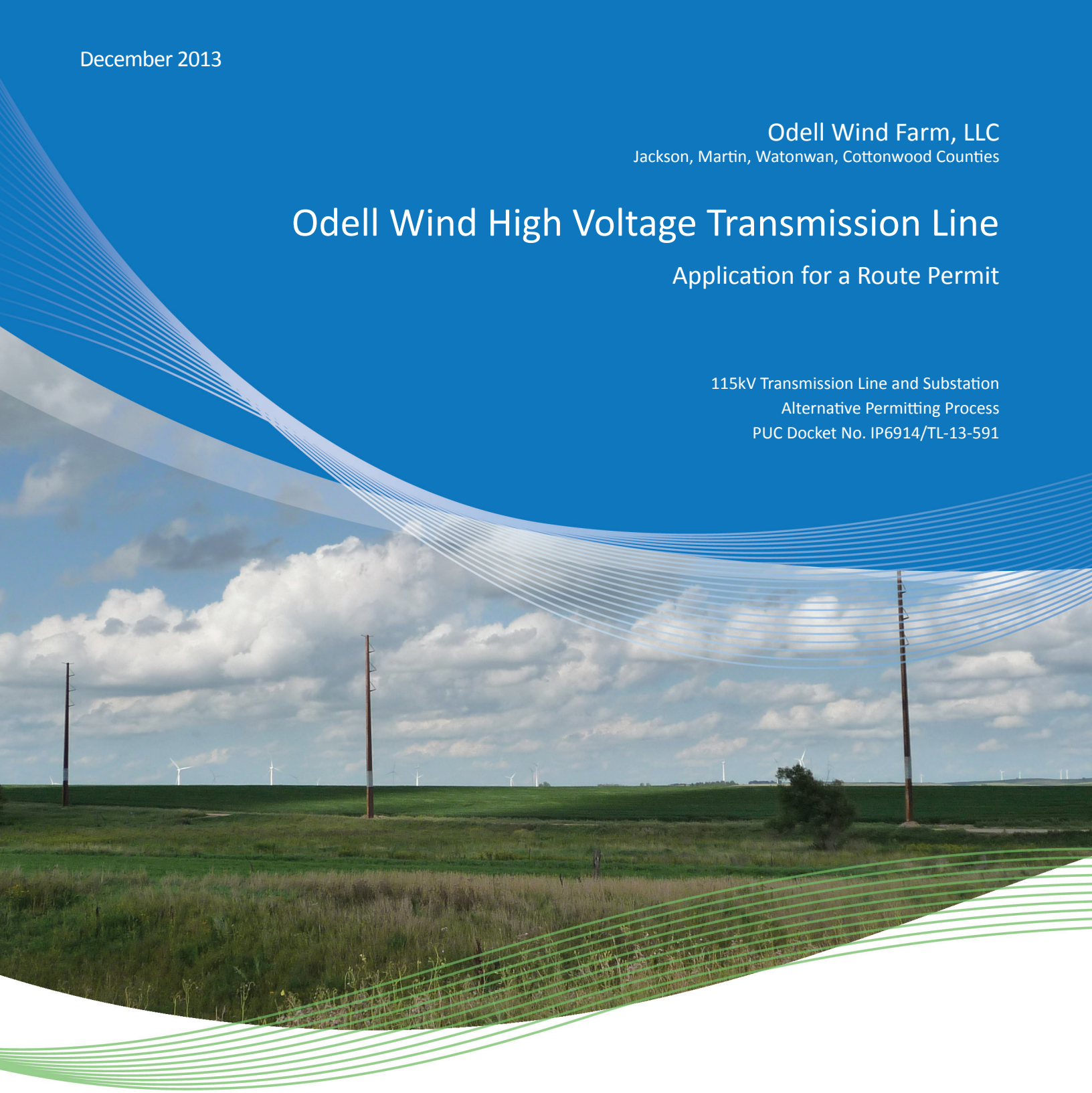
December 2013

Odell Wind Farm, LLC
Jackson, Martin, Watonwan, Cottonwood Counties

Odell Wind High Voltage Transmission Line

Application for a Route Permit

115kV Transmission Line and Substation
Alternative Permitting Process
PUC Docket No. IP6914/TL-13-591



GERONIMO® ENERGY

ODELL WIND FARM
Cottonwood, Jackson, Martin, & Watonwan Counties, MN

Odell Wind Farm, LLC's Application to the Minnesota Public Utilities Commission for a Route Permit for a 115 kV High Voltage Transmission Line in Cottonwood, Jackson, and Martin Counties, Minnesota

Docket No. IP6914/TL-13-591

December 12, 2013

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ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition
ABPP	Avian Bat Protection Plan
ACS	American Community Survey
ACSR	Aluminum Conductor Steel Reinforced
AES	Applied Ecological Services
APLIC	Avian Power Line Interaction Committee
BMPs	Best Management Practices
CN	Certificate of Need
CRP	Conservation Reserve Program
dB	Decibels
dB(A)	A-weighted scale
dB(C)	C-weighted scale
DNR	Minnesota Department of Natural Resources
ELF	Extremely Low Frequency
EMF	Electromagnetic Field
EQB	Environmental Quality Board
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FPPA	Farmland Protection Policy Act
HVTL	High-voltage Transmission Line
kV/m	Kilovolts Per Meter
MCBS	Minnesota County Biological Survey
mG	Milligauss
MPCA	Minnesota Pollution Control Agency
MW	Megawatt
NERC	North American Electric Reliability Corporation
NESC	National Electric Safety Code
NHIS	Natural Heritage Information System
NIEHS	National Institute of Environmental Health Sciences
NLCD	National Land Cover Database
NRCS	Natural Resource Conservation Service
NRHP	National Register of Historic Places
NWI	National Wetland Institute

PEMF	Semi-permanently Flooded Emergent Wetland
PWI	Public Waters Inventory
RIM	Reinvest in Minnesota
ROW	Right-of-Way
SGCN	Species of Greatest Conservation Need
SHPO	State Historic Preservation Office
SRDC	Southwest Regional Development Commission
SWPPP	Stormwater Pollution Prevention Plan
USACE	U.S. Army Corp of Engineers
V/m	Volts Per Meter
WHO	World Health Organization

Completeness Checklist

The content requirements for an application with the Minnesota Public Utilities Commission under the Alternative Permitting Process are identified in Minnesota Rules 7850.2800–7850.3900. The submittal requirements are listed below with cross references indicating where the information can be found in this Application.

Authority	Required Information	Location
Minnesota Statutes Section 216E.04, Subd. 3; Minnesota Rule 7850.3100	**Contents of Application (alternative permitting process)**	
	The applicant shall include in the application the same information required in part 7850.1900, except the applicant need not propose any alternative sites or routes to the preferred site or route. If the applicant has rejected alternative sites or routes, the applicant shall include in the application the identity of the rejected sites or routes and an explanation of the reasons for rejecting them.	Section 3.2 (See also 7850.1900, subp. 2 and 3 below).
Minnesota Rule 7850.1900, subp. 2	**Route Permit for HVTL**	
A.	a statement of proposed ownership of the facility at the time of filing the application and after commercial operation	Section 1.2
B.	the precise name of any person or organization to be initially named as permittee or permittees and the name of any other person to whom the permit may be transferred if transfer of the permit is contemplated	Section 1.3
C.	at least two proposed routes for the proposed high voltage transmission line and identification of the applicant's preferred route and the reasons for the preference	Not applicable, per Minnesota Rule 7850.3100
D.	a description of the proposed high voltage transmission line and all associated facilities including the size and type of the high voltage transmission line	Section 1.1
E.	the environmental information required under subp. 3	See Minnesota R. 7850.1900, subp. 3 (A) – (H) below
F.	identification of land uses and environmental conditions along the proposed routes	Chapter 5 Environmental Information

G.	the names of each owner whose property is within any of the proposed routes for the high voltage transmission line	
H.	United States Geological Survey topographical maps or other maps acceptable to the Commission showing the entire length of the high voltage transmission line on all proposed routes	Figures
I.	identification of existing utility and public rights-of-way along or parallel to the proposed routes that have the potential to share the right-of-way with the proposed line	Section 4.2
J.	the engineering and operational design concepts for the proposed high voltage transmission line, including information on the electric and magnetic fields of the transmission line	Chapter 4.0 Engineering Design Construction and Right-Of-Way Acquisition
K.	cost analysis of each route, including the costs of constructing, operating, and maintaining the high voltage transmission line that are dependent on design and route	Section 2.4
L.	a description of possible design options to accommodate expansion of the high voltage transmission line in the future	Section 3.3
M.	the procedures and practices proposed for the acquisition and restoration of the right-of-way, construction, and maintenance of the high voltage transmission line	Sections 4.3 – 4.6
N.	a listing and brief description of federal, state, and local permits that may be required for the proposed high voltage transmission line	Section 6.4
O.	a copy of the Certificate of Need or the certified HVTL list containing the proposed high voltage transmission line or documentation that an application for a Certificate of Need has been submitted or is not required	Section 1.4
Minnesota Rule 7850.1900, subp. 3	**Environmental Information**	
A.	a description of the environmental setting for each site or route	Section 5.0
B.	a description of the effects of construction and operation of the facility on human settlement, including, but not limited to, public health and safety, displacement, noise, aesthetics, socioeconomic impacts, cultural values, recreation, and public services	Section 5.2

C.	a description of the effects of the facility on land-based economies, including, but not limited to, agriculture, forestry, tourism, and mining	Section 5.3
D.	a description of the effects of the facility on archaeological and historic resources	Section 5.4
E.	a description of the effects of the facility on the natural environment, including effects on air and water quality resources and flora and fauna	Section 5.5
F.	a description of the effects of the facility on rare and unique natural resources	Section 5.5.5
G.	identification of human and natural environmental effects that cannot be avoided if the facility is approved at a specific site or route	See all of the effects described in Section 5.
H.	a description of measures that might be implemented to mitigate the potential human and environmental impacts identified in items A to G and the estimated costs of such mitigation measures	See the mitigation measures identified in each section
Minnesota Rule 7850.3100	**Consideration of alternative routes**	Section 3.3

1.0 INTRODUCTION

1.1 Project Introduction

Odell Wind Farm, LLC ("Odell" or "Applicant") submits this application for a route permit to the Minnesota Public Utilities Commission ("Commission") pursuant to Minnesota Statutes Chapter 216E and Minnesota Rules Chapter 7850 ("Application").

The Applicant requests a route permit to construct an approximately 9.5-mile long 115,000 kilovolt (115 kV) transmission line between the proposed 115/34.5 kV project substation for the Odell Wind Farm and the proposed Woad Hill Substation (the "HVTL Project"). The Applicant also requests that the proposed Woad Hill Substation be authorized by the route permit. The Woad Hill Substation would be a new 345/115 kV substation on the Lakefield Generation-Fieldon segment of Northern States Power's Lakefield Junction-Wilmarth 345 kV transmission line. The transmission line route and Woad Hill Substation addressed in this Application are shown in Figure 1.1.

The Applicant is requesting a route permit under the Alternative Permitting Process, Minnesota Statute Section 216E.03 and Minnesota Rule 7850.2800. This Project qualifies for the Alternative Permitting Process because it meets the requirements of Minnesota Rule 7850.2800, subp. 1(C), which allows for permitting under the alternative process if the HVTL project is capable of operating between 100 and 200 kilovolts.

1.2 Statement of Ownership

Geronimo Wind Energy, LLC d/b/a Geronimo Energy, LLC ("Geronimo"), a Minnesota limited liability company, develops and builds renewable energy projects throughout the United States.

Geronimo formed a wholly-owned subsidiary, Odell Wind Farm, LLC ("Odell"), to own both the HVTL Project and an up to 200 megawatt ("MW") wind energy project ("Odell Wind Farm") in Cottonwood, Jackson, Martin, and Watonwan Counties. The Odell Wind Farm will be served by the HVTL Project. The Applicant filed a Site Permit Application for a Large Wind Energy Conversion System for the Odell Wind Farm on September 26, 2013 under Docket No. IP-6914/WS-13-843. Odell anticipates starting construction of the Odell Wind Farm in June or July of 2014. Geronimo and the Applicant reserve the right to sell or assign the HVTL Project to another qualified entity at any time before, during or after the HVTL Project is constructed, pending proper Commission approvals.

1.3 Permittee

The permittee for the HVTL Project will be:

Permittee: Odell Wind Farm, LLC

Contact: Patrick Smith, Director of Environmental Planning

Address: 7650 Edinborough Way, Suite 725
Edina, MN 55435

Phone: (952) 988-9000

Email: patrick@geronimoenergy.com

1.4 Certificate of Need

The HVTL Project is exempt from Certificate of Need ("CN") requirements because it does not meet the voltage or length requirements of a "large energy facility" under Minnesota Statutes § 216B.2421. While the 9.5 mile long, 115kV Project is greater than 100 kV, it is less than 10 miles in length and does not cross a state border (see Minnesota Statutes § 216B.2421 subd. 2(3)). Therefore, a CN is not required for the HVTL Project.

1.5 Route Permit, Alternative Permitting Process

Minnesota Statutes §216E.03, subd. 2, provides that no person may construct a high-voltage transmission line ("HVTL") without a route permit from the Commission. A HVTL is defined as a transmission line of 100 kV or more and greater than 1,500 feet in length (*see* Minnesota Statute § 216E.01, subd. 4). The 9.5 mile, 115 kV transmission line proposed as the HVTL Project meets the definition of a HVTL, and therefore a permit is required prior to construction.

