

## **Application for a Certificate of Corridor Compatibility**



## Table of Contents

I.	INTRODUCTION .....	1
II.	ANALYSIS ACCORDING TO PSC GUIDELINES .....	1
SECTION A.	DESCRIPTION OF FACILITY .....	1
1.	Type .....	1
2.	Product .....	1
3.	Size and Design .....	2
a.	<i>Width of right-of-way</i> .....	2
b.	<i>Estimated span lengths</i> .....	2
c.	<i>Anticipated Types of Structures</i> .....	2
d.	<i>Approximate length of the facility</i> .....	2
e.	<i>Voltage</i> .....	2
f.	<i>The Requirement for and General Location of any new associated facilities.</i> .....	2
4.	Time Schedule .....	3
SECTION B.	SPECIAL STUDIES .....	4
1.	Selection and Evaluation of Study Area .....	5
2.	Historic and Archaeological Site Evaluation .....	5
3.	Native Prairie Survey .....	6
4.	Avian Survey .....	6
5.	Whooping Crane Likelihood of Occurrence Report .....	7
6.	Bat Likelihood of Occurrence Report .....	7
7.	Wetland Reconnaissance Survey .....	8
8.	Collection and Evaluation of Criteria Data .....	12
SECTION C.	NEED FOR FACILITY .....	12
1.	An analysis of the need for the proposed facility based on present and projected demand for the product or products to be produced by the proposed facility, including the most recent system studies supporting the analysis of the need. ....	12
2.	A description of any feasible alternative methods of serving the need .....	12
3.	A statement justifying any deviation from the most recent Ten-Year Plan which the proposed facility may present. ....	13
SECTION D.	LOCATION .....	13
1.	Selection of Study Area and Proposed Corridor .....	13
2.	Criteria Maps .....	14
3.	Description of Criteria in the Proposed Corridor .....	14
a.	<b>Exclusion Areas</b> .....	15
(1)	<b>Designated or registered national: parks; memorial parks; historic sites and landmarks; natural landmarks; monuments; and wilderness areas.</b> .....	15
(2)	<b>Designated or registered state: parks; historic sites; monuments; historical markers; archaeological sites; and nature preserve areas.</b> .....	15
(3)	<b>County parks and recreational areas; municipal parks; and parks</b> .....	15

	owned or administered by other governmental subdivisions. ....	16
	(4) Areas critical to the life stages of threatened or endangered animal or plant species.....	16
b.	Avoidance Areas .....	16
	(3) Historical resources which are not specifically designated as exclusion or avoidance areas.....	16
	(4) Areas which are geologically unstable. ....	17
	(5) Within five hundred feet [152.4 meters] of a residence, school, or place of business. This criterion shall not apply to a water pipeline transmission facility.....	17
	(6) Reservoirs and municipal water supplies. ....	17
	(7) Water sources for organized rural water districts.....	17
	(8) Irrigated Land.....	17
	(9) Areas of recreational significance which are not designated as exclusion areas. ....	17
c.	Selection Criteria .....	17
	(1) The impact upon agriculture: .....	17
	(2) The impact upon: .....	19
d.	Policy Criteria .....	22
	(1) Location and Design. ....	22
	(2) Training and utilization of available labor in this state for the general and specialized skills required. ....	22
	(3) Economies of construction and operation.....	22
	(4) Use of citizen coordinating committees.....	23
	(5) A commitment of a portion of the transmitted product for use in this state. ....	23
	(6) Labor relations.....	23
	(7) The coordination of facilities. ....	23
	(8) Monitoring of impacts. ....	23
	(9) Utilization of existing and proposed rights-of-way and corridors....	23
	(10) Other existing or proposed transmission facilities.....	23
e.	Summary of Criteria in Proposed Corridor and Route .....	24
4.	General Mitigative Measures to Minimize Adverse Impacts .....	25
5.	Qualifications of People Involved in the Corridor Study .....	25
REFERENCES .....		28
DEFINITIONS.....		29

### List of Tables

Table 1	Schedule of Major Events.....	3
Table 2	Schedule of Special Studies.....	4

### List of Figures

Figure 1	General Location Map and Study Area
Figure 2	Exclusion Areas
Figure 3	Avoidance Areas
Figure 4	Selection Criteria

## **Appendices**

Appendix A	FPL Group 2006 Sustainability Report and FPL Group 2007 Profile
Appendix B	Structure Designs
Appendix C	Studies and Assessments
Appendix D	Agency Correspondence
Appendix E	Pre-Construction Investigation Protocols
Appendix F	Transmission Easement



