries. It was all a part of making a living. I guess that's what this program is about, to let everybody know how much Bois Forte Band depends on all our natural resources we have whether it's logging, picking berries, picking wild rice, hunting deer, or wild game of any sort and also the fishing. With the rice being our greatest resource, because it's what we use for food, it's very important to do everything that can be done to prevent the loss of wild rice being eliminated even partially should be stopped. The fact that there isn't much rice, as there used to

be before is quite alarming to people who depend on it. I remember when I was a small boy and my mom and dad would prepare to go out to harvest the rice in all these area lakes, they had a pick-up truck and they used to go camping. They had a tent and they picked wherever there was a good crop of rice and we really depended on that. We had all we wanted to eat, plus my dad and ma bought us school clothes. They bought everything we needed after they sold the rice. The rice was a way to earn money for everything we needed back then. My dad would buy half of a beef every fall with that ricing money, so it was an important time for people. So was selling the blueberries. We used to can eighty quarts of blueberries every summer and we canned at least twenty or more quarts of raspberries and we also used to pick a lot of plums. We would pick a lot of plums and pin cherries and make jelly out of that. We had chokecherry jam. We had blueberries on our pancakes in the winter time. So all these natural resources that are here are really important and I bet there are a lot of people yet today including myself, my kids and their families. We all hunt, pick wild rice, blueberries, and fish, and that's kind of a sad story when I talk about fish, because the lakes are so polluted, there's fish advisories where you should only eat so many fish a week and the invasive species thing is getting to be a big problem. When I take my boat to the lake there's someone there at the launch to check and make sure that there's no milfoil and all the different kinds of things that they check for. You know there's getting to be Zebra mussels and all kinds of different foreign species of fish in the St Louis River and that's all in the 1854 ceded territory. So it's a big loss for the Bois Forte people and not only for us, but the general population the non-native people. A lot of them depend on all of these things too. I know a lot of people who are not Native American, that go picking berries and fish so it's for anybody, but manly it's for the Bois Forte people. We for centuries have depended on the land and lakes for our food. I guess I can't stress how important it is to have all our natural resources to stay intact. It's a sad thing to see them going, there ain't nothing like it used to be. You used to be able to get a deer in a couple of hours and the fishing, it used to be that you could go out and get all the fish you wanted, even every day. No I spent three years of ice fishing here on Lake Vermilion and I put in a lot of time and there was one year where all I caught was one white fish! Never seen a walleye, never seen a perch. Talking to some of the people here at the Vermilion Sportsman club, they keep a pretty good eye on what is happening here and there is some red species of crawdad of something that is eating up the weeds and the population of the perch is really low and there's weeds in every bay that had to be gotten rid of. I guess if we were to start naming all the problems and things that are causing this, it's a pretty sad situation. Oh ok, I guess that something has to be done to slow this down, or to stop it or even reverse it and get our natural resources coming back, because there's a lot of people who depend on what we have here in Northern Minnesota-Thank you! I'd like to further comment on this map I am looking at, of what's happening at the UTAC plant. I guess I don't know exactly what is being done, but I'd like to say that eliminating any wetland is never a good idea, because you are eliminating habitat for many different plants, fish, frogs, wild rice, berries, high bush cranberries; there's a lot of stuff that wetlands have. Looking at this map, on the north side is the St Louis River and whatever is seeping out of these tailings basins that's going to end up into the St Louis River and

ultimately into Lake Superior. So, it seems that with all these mines opening up around here, we're losing a lot of timber, wetlands; whatever we need it's going to affect our wild rice crops, our hunting. It's just not a very good idea. That looks like that area might be at least three and a half miles long by probably in spots, two miles wide that's a lot of wetlands to use and being where it is, it looks like a drainage area which is, there's other rivers there. It just ain't good! Our main concern of course is the wild rice and the natural habitat that is eliminated. I just don't believe as a Bois Forte band member, I don't believe that should happen."