The Commission rules provide for an Alternative Permitting Process for certain facilities (Minnesota Statutes §216E.04; Minnesota Rules part 7850.2800, subp. 1). The Alternative Permitting Process is a slightly abbreviated process used for smaller transmission projects. Under

the Alternative Permitting Process, an Environmental Assessment, rather than an Environmental Impact Statement, and a public hearing, rather than contested case hearing, are required. In addition, the Alternative Review Process does not require identification of an alternative route. The HVTL Project qualifies for the Alternative Permitting Process because it is between 100 and 200 kV (see Minnesota Statutes §216E.04, subd. 2(C) and Minnesota Rule part 7850.2800, subp. 1(C)). This Application is submitted pursuant to the Alternative Permitting Process outlined in Minnesota Rules 7850.2800 to 7850.3900.

1.6 Notice to the Commission

The Applicant notified the Commission by letter dated July 8, 2013 that it intended to apply for a route permit for the HVTL Project under the Alternative Permitting Process. This letter complies with the requirement of Minnesota Rule 7580.2800, subp. 2, to notify the Commission at least ten (10) days prior to submitting an application for a route permit under the alternative process. A copy of this notice is attached as Appendix A.

2.0 PROJECT INFORMATION

2.1 Project Location

The Applicant seeks a route permit for a 9.5 mile long, 115 kV transmission line and the Woad Hill Substation. The transmission line would connect the planned Odell Wind Farm substation in Cottonwood County, Minnesota, to the proposed Woad Hill Substation in Section 16 of Cedar Township in Martin County, Minnesota. The Proposed Route (as defined in Section 3.1) is located in Cottonwood, Jackson, and Martin Counties as shown in Figure 1.1. Table 2.1 below identifies the sections, townships, and ranges that are included in the Proposed Route.

Table 2.1: Sections/Townships/Ranges of Proposed Route

County	Political Township	Township	Range	Sections
Cottonwood	Mountain Lake	105N	34W	32, 33, 34, 35, 36
Jackson	Kimball	104N	34W	1, 2, 3, 4, 5, 11, 12
Martin	Cedar	104N	33W	4, 5, 6, 7, 8, 9, 16, 17

2.2 Project Proposal

The Applicant proposes to construct the new single circuit 9.5 mile, 115 kV transmission line in Cottonwood, Jackson, and Martin Counties, MN and the Woad Hill Substation in Martin County, MN. The Proposed Route is sited on private land adjacent to existing public right-of-way. The HVTL Project will be constructed to transmit energy generated by the Odell Wind Farm, an up to 200 MW large wind energy conversion system, to the proposed Woad Hill Substation. A map showing the Proposed Route is shown in Figure 2.1. The Applicant would construct both the transmission line and the Woad Hill Substation. The Applicant anticipates that the planned Odell Wind Farm substation will be permitted by the Commission under the Odell Wind Farm LWECS site permit.

2.3 Project Schedule

The HVTL Project construction is expected to occur in third quarter 2014 and is not anticipated to take more than two months. This schedule is based on planning assumptions that balance the timing of implementation with the availability of crews and materials and other practical considerations. This schedule may be subject to adjustment and revision as further information is developed.

2.4 Project Costs

The Applicant has prepared a preliminary cost estimate for the HVTL Project as described in this Application. The estimated cost for the 9.5 miles of transmission line between the Odell Wind Farm Substation and the Woad Hill Substation is $3.5 million. The estimated cost of the proposed Woad Hill Substation is $2 million.

Operation and maintenance costs for the transmission line will be nominal in the initial years of operation since the line will be new and minimal maintenance is required. Annual operation and maintenance costs for 115 kV transmission lines in the Upper Midwest are typically three hundred dollars ($300) to six hundred dollars ($600) per mile of transmission right-of-way. The principal operations and maintenance cost will be incurred through scheduled inspections which will be performed monthly by either truck or fixed-wing aircraft.

3.0 DETAILED FACILITY DESCRIPTION & ROUTE SELECTION RATIONALE

3.1 Detailed Route Description

The Proposed Route will extend from the new Odell Wind Farm substation located in Section 32 of Mountain Lake Township in Cottonwood County, MN, to the new Woad Hill Substation in Section 16 of Cedar Township in Martin County, MN. Figure 3.1 shows the entire wind farm project boundary for the Odell Wind Farm and the HVTL Project. As proposed, the new single circuit 115 kV transmission line originates at the Odell Wind Farm substation and heads east along County Highway 17 to Jackson County Highway 85/600th Avenue. The HVTL Project then continues south for approximately one mile. The HVTL Project then turns to run east along Jackson County's 930th Street where, after approximately one mile, it crosses into Martin County and continues east along 240th Street for approximately two miles until the intersection of 240th Street and 30th Avenue. The HVTL Project turns south for the final time on 30th Avenue, ending approximately one and a half miles south at the proposed Woad Hill Substation southeast of the intersection of 30th Avenue and 230th Street in Martin County.

The Applicant requests a variable route width of between 150 and 600 feet within which the right-of-way ("ROW") necessary to construct and operate the HVTL Project will be located. The Proposed Route width is wide enough to provide flexibility to work with landowners to address concerns and to address engineering issues that may arise after a route permit is issued. The Proposed Route width includes:

1. For the majority of the Proposed Route the Applicant requests a route width of 150 feet extending from the road centerline;

2. In Sections 1 and 12 of T104 R34 in Jackson County, the Applicant is requesting a 300 foot route width, 150 feet on each side of the road centerline. The 300-foot Proposed Route width will allow additional flexibility to accommodate distance from homes; and

3. In Sections 6 and 7 of T104 R33 in Martin County, the Applicant is requesting a 600-foot Proposed Route width to allow additional flexibility to work around a known easement title issue that has been identified on one of the underlying parcels. Odell is in ongoing negotiations to address the title issue but it is not clear if or when the issue will be resolved at this time.

The Proposed Route follows existing road rights-of-way along its entire length. The intersection of Highway 36 and 29th Avenue has existing overhead electric lines, and there are local distribution lines paralleling the south side of 930th Avenue in Martin County between 10th Street and 20th Avenue. The Applicant has initiated contact with the owner of the lines and is working with the owner to allow both its infrastructure and the Applicant's infrastructure to co-exist, which may involve burying distribution lines. The Proposed Route will also cross over local distribution lines at the intersection of 230th Street and 30th Avenue in Martin County. Additionally, the Applicant proposes to shift the HVTL Project alignment to one side of the roadway or other (e.g. North or South) to minimize impacts to residences and environmental resources, and to accommodate preferences of the Townships and the County Highway Departments.

3.2 Right-of-Way Description

The Applicant entered into Transmission Easement Agreements with private landowners that describe the easement and terms of the agreement. The transmission easements include a strip of land that is eighty (80) feet wide parallel and adjacent to the existing road right-of-way and a strip of land comprising one-half of the existing road right-of-way. The road rights-of-way are generally sixty-six (66) feet for township roads or one hundred (100) feet for county roads. Therefore, the total easement width in the Transmission Easement Agreements is one hundred thirteen (113) feet along township roads and one hundred thirty (130) feet along county roads. To accommodate the area included within its Transmission Easement Agreements, Odell is requesting a ROW of between 113 and 130 feet for the Project. Engineering and surveying for the HVTL Project is not complete at this time and so to accommodate any unforeseen site conditions Odell is requesting a wider route corridor than the easement ROW.

MISO is currently completing facility studies for the interconnection of the Odell Wind Farm. Results from these studies will define much of the size and location of the Woad Hill substation. Odell has acquired a lease for the parcel of land upon which the Woad Hill substation will be located and will define the boundaries needed for construction and operations of Woad Hill within Odell's leased parcel after MISO has completed their facility studies.

Given the Commission's recent practice to identify an "anticipated alignment" in its Route Permit decisions, Odell has developed an application alignment that reflects its current

Transmission Easement Agreements and minimizes overall impacts based on known human and environmental features (*see* Figures 5.2(a)-(j)). Generally, the application alignment places the transmission line on private property approximately five feet from the edge of the road ROW. A final alignment will be developed after the Commission issues a Route Permit and Odell has had the opportunity to discuss the Commission's "anticipated alignment" with affected landowners and agencies and perform necessary survey, engineering, site review and design.

3.3 Route Selection Process

The Proposed Route was developed by the Applicant through discussions with the community, and after considering planning, design, construction, cultural, and environmental criteria. The Proposed Route was chosen because it:

(1) Parallels existing right-of-way on land leased by the Applicant;

(2) Provides the shortest route between the Odell Wind Farm Substation and the new Woad Hill Substation;

(3) Minimizes impacts to parcels identified as having ecological significance by the Minnesota Department of Natural Resources ("DNR") in the agency's county biological survey;

(4) Minimizes the number of residences impacted; and

(5) Minimizes the total cost of energy from the Odell Wind Farm.

Before selecting the Proposed Route, Odell informally evaluated a number of route options based on desktop environmental review and in consultation with individual landowners. Because of the ubiquity of the agricultural land use and the generally low population density in the region, Odell found only negligible differences between environmental and engineering constraints on the Proposed Route and the other options it considered. The dismissed options included routing along portions of: 240th St. in Martin County; 20th Ave in Martin County; County Road 85 along the Jackson and Martin County borders; and 40th Ave in Martin County. These alternate route options were dismissed primarily due to a lack of land to site the Woad Hill Substation and landowner acceptance.

3.4 Design Options to Accommodate Future Expansion

The current project design would support over 300 MW of electricity from wind energy sources. The Odell Wind Farm is currently designed to be up to 200 MW and the outlet provided by the HVTL Project allows for future expansion of generation in the area. This allowance appropriately capitalizes on the construction of the HVTL Project without needlessly increasing costs. Additionally, the HVTL Project could be added to the local and regional transmission and distribution network, potentially providing a more robust outlet to a broader geographic area.

3.5 Proposed Substation Description

The Woad Hill substation is proposed for section 16 of Cedar Township in Martin County, MN on the southeast corner of the intersection of 230th Street and 30th Avenue. The substation will consist of supporting structures for high voltage electrical structures, breakers, transformers, lightning protection, and control equipment as specified in the Interconnection Agreements to be entered into with MISO and Xcel Energy. The area around the substation will be fenced with driveway access from the east and north. The ground within the substation will be graded and secondary containment areas for the transformer will be installed as necessary, gravel will be placed on the surface of the ground in and around the substation to assist with weed control. Conservatively, Odell estimates that the Woad Hill Substation will take up 10 acres of land. Odell will provide additional substation design details once MISO completes its facilities study. Once the facilities study is available, Odell will examine the electrical requirements and configure the substation to optimize land use while still meeting the commitments associated with the Interconnection Agreement. From the Woad Hill Substation, the HVTL Project will connect to the electrical grid via a single 345kV span connecting to Xcel's new 345 kV switchyard. Both this final 345 kV span and the switch yard will be designed, permitted and built by Xcel Energy.

The proposed location for the Odell Wind Farm substation is within the Odell Wind Farm's Project boundary. It is located north of Jackson County Road 17 in Section 32 of Mountain Lake Township in Cottonwood County. The Odell Wind Farm substation will be permitted under Docket No. IP6914/WS-13-843.

Underground 34.5 kV collector lines from the Odell Wind Farm will deliver energy from the wind turbines to the Odell Wind Farm substation. The collector system voltage then will be stepped up from 34.5 kV to 115 kV and transmitted on the Project's aboveground 115 kV transmission line to the new 345/115kV Woad Hill Substation.

4.0 ENGINEERING DESIGN, CONSTRUCTION & RIGHT-OF-WAY ACQUISITION

4.1 Transmission Structures and Right-Of-Way Design

The proposed transmission line will be designed to meet or surpass all relevant local and state codes, North American Electric Reliability Corporation ("NERC") standards, and the National Electric Safety Code ("NESC"). Appropriate standards will be met for construction and installation, and all applicable safety procedures will be followed during construction and operation of the transmission line.

4.1.1 Transmission Line Structures

The Applicant proposes to use wood and/or steel structures capable of handling a single-circuit load by constructing the single-circuit transmission line on wood and/or steel monopole structures, direct-embedded in approximately 3-foot diameter holes augured to a depth of approximately fourteen percent of the total structure height, or approximately 9 to 14 feet. Pole

structures will be located approximately 350 to 400 feet apart. After installation of the structures, the holes would then be backfilled with the spoil or other brought-in material.

The heights of the poles and the typical distance between each pole (span) are shown in Table 4.1. Pictures and schematics of the proposed structure types are shown in Figures 4.1(a) and 4.1(b). The application alignment shown in Figures 5.2 (a)-(j) depicts a preliminary alighment of transmission line structures within the Proposed Route. Final design and geotechnical investigations may warrant the use of special structures to avoid sensitive areas or to accommodate special engineering circumstances. The needs for self-supporting angle and deadend or atypical structures will be determined during final design.

Though not anticipated for the Proposed Route, structure installations may require special engineering techniques in some locations, due to hydric soils, near and above surface bedrock, and other subsurface conditions. The near and above surface bedrock design and construction would typically involve using specialized drilling equipment to bore a hole directly into the bedrock.

The conductor for each of the three phases of the 115 kV[1] line will be a 1272 kcmil (thousand circular mils[2]) "Bittern[3]" Aluminum Conductor Steel Reinforced ("ACSR"). Table 4.1 below summarizes the structure design for the line.