## **I. INTRODUCTION**

NextEra Energy, LLC (NextEra Energy) is submitting this application for a Certificate of Corridor Compatibility for a corridor right-of-way (ROW) for the proposed Oliver III Transmission Line, which would connect the proposed Morton County Wind Energy Center in Morton County to the Square Butte Substation in Oliver County. The proposed Oliver III Transmission Line Corridor (Corridor) is 1.1 miles in width running north for approximately 2.5 miles along County Road 83/33<sup>rd</sup> Avenue in Morton County, then turns west along the Morton/Oliver County Line (30<sup>th</sup> Street) for approximately 2 miles, then heads north for approximately 6.5 miles along 33rd Avenue in Oliver County, which after a couple miles becomes a pastureland fenceline (**Figure 1**). The Corridor is currently used for agricultural purposes, primarily pasture for livestock, and some row crop production. NextEra Energy is also submitting an application for a Route Permit for the Oliver III Transmission Line. Although that document is separate from this application, they should be reviewed in conjunction.

NextEra Energy has numerous policies that guide the location and design of electric transmission lines (**Appendix A**). These policies include minimizing and mitigating environmental impacts, following the National Electrical Safety Code requirements and policies, designing the system to efficiently transfer electricity, ensuring worker and public health and safety, and constructing facilities to most effectively and efficiently meet its delivery obligations.

## **II. ANALYSIS ACCORDING TO PSC GUIDELINES**

This application follows the format set forth in the North Dakota Public Service Commission Application Guidelines For A Certificate of Corridor Compatibility (“PSC Guidelines”), promulgated pursuant to the North Dakota Energy Conversion and Transmission Facility Siting Act, N.D.C.C. Chapter 49-22.

### **SECTION A. DESCRIPTION OF FACILITY**

#### **1. Type**

**Describe the type of transmission facility addressed in this application. The description shall include the purpose of the facility and the technology to be employed.**

The proposed single circuit 230-kilovolt (kV) alternating current transmission line will tie the Morton County Wind Energy Center to the Square Butte 230-kV Substation. Design schematics are included in **Appendix B**.

#### **2. Product**

**Describe the type, source, and final destination of the product to be transmitted by the proposed facility.**

The proposed Oliver III Transmission Line (Transmission Line) is intended to carry 230 kV, three-phase, alternating current, electrical energy. The Transmission Line will have an expected operating level of 120,000 kV-amperes (kVA). The Transmission Line will extend from the Morton County Wind Energy Center substation to the Square Butte 230-kV Substation. It will allow the Morton County Wind Energy Center to contribute approximately 48 megawatts (MW) of renewable energy to the power grid.

### **3. Size and Design**

**Provide a description of the size and design of the electrical facility including, but not limited to, the following:**

*a. Width of right-of-way*

The Corridor will be 1.1 mile in width and will encompass the proposed Transmission Line ROW [up to 120 feet wide (50 to 60 feet wide on either side of the center line)] that will be acquired throughout the 11-mile length of the proposed Corridor.

*b. Estimated span lengths*

The span between structures will range from approximately 600 to 700 feet, depending on which structure is used and whether the span needs to go from hill top to hill top. Pole locations will be provided prior to construction. Single shaft structures will be used. Conductor ground clearance will vary depending on terrain. A minimum ground clearance of 22.5 feet, at a conductor temperature of 212 degrees Fahrenheit, will be maintained. At lower conductor temperatures and under ice load, ground clearance will be greater.

*c. Anticipated Types of Structures*

The proposed Transmission Line will be built in private easements with a typical easement width of 100 feet. It will utilize 1272 kcmil ACSR conductor and an optical shield wire for lightning and relay protection (OPGW). The proposed Transmission Line is being designed to meet all National Electrical Safety Code (NESC) requirements. The conductor and OPGW will likely be supported on laminated wood poles or steel or concrete poles with a triangular phase configuration. The structures will range in height from 80 to 140 feet above grade. For heavy angle structures, some guying may be required. The typical span between poles will be approximately 680 feet.

*d. Approximate length of the facility*

The proposed Transmission Line will be approximately 11 miles in length and the majority of the Transmission Line will run adjacent to County Road 83/33<sup>rd</sup> Avenue in Morton County, along the Morton/Oliver County Line (30<sup>th</sup> Street), then north along 33<sup>rd</sup> Avenue in Oliver County, which becomes a pastureland fenceline southeast of the city of Center in Oliver County, North Dakota.

*e. Voltage*

The proposed Transmission Line is intended to carry 230 kV, three-phase, alternating current electrical energy.

*f. The Requirement for and General Location of any new associated facilities.*

The proposed Transmission Line is needed in order to inject energy generated by the Morton County Wind Energy Center into the electric grid. The Transmission Line will originate at the Morton County Wind Energy Center's collection substation in Section 15 of Township 140

North, Range 83 West in Morton County and will terminate at the Square Butte Substation in Section 33, Township 142 North, Range 83 West in Oliver County.

#### 4. Time Schedule

The time schedule summarized in **Table 1** is proposed.