Ron King

"I'm Ron King. I lived and grew up in Eveleth most of my life; just recently moved up to Orr, MN three years ago. Now the area we are looking at on the map I believe it's just south of Eveleth in the Zim area between Zim and Cotton. If it was in the Zim area, I have relatives living there, so I've done some hunting and fishing there. Highway 4 goes all the way from Virginia to Duluth, I traveled that way quite a lot and they have that new Forbes mine, it's part of the Eveleth Mines. When they created that my dad used to have horses out on Perry Road, which was south of Eveleth, with a guy named Butch Geefer, I was about seven years old a lot of the houses that were there are not there anymore, they actually got rid of the highway that was there. I think it was the late 70's we did a tree plantation out in that area, we planted thousands of them and I don't know how much they've grown, if at all. I was out there again, about seven years ago. Everything is changed out there. The wetlands, you can't even see the pine forest that should have been there from the thousands of trees we planted--there is a few. There's a lot of little lakes in the area in question, I think it was in the seventies that they moved the plant from Eveleth to the Zim area (Forbes Plant). It's not right off Highway 4, its back where you don't see the pits, they are further back. I think they go back towards Highway 52 and in towards Hibbing that way. But they don't have the lakes that were in there, and they've lost a lot of wetlands. I guess I've never been into that mining company, UTAC. Like I've been over to Mt Iron in that mine and I've worked in the Hibbing Taconite plant doing construction for the Draywell Company out of Virginia. In all of these plants, we had to go in there to make footings for buildings that were being put up in Hibbing. That's a big mining company too. I guess my concern overall is the pollution they put in the air, it affects the wild life, I think the only things that's surviving right now is the wolves, the deer count is down. I used to snare rabbits over that way too, that slowed down too, either that or it was getting too close to summer. There's not too much more I know of the Forbes area, we used to watch the smoke rise out of those plants (I wonder if there still is rice on Round Lake like the map claims) And, as far as lakes with rice on them, I just can't remember wild rice growing on any of these lakes that are on the map. North of Virginia there is a river which I think I've talked about before but that one is just deteriorating there's just barely a little rice on it. But I think it's because of the chemicals they send up into the sky, they travel miles and miles on the wind actually, in the winter you can see the discoloration on top of the snow when you travel the Zim area. When I visited Donny King in that area I don't think it affected the trees, but season after season of that dust looking stuff going into the ground

would have an effect on the plant life and wild rice. On highway 16 in Cook County, actually the Cook county Line changes from Highway 16 to highway 15. I've done a lot of moose hunting around there, my sister Cheryl and I used to rice on Breda Lake in that area, we had to paddle in about two miles up a little river to get to it and that rice used to be big, beautiful kernels. It grew real thick and it was almost as good as Bois Forte used to be; big lone kernels and it was canoe full all the time. I spent many years going up and down that river, eventually the rice began to diminish. You get the reports every year from the 1854 on the lakes. Big Rice Lake, Twin Lakes, all the lakes that had rice growing, but doesn't grow anymore. The same with Breda, it's not a big lake, so you get a couple boats in there and it's picked out in a day. It's just not like it used to be. There's a river by Biwabik, it may be the Embarrass River, we used to harvest all these lakes that had wild rice and had good pickings. Now I'm down to the Vermilion River and Nett Lake, that's it! The only places I go."

Marybelle Connor Isham

"I am repeating the words of Heather Friedli Ratzloff exactly as she wrote them. 'Let's not forget my ancestors who walked, hunted, worshipped, and lived on this land before, during and after contact with white settlers.'"

"My name is Marybelle Connor Isham. I was born and raised on the Bois Forte Indian Reservation until the age of eighteen, when I married and left the reservation. We are Ojibwe people, also known as Anishinaabe, or Chippewa. The nomadic life of our people was before my time, but my heart goes out to our ancestors, who suffered such hardships of having to depend on seasonal food and whether the food for that season is abundant or not a good season or not having enough to last through the harsh winter.

"I am going to describe our reservation briefly. I left the area at quite a young age, but never missed a rice harvest season. I'm back home now! Our reservation is built on a peninsula on a lot of rock, with water and swampland surrounding it. We have a huge amount of clay in the soil, so it is necessary to buy soil suitable for planting seeds and growing a garden. My generation was the depression era. We relied greatly on what we could grow. We still rely on the seasonal food. In the spring, it's the sugar bush, which reminds me of the early maps of the area in question, and it shows a sugar bush at Murphy Lake and 1854 Treaty Authority reports Round Lake supports wild rice. There is also setting nets in the spring for fish. This is a great time and we can feast on fresh fish. Netting season as well as sugar bush season doesn't last very long. There is not a danger of depleting the resources, or using it all up. The summer season is more plentiful. The bears are out of hibernation, ducks and geese are back from migration and more fish can be stored and also mushrooms and other forest plants. Our ancestors preserved all the vegetables, fruits, and berries. The Ojibwe people realized that cattail roots made great food, eaten like potatoes. They also dug wild onions and picked wild grapes, butternuts, hazel nuts, and many types of berries. As with their harvests of each season, they offered tobacco as a sign of respect, and as a spiritual offering for the food. In the fall, the harvesting of wild rice is about the most important food for the Ojibwe people. Legend has it, the Ojibwe people were told by

prophets to travel west from their ancestral homelands on the Atlantic Coast to ‘the land where food grows on water.’ The land is the wild rice country of Minnesota, Wisconsin, Michigan, Ontario, and Manitoba.

I am reminded of another journey in which the Creator fed his people for the forty years that they remained in the wilderness on a substance called manna. The dictionary describes manna as “something of value that comes one’s way”. I find it hard to express the value we place on wild rice, both spiritually and economically. I hear from others, and have experienced it myself, the effects of a loss of a staple that you feel that you cannot be without. Wild rice and maple sugar are the most hardy for storing and keeping. These foods were probably the difference between life and death in some instances. They are called ‘super foods’ providing calories and nutrients. We have freezers now to freeze the fish, grouse, deer and moose that are hunted in the fall, but our ancestors had to dry and pack away all they could acquire for a long winter. Winter hunting for the Ojibwe people was fishing through the ice, trapping beaver and other animals for meat and pelts. A favorite of mine is the snowshoe rabbit. My mom fixed the snowshoe hare many different ways. Yum! I can still taste the soup!