Table 4.1: Structure Design for the Line

Project Component	Single Circuit 115 kV Transmission Line
Line Voltage	Designed/Operated at 115 kV
Structure Type (Typical)	Wood monopole; potential self-supporting steel if guying is not allowed or limited
ROW Required (feet)	80 feet on private land (adjacent to existing road ROW)
Conductor	1272 kcmil ACSR "Bittern"
Foundation	Direct embed or drilled pier concrete foundation for steel corner/deadend structures if guying is not possible
Typical Approximate Span Length (feet)	400
Average Height Above Ground (feet) Vertical Structures [1]	Approximately 70
Average Height Above Ground (feet) Delta Structures [2]	Approximately 65

[1] Vertical structures have all three phases on the same side of the pole structure.
[2] Delta structures have two phases on one side of the pole and one phase on the other side.

[1] kV stands for kilovolt which equals 1,000 volts of electrical potential.
[2] A circular mil is the cross-sectional area of the conductor equal to a circle with a diameter equal to one mil (one-thousandth of an inch).
[3] The cable industry assigns a unique name to each size and type of cable.

4.2 Identification of Existing Utility and Public Right-of-Way

Northern States Power's Lakefield Junction-Wilmarth 345 kV transmission line runs diagonally across the southeast part of the HVTL Project in Martin County. Great River Energy's Odin Tap to Odin 69 kV line is an underground line that runs near the boundary of Martin and Watonwan Counties.

An ongoing title examination will identify any easements of record that are applicable to the HVTL Project.

The Applicant will coordinate with Gopher State One Call, Great River Energy, Northern Border Pipeline Company, Northern Natural Gas Company, South Central Electric Association, Missouri River Energy Services, and Northern States Power Company to avoid any conflicts with buried lines, rights-of-way, or existing easements. Additionally, the Applicant will work with the Red Rock Rural Water system to ensure that any potential conflicts with the existing rural water supply system will be identified and resolved prior to Project construction.

The Project's structures will be sited on private land adjacent to existing public right-of-way. It is not expected that the Project's structures will be located on public right-of-way, though portions of the existing public right-of-way may be utilized for structures and/or overhang where design warrants. Odell will work with the owners of the utilities in question to obtain consent and crossing agreements and to ensure the design and operation of the line will minimally affect their facilities to the extent practicable.

4.3 Right-of-Way Evaluation and Acquisition

The right-of-way evaluation and acquisition process began early in the planning and design process for the HVTL Project. The evaluation and acquisition process included environmental and cultural reviews (including the built environment of homes and other infrastructure), a title examination, initial owner contacts, survey work, document preparation, and easement payments. Each of these activities, particularly as it applies to easements for transmission line facilities, is described in more detail below.

The Applicant began the right-of-way easement acquisition process by identifying all persons and entities that may have a legal interest in the real estate upon which facilities may be built. To compile this list, a representative of the HVTL Project completed a public records search of the potential land involved in the HVTL Project. A title report was then developed for each parcel to confirm the legal description of the property and the owner(s) of record and to gather information regarding easements, liens, restrictions, encumbrances, and other conditions of record.

After the Applicant identified the relevant owners, an Odell representative personally contacted each property owner (or the property owner's representative) and described the purpose and need for the transmission facilities and how the Proposed Route may affect each parcel.

Each parcel with a Transmission Easement Agreement is within the Odell Wind Farm boundary. Those landowners with Transmission Easement Agreements were offered wind farm easements

as well. The acquisition process is complete and all necessary easements are secured. The Applicant's Transmission Easement Agreements allow for the anticipated alignment, demonstrated in Figures 5.2 (a)-(j). The acquisition process for Woad Hill Substation site is complete; the exact substation location within the substation site will be determined after final design is complete.

Prior to the acquisition of easements, the Applicant collected land value data. Based upon the impact of the easement to the market value of each parcel, the Applicant offered fair market value compensation for those who would potentially participate in the HVTL Project. Odell also sought information from landowners about the details of their property and any potential construction concerns.

The next step in the easement acquisition process is a physical evaluation of each parcel included in the HVTL Project. For this work, Odell will schedule survey crews to conduct preliminary survey work. A geotechnical company will take soil borings to assess the soil characteristics and determine appropriate foundation design specifications. The soil analysis will be performed by an experienced geotechnical testing laboratory. Odell may schedule and perform other surveys that will help to minimize potential impacts of the HVTL Project. The surveys identify right-of-way corridors, natural features, man-made features, and associated elevations that will be considered and included for the detailed engineering of the HVTL Project.

During the final evaluation process, the location of the Proposed Route and its associated structures will be staked. During staking, the survey crew will mark the proposed location of the final structures or poles with a surveyor's stake. After the stakes are placed, Odell will review the location of the structure with the landowner(s) and other interested parties to identify any concerns they may have about the structure locations or the construction process. Odell will attempt to accommodate these landowner requests where practicable. The right-of-way agent will also provide maps of the boundary of the easement area required for safe operation of the lines and substation.

The Applicant will continue to work with the landowners to explain the construction process and identify potential pole locations. The Applicant prepared a Transmission Easement Agreement for each parcel along the Proposed Route, which includes a diagram showing the location and the dimensions of the easement for the HVTL Project. The HVTL Project may also require the preparation and execution of other documents, including but not limited to: purchase agreements or contracts and title curative documents (e.g. mortgage or easement subordinations). As part of the development process, the Applicant will continue to coordinate with the landowner(s) of each parcel regarding the construction schedule and requirements.

4.4 Transmission and Substation Construction Procedures

4.4.1 Transmission Construction

General Construction

Construction will begin after applicable federal, state and local approvals have been obtained, property and right-of-way are acquired, soil conditions are established and final design is

completed. The precise timing of construction will take into account various requirements that may be in place due to permit conditions, system loading issues, weather and available workforce and materials.

The Applicant will work with an experienced contractor to construct and maintain the transmission line in conjunction with the construction and operation of the Odell Wind Farm. Construction will follow industry best practices. These best practices address transmission specifics such as right-of-way clearing, staging, and erecting transmission line structures and stringing transmission lines. They also address general construction best practices including but not limited to safety and storm water pollution prevention planning. Odell will be considering the proposed schedule for activities, permit requirements, safety measures, prohibitions, maintenance guidelines, inspection procedures, and terrain characteristics throughout the Project's development, construction, and operations. In some cases these activities, such as schedules, are modified to minimize impacts to sensitive animals or environments or to enhance safety.

Surveyors will stake the construction corridor within the approved ROW and the pole locations of the approved alignment in preparation for the construction crew arriving on site. Once the construction crew arrives; they will begin by clearing and grubbing out the ROW to ensure that vegetation meets the NESC standards and that the construction crew will have easy access to the construction site. Because a majority of the Proposed Route is in crop land, this clearing will be minimal. Odell will coordinate with landowners on clearing and grubbing to ensure minimal impact to wind breaks, landscaping, and other vegetative buffers. The crew will use chain saws, lifts, tractors and bulldozers only where needed to clear vegetation. The crew will install temporary culverts and field approaches where needed to access the route and to maintain adequate access and drainage throughout construction.

Transmission line structures are generally designed for installation at existing grades. Typically, structure sites with ten percent or less slope will not be graded or leveled. Sites with more than ten percent slope will have working areas graded level or fill brought in for working pads. Odell anticipates that only minimal grading will be needed because the Proposed Route has very little elevation change. If the landowner permits, it is preferred to leave the leveled areas and working pads in place for use in future maintenance activities. If permission is not obtained, the site will be graded back to as close to its original condition as possible, and all imported fill, including temporary culverts and road approaches, will be removed from the site and disturbed areas will be returned to pre-disturbance conditions.

Typical construction equipment used on a project consists of tree removal equipment, mowers, cranes, backhoes, digger-derrick line trucks, track-mounted drill rigs, dump trucks, front end loaders, bucket trucks, bulldozers, flatbed tractor-trailers, flatbed trucks, pickup trucks, concrete trucks and various trailers. Many types of excavation equipment are set on wheel or track-driven vehicles. Poles are transported on tractor-trailers.

Staging areas are generally established when constructing a transmission project. In the case of the Project, the staging area will likely be partially shared with the associated Odell Wind Farm. Staging involves delivering the equipment and materials to construct the new transmission line facilities. Structures are delivered to staging areas, sorted and loaded onto structure trailers for

delivery to the staked location. The materials are stored until they are needed for the HVTL Project. In some cases, additional space (temporary laydown areas) may be required. These areas will be selected for their location, access, security, and ability to efficiently and safely warehouse supplies. The areas are chosen to minimize excavation and grading. Sufficient rights to use the temporary laydown areas outside of the transmission line right-of-way will be obtained from affected landowners through rental agreements. Insulators and other hardware are attached to the structure while it is on the ground in the laydown area.

When it is time to install the poles, structures are moved from the staging areas, delivered to the staked location and placed within the right-of-way until the structure is set. Typically, access to the transmission line right-of-way corridor is made directly from existing roads or trails that run parallel or perpendicular to the transmission line right-of-way. In some situations, private field roads or trails are used. Permission from the property owner is obtained prior to accessing the transmission line corridor outside of public rights-of-way. Where necessary to accommodate the heavy equipment used in construction (including cranes, concrete cement trucks, and hole-drilling equipment), existing access roads may be upgraded or new roads may be constructed. Once construction is complete the temporary field approaches and access roads installed for the HVTL project will be removed and revegitated. Previously removed woody vegetation will be allowed to regrow so long as it does not encroach on NESC prescribed clearances.

At this time, the Applicant anticipates the predominant method for securing the poles for the HVTL Project to be direct-embedment. To place direct-embedded single poles in the ground, the spoils are removed from the ground. Temporary casing may be required if the hole does not stay open during the excavation process. The pole is set and backfilled with crushed rock. The spoils will be removed from site unless other arrangements are made with the landowner. Odell will not dispose of spoil materials within remnant prairie lands, areas restored to native plant communities, wetlands, protected water bodies, protected watercourses, or in a manner that could impact these areas through erosion or transport of the spoil materials. Concrete foundations will be used when warranted by site specific design criteria or circumstances. For concrete foundations, the excavation process will utilize temporary steel casing and rebar, concrete and anchor bolts will be placed in the hole. The standard projection of a concrete foundation is one foot above grade.

4.4.2 Substation Construction

The Woad Hill Substation construction process will be very similar to the transmission line construction process. The substation site will be grubbed and graded with new approaches on the north and west of the substation site installed for access and delivery of equipment. Foundations for the transformer, high voltage structures and control housing will be installed along with a grounding grid and underground conduit for electrical service to the substation. The substation site will be graded and secondary containment facilities will be installed for the transformer as necessary. Equipment will be delivered to site, offloaded and installed onto their foundations. The electrical wires will be strung and, once Xcel has strung its 345 kV span from the substation to Xcel's switchyard, Odell will energize the substation.

Construction in Environmentally Sensitive Areas

Environmentally sensitive areas may also require special construction techniques. Generally, the most effective way to minimize construction impacts to water courses, such as streams and rivers, will be to span them. The Applicant will not allow construction equipment to be driven across waterways unless other routes are not feasible, and only after consulting with appropriate agencies and obtaining any necessary approvals and/or permits. Where waterways must be crossed to pull in the new conductors and shield wires, workers may walk across, use boats, or drive equipment across ice if construction occurs in the winter.

Construction crews will maintain sound water and soil conservation practices during construction and operation of the facilities to protect topsoil and adjacent water resources and minimize soil erosion. Practices may include containing excavated material, protecting exposed soil and stabilizing restored soil.

Impacts to wetlands will be minimized through construction best management practices ("BMPs"). To the extent possible, Applicant will avoid construction in wetlands. Crews will avoid major disturbance of individual wetlands and drainage systems during construction. This will be accomplished by strategically locating new access roads and spanning wetlands and drainage systems where possible. When it is not feasible to span the wetland, construction crews will rely on several options during construction to minimize impacts:

- When possible, construction will be scheduled during frozen ground conditions.
- Crews will attempt to access the wetland with the least amount of physical impact to the wetland (i.e., shortest route).
- The structures will be assembled on upland areas before they are brought to the site for installation.
- When construction during winter is not possible, construction mats will be used to minimize impacts to the extent practicable.

4.5 Restoration Procedures

The ground will be disturbed during the normal course of work (as is typical of most construction projects), which can take several weeks in any one location. The Applicant will take the steps necessary to lessen the impact of the HVTL Project on the surrounding environment by restoring areas disturbed by construction in accordance with BMPs and the Project's permit conditions. This will begin with a pre-construction survey that will identify areas requiring special restoration procedures. During construction, crews will also attempt to limit ground disturbance wherever possible. As construction on each parcel of land is completed, disturbed areas will be restored to its original condition to the maximum extent practicable.

The Applicant or their contractor will contact each property owner after construction is completed to identify and address any damage that may have occurred as a result of the construction of the HVTL Project. If damage has occurred to crops, fences or the property, the Applicant will fairly compensate the landowner for the damages sustained in accordance with the

terms and conditions agreed upon in the Transmission Easement Agreement entered into by Odell and the landowner.

In some cases, the Applicant may engage an outside contractor to restore the damaged property to its original condition to the extent practicable. Portions of permanent vegetation that are disturbed or removed during construction of transmission lines will be reestablished to pre-disturbance conditions. Resilient species of common grasses and shrubs typically reestablish naturally with few problems after disturbance. Areas with significant soil compaction and disturbance from construction activities along the Proposed Route will require assistance in reestablishing the vegetation stratum and controlling soil erosion. Commonly used BMPs to control soil erosion and assist in reestablishing vegetation that may be used on the HVTL Project include, but are not limited to:

- Erosion control blankets with embedded seeds
- Silt fences
- Hay bales
- Hydro seeding
- Planting individual seeds or seedlings of non-invasive native species

4.6 Maintenance Procedures

Transmission lines are designed to operate for decades. Typically they require only moderate maintenance, particularly in the first few years of operation. The estimated service life of the proposed Project is approximately forty years. However, HVTLs are seldom completely retired. The Applicant anticipates that the line could potentially, and would likely be broadly integrated into the transmission system over time, ultimately providing wider utility than just interconnecting the Odell Wind Farm into the electrical grid.