**Table 1**  
**Schedule of Major Events**

Event	Proposed Date
Begin Easement Acquisition	June 2009
Certificate of Corridor Compatibility Application Filed	March 2010
Route Permit Application Filed	March 2010
Complete Line Design	May 2010
Corridor Certificate and Route Permit issued by PSC	June 2010
Stake Structures	July 2010
Clear Vegetation	August 2010
Construction Start Date	August 2010
Complete Easement Acquisition	March 2010
Complete Vegetation Clearing*	September 2010
Complete Construction	November 2010
In-Service Date	November 2010
Retirement of Facility	Unknown

\*This activity may be completed as necessary in conjunction with construction activities.

## SECTION B. SPECIAL STUDIES

**Provide a copy of any evaluative studies or assessments of the environmental impact of the proposed facility submitted to any federal, regional, state, or local agency.**

Final design of the Transmission Line and designation of the Corridor are dependant upon several factors, including landowner input, on-site pre-construction surveys, and agency consultation. NextEra Energy identified the preliminary location of the Transmission Line and Corridor based on several desktop analyses, site visits, and agency consultation. Studies that have been completed include: 1) selection and general evaluation of the study area, 2) a Class I Cultural Resources Inventory, 3) a native prairie survey, 4) spring and fall avian surveys, 5) a bat likelihood assessment, and 6) a whooping crane likelihood assessment (**Appendix C**).

Due to incomplete design information and access issues at the time of the surveys, the Class III pedestrian survey for archaeology and the wetland delineation were only completed for southern portions of the proposed Transmission Line (approximately 5 miles for the wetland survey and 3 miles for the cultural resources survey). The surveys will be completed as weather permits in spring 2010. Agency comments received as of February 15, 2010 are included in **Appendix D**. NextEra Energy is also planning to conduct some additional studies as listed in **Table 2**. Protocols for these studies are found in **Appendix E**.

**Table 2**  
**Schedule of Special Studies**

Study/Survey	Proposed Schedule
Selection and general evaluation of the study area	Complete
Class I Cultural Resources Inventory	Complete
Native Prairie Survey*	Complete
Spring and Fall Avian Surveys*	Complete
Bat and Crane Likelihood Assessments	Complete
Agency Consultations	Complete
Collection and evaluation of criteria data	Complete
Class III Cultural Resources Inventory**	Spring 2010
Wetland Delineation **	Spring 2010
Wildlife Reporting and Response System – Post-construction monitoring	TBD (Post-construction)

\* Native prairie and avian surveys were focused on the associated wind energy facility and only included a small portion of the transmission line.

\*\* Although partially complete, survey of the transmission line (6 miles for wetland delineation and 8 miles for cultural resources) will be conducted in spring 2010 as weather permits.

## 1. Selection and Evaluation of Study Area

NextEra Energy selected a study area for the proposed Transmission Line, approximately 11 miles in length. The route was chosen because it follows existing road rights-of-way and fenceline.

In their evaluation of the study area, NextEra Energy considered, among other things: topography, location of existing transmission facilities (lines and substations), location of communities and airfields, location of water resources, land ownership, and economics. Further evaluation of the factors addressed in N.D.C.C. §49-22-09 are presented in **Section D.1** below and in the Route Permit Application.

## 2. Historic and Archaeological Site Evaluation

A Class I Cultural Resources Inventory (file search/literature review) was conducted by Tetra Tech on July 22-23, 2009 at the State Historical Society of North Dakota for the Morton County Wind Energy Center and Oliver III Transmission Line (**Appendix C**). This research was conducted for the proposed Morton County Wind Energy Center and the Oliver III Transmission Line route at that time. The records search included archaeological and architectural inventory forms, previous surveys, and National Register Inventory Forms. Other historic documents including General Land Office maps, available plat maps, and aerial photographs were searched for trails, roads, campsites, farmsteads, schools, churches, and other features that may be within the project area. A total of 23 archaeological sites were recorded within the transmission line Corridor, including 20 Native American stone feature sites, one Native American isolated find, one Euro-American mine, and one Euro-American farmstead (**Figure 2**). None of the sites have been evaluated for eligibility for the National Register of Historic Places (NRHP), except for the farmstead (Site No. 32OL0560), which was deemed ineligible. No architectural history surveys have been conducted within the Corridor and no previously documented architectural history properties have been identified.

A Class III Cultural Resource Inventory was begun in October 2009 and will be completed in spring 2010 in areas that would be directly impacted by the proposed Transmission Line. The survey only included the southern 3 miles of the Transmission Line due to lack of access in the northern portion of the route. The Cultural Class III Survey included a pedestrian survey, site delineation, site documentation, site evaluation, laboratory methods, and curation.