The St. Louis River is on the map of the UTAC tailings basin expansion. I have an article taken from the historical Trygg files previous to year 1840. This article is written by Reverend T. M. Fullerton, describing what he sees while riding in a boat on the St. Louis River. ‘The river at it’s mouth is less than a quarter mile wide and obstructed by a sandbar holding countless snags; but on passing this a few rods, brings the boat beyond the bend into calm, deep water in any weather. At the head of the bay the traveler is in want of a pilot, as there are numerous channels. *From that point to the falls, the river is full of islands and fields of wild rice*’” (emphasis added).

“This leads to a question that I have! I have a map of the 1854 Ceded Territory. According to the map, the UTAC tailings basin is within the ceded territory. I am curious to know the procedure of procuring the land for mining when there is a treaty in place; The treaty of September 30, 1854 (ratified January 10, 1855) at La Porte, Wisconsin or Madeline Island?”

Discussion

Traditional Ecological Knowledge (TEK) is a system of understanding one's environment based on observations and experience. It is built over generations as people who depend on the environment for their food, materials, and culture gain understanding of how the variables comprising the ecology interact. The Bands have special knowledge of the 1854 ceded territory because they have lived there for hundreds of years. Local knowledge systems are based on the shared experiences, customs, values, traditions, lifestyles, social interactions, ideological orientations and spiritual beliefs specific to Native communities. This understanding evolves as new knowledge is obtained and generated (Environmental Protection Agency 2014).

The six questions asked of the elders interviewed for the UTAC traditional properties survey were designed to provide information about the project area not generally available through conventional methods advocated during an environmental review process. Our intent

was to obtain specific information on the types of activities conducted, resources gathered, hunted or obtained, how they were accessed and components of spirituality.

One of the interviewees, Dayshun Goodsky, spoke about his recollections in the vicinity of the Minntac tailings basin, located almost 20 miles north of the project area. Clearly, the area north of Mountain Iron is a place in which he is interested.

The interviews indicate that until a few decades ago, vestiges of traditional Ojibwe life ways were pursued when and where possible. Admittedly, patterns had been extensively disrupted by changes in landownership, poverty, reservation life and the lack of economic opportunity. However, interviewees confirm that the old ways remain imbedded in the Ojibwe worldview as respondents speak of ricing on rivers and when possible, State lakes, such as Perch and Round Lakes.

Ricing was described by all of the interviewees, although only two, Becky Gawboy and Ron King, specified areas close to the proposed tailings basin expansion. Curiously, Ron does not recall rice on any of the small lakes in proximity to the project area. In contrast, Becky Gawboy notes recently eating wild rice obtained by their sons at Stone Lake and that Perch and Round Lakes produce good rice.

Berry picking, in particular blueberries, was mentioned by all of the elders. Ruby Boshey noted that parents and grandparents taught the younger generation how to pick berries and included them when the family went berry picking. Bernie O'Leary spoke eloquently on the importance of berry picking to his family, stating: "We used to can eighty quarts of blueberries every summer and we canned at least twenty or more quarts of raspberries and we also used to pick a lot of plums. We would pick a lot of plums and pin cherries and make jelly out of that. We had chokecherry jam. We had blueberries on our pancakes in the winter time. So all these natural resources that are here are really important and I bet there are a lot of people yet today including myself, my kids and their families."

Hunting, in particular deer hunting, was also described. One respondent, Ron King noted that he had hunted deer as well as rabbits proximal to the project area. Another interviewee, Bernard O'Leary, laments the declining fish and game populations attributing the decline to pollution and invasive species. He also notes the importance of game and fish to his family and emphasized that the Band's usufructuary rights are important for his family's welfare.

Concern about the loss of usufructuary rights was expressed by the interviewees. Several noted the disappearance of rice or diminishing productivity and kernel size. Some attributed the depletion to pollution, others thought introduced species and climate were culprits. All expressed concern about the loss of resources and worried about the consequences should the trend continue.

Four interviewees discussed spirituality. Becky Gawboy acknowledged the sacred nature of the land and this theme was reiterated and expanded upon by Lester Drift. He notes that ceremonies were conducted at every place where Band members obtained something; giving thanks for success in ricing, hunting and fishing among other things. At Nett Lake these ceremonies still take place and he feels that every lake and Indian campground, wherever Native

Americans lived or moved, sacred ceremonies occurred. Furthermore, Lester feels strongly that the whole northern part of Minnesota is sacred especially all of the lakes with wild rice. In fact, Lester's entire interview is a call for understanding that we are all in this world together and we should help one another. When something is taken, be thankful and put something back to show appreciation. Ruby Boshey explains that one of the first things taught to children is to offer tobacco in appreciation of the things that would be provided by the Creator.