Transmission infrastructure includes very few mechanical elements, which results in reliability. It is built to withstand weather extremes, with the exception of severe weather such as tornadoes and heavy ice storms. Transmission lines are automatically taken out of service by the operation of protective relaying equipment when a fault is sensed on the system. Such interruptions are usually momentary. Scheduled maintenance outages are also infrequent. As a result, the average annual availability of transmission infrastructure is very high, in excess of 99 percent.

The principal operating and maintenance cost for transmission facilities is the cost of inspections, which will be performed monthly by either truck or by air**.** Inspections will be conducted to ensure that the transmission line is fully functional and that no vegetation has encroached so as to violate NESC prescribed clearances. Annual operating and maintenance costs for 115 kV transmission lines in Minnesota and the surrounding states are expected to be approximately $300 to $600 per mile. Actual line-specific maintenance costs depend on the setting, the amount of vegetation management necessary, storm damage occurrences, structure types, materials used, and the age of the line.

In addition to transmission line maintenance, the Applicant will perform inspections, maintain equipment and make repairs to the 115/34.5 kV project substation and 345/115 kV Woad Hill Substation to a similar standard as outlined above for the transmission line.

4.7 Electric and Magnetic Fields and Stray Voltage

This section discusses electromagnetic fields ("EMF") and stray voltage with respect to the HVTL Project. The term EMF refers to electric and magnetic fields that arise from the electrical potential (voltage) and the movement of an electrical charge (current) associated with the transmission and use of electricity. Electric and magnetic fields are invisible just like radio, television, and cellular phone signals, all of which are part of the electromagnetic spectrum. The frequency of transmission line EMF in the United States is 60 hertz and falls in the extremely low frequency ("ELF") range of the electromagnetic spectrum (any frequency below 300 hertz). For the lower frequencies associated with power lines, the electric and magnetic fields are typically evaluated separately. The intensity of the electric field is related to the voltage of the line, while the intensity of the magnetic field is related to the current flow along the conductors.

Concerns about health effects of EMF from power lines were first raised in the late 1970s. Since then, considerable research has been conducted to determine if exposure to magnetic fields, such as those from high-voltage power lines, causes biological responses and health effects. Initial epidemiological studies completed in the late 1970s showed a weak correlation between surrogate indicators of magnetic field exposure (such as wiring codes or distance from roads) and increased rates of childhood leukemia (Wertheimer et. al, 1979). Toxicological and laboratory studies have not shown a biological mechanism between EMF and cancer or other adverse health effects. In 2007, the World Health Organization ("WHO") concluded a review of health implications from magnetic fields and concluded, "virtually all of the laboratory evidence and the mechanistic evidence fail to support a relationship between low-level ELF magnetic fields and changes in biological function or disease status" (WHO, 2007).

Natural and human-made electromagnetic fields are present everywhere in our environment. Natural electric fields in the atmosphere range from background static levels of 10 to 120 volts per meter ("V/m") to well over several kilovolts per meter ("kV/m") produced by the build-up of electric charges in thunderstorms. The Earth itself has a magnetic field that ranges from approximately 300 to 700 milligauss ("mG"). In addition to the presence of the earth's steady state electric field, an average home experiences additional magnetic fields of 0.5 mG to 4 mG which arise from the general wiring and appliances located in a typical home (National Cancer Institute, 2009).

4.7.1 Electric Fields

Voltage on any energized wire ("conductor") produces an electric field in the area surrounding the wire. The electric field associated with this high voltage transmission line extends from the energized single-circuit, 1272 kcml ACSR conductor to other nearby objects such as the ground, towers, vegetation, buildings, and vehicles. The electric field from a power line gets weaker as it moves away from the line. Nearby trees and building material also reduce the strength of power line electric fields.

The intensity of electric fields is associated with the voltage of the line and is typically measured near ground level in kV/m. Table 4.2 provides the electric fields for the proposed 115 kV transmission line calculated for a height of 1 meter above ground level. Maximum conductor design voltage is defined as 121 kV which is equal to the nominal voltage of 115 kV plus five percent, the typical maximum operating voltage of the transmission line. In Table 4.2, the electric field values to the right of the center line are different from the values to the left because the three transmission line phase conductors are not symmetrical on both sides of the center line. The transmission line load level (in MVA) does not affect the magnitude of the electric field.

As shown in Table 4.2, the proposed single circuit transmission line operated at 121 kV will have a maximum electric field density of 1.66 kV per meter (kV/m) at the centerline of the right-of-way using a vertical configuration, and 1.57 kV/m at the centerline of the ROW using a delta configuration. The maximum electric field (which is not shown in Table 4.2) occurs at 6-feet off center and is 1.80 kV/m for the vertical configuration and 1.78 kV/m for the delta configuration. The electric field at the edge of the easement ROW is 0.03 kV/m for the vertical configuration and 0.21 kV/m for the delta configuration. The electric field values of these configurations are significantly less than the maximum electric field density limit of 8 kV/m that has been a route permit condition imposed by the Commission for other similar transmission lines. The Commission standard was designed to prevent serious hazard from shocks when touching large objects, such as tractors, parked under high voltage transmission lines.

Table 4.2: Calculated Electric Fields (kV/M) for 115 kV Transmission Line Configuration operated at 121 kV (One Meter above Ground Level)

Structure Type	Distance to Proposed Centerline												
	Left							Right					
	50’	40’	30’	20’	10’	4’	0’	4’	10’	20’	30’	40’	48’
Delta Configuration -	0.24	0.33	0.47	0.64	0.92	1.29	1.57	1.75	1.69	1.06	0.53	0.29	0.21
Vertical Configuration -	0.06	0.03	0.09	0.36	0.93	1.39	1.66	1.80	1.66	0.92	0.35	0.08	0.03

4.7.2 Magnetic Fields

Magnetic fields are present around any electrical device, and can occur indoors and outdoors. Magnetic fields are the result of the flow of electricity or current that travels along transmission lines, distribution (feeder) lines, substation transformers, house wiring, and household electrical appliances. The intensity of a magnetic field for the proposed transmission line is related to the current flow through the 1272 kcmil ACSR conductors (wire).

Considerable research has been conducted throughout the past three decades to determine whether exposure to power-frequency (60 hertz) EMF causes biological responses and health effects. Epidemiological and toxicological studies have shown no statistically significant association or weak associations between EMF exposure and health risks.

In 1999, the National Institute of Environmental Health Sciences ("NIEHS") issued its final report on "Health Effects from Exposure to Power-Line Frequency Electric and Magnetic Fields" in response to the Energy Policy Act of 1992. NIEHS concluded that the scientific evidence linking EMF exposures with health risks is weak and that this finding does not warrant aggressive regulatory concern. However, because of the weak scientific evidence that supports some association between EMF and health effects, and the common exposure to electricity in the United States, passive regulatory action, such as providing public education on reducing exposures, is warranted.

Minnesota, California and Wisconsin have all conducted literature reviews or research to examine this issue. In 2002, Minnesota formed an Interagency Working Group to evaluate the body of research and develop policy recommendations to protect the public health from any potential problems resulting from high voltage transmission line EMF effects. The Working Group consisted of staff from various state agencies. The Working Group published its findings in a White Paper on EMF Policy and Mitigation Options in September 2002 (Minnesota Interagency Working Group, 2002). The findings of the Working Group are summarized in the following paragraph:

> "Research on the health effects of EMF has been carried out since the 1970s. Epidemiological studies have mixed results — some have shown no statistically significant association between exposure to EMF and health effects, some have shown a weak association. More recently, laboratory studies have failed to show such an association, or to establish a biological mechanism for how magnetic fields may cause cancer. A number of scientific panels convened by national and international health agencies and the United States Congress have reviewed the research carried out to date. Most researchers concluded that there is insufficient evidence to prove an association between EMF and health effects; however, many of them also concluded that there is insufficient evidence to prove that EMF exposure is safe."

The Commission, and before them, the Minnesota Environmental Quality Board ("EQB") addressed the matter of EMF with respect to new transmission lines in a number of separate dockets over the past few years. Recently, in the Brookings County – Hampton 345 kV Route Permit proceeding, after extensive testimony on the issue, the Commission adopted the administrative law judge's findings that "there are no demonstrated impact on human health and

safety that is not adequately addressed by the existing State standards for [electric fields or magnetic fields] exposure." *In the Matter of the Route Permit Application by Great River Energy and Xcel Energy for a 345 kV Transmission Line from Brookings County, South Dakota to Hampton, Minnesota*, Docket No. ET2/TL-08-1474, ALJ Findings of Fact, Conclusions and Recommendation at Finding 216 (April, 22, 2010 and amended April 30, 2010; adopted by the Commission in its Order Granting Route Permit, at 12 (September 14, 2010).

The calculated average and peak magnetic fields for the proposed 115 kV transmission line and structure designs are shown below in Table 4.3. The average magnetic fields occur at a loading of 88 MVA and the peak magnetic fields occur at a loading of 200 MVA. The expected magnetic field for the proposed structure type and current loading has been calculated at various distances from the center of the structure in milligauss.[4] The magnetic field values to the right of the center line are different from the values to the left because the three transmission line phase conductors are not symmetrical on both sides of the center line. The proposed single-circuit transmission line operated at 115 kV will have a calculated magnetic field of 146.28 mG (vertical configuration) and 150.11 mG (delta configuration) during peak flows (200 MVA) one meter above ground level at the centerline of the transmission line structures and peak magnetic fields of 152.22 mG (vertical configuration) and 153.87 mG (delta configuration) during peak flows (200 MVA) one meter above ground level at a point 4-feet off center of the transmission line structures. The magnetic fields at the edge of the easement ROW are 41.45 mG (vertical configuration) and 38.31 mG (delta configuration) for peak power flow (200 MVA) conditions.

Because the magnetic field produced by the transmission line is dependent on the current flowing on its conductors, the actual magnetic field when the HVTL Project is in service is typically less than that shown in the Table 4.3 for the peak power flow (200 MVA) conditions. This is because the values for 200 MVA flow conditions shown in Table 4.3 represent the magnetic field with current flow at expected normal system peak conditions. Actual current flow on the transmission line (and the associated magnetic field strength) would vary throughout the day as Project output varies with wind speed. Since peak Project output occurs for a limited number of hours during the year, the magnetic field strength would typically be less than peak levels during most hours of the year.

There are no anticipated impacts attributed to EMF from the Project, therefore, mitigation is not proposed. Magnetic field exposure is directly related to distance from the transmission line. In the route selection process the Applicant selected a route in part to avoid residences to the greatest possible extent. As a result of this selection, EMF exposure has been reduced, thus following the prudent avoidance policy cited by the Department of Health and EQB.

[4] Magnetic field strength is measured in units of gauss. One milligauss = one/thousandth of one gauss.

Table 4.3: Calculated Magnetic Field Data (Milligauss) for 115 kV Transmission Line Configuration at Average (88 MVA) and Peak (200 MVA) Power Flow Conditions

Structure Type	System Conditions	Distance to Proposed Centerline												
		Left							Right					
		50’	40’	30’	20’	10’	4’	0’	4’	10’	20’	30’	40’	48’
Magnetic Field Data (Vertical Configuration)	88 MVA	12.75	17.19	23.94	34.34	49.39	59.37	64.65	67.28	64.65	49.39	34.34	23.94	18.32
	200 MVA	28.86	38.90	54.18	77.70	111.75	134.32	146.28	152.22	146.28	111.75	77.70	54.18	41.45
Magnetic Field Data (Delta Configuration)	88 MVA	11.89	16.38	23.61	35.21	51.66	61.65	66.34	68.01	63.89	47.42	32.36	22.29	16.93
	200 MVA	26.91	37.07	53.43	79.67	116.8	139.49	150.11	153.87	144.55	107.28	73.22	50.43	38.31

4.7.3 Stray Voltage

Stray voltage can occur with electrical distribution lines to residences and high voltage transmission lines that parallel them. Stray voltage flows through the ground between electrical systems that, by code, must be grounded (i.e. connected to the earth) to ensure safety. This voltage may be felt by animals standing on the ground. Due to this, stray voltage has been raised as a concern on dairy farms because of its potential to impact dairy cattle and milk production.

Impacts from stray voltage are typically related to improper grounding of electrical service to the farm (distribution lines) or on-farm electrical wiring. Transmission lines do not, by themselves, create stray voltage because they do not connect to businesses or residences and they are typically grounded properly. However, transmission lines can induce stray voltage on a distribution circuit that is parallel to and immediately under the transmission line.

Appropriate measures, such as proper grounding, will be taken to prevent stray voltage problems. The Applicant would be required to remedy any stray voltage issues as a condition of a route permit.

5.0 ENVIRONMENTAL INFORMATION

This section provides a description of the environmental setting, potential impacts and mitigation measures. The Applicant has proposed, where necessary, to minimize the impacts of siting, construction and operation the proposed Project.

5.1 Environmental Setting

According to the Ecological Classification System of Minnesota, the HVTL Project is located in the Prairie Parkland Province, the North Central Glaciated Plains section and the Minnesota River Prairie subsection (DNR 2005). Prior to agricultural clearing, the surrounding landscape was covered in upland and wetland prairie with oak savannas on fire-protected uplands, and floodplain forest along protected waterways (Marschner 1974). The most recent glacial period left the region pock marked with small wetlands and kettlehole lakes.