One site was found (Site No. 010) within the Corridor, approximately 0.45 miles east of the intersection of 30th Street and 35th Avenue (**Figure 2**). It is an abandoned Euro-American farmstead consisting of four foundations, one outbuilding, one corral, and one stone alignment. Tetra Tech recommends avoidance of this site. Disturbance to the site could be avoided by spanning the site and driving vehicles around it during construction. Tetra Tech recommends placing snow fence along the perimeter of the buffer in areas adjacent to ground-disturbing activities during construction.

Results of the survey will be used to avoid impacts to the cultural resources. The Cultural Resources Inventory Report will be submitted to PSC and the SHPO when complete.

### 3. Native Prairie Survey

A Native Prairie Survey was conducted for the Morton County Wind Energy Center in the fall of 2009 (Tetra Tech 2009a, **Appendix C**). The survey included only a small portion of the proposed transmission line, which primarily follows existing road rights-of-way and pastureland fenceline.. The Native Prairie Survey classified approximately 76 percent of the Morton County Wind Energy Center as good habitat for the Dakota skipper, a species of butterfly which is currently classified as a federal candidate species.

The report recommends minimizing impacts to native prairie by using existing rights-of-way or altered landscapes. If elements are to be placed in native prairie, large contiguous tracts are to be avoided. If native vegetation is disturbed or removed during construction of roads, turbines or during ongoing maintenance activities, these areas should be reseeded or planted with native materials.

### 4. Avian Survey

Spring and Fall avian point count surveys were conducted for the Morton County Wind Energy Center in 2008 (Tetra Tech 2008a, 2008b, Appendix C). Although the Oliver III Transmission Line Corridor was not included in these studies, the results can be used to obtain information on general use in the area. Thirteen North Dakota State Species of Conservation were observed during surveys. Chestnut-collared longspur, grasshopper sparrow, Franklin's gull, Sprague's pipit, Swainson's hawk, ferruginous hawk, upland sandpiper, bobolink, loggerhead shrike, northern harrier, prairie falcon, short-eared owl, and sharp-tailed grouse. These species are not afforded state-level regulatory protection as a result of this listing; however, all of these species are protected by the Migratory Bird Treaty Act (MBTA).

Many species of waterfowl, raptors, shorebirds, and grassland birds are known to migrate through the vicinity of the project area, as North Dakota lies within the Central Flyway. Some of the species observed during a spring and fall 2008 site visit include songbirds like the European starling Brewer's blackbird, horned lark, and raptors such as red-tailed hawks, Swainson's hawks, northern harriers and American kestrel. Sharp-tailed grouse were identified during fall surveys and grouse leks were identified during spring surveys (**Figure 2**).

The greatest potential impact of a wind energy facility and associated overhead transmission lines are direct mortality or injury from collision and loss of habitat. The likelihood of bird/transmission line interactions is determined by a number of factors including visibility and weather. Inclement weather and low cloud ceilings force migrating birds to fly at lower altitudes, thereby putting them at greater risk for adverse interactions with transmission lines (NWCC 2004).

Construction activities can destroy or disrupt wildlife habitat and allow for the introduction of unwanted plant species. Installation of the Oliver III Transmission Line would result in a temporary loss of wildlife habitat. Displaced wildlife would likely relocate to nearby unaffected areas within the Corridor or vicinity until construction activities have been completed. In areas where disturbance is significant and natural onsite plant regeneration would not occur, the temporary loss of habitat may be mitigated by reseeded of the affected areas with native prairie plant species.

NextEra Energy will implement measures to avoid and minimize effects to quality grouse habitat and leks when siting transmission line poles. In addition, standard best management practices (BMPs) will be implemented, which include marking the transmission line with bird diverter devices.

## **5. Whooping Crane Likelihood of Occurrence Report**

A whooping crane likelihood of occurrence analysis was conducted for the Morton County Wind Energy Center and the Oliver III Transmission Line in November 2009 (Tetra Tech 2009b, **Appendix C**). The likelihood of whooping cranes (*Grus americana*) occurring in the Corridor low to moderate. The major factor that contributed to this assessment was the lower proportion of suitable wetland habitat within the project area than the surrounding area. Although the Transmission Line Corridor is located within the migration corridor where 75 percent of all whooping crane observations have been made, there were no recorded observations of whooping cranes within the Transmission Line Corridor. A total of 89 observations occurred within the 35-mile buffer area, including three observations that occurred within 10 miles. Of these three observations, the oldest record occurred in 1964 in Burleigh County during the fall migration (October 25 - flock of two adults and one juvenile). The other two that occurred in Oliver County were during the 2000 fall migration (November 3 – flock of eight adults and one juvenile) and 2006 spring migration (April 13 – flock of three adults). Both of the Oliver County observations were noted to be with a flock of sandhill cranes. The whooping crane observations should be used for general inference regarding use of an area and cannot be used for micro-siting away from whooping crane sightings because some of the observations may lack precise locations.