The importance of medicinal plants to Band members was noted by Lester Drift and Jim Gawboy. Mr. Gawboy noted the importance of medicinal plants found in bogs such as swamp tea. Mr. Drift explained that plants across the Iron Range can be used medicinally. He further states that a plant exits to heal every illness. Bernard O'Leary mentioned collecting princess pine with his parents, but did not mention how it was used.

Of some note, two interviewees, Ruby Boshey and Ron King, mention the importance of iron mining to their families. Ruby's husband worked for Minntac and Ron helped in construction of portions of Hibtac.

Trails, actually canoe routes were mentioned by only one person, Jim Gawboy. He described paddling a route from Murphy Lake to Stone Lake sometime before 1965, noting that it was difficult due to being overgrown with brush. He notes that canoe routes used by Indians need not be deep or wide, but did need to be kept clear of brush in order to be useable. He had made the journey as he was a Minnesota game warden and the region was within his patrol area. He had not been on that creek before and questioned his decision before he was done. He goes on to describe possible routes for access into the project area via the St Louis River. In an earlier interview (Latady and Isham 2014), Becky Gawboy, comments that trails, in particular rivers, connected numerous native villages. Prior to the fur trade and the introduction of European diseases, native communities were ubiquitous; unlike now when native communities are confined to reservations.

Maple sugaring is mentioned by Lester Drift and Marybelle Isham, although not in terms of a specific locale within or even close to the project area. Both note the significance of maple sugaring spiritually and economically.

These last two topics, trails and sugar camps, are noteworthy as the Trygg map (1966, sheet 18) depicting this area shows a sugar camp on Murphy Lake and the "Indian Trail to Stone Lake" that originates at the St. Louis River. Evidently the trail portrayed on the Trygg map is the one followed by Jim Gawboy in the early 1960's. However, the archival searches, including the U.S. Land Surveyors' field notes, did not contain any references to trails, portages or sugar camps within the township or adjoining townships. It is conceivable that these features were plotted incorrectly or information on which the depictions are based was obtained from one or more of Trygg's informants.

The interviews revealed that there are few specifics known or recalled by the interviewees within the proposed UTAC Tailings Basin Expansion project APE. Rice from Lakes within the APE was mentioned by Becky Gawboy and Ron King wondered if rice still

grew on those lakes. More than 50 years ago Jim Gawboy, canoed some of the streams between the small lakes, but has not done so since that time.

Conclusions

Band members with knowledge of historic traditional practices or resource use in the general area of the UTAC Tailings Basin 3 Project provided information about when, how and where usufructuary rights were practiced. Unfortunately little is recalled about activities of Band members within the APE, although two elders noted having been in the area and one mentioned hunting. Another elder described eating rice from lakes within the APE. Overall there is a deficiency in detail which is a characteristic of interviews conducted for other projects. Were we able to interview elders from a generation or two prior to this one, there would have been considerably more information.

However, these interviews added to our knowledge of use of the area by Band members in that usufrutuary rights were practiced in the vicinity of the UTAC Tailings Basin by Band members who lived off the reservation. Four individuals, Jim Gawboy, Becky Gawboy, Ronald King and Bernard O'Leary stated their concerns about the effects of mine expansion and the loss of traditional resources.

Spiritual activities were another topic covered by interviewees. Band members identified medicinal plant gathering, offering tobacco and other ceremonies. Three interviewees, Lester Drift and Becky Gawboy , spoke of the sacred nature of the earth and the importance of giving thanks for the gifts the land bestows.

Perch, Round and Stone Lakes were described by one interviewee as being good for ricing. Another noted traditional ways of accessing in lakes the area through canoes using even the smallest streams, provided the streams were clear of brush. Clearly in recent years ricers made day trips to the lakes, but historically people may have camped on the lakes being riced. An archaeological inventory of the lakeshores would probably reveal the location of camps used historically and in antiquity.

As noted in previous reports (Latady and Isham 2011, 2012, 2013, 2014) the importance of wild rice to the Bois Forte Band and indeed the Ojibwe as a whole cannot be overstated. Indeed, Latady and Isham (2013) affirm that "Manoomin (wild rice) is not only an important food, but also the center of Ojibwe life as it is the reason for the westward migration, which for Bois Forte culminated in their arrival in northeastern Minnesota. Manoomin appeared in the vision received by an elder on the east coast that initiated the Anishinabe migration to find the food that grows on water." The drastic reduction of wild rice in areas where it was once abundant is a continual concern to all Ojibwe and in this area of particular distress to Bois Forte Band members.

Results for questions on information about trails and travel corridors were disappointing. Historically, as noted by Jim Gawboy, travel proceeded via foot trails and waterways, and in modern times through the use of motor vehicles along roads. Trails were used to access locations

as traditional travel routes were abandoned once other forms of transportation became available. In the last 60 years Band members often travelled to ricing areas by vehicle, but once there used traditional harvest methods to pick rice. By the time many of the elders alive today were born, traditional travel corridors and routes were rarely used and may account for the lack of detail on the locations of trails.