The topography of the HVTL Project is glaciated, gently rolling plains with elevations ranging from 1,217 feet to 1,411 feet (371 meters to 430 meters) above sea level. A topographic map showing elevation for the HVTL Project is shown in Figure 5.1.

As a result of settlement in the mid-1800s, the area along the proposed Project was converted from grassland into farmland. During this process, wetland and prairie areas were frequently cropped, ditched and drained. Only a small fraction of the original prairie and wetlands remain as relic habitats. Presently, agricultural fields, farmsteads, and gently rolling topography visually dominate the Proposed Route.

5.2 Human Settlement

The HVTL Project is located within the Odell Wind Farm, and across parts of Cottonwood, Jackson, and Martin Counties. Cottonwood County's estimated population is 11,687 people,

Jackson County's estimated population is 10,266 and Martin County's estimated population is 20,840 people. The city of Windom is approximately 8.5 miles west of the HVTL Project (estimated 2010 population of 4,646). The city of Odin (estimated 2010 population of 106) is approximately 4.5 miles northeast of the HVTL Project (U.S. Census Bureau 2010).

Outside of these municipalities, human settlement is lightly dispersed across the landscape where farmsteads have been established. Please see Figures 5.2 (a)-(j) for locations of farmsteads and other residences along the HVTL Project and in its vicinity.

5.2.1 Public Health and Safety

The HVTL Project will be designed in compliance with local, State, and NESC standards regarding clearance to ground, clearance to utilities, clearance to buildings, strength of materials, and ROW widths. The Applicant's contracted crews will comply with local, State, and NESC standards regarding installation of facilities and standard construction practices. Odell will use proper signage and guard structures when stringing wire across roads and railroads. Installation of the guard structures and signage will be coordinated with the owner of the transportation corridor being protected. Guard structures can be temporary wood poles with a cross arm or line trucks with their booms used to hold the wire and protect the lanes of traffic.

The proposed transmission line will be equipped with protective devices, such as breakers and relays, to safeguard the public from the transmission line if a transmission line or pole falls or other accident occurs. Breakers and relays are located where the line connects to the substation, and will de-energize the line in the event of an emergency. In addition to protective devices, proper signage will be posted warning the public of the safety risks associated with the energized equipment.

Airport Flight Safety

Three private airports/airstrips are located within five miles of the HVTL Project. Table 5.1 below identifies the three airstrips within five miles of the HVTL Project. The closest public use airport is Windom Municipal Airport, which is located approximately nine miles northwest of the HVTL Project in Cottonwood County.

Table 5.1: Private Airports/Airstrips within Five Miles of the Project

FAA Registered Name	Distance*	Section/Township/Range	Township Name/County	Runway Information
Private Airstrip	1.3	29/105/34	Mountain Lake/Cottonwood	North/South Orientation
Private Airstrip	2.5	22/105/34	Mountain Lake/Cottonwood	East/West Orientation
Turner Field	3.5	26/105/35	Lakeside/Cottonwood	Turf

**Approximate distance in miles from the nearest portion of the HVTL Project.*

Impacts

There are three private airports/airstrips within five miles of the HVTL Project. The Applicant is coordinating with the landowners of the private airports/airstrips and has sited the transmission line far from their facilities. No impacts are anticipated due to the distance of each of the airports/airstrips from the HVTL Project.

Mitigation Measures

Odell is currently working with the private owners regarding options for continued safe airplane operations. In siting the transmission line, Odell has maintained a significant distance from the airstrips to ensure their safe use and to avoid potential conflicts. In addition, Odell has existing contracts with two of the three airstrip owners to provide for coordinated development and use.

5.2.2 Commercial, Industrial, and Residential Land Use, Displacement

Land use in the vicinity of the HVTL Project is dominated by agriculture production, typically associated with open fields used for crop production. Commercial and industrial land uses are not present along the HVTL Project. Residential development is restricted to farmsteads which are mostly located along section lines in the area. These farmsteads are often characterized by windbreaks of deciduous trees and shrubs.

NESC standards require certain clearances between transmission line facilities and buildings for safe operation of the transmission line. The Applicant acquires a right-of-way for transmission lines that is sufficient to maintain these clearances.

Six homes were identified within 500 feet of the proposed application alignment. Three homes are located within the Proposed Route as follows:

- where the Proposed Route width is 600 feet in T104 R33 Section 6 in Martin County, one home is approximately 60 feet from the application alignment; and
- in T104 R34 Section 12 in Jackson County, two homes are approximately 200 feet from the application alignment.

Impacts

No displacement, which is defined as compelling a person or persons to leave their home, is anticipated as a result of the HVTL Project. It is not anticipated that the addition of the HVTL Project will constitute a change in land use type.

Mitigation Measures

The HVTL Project will minimize the impacts to the existing and planned land use. To the extent practicable, the Applicant will maximize distances to homes along the Proposed Route. Because no displacement is anticipated, no mitigation measures other than maximizing distances from the HVTL Project to homes are proposed.

5.2.3 Noise

Noise is defined as unwanted sound. It may be made up of a variety of sounds of different intensities, across the entire frequency spectrum. Noise is measured in units of decibels ("dB") on a logarithmic scale. Because human hearing is not equally sensitive to all frequencies of sound, certain frequencies are given more "weight." The A-weighted scale ("dB(A)") is used to reflect the selective sensitivity of human hearing. This scale puts more weight on the range of frequencies that the average human ear perceives, and less weight on those that people do not hear as well, such as very high and very low frequencies. The C-weighted scale ("dB(C)") is used to reflect human sensitivity at louder levels. This scale puts more weight on the lower frequencies than does the A-weighted scale.

A transmission line can generate a small amount of sound due to corona activity. Corona is the manifestation of energy loss through the line, and this energy loss can produce sound, such as buzzing or crackling. This noise can be greater in rainy or foggy conditions. During heavy rains, the sound of the rain generally is greater than the noise emitted from the transmission line and thus is not noticeable. Substation noise may result from the transformers, which may create a humming noise. Transformers and transmission lines are equipped with circuit breakers which open to de-energize the transformers and transmission lines for fault conditions and for maintenance. As such, the circuit breakers are rarely opened and closed, at which time there is sound associated with the mechanical operation of the breakers. Circuit breakers do not emit a humming noise.

Impacts

The term ambient acoustic environment refers to the all-encompassing sound in a given environment or community. The outdoor ambient acoustic environment is a composite of sound from varying sources, distances, and directions. Common sound sources within an agricultural and/or rural environment include, but are not limited to, sound from farm equipment such as tractors and combines, sound generated from traffic on roadways, sounds from birds, and wind rustling through the vegetation. Typically, the ambient acoustic environment of a rural or agriculturally-oriented community has equivalent continuous sound levels ($L_{eq,}$ which is an energy-based time-averaged noise level) ranging from 30 dB(A) to 60 dB(A).

In agricultural and/or rural communities, the higher sound levels typically exist near roadways and near areas that experience greater human activities such as farming. In addition, compared with similar environments with lower quality wind resources, those environments with higher wind resources generally experience higher sound levels. Different communities can experience a wide variety of sound levels within their given ambient acoustic environments, and this variation of sound creates their respective spectral content.

The background noise in the area is typically a result of wind, farming equipment/operations, and vehicles. A comparison of typical noise generators is outlined in Table 5.2.

Table 5.2: Comparison of Typical Noise Generators

Sound Pressure Level (dB(A))	Noise Source
140	Jet engine (at 25 meters)
130	Jet aircraft (at 100 meters)
120	Rock and roll concert
110	Pneumatic chipper
100	Jointer/Planer
90	Chainsaw
80	Heavy truck traffic
70	Business office
60	Conversational speech
50	Library
40	Bedroom
30	Secluded woods
20	Whisper

Source: "A Guide to Noise Control in Minnesota" Minnesota Pollution Control Agency (2008)

The Minnesota Pollution Control Agency ("MPCA") has the power to adopt noise standards pursuant to Minnesota Statute Section 116.07, subd. 2. The adopted standards are set forth in Minnesota Rules Chapter 7030. The MPCA standards require A-weighted noise measurements. Different standards are specified for daytime (7:00 AM – 10:00 PM) and nighttime (10:00 PM – 7:00 AM) hours. The noise standards specify the maximum allowable noise volumes that may not be exceeded for more than 10 percent of any hour (L_{10}) and 50 percent of any hour (L_{50}). Household units, including farm houses, are included in Land Use Classification 1. Table 5.3 shows the MPCA State noise standards. All the land within the HVTL Project is considered Land Use Class (NAC-1).

Table 5.3: MPCA State Noise Standards – Hourly A-Weighted Decibels

Land Use	Code	Day (7:00 AM – 10:00 PM) dBA		Night (10:00 PM – 7:00 AM) dBA	
		L_{10}	L_{50}	L_{10}	L_{50}
Residential	NAC-1	65	60	55	50
Commercial	NAC-2	70	65	70	65
Industrial	NAC-3	80	75	80	75

There will be noise generated by construction equipment during the construction of the HVTL Project. The closest residences to the application alignment are the three homes located within the Proposed Route. Where the Proposed Route width is 600 feet in T104 R33 Section 6 in Martin County, one home is approximately 60 feet from the application alignment. In T104 R34 Section 12 in Jackson County, two homes are approximately 200 feet from the application alignment and substation location. Noise levels produced by a 115 kV transmission line and substation are generally less than outdoor background levels and therefore are not usually audible. Therefore, no noise impacts are expected.

Mitigation Measures

Construction will be limited to daytime hours to avoid nighttime construction noise. After construction, no proposed impacts are anticipated so mitigation is not proposed.

5.2.4 Radio and Television Interference

Corona from transmission line 1272 kcmil ACSR conductors can generate electromagnetic "noise" at the same frequencies that radio and television signals are transmitted. This noise is not sound, but rather electromagnetic signals that can cause interference with the reception of radio and television signals depending on the frequency and strength of the radio and television signal. Tightening loose hardware on the transmission line usually resolves this problem.

Impact

AM radio frequency interference typically occurs immediately under a transmission line and dissipates rapidly within the right-of-way to either side. FM radio receivers usually do not pick up interference from transmission lines because corona-generated radio frequency noise currents decrease in magnitude with increasing frequency and are quite small in the FM broadcast band (88-108 Megahertz). Also, the excellent interference rejection properties inherent in FM radio systems make them virtually immune to amplitude type disturbances.

A two-way mobile radio located immediately adjacent to and behind a large metallic structure (such as a steel tower) may experience interference because of signal-blocking effects.

Television interference is rare but may occur when a large transmission structure is aligned between the receiver and a weak distant signal, creating a shadow effect. Loose and/or damaged hardware may also cause television interference.

A search of telecommunication tower locations within one mile of the Proposed Route and Substation identified two private land mobile towers and no microwave towers.

Mitigation Measures

If radio interference from transmission line corona does occur, satisfactory reception of two-way radio from AM radio stations presently providing good reception can be obtained by appropriate modification of (or addition to) the receiving antenna system. If radio or television interference occurs because of the transmission line, the Applicant will work with the affected landowner to address the problem so that reception is restored to pre-Project levels. Movement of either two-way radio mobile unit so that the metallic structure is not immediately between the two units should restore communications. This would generally require a movement of less than 50 feet by the mobile unit adjacent to a metallic tower. If television or radio interference is caused by or from the operation of the proposed facilities in those areas where good reception is presently obtained, the Applicant will inspect and repair any loose or damaged hardware in the transmission line, or take other necessary action to restore reception to the pre-Project level, including the appropriate modification of receiving antenna systems if deemed necessary.

5.2.5 Aesthetics

The topography in the vicinity is generally flat and the vegetation cover is uniformly low, making the topography vulnerable to visual disruptions. The settlements in the vicinity are residences and farm buildings (inhabited and uninhabited farmsteads) scattered along rural county roads. These structures are focal points in the dominant open space of the vicinity.

Impact

The HVTL Project will result in an alteration of the current landscape through construction of wood or steel poles of 65 to 70 feet and construction of a 10-acre substation footprint in an existing farm field. The structures within the substation will be 70-80 feet high at their highest for lighting protection but will on average have the profile of a single story building and will consist of high voltage electrical equipment. The substation will have downshielded service lighting but some lighting impacts may occur.

Mitigation Measures

The Proposed Route mitigates visual disruptions in the rural landscape by siting the route along existing roadway corridors. The combination of these two linear features (the HVTL Project and the road) minimizes impacts to the viewshed from homes to the greatest extent possible. Downshielded lighting will help to maintain substation security while minimizing lighting impacts.

5.2.6 Socioeconomic

Population and economic characteristics based on the 2010 U.S. Census are presented in Table 5.4.

Table 5.4: 2010 U.S. Census Population and Economic Characteristics

	Total Population	Caucasian Population (Percent)	Median Household Income (In 2011 Inflation-Adjusted Dollars)	Percentage of Population Below Poverty Level
State of Minnesota	5,344,861	86.3	$56,954	11.9%
Cottonwood County	11,687	92.2	$43,111	11.7%
Jackson County	10,266	95.8	$47.455	11.2%
Martin County	20,840	96.7	$44,791	9.3%
Mountain Lake Township, Cottonwood County	384	95.8	$54,000	21.7%
Kimball Township, Jackson County	129	96.1	$66,000	9.2%
Cedar Township, Martin County	223	99.1	$63,125	4.8%

Source: U. S. Census Bureau, 2007-2011 American Community Survey

According to the 2010 Census demographics, the minority groups in the area constitute a relatively small percentage of the total population. The minority population percentage is lower than what is reflected in Minnesota overall.