## **6. Bat Likelihood of Occurrence Report**

A bat likelihood of occurrence analysis was conducted for the Morton County Wind Energy Center and the Oliver III Transmission Line in November 2009 (Tetra Tech 2009c, **Appendix C**). The objective of this analysis was to evaluate the biological and landscape features of the project area to determine the potential of bats to occur. Tetra Tech calculated a moderate likelihood of occurrence for the Morton County Wind Energy Center and the Oliver III Transmission Line Corridor. The likelihood index does not predict how many bats will occur or the anticipated bat mortality level, rather it scores a site based on a suite of variables that are related to bats. Bat presence is more likely to occur over the life of a project at a project with a higher score, thus indicating a higher potential for turbine-related fatalities given the patterns of bat fatalities at other wind farms in the United States.

Of the 46 bat species in the United States, 10 occur in North Dakota. Of these 10 species, 6 potentially occur within the Corridor based on current known distribution range. None of these species are federally listed as threatened or endangered or listed as state species of conservation concern.

In North Dakota, roosting habitat includes trees found in forested patches, along riparian corridors, and around homesteads. Water features are typically used for foraging and include ephemeral and perennial wetlands, streams, rivers, ponds and lakes (Carter et al. 2002). Limited suitable roosting and foraging habitat exists within the project area that may provide a marginal attractiveness for migrating bats. The project area contains more suitable habitat than the surrounding landscape, much of which is located within the Transmission Line Corridor.

Although bats are not known to be a risk of collision with transmission lines, construction of the Oliver III Transmission Line could result in the direct loss of bat foraging and roosting habitat. Avoiding direct impacts to forested areas and wetlands will minimize the loss of bat habitat.

## **7. Wetland Reconnaissance Survey**

According to National Wetlands Inventory (NWI) data, several intermittent streams, freshwater emergent wetlands, freshwater ponds and freshwater forested/shrub wetlands are found within the Corridor.

A Wetland Reconnaissance Survey was conducted for the Morton County Wind Energy Center and Oliver III Transmission Line in October 2009. The survey only included the southern part of the Transmission Line (approximately 5 miles) due to lack of access at the time of the survey; a survey of the northern portion of the transmission line will be completed in the spring of 2010.

The purpose of the field survey was to identify the presence and location of wetlands and waters that may be subject to U.S. Army Corps of Engineers (USACE) jurisdiction or wetland basins protected by wetland easements managed by the U.S. Fish and Wildlife Service (USFWS). When a wetland or water feature was encountered in the project area, a USACE Jurisdictional Determination Form was completed and boundary information was collected using sub-meter GPS technology. Wetlands are determined to be USACE jurisdictional were delineated using the three parameter approach outlined in the USACE 1987 Wetland Delineation Manual (Environmental Laboratory, 1987) and the “Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region” (USACE 2008).

Few wetlands were observed along the Transmission Line Route portion that was surveyed, although several drainage swales and culverts were observed. One feature (PY-33), an intermittent stream near 30<sup>th</sup> street, was determined to be USACE- jurisdictional, and one feature (PY-34), a drainage swale near 30<sup>th</sup> street, was determined to be potentially USACE-jurisdictional (**Figure 4**). No impacts from the construction of the Transmission Line are planned; no structures will be placed within boundaries of potential waters of the U.S. and mechanized equipment will not be allowed to enter or traverse potential waters of the U.S. Once the survey is completed in spring 2010, a Wetland Delineation Report will be submitted.

### *Agency Consultation*

North Dakota Administrative Code §69-06-01-05 lists 21 state agencies that are entitled to notice of NextEra Energy’s proposed action. Letters dated September 07 and 11 2009 were sent to the required agencies. Copies of these letters and all responses received are included in **Appendix D**. Summaries of response letters received are presented below.

### *North Dakota Game and Fish Department (NDGFD)*

The NDGFD manages the Wilbur Boldt Wildlife Management Area located 0.24 miles northeast of the proposed transmission line corridor boundary. A special use permit would be required to cross these lands. The NDGFD had no data available regarding threatened or endangered species and sensitive habitats in the Corridor. The NDGFD stated that their primary concern would be the possible disturbance of native prairie and wetland areas during construction of the transmission line. They ask for avoidance of these areas to the extent possible, aboveground appurtenances

should not be placed in wetland areas, and disturbed areas should be reclaimed to pre-project conditions. The NDGFD recommends that overhead lines should be marked when placed over perennial streams or sited in close proximity to large wetland complexes to minimize avian impacts.