The loss of traditional life ways within the 1854 Ceded Territory is an ongoing concern and is expressed in many of the interviews. The decline in wild rice, but also game animals and fish was attributed to pollution, climate changes and invasive species. Concern about mine impacts to traditional ways was also voiced by interviewees.

The lack of detailed information about traditional activities within the UTAC Tailings Basin 3 Project APE is a little surprising given that one of the interviewees grew up in the area. During discussions with the Corps of Engineers before this project was initiated, the authors hoped Band members might recall the sugarbush or accessing Stone Lake by the old trail from the St Louis River plotted on the Trygg maps. Unfortunately, these expectations did not materialize and the authors were unable to even find the records upon which Trygg relied for the information.

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April 13, 2015

VIA ELECTRONIC FILING
The Honorable Ann O'Reilly
Office of Administrative Hearings
PO Box 64620
St. Paul, MN 55164-0620

Re: *In the Matter of the Request by Minnesota Power for a Route Permit for the Great Northern Transmission Line*
Landowners Jason, Greg and Maynard Braaten Letter
MPUC Docket No. E015/TL-14-21
OAH Case No. 65-2500-31637

Dear Judge O'Reilly:

Please find enclosed to be included for consideration in the above-referenced Docket a letter by Landowners Jason, Greg and Maynard Braaten in support of Minnesota Power's Great Northern Transmission Line Proposed Route dated April 15, 2014. Copies of this letter will also be filed with the United States Department of Energy for consideration in its federal Presidential Permit determination in OE Docket No. PP-398. This letter and resolution has been filed with the E-Docket system and served on the attached service list.

Yours truly,

David R. Moeller
Senior Attorney
Minnesota Power

DRM:sr
Enc.

Minnesota Power is suggesting the construction of the 500 KV Great Northern Transmission Line from the Manitoba/Minnesota international border in Roseau County to the Blackberry Substation in Itasca County by June 1, 2020. Minnesota Power is partnering with Manitoba Hydro to build this line that will distribute, clean renewable hydropower from northern Manitoba to Minnesota and the upper Midwest. Minnesota Power has been working with Roseau County residents and landowners in Roseau County, for over three years to develop and improve a route for this project that delivers the least amount of impact to the area's residents and landowners.

This voluntary outreach included multiple open houses in Roseau County, in addition to the required legal notices to Roseau County and multiple public hearings on the need for the Great Northern Transmission Line. In October 2014, Minnesota Power submitted to the United States Department of Energy an amendment to its border crossing based on the consultation with landowners and stakeholders in Roseau County that the originally proposed border crossing was no longer feasible given constraints from the future expansion of the Piney-Pinecreek Border Airport and the Roseau Wildlife Management Area. With this new information, Minnesota Power and Manitoba Hydro reached an agreement on a new border crossing that would originate at te Minnesota-Manitoba border roughly 2.9 miles east of Highway 89 in Roseau County. It would proceed southwest 0.2 miles and then travel south 2.3 miles to 390th Street and turn east following Minnesota Power's proposed Blue and Orange Routes as indicated in its April 15, 2014 Route Permit and Presidential Permit applications.

During the scoping process for the environmental impact statement, additional border crossings were proposed by the Minnesota Department of Natural Resources and private landowners, and four of these additional border crossings were carried forward by the Minnesota Department of Commerce into the scope of the draft environmental impact statement. As a land owner in Roseau County. I strongly oppose the proposed route alternatives in Roseau Cunty, submitted by the Minnesota Department of Natural Resources and the United States Fish and Wildlife Service that were done without input from Roseau County officials and land owners. Including the Roseau Lake WMA Alternative, due to more impacts on private landowners and agricultural land use and interfering with a public airport. It is in the best interest of residents in Roseau County that the impacts to the agricultural land uses and human settlements be minimized, and Minnesota Power's proposed route appears to accomplish those objectives. The route alternatives submitted by the Minnesota Department of Natural Resources and the United States Fish and Wildlife Service negate over three years of good faith participation of Roseau County residents, in working collaboratively with Minnesota Power to route the Great Northern Transmission Line in a manner that attempts to provide the least impact to residents and landowners. As a land owner. I support Minnesota Powers preferred route as submitted on April 15, 2014 and Minnesota Power's proposed border crossing as submitted in October 2014 to the United States Department of Energy.

0207-1

Jason Braaten, Roseau county land owner

Greg Braaten, Roseau county land owner

Maynard Braaten, Roseau county land owner

0207-1
The alternatives that are evaluated in the EIS were provided during the scoping process and were developed to address concerns associated with the Proposed Blue and Orange Routes. For each alternative, the land use, land ownership, proximity to airports, and length of the alternatives, are discussed in the EIS. No changes are made to the EIS in response to this comment.