Median household incomes in the HVTL Project are very similar to the averages from those reported for Minnesota. Economic activities along the route primarily consist of crop and livestock agriculture. According to the U.S. Census' 2007-2011 American Community Survey ("ACS") (there are 27,076 workers in the four county area over the age of 16). The top three employment areas in the three county area in which the Proposed Route is planned for are: (1) educational services, and health care and social assistance; (2) manufacturing; and (3) retail sales. Table 5.5 provides data aggregated from the 2007-2011 ACS 5-Year Estimates for the three county area.

Table 5.5: ACS Job Sector Estimates

Industry	Total Estimated Jobs	% of Workforce
Agriculture, forestry, fishing and hunting, and mining	2,675	9.88%
Construction	1,844	6.81%
Manufacturing	5,461	20.17%
Wholesale trade	734	2.71%
Retail trade	2,776	10.25%
Transportation and warehousing, and utilities	1,550	5.72%
Information	485	1.79%
Finance and insurance, and real estate and rental and leasing	1,063	3.93%
Professional, scientific, and management, and administrative and waste management services	1,070	3.95%
Educational services, and health care and social assistance	6,001	22.16%
Arts, entertainment, and recreation, and accommodation and food services	1,349	4.98%
Other services, except public administration	1,260	4.65%
Public administration	808	2.98%

Impact

Approximately 60 workers will be required for transmission line construction. The transmission crews are expected to spend approximately eight weeks constructing the entire transmission line. During construction, there will be a small positive impact due to the expenditures of the construction crews in the local community.

It is not expected that additional permanent jobs will be created; however, the HVTL Project would enable up to 200 MW of wind energy conversion systems (wind turbines) to be installed for the Odell Wind Farm. This will have a significant economic impact, which is discussed in Odell's LWECS Site Permit Application.

There will be short-term impacts to community services as a result of construction activity and an influx of contractor employees during construction of the various projects. Utility personnel or contractors will be used for all construction activities. The communities near the Proposed Route will likely experience short-term positive economic impacts through the use of the hotels, restaurants and other services by the various workers.

Specific beneficial impacts related to the line construction will provide a seasonal influx of additional dollars into the community during the construction phase. Construction materials, such as concrete, may be purchased from local vendors where feasible. Long-term beneficial impacts from the proposed transmission lines and local tax base will result from the incremental increase in revenues from utility property taxes.

Socioeconomic impacts resulting from the HVTL Project will be primarily positive with an influx of wages and expenditures made at local businesses during Project construction. Because the economic activity along the Proposed Route is predominantly land-based agricultural activities, and very little land will be taken out of production, no negative impact to the economic activities along the Proposed Route is anticipated.

Mitigation Measures

No negative impacts are anticipated and therefore no mitigation measures are proposed.

5.2.7 Cultural Values

Cultural values can be described as shared community beliefs or attitudes, among a given area or population, which provide a framework for that area's or population's commonality. The communities in the vicinity of the HVTL Project primarily have cultural values tied to rural agriculture, light industry and recreation. Agriculture and farm-related businesses remain important to the regional economy. The area has a diversified agricultural mix of crops including corn, soybeans, hay, and livestock production. See Section 5.3.1 for a more detailed discussion of agricultural land use in the HVTL Project vicinity.

Impact

The presence of the HVTL Project will not significantly impact the agricultural land use or general character or cultural values of the area. As demonstrated by other transmission projects in the Midwest, agricultural practices continue throughout construction and operations.

Mitigation Measures

Section 5.3.1 discusses agricultural mitigation which provides the detail on cultural values tied to rural agriculture.

5.2.8 Recreation

No recreational facilities are located along the Proposed Route. There are a variety of recreation opportunities approximately four miles west of the Project, near the Des Moines River, including State Wildlife Management Areas.

There are four known Minnesota State Wildlife Management Areas within five miles of the Project:

- Bennett State Wildlife Management Area
- Banks State Wildlife Management Area
- Fossum State Wildlife Management Area
- Laurs Lake State Wildlife Management Area

There is one Waterfowl Production Area (Christiania) within five miles of the HVTL Project. Mountain County Park is approximately five miles north of the HVTL Project. Fossum State Wildlife Management Area is approximately 2.5 miles northeast of the HVTL Project. Two public trails are within five miles of the Project: the Riverside Snowmobile Trail and the Elm Creek Trail. The Riverside Snowmobile Trail runs north and northeast of the HVTL Project. The Elm Creek trail is a five-mile long ATV trail located south of the HVTL Project on private land in Martin County. Recreation opportunities include boating, hunting, fishing, wildlife viewing, and hiking.

Impact

Because all Project facilities will be located on private lands, there will be no direct impacts to recreational facilities. Indirect impacts to recreational resources will be visual in nature and limited to persons using public or private property in or near the HVTL Project. During construction, the noise from increased vehicle traffic and construction activities may temporarily alter the experience of those using recreational resources. In order to maintain safety standards, hunting and other recreational activities may be temporarily suspended when construction or maintenance personnel are working at the HVTL Project. After construction is completed, the specific locations of the facilities may also impact hunting by affecting the direction in which hunters may shoot (to avoid striking transmission facilities).

Mitigation Measures

To the extent possible, the HVTL Project's facilities will be placed in a manner so as to avoid impacts to recreational resources. No additional mitigation to recreational resources is proposed at this time.

5.2.9 Public Services

The HVTL Project is located in a lightly populated, rural area in southwestern Minnesota. There is an established transportation and utility network that provides access and necessary services to the light industry, small cities, homesteads, and farms existing near the HVTL Project. The closest communities near the HVTL Project are Odin, Ormsby, Trimont, Mountain Lake, Bingham Lake, and Windom. The public road system in the area generally follows section lines and is managed by local government units. The Red Rock Rural Water System provides a centralized water distribution network for the rural residents in the Project's vicinity. The Proposed Route has one natural gas pipeline in its vicinity that is operated by Northern Border Pipeline Company (see Figure 1.1).

Telecommunications providers in the HVTL Project include: Citizens Telecommunications Company of Minnesota, LLC; Integra Telecom of Minnesota, Inc.; Ionex Communications North, Inc.; NOS Communications Inc.; Qwest Corporation; Sprint Communications Company L. P.; Frontier Communications of Minnesota, Inc.; Embarq Minnesota, Inc. d/b/a CenturyLink; Windstream Lakedale Link, Inc.; and USLink, Inc. d/b/a TDS METROCOM .

Public Schools in the vicinity of the HVTL Project include Martin County West, Windom Area Schools, Jackson County Central, and Mountain Lake Public School. Two of the largest hospitals serving the region include Windom Area Hospital in Windom, MN and Sanford Medical Center in Jackson, MN.

Impact

Impacts to public services are expected to be minimal. Impacts to the telecommunications, electrical and water services would likely occur during construction maintenance activities, and may involve temporary disruptions of service to facilitate relocation of facilities. No permanent impacts to local services are anticipated. No impacts to regional gas services are anticipated. Impacts associated with interconnecting the line with the grid will be coordinated with MISO and Xcel Energy (the interconnecting utility).

Mitigation Measures

Proper safety regulations and requirements will be followed along roadways, railroad, and existing utilities along the Proposed Route. The Applicant will work with the Minnesota Department of Transportation ("MnDOT"), the counties, the relevant townships, and all public service providers to coordinate any potential or planned outages when consolidating facilities.

5.3 Land-Based Economics

5.3.1 Agriculture

The majority of the land near the HVTL Project is cultivated farmland. Corn, soybeans, small grains, and forage crops are grown throughout the three counties. Cash crops and livestock production are the major sources of agricultural income. Martin County is listed as the second highest livestock producing county in Minnesota (Minnesota Department of Agriculture 2012). Martin and Jackson County are listed in the top ten counties for Minnesota crop production, with Martin County ranking sixth and Jackson County ranking eighth among Minnesota's eighty seven counties (Minnesota Department of Agriculture 2011).

Impact

Although Jackson, Cottonwood, and Martin County are large livestock producing areas, the Applicant has not identified any livestock operations along the Proposed Route. Table 5.6 below summarizes the estimated temporary and permanent impacts to agricultural land by the proposed HVTL Project. Temporary impacts may include soil compaction and crop damages in the vicinity of each pole during construction. The area calculated for temporary impact during construction conservatively assumes a 40-foot wide corridor spanning the length of the Proposed Route, totaling approximately 46 acres of temporary impact. Permanent impacts will occur due to the placement of the transmission line poles. The estimated permanent impacts from each pole foundation will be 19.6 square feet at the surface, or about 0.06 acres in total. In addition, Odell estimates that the Woad Hill Substation will take up 10 acres of land for a total permanent impact of 10.06 acres.

Table 5.6: Estimated Permanent Impacts

Project Length	Estimated # of Poles	Permanent Impacts (acres)
9.5 miles (assumes 400 ft. span)	125	0.06
Woad Hill Substation		10
A. TOTAL		**B. 10.06**

Mitigation Measures

The Applicant intends to place the poles as closely as feasible (approximately 5 feet) from the edge of the roadway right-of-way. The Applicant will work with landowners to identify appropriate locations for poles. The final spacing and location of poles will be done to accommodate the movement of farm equipment between and around their locations while still maintaining safety and design standards. The Applicant has elected to use a span between poles that is at the upper end of typical span lengths to minimize the number of poles. The Applicant will coordinate construction of the HVTL Project either before crops are planted or following harvest, if possible. If this is not possible, the Applicant will compensate for any impact to crops including compaction that might result from the construction. Additionally, the Applicant will

compensate for crop impacts resulting from the operations and maintenance of the HVTL Project.

5.3.2 Forestry

There is currently no data available for tree harvest areas along the Proposed Route. There are scattered areas of privately-owned wooded land which potentially could be affected by the line. Typical species associated with farmsteads that could be affected by the Proposed Route include eastern cottonwood, green ash, box elder, and American elm. For potential impacts to flora, please see Section 5.5.3.

Impact

The HVTL Project may result in the removal or trimming of trees within and/or adjacent to the transmission line ROW to ensure the HVTL ROW is clear of obstructions. Vegetation management is necessary for the safe operation of the transmission line; branches can cause stress and line outage risks, especially in areas with a strong wind resource, which is typical of this area of the state.

Mitigation Measures

To the extent possible, the Applicant will try to minimize the need for trimming and removal of trees during construction and operation of the transmission line. Where trimming of trees is necessary, it will be performed by an arborist familiar with best practices for tree trimming, so as to minimize stress on the tree.

5.3.3 Tourism

There are two public trails and four wildlife management areas within five miles of the HVTL Project. Table 5.7 below identifies the resource and miles from the centerline of the transmission line.

Table 5.7: Resources in the Vicinity of the Project

Resource	Distance from Project (miles)	Direction from Project
Elm Creek Trail	3.6	South
Riverside Snowmobile Trail	2.48	North/Northeast
Banks State Wildlife Management Area	3.9	West/Northwest
Bennett State Wildlife Management Area	2.9	Northwest
Fossum State Wildlife Management Area	2.5	Northeast
Laurs Lake State Wildlife Management Area	4.1	Southwest

Impact

These resources will not be impacted by the HVTL Project.

Mitigation Measures

No impacts are anticipated and therefore no mitigation measures are proposed.

5.3.4 Mining

Based on MnDOT's Aggregate Source Information System, the Applicant does not know of any gravel pits located within the Proposed Route. The two gravel pits are shown in the U.S.G.S. base topographic mapping used on Figure 5.1 in Section 16 of Cedar Township in Martin County do not occur in MnDOT's ASIS database. Moreover, a review of recent aerial photography suggests these two gravel pits are no longer active. According to the ASIS, the closest gravel/aggregate pit is located in Section 25 of Cedar Township in Martin County. The gravel pit is approximately four miles from the HVTL Project.

Impact

These resources will not be impacted by the HVTL Project.

Mitigation Measures

No mitigation measures are proposed because the HVTL Project will not impact any mining operations.

5.4 Archaeological and Historical Resources

The HVTL Project is located in the Prairie Lake archeological region. Within the Prairie Lake region, cultural resources would be expected to be found near woods, which historically were generally limited to surrounding areas of major lakes or in major river valleys in much of the region. Additional areas where cultural resources could be found include: (1) near larger river valleys; (2) near lakes and streams; (3) near resource procurement sites within upland settings; and (4) near the Minnesota River. There are few Middle Prehistoric sites within the region; the majority of sites belong to the Late Prehistoric period.

A records search was completed at the State Historic Preservation Office ("SHPO") on June 12, 2013 to identify previously recorded and reported archaeological and architectural sites within a half-mile of the Odell Wind Farm, which includes the Proposed Route (Appendix C of the Site Permit Application (filed separately under Docket No. IP6914/WS-13-843 on September 26, 2013). Within the Odell Wind Farm's boundary, no previously recorded archaeological and two architectural sites were identified. No sites were identified within the Proposed Route.

Impact

The overall goal of the HVTL Project is to avoid archaeological and historical sites. A letter dated June 21, 2013 from SHPO recommends an additional survey be completed (see Appendix

B). The Applicant, through a contracted cultural resource professional, will complete this survey prior to the start of construction for the areas to be disturbed by the HVTL Project. The surveys will be completed at or near when the Applicant receives its route permit, but in any event, no later than Project construction.

Mitigation Measures

Odell will use the results of the preconstruction surveys to avoid and minimize impacts to archaeological and historic sites. Identified sites will be marked on construction drawings to ensure that the construction team avoids them to the extent possible.