*U.S. Army Corps of Engineers (USACE)*

The USACE regulates the discharge of dredged or fill material into waters of the United States under Section 404 of the Clean Water Act. If the work would include a discharge of dredged or fill material in waters of the U.S., even temporarily, a permit would be required. Nationwide Permit No. 12 may cover the work proposed provided all the terms and conditions of the nationwide permit, including water quality certification, are met. The USACE response contains a Fact Sheet listing certain instances when a nationwide permit would not require notification to the Corps. Utility line activities such as construction, maintenance, repair and removal of utility lines and associated facilities in waters of the United States fall under the Nationwide Permit No. 12 provided the activity would not result in the loss of greater than ½ acre of waters of the United States. A pre-construction notification may be submitted to the district engineer prior to commencing the activity if certain criteria apply.

*U.S. Department of Agriculture (USDA)*

The USDA states that they do not issue any permits in connection with transmission line development. The USDA asks to pay special attention to noxious weed control as the project recovers vegetation in disturbed areas. Primary jurisdiction regarding noxious weed law resides with the counties. Weed control officers in Morton and Oliver County shall be contacted to discuss weed control issues and a potential inspection of the land potentially impacted by transmission line construction. The response letter with further information on laws and regulations of noxious weed control along with contact information received from the USDA is included in **Appendix D**.

*U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS) North Dakota*

The NRCS states that their concerns are in regard to prime farmlands, wetlands, and soil erosion in Oliver and Morton Counties. NRCS has a major responsibility with the Farmland Protection Policy Act (FPPA) in documenting conversion of farmland to non-agricultural use. FPPA only applies to federally funded projects and as such does not apply to this project. NRCS has developed some guidelines for the installation of permanent structures where wetlands occur which have to be adhered to in order to receive USDA benefits. Those guidelines are: only temporarily disturb wetlands, do not drain wetlands, keep mechanized landscaping necessary for the installation at a minimum and maintain preconstruction contours, place temporary side cast material in a manner it is not dispersed in the wetland, and assure backfill of trenches to the original wetland bottom elevation. The NRCS recommends avoiding impacts to wetlands.

*U.S. Fish and Wildlife Service (USFWS)*

The USFWS suggested that the potential impacts of the proposed wind energy center and transmission line should be assessed together. The USFWS has coordinated with the Avian Power Line Interaction Committee (APLIC) to develop guidelines to assist companies in formulating

Avian Protection Plans (APP) and encourage project developers to investigate the formulation of an APP or if bats are present in an Avian and Bat Protection Plan (ABPP).

To minimize the electrocution hazard to birds USFWS recommends construction of overhead power lines in accordance with guidelines for preventing raptor electrocutions which they list in their response letter. The USFWS offers cooperation with developers to minimize impacts to migratory birds and bald and golden eagles in order to apply to the MBTA. The USFWS recommends that construction of the project be scheduled for late summer or fall/early winter to avoid impacts to migratory birds or other wildlife during the breeding season. If work is taking place during the breeding season or at any other time which may result in the take of migratory birds or active nests, the USFWS recommends conducting a field survey of the affected habitats to determine the absence or presence of nesting migratory birds.

The USFWS provided a list of threatened and endangered species potentially present within the project area. The list included the endangered whooping crane which is described in a previous section of this application. The USFWS recommends conservation measures be included in the project and that the description include those measures. Conservation measures listed include burying all new transmission lines; if new transmission lines cannot be buried, all new overhead transmission lines and an equal length of existing transmission lines shall be marked and maintained with visual marking devices such as aviation marker balls, swinging plates, spiral vibration dampeners, or swan flight diverters.

The USFWS stated that no Waterfowl Production Areas (WPA) are recorded in the Corridor. Other concerns of the USFWS focus on native grasslands, woodland resources and other high value habitats. The USFWS recommends the avoidance of construction in native prairie and reseeding disturbed native prairies with a comparable native grass/forb seed mixture, avoiding placement of appurtenant facilities in wetlands along the route, and installation and maintenance of appropriate erosion control measures.

NextEra Energy representatives have met with the USFWS to discuss the Morton County Wind Energy Center and the proposed Transmission Line. With regard to potential impacts to migratory birds, limited collisions or electrocutions with overhead power lines are anticipated as aboveground collector structures and lines will be constructed using "bird-safe designs" per the Avian Power Line Interaction Committee (APLIC) recommendations.

*North Dakota State Historic Preservation Officer (SHPO)*

The SHPO recommended that a Class I cultural resources inventory followed by a Class III (pedestrian) survey should be completed and afterwards reviewed by the SHPO for areas that may be impacted by the project. After the Class I cultural resources inventory in July 2009, a Class III archaeology pedestrian survey was conducted for the southern part of the transmission line corridor in October 2009. The survey will be completed in spring 2010 per the protocol presented in **Appendix E**.