STATE OF MINNESOTA	)	AFFIDAVIT OF SERVICE VIA
	) ss	ELECTRONIC FILING AND
COUNTY OF ST. LOUIS	)	U.S. MAIL

Susan Romans of the City of Duluth, County of St. Louis, State of Minnesota, says that on the **13th** day of **April**, **2015**, she served Minnesota Power's Letter to the ALJ in OAH Case No. 65-2500-31637 and PUC Docket No. E015/TL-14-21 regarding **Landowners Jason, Greg and Maynard Braaten Letter** on the Minnesota Public Utilities Commission and the Energy Resources Division of the Minnesota Department of Commerce via electronic filing. The remaining parties on the attached service list were served as indicated.

_____

Susan Romans

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Burl W.	Haar	burl.haar@state.mn.us	Public Utilities Commission	Suite 350 121 7th Place East St. Paul, MN 551012147	Electronic Service	Yes	OFF_SL_14-21_Official CC Service List
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Michael	Kaluzniak	mike.kaluzniak@state.mn.us	Public Utilities Commission	Suite 350 121 Seventh Place East St. Paul, MN 55101	Electronic Service	Yes	OFF_SL_14-21_Official CC Service List
David	Moeller	dmoeller@allete.com	Minnesota Power	30 W Superior St Duluth, MN 558022093	Electronic Service	No	OFF_SL_14-21_Official CC Service List
Ann	O'Reilly	ann.oreilly@state.mn.us	Office of Administrative Hearings	PO Box 64620 St. Paul, MN 55101	Electronic Service	Yes	OFF_SL_14-21_Official CC Service List
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Bob	Patton	bob.patton@state.mn.us	MN Department of Agriculture	625 Robert St N Saint Paul, MN 55155-2538	Electronic Service	No	SPL_SL_14-21_Agency Reps 14-21

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Bruce	West	Bruce.West@state.mn.us	Department of Public Safety	Box 145 444 Cedar Street St. Paul, MN 55151	Electronic Service	No	SPL_SL_14-21_Agency Reps 14-21
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June 23, 2015

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Electricity Policy Analyst
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via email: JulieA.Smith@hq.doe.gov

William Cole Storm
Environmental Review Manager
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via email: bill.storm@state.mn.us

RE: Great Northern Transmission Line – DEIS Public Hearings
PUC Docket No. TL-14-21; DOE No. EIS-0499

Dear Ms. Smith and Mr. Storm:

I've reviewed the Notice of Availability for the GNTL DEIS, and note that there are public "meetings" planned, and not public hearings. Is this consistent with the requirements of NEPA?

What is your authority for holding public "meetings" rather than public "hearings?" Will people making public comments at meetings be offered the option of making their comment under oath? Will there be a publicly available transcript made?

Thank you for your consideration of these points.

Very truly yours,

Carol A. Overland
Attorney at Law

cc: David Moeller and Eric Swanson, Great Northern Transmission Line via eService

0208-1

0208-1
The response to your questions are provided in the letter (dated June 24, 2015) sent to you by Mr. Bill Storm and Dr. Julie Smith on June 24, 2015 (eDocket 14-21, document 20156-111735-01). The letter is also attached as the next 8 pages after this comment letter.

No changes are made to the EIS in response to this comment.

MINNESOTA DEPARTMENT OF COMMERCE

85 7TH PLACE EAST, SUITE 500
SAINT PAUL, MINNESOTA 55101-2198
MN.GOV/COMMERCE
651.539.1500 FAX: 651.539.1547
AN EQUAL OPPORTUNITY EMPLOYER

June 24, 2015

Carol Overland
1110 West Avenue
Red Wing, Minnesota 55066

RE: Great Northern Transmission Line – Draft EIS Public Hearings/Meetings
PUC Docket No. TL-14-21; DOE/EIS-0499

Dear Ms. Overland:

I writing to you in response to your letter dated June 23, 2015 (eDocket 20156-111703-01) regarding the joint federal public hearings and state informational meetings on the Great Northern Transmission Line (GNTL) Draft Environmental Impact Statement (DEIS).

Attached is a response letter from Dr. Julie Smith, NEPA Document Manager, National Electricity Delivery Division (OE-20) U.S. Department of Energy (DOE). The Department of Commerce Energy Environmental Review and Analysis (DOC EERA) staff concurs with the DOE statement, feels that the response adequately addresses your concerns, and does not have further comments.

Please feel free to contact DOC EERA staff if you require additional assistance.

Sincerely,

William Cole Storm, DOC EERA Staff

Department of Energy
Washington, DC 20585

June 24, 2015

Carol Overland
1110 West Avenue
Red Wing, Minnesota 55066

1 Stewart Street
Port Penn, Delaware 19731

RE: Great Northern Transmission Line – Draft EIS Public Hearings
PUC Docket No. TL-14-21; DOE/EIS-0499

Dear Ms. Overland:

I writing to you in response to your June 23, 2015 letter addressed to me and Bill Storm, Environmental Review Manager, Minnesota Department of Commerce – Energy Environmental Review and Analysis, regarding the joint federal public hearings and state informational meetings on the Great Northern Transmission Line (GNTL) Draft Environmental Impact Statement (DEIS). Thank you for your inquiry and I appreciate the opportunity to clarify the federal public hearing process on the GNTL DEIS for you.