In the event that an archeological site is found during construction, the integrity and significance of the site will be addressed in terms of the potential of the site to be eligible for listing in the National Register of Historic Places ("NRHP"). If such sites are found to be eligible for listing in the NRHP, mitigation measures will be developed in consultation with SHPO, the State Archeologist, and any relevant American Indian communities. If previously unknown archaeological resources are inadvertently encountered during construction and/or operation, the discoveries will be reported to SHPO.

Before the Project's construction, the Applicant will also prepare an Unanticipated Discoveries Plan. The plan will detail a process for prompt communication and action regarding the discovery of previously unknown archaeological resources or human remains should they be encountered. Once the plan is fully developed, it will be submitted to SHPO for review and approval.

5.5 Natural Environment

5.5.1 Air Quality

Based on information from the MPCA, Minnesota's air quality is generally good and has been improving for most pollutants. Also, concentrations of most toxic air pollutants of concern have gradually decreased until, individually, they are below levels of health concern. Much of this decline can be attributed to lowered emissions from major facilities and cleaner cars and fuels due to enforcement of the Clean Air Act and Clean Air Act Amendments, as well as voluntary reductions undertaken at some facilities (source: MPCA).

Impacts

Air quality impacts associated with transmission lines are minimal. During construction, temporary impacts associated with fugitive dust could occur. Suitable erosion control measures will be required to address dust during construction.

Post-construction, the creation of ozone can occur as a result of corona, which can occur in localized areas around transmission lines or other energized electrical devices. This reaction also occurs when lightning strikes. Corona can cause the breakdown and ionization of air within a few centimeters of the conductor. This produces a small amount of ozone and oxides of nitrogen

in the air surrounding the conductor. Ozone is very reactive and it combines easily with other elements in the atmosphere, thus making it short lived in the environment.

Mitigation Measures

Proper erosion control methods and BMPs will be used during construction to minimize impacts associated with fugitive dust. Post-construction, the potential impacts from the corona effect are limited and not anticipated to impact air quality. No additional mitigation measures are proposed.

5.5.2 Water Quality

The Proposed Route is located within the Blue Earth River and Watonwan River watersheds. According to the Minnesota Public Waters Inventory ("PWI") data (DNR 2008) there is one public water course along the Proposed Route. This watercourse, the Cedar Creek, crosses the Proposed Route at two locations on the eastern end of the Proposed Route, and parallels the Route for approximately 0.3 miles. Cedar Creek is a perennial stream along this stretch. Federal Emergency Management Agency ("FEMA") Flood Insurance Rate Maps indicate a floodplain along Cedar Creek (FEMA 1988). There are no PWI basins along the Proposed Route (DNR 2008).

According to the National Wetlands Inventory ("NWI") polygon data there are two wetlands totaling 0.5 acres within the Proposed Route (DNR 1997b). These wetlands are drained temporarily flooded emergent wetlands (PEMAd).

A 3.96-acre semi-permanently flooded emergent wetland ("PEMF") is just south of the Proposed Route on its western end. Inspection of aerial photographs indicates that wetland is located in a cropped field. NWI polyline data also indicates the wetland along Cedar Creek, which crosses the Proposed Route as discussed above (DNR 1997c). The wetland along Cedar Creek is classified as R2UBGx, an excavated, low-gradient stream with an unconsolidated bottom, where surface water is present except in extreme drought.

Impacts

Impacts to water resources are expected to be minor. The transmission line will be designed to span wetlands and watercourses to the extent practicable. A short-term effect on water quality is possible during the construction phase of the Project, due to sedimentation.

Mitigation Measures

Formal field wetland delineations will be conducted along the Proposed Route prior to construction. If the HVTL Project will permanently or temporarily impact waters of the U.S., Minnesota PWIs, jurisdictional wetlands or 100-year floodplains, the Applicant will apply for the necessary permits prior to construction and will work with officials to minimize impacts. Prior to construction, a Storm Water Pollution Prevention Plan will be prepared to control sedimentation during construction, and an National Pollutant Discharge Elimination System ("NPDES") permit will be obtained.

5.5.3 Flora

According to the Ecological Classification System of Minnesota, the HVTL Project is located in the Prairie Parkland Province, the North Central Glaciated Plains section, and the Minnesota River Prairie subsection (DNR 2005). Prior to agricultural clearing, the area in and around the HVTL Project were covered in upland and wetland prairie with oak savannas on fire-protected uplands and floodplain forest along protected waterways (Marschner 1974). The most recent glacial period left the region pock marked with small wetlands and kettlehole lakes.

Upland prairie systems were dominated by grass species including big bluestem (*Andropogon gerardii*), prairie dropseed (*Sporobolus herterolepis*), little bluestem (*Schizachyrium scoparium*), Indian grass (*Sorghastrum nutans*), porcupine grass (*Stipa spartea*) and side-oats grama (*Bouteloua curtipendula*). The wet prairie communities were also dominated by grass species, but include a greater forb component. Dominant species included: big bluestem, prairie cordgrass (*Spartina pectinata*), Indian grass, switchgrass (*Panicum virgatum*) and mat muhly grass (*Muhlenbergia richardsonis*). In savanna habitats herbaceous prairie species dominated the ground cover, and the community had scattered trees comprising 25-50% canopy cover. Common tree species included bur oak (*Quercus macrocarpa*) and northern pin oak (*Quercus ellipsoidalis*). Floodplain forests were dominated by trees that could handle flooding and siltation including: silver maple (*Acer saccharinum*), green ash (*Fraxinus pennsylvanica*), cottonwood (*Platanus occidentalis*) and American elm (*Ulmus americana*).

Current vegetation cover type mapping is based on data from the National Land Cover Database ("NLCD") raster dataset developed in 2001 by the U.S. Geological Survey and LANDSAT images from March 1997-Sept 2001 (Homer et al. 2004). Each NLCD land cover type was assigned to an Applied Ecological Services ("AES") vegetation cover type (Table 5.7; Figure 5.3). The accuracy of the data was generally confirmed via aerial photographs and a visit to the Proposed Route in 2013.

The NLCD mapping of permanent grassland that could serve as long-standing wildlife habitat was inaccurate as determined by these field checks. Consequently, in 2013 AES re-mapped permanent grasslands within the LWECS Project Boundary. AES mapped grassland polygons based on remote analysis of 2010 National Agriculture Imagery Program aerial photographs, and field verified grasslands in April 2013. Permanent grasslands included Conservation Reserve Program ("CRP") lands, Reinvest in Minnesota ("RIM") lands, hay meadows and pastures. Small linear areas of grassland in stream corridors, ditches and rights-of-way were not mapped. Therefore, the refined land cover mapping combined NLCD land cover data with AES's field-verified grasslands. Areas identified in the NLCD land cover data as grassland and pasture were field-verified and mapped by Odell. Other than grasslands, the 2013 field observations confirmed that the NLCD land cover had not changed significantly from 2001 when the NLCD data were developed.

Table 5.8: AES Vegetation Cover Type Descriptions

AES Habitat Cover Type	Description
Developed	Residential, commercial, industrial, and other developed land, including developed green space (e.g., golf course, city park).
Cropland	Regularly cultivated land. Pasture, hay meadow, and fallow field are grasslands.
Barren Land	Land with sparse to no vegetation (e.g., mines, landfills, construction sites, sparsely vegetated shores).
Grassland	Grass and herbaceous plants cover ≥90% of the ground in uplands; includes pasture, hay meadow, and fallow field.
Upland Shrub-Scrub	Shrubs and scrubby or mature trees cover 10-50% of the ground. Includes brushland and savanna with trees and shrubs.
Upland Forest	Trees cover ≥50% of the ground.
Forested Wetland	A wetland or lowland flooded area with 50-100% tree cover.
Shrub-Scrub Wetland	A wetland with 10-50% cover by shrubs, scrubby and mature trees. Includes savanna with trees and shrubs.
Emergent Wetland	A wetland with ≥90% cover of herbaceous plants.
Open Water	Water and sparse to no vegetation cover; rivers, streams, lakes, ponds.

Today approximately 98.8% of the length of the Proposed Route supports agriculture. These agricultural areas are cropland with corn (*Zia mays*) and soy (*Glycine max*) plantings predominating. Within the cropland matrix, small natural patches include grasslands along drainage ditches, fence rows, and woodlots and wind breaks associated with farmsteads. These drainage ditches and small grasslands are typically dominated by cool season grasses such as smooth brome (*Bromus inermis*), Kentucky bluegrass (*Poa pratensis*) and quack grass (*Elytrigia repens*). Tree species in woodlots and wind breaks associated with farmsteads are typically quick growing trees such as cottonwood, American elm, silver maple, aspen (*Populus* spp.) and willow (*Salix* spp). The remaining 1.2% of the length is in slightly larger patches of grassland surrounding larger drainageways as well as emergent wetland and upland forest patches. Odell has sited the Woad Hill substation entirely in cropland.

Impacts

Impacts to agriculture are discussed in Section 5.3.1. Impacts to non-agricultural vegetation will be minimal. Most impacts will be temporary, and will occur during construction.

Mitigation Measures

The Applicant has chosen a route with minimal impacts to natural vegetation, and will further avoid impacts by minimizing disturbance associated with construction to the extent practicable. If disturbance to natural vegetation is unavoidable, the Applicant will reseed the disturbed areas with non-invasive, native species.

5.5.4 Fauna

In the early 1800s, the counties' abundant wildlife included large herds of bison (*Bison bison*) and American elk (*Cervus canadensis*). The numerous wetlands provided habitat for large numbers of waterfowl and waterbirds, including trumpeter swan (*Cygnus buccinator*), Canada goose (*Branta canadensis*), mallard (*Anas platyrhynchos*), northern pintail (*Anas acuta*), canvasback (*Aythya valisineria*), blue-winged teal (*Anas discors*), gadwall (*Anas strepera*), redhead (*Aythya americana*), northern shoveler (*Anas clypeata*), Wilson's snipe (*Gallinago delicate*), American bittern (*Botaurus lentiginosus*), sora (*Porzana carolina*), Virginia rail (*Rallus limicola*) and western grebe (*Aechmophorus occidentalis*). In upland areas, grassland birds such as marbled godwit (*Limosa fedoa*), upland sandpiper (*Bartramia longicauda*), bobolink (*Dolichonyx oryzivorus*), western meadowlark (*Sturnella neglecta*), and greater prairie-chicken (*Tympanuchus cupido*) thrived (DNR 2006).

With the plowing of the prairie and the draining of wetlands, the large herds of ungulates were eliminated, and many of the other formerly conspicuous wildlife are now rare. There are 116 Species in Greatest Conservation Need ("SGCN") known or predicted to occur in the subsection in which the HVTL Project is located, which represent 40% of the SGCN species identified for the state (DNR 2006). These are species that are rare, declining, or vulnerable or dependent upon habitats that are rare, declining or vulnerable. Habitat loss and degradation is a problem for nearly 90% of SGCN identified for the subsection (DNR 2006). In order to persist, these rare species generally require extensive habitat, many large habitat patches near each other, or high quality habitat. While extensive habitat and high quality habitat is generally lacking from the Proposed Route, protected areas around the Proposed Route do provide potential habitat for some of these SGCN species.

In general, however, the wildlife encountered near the proposed transmission line is adapted to agriculture and development. Commonly encountered wildlife species include white-tailed deer (*Odocoileus virginanus*), raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), mallard (*Anas platyrhynchos*), Canada goose (Branta canadensis), red-winged blackbird (*Agelaius phoeniceus*), common grackle (*Quiscalus quisculua*), American crow (*Corvus brachyrhynchos*), American robin (*Turdus migratorius*), and introduced species, such as, house sparrow (*Passer domesticus*), house finch (*Carpodacus mexicanus*), rock pigeon (*Columa livia*), ring-necked pheasant (*Phasianus colchicus*) and European starling (*Sturnus vulgaris*). The agricultural

landscape and developments of the region have determined the type of wildlife present, supporting chiefly those that can adapt to intensive human land use.

The Applicant conducted a Tier 1 and 2 analysis of the Odell Wind Farm, which includes the Proposed Route, including an inventory of existing biological resources, native prairie and wetland areas (Appendix F of the Site Permit Application (filed separately under Docket No. IP6914/WS-13-843 on September 26, 2013)). Tier 3 avian and bat surveys have also been completed to better understand potential risk at the Odell Wind Farm and Proposed Route. The results from the Tier 3 surveys will be posted to Docket No. IP6914/WS-13-843 upon completion of reports documenting the results of the surveys.

Impacts

The greatest risk of impact to wildlife from the HVTL Project is associated with injury or death of bird species from collisions with or electrocution by the transmission line. Typically these impacts involve raptors, waterfowl or other large birds. Minor displacement impacts may be associated with the construction of the Project, but these will be temporary in nature and we do not anticipate any long-term population level impacts.

Mitigation Measures

The HVTL Project will be constructed according to Avian Power Line Interaction Committee ("APLIC") recommended safety standards in order to reduce avian collisions and electrocution. The Applicant will work with the DOC, DNR, and the USFWS to identify any areas that may require marking of the transmission line to reduce the likelihood of collision. A draft Avian and Bat Protection Plan ("ABPP") was prepared for the Odell Wind Farm (Appendix G of the Site Permit Application (filed separately under Docket No. IP6914/WS-13-843 on September 26, 2013). Section 5.2.8 of the ABPP deals with mitigation for the transmission line. In relevant part, the ABPP states that transmission structures will not be located within wetland areas to the extent feasible and whenever avoidance of wetland areas is not feasible, flight diverters will be installed on portions of above-ground transmission lines crossing those areas.