*North Dakota Parks and Recreation Department (NDPRD)*

The NDPRD stated that their scope of authority and expertise covers recreation and biological resources (in particular rare plants and ecological communities). The project as defined does not

affect state park lands that they manage or Land and Water Conservation Fund recreation projects that they coordinate. Based on NDPRD's review of the North Dakota Natural Heritage biological conservation database, potential suitable habitat for two plant species of state concern, *Potamogeton vaginatus* (sheathed pondweed) and *Potamogeton amplifolius* (large-leaved pondweed), has been identified in the northern part of the Corridor (near Nelson Lake). NDPRD recommends that the project be accomplished with minimal impacts and that all efforts be made to ensure that critical habitats not be disturbed in the project area to help secure rare species conservation in North Dakota. Regarding any reclamation efforts, NDPRD recommends that any impacted areas be revegetated with species native to the project area.

*North Dakota Department of Commerce*

The North Dakota Department of Commerce stated that it supports the development of the project and was unaware of any environmental or property concerns, or issues, within the boundaries of the proposed Transmission Line.

*North Dakota Department of Health (NDDoH)*

The NDDoH sent a response letter stating that the department believes that environmental impacts from the proposed construction will be minor and can be controlled by proper construction methods. The NDDOH requested that measures be taken to minimize fugitive dust emissions, adverse effects on waters of the state, and noise levels during construction activities. The NDDOH also stated that a permit to discharge storm water during construction is required for projects disturbing one or more acres. The NDDOH recommends that NextEra Energy contact local officials in case additional local requirements are required. The NDDOH included with their response a document titled "Construction and Environmental Disturbance Requirements."

*North Dakota State Water Commission (SWC)*

The SWC stated that the project is not located in an identified floodplain and it is believed that the project will not affect an identified floodplain. No sole-source aquifers have been designated in North Dakota. All waste material associated with the project must be disposed of properly and not placed in identified floodway areas.

*North Dakota Department of Labor*

The North Dakota Department of Labor stated that they have no authority to issue any permits regarding land or environmental concerns.

*North Dakota Department of Transportation*

The North Dakota Department of Transportation stated that the proposed Transmission Line does not affect any property of the NDDOT.

*North Dakota State Land Department*

The North Dakota State Land Department manages School Trust surface and mineral acreage within the proposed electric transmission line corridor and reviews projects on individual basis as to their impact to these assets. If School Trust lands be proposed for inclusion in the project, an

on-line application should be submitted for review to the North Dakota State Land Department. Land managed by the North Dakota State Land Department is located within Township 141, Range 83, Section 16 in the northern part of the route. The route will be microsited to avoid impacts to these lands (**Figure 3**).

## **8. Collection and Evaluation of Criteria Data**

North Dakota Administrative Code §69-06-08-02 sets forth certain transmission facility corridor and route criteria an applicant must present. They include exclusion, avoidance, selection, and policy criteria. Exclusion and avoidance criteria encompass specific land designations (such as parks and historic places), human dwellings, water developments, and habitat for state or federal threatened and rare species. Selection criteria relate to the effects from construction on agriculture, noise, and other general environmental conditions. Policy criteria relate to the applicant's policies regarding health, safety, labor relations, and coordination with other interests.

NextEra Energy gathered data from several sources to identify the locations of exclusion and avoidance areas and to determine the potential impact of its proposed facility on selection criteria. A computerized geographic information system (GIS) was utilized to compile and analyze most of the data. Specific sources included:

- North Dakota Natural Heritage Program dataset on sensitive species and habitats and state parks.
- U.S. Fish and Wildlife Service's National Wetland Inventory maps, obtained in GIS format.
- Residences, and homesteads within the corridor were provided by a farmstead report from Swenson Hagen surveyors.
- Structures (including extractable resources, cemeteries, and communication towers) were derived from data obtained from the North Dakota GIS Hub.
- Woodlands were derived from NLCD data.

## **SECTION C. NEED FOR FACILITY**

### **1. An analysis of the need for the proposed facility based on present and projected demand for the product or products to be produced by the proposed facility, including the most recent system studies supporting the analysis of the need.**

The permit would authorize the construction of a transmission line within a 1.1-mile wide and 11-mile long corridor in Morton and Oliver Counties, North Dakota. The proposed electric Transmission Line will allow the Morton County Wind Energy Center to contribute approximately 48 MW of renewable energy to the power grid. The proposed electric transmission line is needed in order to inject the generated energy into the electric grid.

### **2. A description of any feasible alternative methods of serving the need.**

The Corridor was selected using PSC criteria in addition to other constraints such as engineering, cost, and landowner participation. As described throughout this application, feasible and prudent

alternatives were examined throughout the planning process. The route was chosen because it follows existing road rights-of-way and fenceline.

**3. A statement justifying any deviation from the most recent Ten-Year Plan which the proposed facility may present.**

NextEra Energy will file an updated Ten-Year Plan with the Commission by July 2010.