First, I must ask that you disregard the response to your inquiry that was provided to you by Mr. Kaluzniak of the Minnesota PUC staff via email on June 24, 2015 at 8:14 a.m. regarding the federal review and comment process. The information Mr. Kaluzniak provided to you in that email is inaccurate and this letter not only addresses your inquiry but also to correct for the misinformation about DOE's process in the referenced email.

In response to your question regarding the notice that you received about the joint federal and state public comment period and public hearings/informational meetings, DOE is conducting federal public hearings on the subject DEIS according to both Council on Environmental Quality's and DOE's National Environmental Policy Act (NEPA) regulations at 40 CFR Part 1500 and 10 CFR Part 1021, respectively; DOE is not conducting 'meetings.' The title of this Notice is very clear with regard to its subject and that among the public comment opportunities planned are both state informational meetings and federal public hearings but that they are being held jointly in order to reduce duplication of effort and process.

As to the nature of how public comments will be provided to DOE at the joint federal public hearings and state informational meetings: DOE accepts oral comments on an DEIS during its public hearings and these comments are recorded (as were public scoping comments) by a court recorder. There is no "option," as you suggest in your inquiry, to provide comments under oath. I will be present at all eight jointly planned federal public hearings and state informational meetings, acting as the federal hearings officer, and you will be provided the opportunity to sign up to provide oral comments upon arrival at the hearing/meeting locations. The record of public comments (transcripts) of the joint federal public hearings and state public information meetings will be made publicly available following the close of the comment period.

Finally, DOE will not be participating in the MN Public Utilities Commission (PUC) Public and Evidentiary Hearings; these are hearings are solely a part of the state Route Permit process and are not held for the purposes of the federal Presidential permit decision and related NEPA process. DOE is not a party to the PUC Evidentiary Hearings process on this project.

Again, thank you for your inquiry and the opportunity to address your questions about the public comment process for the GNTL DEIS and to clear up any misinformation about the jointly planned DOE public hearings and MN DOC public information meetings on the GNTL DEIS planned for the dates, times and locations provided in the Notice of Availability that you received.

Sincerely,

Julie A Smith

Julie Ann Smith, PhD
NEPA Document Manager
National Electricity Delivery Division (OE-20)
U.S. Department of Energy

CERTIFICATE OF SERVICE

I, Sharon Ferguson, hereby certify that I have this day, served copies of the following document on the attached list of persons by electronic filing, certified mail, e-mail, or by depositing a true and correct copy thereof properly enveloped with postage paid in the United States Mail at St. Paul, Minnesota.

Minnesota Department of Commerce
Letter to Carol Overland

Docket No. E015/TL-14-21

Dated this 24th day of June 2015

/s/Sharon Ferguson

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Linda	Jensen	linda.s.jensen@ag.state.mn.us	Office of the Attorney General-DOC	1800 BRM Tower 445 Minnesota Street St. Paul, MN 551012134	Electronic Service	Yes	OFF_SL_14-21_Official CC Service List
Michael	Kaluzniak	mike.kaluzniak@state.mn.us	Public Utilities Commission	Suite 350 121 Seventh Place East St. Paul, MN 55101	Electronic Service	Yes	OFF_SL_14-21_Official CC Service List
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William	Storm	bill.storm@state.mn.us	Department of Commerce	Room 500 85 7th Place East St. Paul, MN 551012198	Electronic Service	Yes	OFF_SL_14-21_Official CC Service List
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Daniel P	Wolf	dan.wolf@state.mn.us	Public Utilities Commission	121 7th Place East Suite 350 St. Paul, MN 551012147	Electronic Service	Yes	OFF_SL_14-21_Official CC Service List

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Bob	Patton	bob.patton@state.mn.us	MN Department of Agriculture	625 Robert St N Saint Paul, MN 55155-2538	Electronic Service	No	SPL_SL_14-21_Agency Reps 14-21
Margaret	Rheude	Margaret_Rheude@fws.gov	U.S. Fish and Wildlife Service	Twin Cities Ecological Services Field Office 4101 American Blvd. E. Bloomington, MN 55425	Electronic Service	No	SPL_SL_14-21_Agency Reps 14-21

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
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Bruce	West	Bruce.West@state.mn.us	Department of Public Safety	Box 145 444 Cedar Street St. Paul, MN 55151	Electronic Service	No	SPL_SL_14-21_Agency Reps 14-21
Jonathan	Wolfgram	Jonathan.Wolfgram@state.mn.us	Department of Public Safety	445 Minnesota Street Suite 147 St. Paul, MN 55101-1547	Electronic Service	No	SPL_SL_14-21_Agency Reps 14-21