5.5.5 Rare and Unique Natural Resources

As described above, the Minnesota NHIS, DNR and USFWS have been consulted to identify potential rare species in or near the Proposed Route. The Natural Heritage Information System ("NHIS") identified no records of rare or unique natural resources within one mile of the Proposed Route. The Minnesota County Biological Survey ("MCBS") has completed a survey of this area for native plant communities. There are no identified MCBS sites within one mile of the Proposed Route.

The USFWS considers the Poweshiek skipperling (*Oarisma Poweshiek*) and the prairie bush clover to possibly be within range in the HVTL Project. The Poweshiek skipperling is a federal candidate species under the Endangered Species Act ("ESA") and state special concern species found in native prairie remnants. The prairie bush clover is a federal and state threatened species typically found in dry prairie sites. There are no known prairie sites within one mile of the Proposed Route.

Three state special concern species (trumpeter swan (*Cygnus buccinator*), Franklin's gull (*Leucophaeus pipixcan)*, and American white pelican (*Pelecanus erythrorhynchos*)) were observed within the Odell Wind Farm Project during the Tier 3 surveys. None of these species are protected by the federal ESA. Additionally, bald eagles (*Haliaeetus leucocephalus*), which are federally protected under the Bald and Golden Eagle Protection Act, were observed during Tier 3 surveys. Both the trumpeter swan and bald eagle sightings were from the northwestern portion of the site away from the Proposed Route.

Impacts

Due to the predominating agricultural habitat along and adjacent to the Proposed Route, impacts to rare and unique natural resources are expected to be minimal. The greatest potential for impact is the possibility that large birds will collide with the transmission line.

Mitigation Measures

The HVTL Project has been sited away from known records of rare and unique natural resources, including native habitat. The Applicant will construct the HVTL Project according to APLIC recommended safety standards to reduce the potential for avian collisions and electrocution. If impacts to threatened or endangered species are identified, the Applicant will work with regulatory agencies to identify appropriate avoidance, minimization, and mitigative measures.

6.0 AGENCY INVOLVEMENT, PUBLIC PARTICIPATION AND REQUIRED PERMITS AND APPROVALS

6.1 Agency Contacts

In May 2013, introductory letters seeking comment on the HVTL Project and the Odell Wind Farm were sent to the following agencies:

- Minnesota Department of Agriculture
- Minnesota Department of Natural Resources
- Minnesota Department of Commerce
- Minnesota Department of Transportation
- Martin County Economic Development Authority
- Minnesota Pollution Control Agency
- Minnesota Historical Society
- Minnesota Office of the State Archaeologist
- State Historic Preservation Office
- Southwest Regional Development Commission
- Department of the Army
- U.S. Fish and Wildlife Service

Copies of these letters and any responses are included in Appendix B. The following sections describe agency correspondence in more detail.

6.1.1 U.S. Fish and Wildlife Service

As part of the Site Permit Application for the Odell Wind Farm, existing data on bald eagle nest locations were requested from the USFWS on March 28, 2013. A teleconference occurred on May 13, 2013 with the USFWS to discuss potential impacts to bald eagles in the Odell Wind Farm, which includes the Proposed Route, and proposed survey methods. The USFWS responded with eagle recommendations via e-mail on May 16, 2013. Copies of these communications can be found in Appendix B.

6.1.2 U.S. Army Corps of Engineers

The Applicant received a response letter from the Department of the Army on September 16, 2013 (see Appendix B). If wetland impacts cannot be avoided, the Applicant will submit Section 404 and Minnesota Wetland Conservation Act permit applications to the U.S. Army Corps of Engineers ("USACE"), the applicable local government unit and the state prior to construction.

6.1.3 Minnesota Department of Natural Resources

On April 8, 2013, Odell requested a NHIS review for the Odell Wind Farm boundary, which includes the Proposed Route. A response to this request was received on June 24, 2013 (see Appendix B).

A conference call occurred on March 28, 2013 to review proposed wildlife surveys. During the April 2013 communication, the DNR indicated that, as proposed, the Odell Wind Farm and Proposed Route were likely to have low impacts to wildlife provided certain precautions are taken during site design. This opinion was confirmed in a letter from the DNR dated June 24, 2013 (see Appendix B).

6.1.4 Minnesota Department of Transportation

At this time, it is anticipated that permits for placement of utilities in public road ROW will only be necessary from County and Township authorities. The Applicant will also obtain permits from all applicable road authorities to transport oversized load and materials over public roads (e.g. MnDOT) or to use public road ROW.

6.1.5 Minnesota State Historic Preservation Office

The Applicant conducted early coordination with SHPO. SHPO's response letter dated June 21, 2013 is included in Appendix B. SHPO recommended additional surveys for properties and archaeological sites. The Applicant, through a contracted cultural resource professional, will complete the surveys prior to the start of construction for the areas to be disturbed in the Proposed Route.

6.1.6 Minnesota Pollution Control Agency

The Applicant received a response letter from the MPCA dated June 27, 2013. The letter indicated a National Pollutant Discharge Elimination System/State Disposal System Construction Stormwater Permit is required for land disturbance exceeding one acre. The letter

also indicated that if a Section 404 Individual Permit is required from USACE, then a MPCA Clean Water Act Section 401 Water Quality Certification or waiver must be obtained.

6.1.7 Cottonwood, Jackson and Martin Counties

The Applicant has coordinated with all Counties involved, including the Highway Departments, Planning and Zoning Departments, and Commissioners to inform them of the HVTL Project and identify local permits needed. A Road Agreement meeting was held on August 8, 2013 with all Counties. The Applicant has also met with the following townships within the Proposed Route to update them on the HVTL Project and Odell Wind Farm:

- June 26, 2013 meeting with Cedar Township
- July 22, 2013 and September 16, 2013 meetings with Kimball Township
- October 7, 2013 meeting with Mountain Lake Township

6.1.8 Southwest Regional Development Commission

The Southwest Regional Development Commission ("SRDC"), in a letter dated June 13, 2013, recommended the Applicant conduct a joint meeting with the County Engineers and Zoning Administrators (see Appendix B). SRDC also noted the Odell Wind Farm's proximity to Mountain County Park and inquired about a community fund. The Applicant presented details on the Odell Wind Farm and the HVTL Project to the SRDC Board on September 23, 2013. In response to SRDC's comment about a joint meeting, a Road Agreement meeting was held on August 8, 2013 with all Counties.

6.2 Identification of Land Owners

A list of all the landowners within the Proposed Route is in Appendix C.

6.3 Public Participation

The Applicant held a meeting on November 8, 2012 for the landowners in the HVTL Project and the Odell Wind Farm.

On May 29, 2013, Odell sent a letter introducing the LWECS and HTVL Projects to Cottonwood County (Environmental Office, Highway Engineer), Mountain Lake Township Clerk, Jackson County Coordinator (Planning and Zoning Administrator, Highway Department Engineer), Kimball Township Clerk, Martin County (Coordinator, Planning and Zoning Official, Highway Department Engineer), Cedar Township Clerk, City of Windom Administrator, City of Mountain Lake Clerk, and the City of Jackson Clerk. The letter invited the local government officials to contact Odell to set up a meeting if they were interested in getting more information about the proposed projects. See Appendix D for a list of Local Government Unit contacts to whom the notice was sent (included as an example is the notice sent to Cottonwood County). Odell received two meeting requests, one jointly with the county engineers and a second one with the South West Regional Economic Development Authority. Odell attended both these meetings and presented information on the HVTL Project.

The Applicant has received letters of support for the HVTL Project from Counties and Townships where the Proposed Route is located (Board of County Commissioners for Cottonwood County, Jackson County Board of Commissioners, Economic Development Authority of Windom and its Board of Commissioners, Kimball Township, and the Jackson Economic Development Corporation) (see Appendix D).

6.4 Required Permits and Approvals

Table 6.1 below summarizes the potential required permits for the HVTL Project.

Table 6.1: Potentially Required Permits

Permit	Jurisdiction
Federal Approvals	
Section 404 Clean Water Act	U.S. Army Corps of Engineers
Farmland Conversion Form AD-1006	U.S. Department of Agriculture
State of Minnesota Approvals	
License to Cross Public Waters	DNR Division of Land and Minerals
National Pollutant Discharge Elimination System	Minnesota Pollution Control Agency
Local Approvals	
Road Crossing Permits	County, Township, City
Lands Permits	County, Township, City
Over-width Loads Permits	County, Township, City
Driveway/Access Permits	County, Township, City
Wetland Conservation Act Permit	County, Township, City

6.4.1 FEDERAL PERMITS

Section 404 Clean Water Act

The USACE has jurisdiction over waters of the U.S. under authority of Section 404 of the Clean Water Act. Any filling, dredging, or excavation within regulated waters or wetlands must have the approval of the USACE, either under general or individual permits. No impacts to regulated waters are anticipated, but the Applicant will notify the USACE and apply for a permit if impacts cannot be avoided by spanning wetlands/waters.

Farmland Conversion Form AD-1006

Farmland Protection Policy Act ("FPPA") –Subtitle I of Title XV, Section 1539-1549 is intended to minimize the conversion of farmland to nonagricultural uses. The Natural Resources Conservation Service ("NRCS") of the U.S. Department of Agriculture oversees the protection of this act if proposed activities fall under the FPPA requirements. If applicable, the Applicant will coordinate with the NRCS for this permit.

6.4.2 STATE OF MINNESOTA PERMITS

In addition to the Route Permit sought by this Application, the HVTL Project will also potentially require the State permits identified above in Table 6.1 and briefly described below in this Section.

License to Cross Public Waters

The DNR Division of Lands and Minerals regulates utility crossings on, over or under any state land or public water identified on the Public Waters and Wetlands Maps. A license to cross Public Waters is required under Minnesota Statutes Section 84.415 and Minnesota Rules, Chapter 6135. The Applicant works closely with the DNR on these licenses and will file for them once the line design is complete.

Minnesota Department of Transportation

The MnDOT requires the Application for Utility Permit on County Highways Right-Of-Way form for the majority of utility placements and relocations. Utility owners use this form to request permission to place, construct, and reconstruct utilities within trunk highway right-of-way, whether longitudinal, oblique, or perpendicular to the centerline of the highway. Based on the Proposed Route, Odell does not anticipate the HVTL Project facilities will be located within the trunk highway right-of-way.

National Pollutant Discharge Elimination System

The MPCA oversees the NPDES program in Minnesota, which regulates stormwater discharges from construction activities that result in grading of more than one acre of land. Prior to construction, the Applicant will develop a Stormwater Pollution Prevention Plan ("SWPPP") that will outline the specific commitments to meet the conditions of the NPDES permit.

6.4.3 Local Permits

Once the Commission issues a route permit, zoning, building and land use regulations and rules are preempted per Minnesota Statutes Section 216E.10, subdivision 1. Therefore no local construction permits will be required. Below is a summary of other potential local permits that may be required.

Road Crossing Permits

Road crossing permits may be required to cross or occupy county, township, and city road right-of-way.

Lands Permits

Permits may be required to occupy county, township, and city lands such as floodplains, park lands, watershed districts, and other properties managed by these entities.

Over-Width Loads Permits

Wide-load permits may be required to move over-width loads on county, township, or city roads.

Driveway/Access Permits

Applicant anticipates that a permit will be required from Martin County for the driveways to access the Woad Hill Substation constructed as part of this Project. Permits may be required to construct temporary access roads or driveways from county, township, or city roadways.

7.0 REFERENCES

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8.0 DEFINITIONS

Avian	Of or relating to birds.
Breaker	Device for opening a circuit
Conductor	A material or object that permits an electric current to flow easily.
Corona	The breakdown or ionization of air in a few centimeters or less immediately surrounding conductors.
Excavation	A cavity formed by cutting, digging, or scooping.
Fauna	The collective animals of any place or time that live in mutual association.
Flora	The collective plants of any place or time that live in mutual association.
Grading	To level off to a smooth horizontal or sloping surface.
Grounding	To connect electrically with a ground.
Habitat	The place or environment where a plant or animal naturally or normally lives and grows.
High Voltage Transmission Lines (HVTL)	Overhead and underground conducting lines of either copper or aluminum used to transmit electric power over relatively long distances, usually from a central generating station to main substations. They are also used for electric power transmission from one central station to another for load sharing. High voltage transmission lines typically have a voltage of 100 kV or more.
Hydrocarbons	Compounds that contain carbon and hydrogen, found in fossil fuels.
Ionization	Removal of an electron from an atom or molecule.
Mitigate	To lessen the severity of or alleviate the effects of.
Oxide	A compound of oxygen with one other more positive element or radical.
Ozone	A very reactive form of oxygen that combines readily with other elements and compounds in the atmosphere.
Raptor	A member of the order Falconiformes, which contains the diurnal birds of prey, such as the hawks, harriers, eagles and falcons.
Sediment	Material deposited by water, wind, or glaciers.
Stray Voltage	A condition that can occur on the electric service entrances to structures from distribution lines. Stray voltage is a voltage that exists between the neutral wire of the service entrance and grounded objects in buildings such as barns and milking parlors.
Substation	A substation is a high voltage electric system facility. It is used to switch generators, equipment, and circuits or lines in and out of a system. It also is used to change AC voltages from one level to another. Some substations are small with little more than a transformer and associated switches. Others are very large with several transformers and dozens of switches and other equipment.
Voltage	A unit of electrical pressure, electric potential or potential difference expressed in volts.
Waterfowl	A bird that frequents water; especially: a swimming game bird (as a duck or goose) as distinguished from an upland game bird or shorebird.
Wetland	Wetlands are areas that are periodically or permanently inundated by surface or ground water and support vegetation adapted for life in saturated soil. Wetlands include swamps, marshes, bogs and similar areas.