Appendix Z

EIS Distribution List

Appendix Z
EIS Distribution List

Federally Elected Officials

The Honorable Al Franken
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309 Hart Senate Office Building
Washington, DC 20510

The Honorable Amy Klobuchar
United States Senate
302 Hart Senate Office Building
Washington, DC 20510

The Honorable Betty McCollum
United States Representative - 4th District
1714 Longworth House Office Building
Washington, DC, 20515

The Honorable Bill Shuster
Chairman, House Committee on Transportation and Infrastructure
2165 Rayburn House Office Building
Washington, DC 20515

The Honorable Collin C. Peterson
United States Representative - 7th District
2109 Rayburn House Office Building
Washington, DC 20515

The Honorable Erik Paulsen
United States Representative - 3rd District
127 Cannon House Office Building
Washington, DC 20414-2303

The Honorable Frank Pallone, Jr.
Ranking Member, House Committee on Energy and Commerce
237 Cannon House Office Building
Washington, DC 20515

The Honorable Fred Upton
Chairman, House Committee on Energy and Commerce
2125 Rayburn House Office Building
Washington, DC 20515

The Honorable John Kline
United States Representative - 2nd District
2439 Rayburn House Office Building
Washington, DC 20515

The Honorable Keith Ellison
United States Representative - 5th District
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Washington, DC 20515

The Honorable Lisa Murkowski
Chairman, Senate Committee on Energy and Natural Resources
304 Dirksen Senate Building
Washington, DC 20510

The Honorable Maria Cantwell
Ranking Member, Senate Committee on Energy and Natural Resources
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The Honorable Peter DeFazio
Ranking Member, House Committee on Transportation and Infrastructure
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The Honorable Rick Nolan
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2447 Rayburn House Office Building
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The Honorable Timothy Walz
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1034 Longworth House Office Building
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The Honorable Tom Emmer
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Beverly Jones Heydinger
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Lawrence Township
25711 County Road 59
Bovey, MN 55079

Charlene D. Sturk
Recorder
Beltrami County
1069 Carved Woodduck Lane SW
Bemidjii, MN 56601

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Waskish Township
32128 Konig Road NE
Waskish, MN 56685

Frank Olson
Supervisor
Lawrence Township
24867 County Road 57
Bovey, MN 55079

Jeanne Newstrom
Supervisor
Trout Lake Township
24683 Trout Lake Road
Bovey, MN 55079

John M. Kannas
Supervisor
Balsam Township
40874 County Road 336
Bovey, MN 55079

Larry C. Salmela
Supervisor
Carpenter Township
22838 Rollercoaster Road
Effie, MN 56639

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Chairman
Roseau River Watershed District
504 4th Avenue NE
Roseau, MN 56751

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Assistant Land Commissioner
Itasca County
1177 LaPrairie Avenue
Grand Rapids, MN 55744

Rob Ecklund
Commissioner
Koochiching County
4647 Highway 11
International Falls, MN 56649

Roger Falk
Commissioner
Roseau County
35191 500th Avenue
Salol, MN 56756

Todd Miller
Commissioner
Roseau County
52630 County Road 2
Warroad, MN 56763

Local Agencies

Steve Blair
Environmental Services Specialist
Environmental Services Department
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International Falls, MN 56649

Organizations/Stakeholders

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Ducks Unlimited, Inc., Great Lakes/Atlantic
Regional Office
1220 Eisenhower Place
Ann Arbor, MI 48108

National Audubon Society, Audubon Minnesota
1 Water Street West, Suite 200
St. Paul, MN 55107

National Wildlife Federation,
Great Lakes Regional Center
213 West Liberty Street, Suite 200
Ann Arbor, MI 48104

Sierra Club, Northstar Chapter
23327 East Franklin Avenue, Suite 1
Minneapolis, MN 55406-1024

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Water Resources Specialist
Prairie Rivers Network
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Champaign, IL 61820

Private Citizen

Richard Libbey
Izaak Walton League
Grand Rapids, MN

Libraries

Baudette Library
110 1st Street SW
Baudette, MN 56623

Blackduck Public Library
72 1st Street SE
Blackduck, MN 56630

Bovey Public Library
402 2nd Street
Bovey, MN 55709

Calumet Library
932 Gary Street
Calumet, MN 55716

Coleraine Public Library
203 Cole Street
Coleraine, MN 55722

Duluth Public Library
520 W Superior Street
Duluth, MN 55802

Grand Rapids Public Library
140 NE 2nd Street
Grand Rapids, MN 55744

Greenbush Branch Library
214 Main St
Greenbush, MN 56726

International Falls Public Library
750 4th Street
International Falls, MN 56649

Marble Public Library
302 Alice Avenue
Marble, MN 55764

Northome Public Library
12064 Main Street
Northome, MN 56661

Roseau Public Library
121Center Street East
Suite 100
Roseau, MN 56751

Warroad Public Library
202 Main Avenue NE
Warroad, MN 56763

Williams Public Library
350 Main Street
Williams, MN 56686