**SECTION D. LOCATION**

This section includes the justification for selecting the proposed Corridor. It describes the general environment and factors that are important from an environmental and human health standpoint. General impacts and mitigation measures are discussed in subsequent sections of this application, as are the PSC's Corridor Application Criteria. Policies affecting the manner in which NextEra Energy addressed environmental, human safety and economic issues are also discussed.

**1. Selection of Study Area and Proposed Corridor**

This section describes how NextEra Energy chose the study area and the proposed corridor. NextEra Energy selected a study area which was a relatively straight line along the proposed route, approximately 11 miles in length and follows previously disturbed areas along existing road rights-of-way and fenceline.

NextEra Energy used general criteria to select the proposed corridor within this study area, including location of existing transmission facilities (lines and substations), location of communities and area residences, land ownership and ecologically sensitive areas.

Location of Transmission Facility

The proposed facility is a 230-kV transmission line that will extend approximately 11 miles from the Project substation in Section 33/34 Township 142 North, Range 83 West in Morton County to the Square Butte Substation located in Section 15, Township 140 North, Range 83 West in Oliver County. The Corridor is 1.1 miles in width running north for approximately 2.5 miles along County Road 83/33<sup>rd</sup> Avenue in Morton County, then turns west along the Morton/County Line (30<sup>th</sup> Street) for approximately 2 miles, then heads north for approximately 6.5 miles along 33rd Avenue in Oliver County, which after a couple miles becomes a pastureland fenceline (**Figure 1**).

Location of Communities

The corridor is situated in a lightly populated rural area of central North Dakota and is located in portions of townships 140 North, Range 83 West and 141 North, Range 83 West in Morton County, and part of Township 142 North, Range 83 West in Oliver County, North Dakota. The population of Morton and Oliver Counties according to the 2008 Census was 26,255 and 1,695, respectively. According to the 2000 U.S. Census, the largest industries employing residents of Oliver County are retail trade, manufacturing, finance and insurance, and the largest industries employing residents of Morton County are educational, health and social services, retail trade, arts, entertainment, recreation, accommodation and food services, transportation warehousing and utilities, construction, agriculture, forestry, fishing and hunting and manufacturing.

There are very few towns near the Corridor. The nearest community is Center, located approximately 4.5 miles northwest of the Square Butte Substation. There are three farmsteads, two occupied and one abandoned, in the Corridor (**Figure 3**).

### Land Ownership

Most of the land in the Corridor is privately owned. Land managed by the North Dakota State Land Department is located within Township 141, Range 83, Section 16 in the northern part of the route. The route will be microsituated to avoid impacts to these lands (**Figure 3**). No tribal lands are located within the corridor or vicinity.

### Ecologically Sensitive Areas

There are no rare or endangered species located in the area. Whooping cranes, spring and fall migrants in North Dakota, were first federally listed as Threatened in 1967 and federally listed as Endangered in 1970 (Canadian Wildlife Service and USFWS 2005). The primary threats to this species include loss of roosting and foraging habitat and collisions with power lines and fences. Although the Corridor is located within the migration corridor where 75 percent of all whooping crane observations have been made, there were no recorded observations of whooping cranes within the Corridor, whooping cranes are thought to have a low to low-moderate likelihood to occur due to the amount of suitable feeding and roosting sites and the relative attractiveness of the habitat compared to a 35-mile buffer area (Tetra Tech 2009b).

## **2. Criteria Maps**

**Identify and map the criteria that led to the proposed Corridor location within the study area.**

All criteria that can be mapped are provided in the Figures section at the end of this application. The maps all include the location of the proposed corridor and are organized as follows:

- Figure 1 – General Location Map and Study Area
- Figure 2 – Exclusion Areas
- Figure 3 – Avoidance Areas
- Figure 3 – Selection Criteria
- Additional criteria that cannot be mapped but are described throughout the next section.

## **3. Description of Criteria in the Proposed Corridor**

**Discuss the relative value of each criteria and how the proposed corridor location was selected giving consideration to all criteria.**

The PSC has established criteria that guides and governs the siting of a transmission line corridor and route, N.D.A.C. §69-06-08-02. These criteria are divided into four general areas: exclusion areas, avoidance areas, selection criteria, and policy criteria. All were given weight in selection of the proposed Corridor.

The Corridor was also selected based on the factors identified in N.D.C.C. §49-22-09, and consideration was given to the efficiencies created by placing the line along a route as straight as

possible. An overview map of the Corridor is provided in **Figure 1**. Criteria listed by the PSC as exclusion, avoidance, selection, and policy were used to select the most appropriate route within the Corridor.

**a. Exclusion Areas**

**The following geographical areas shall be excluded in the consideration of a route for a transmission facility. A buffer zone of a reasonable width to protect the integrity of the area shall be included. Natural screening may be considered in determining the width of the buffer zone (N.D.A.C. §69-06-08-02).**

- (1) Designated or registered national: parks; memorial parks; historic sites and landmarks; natural landmarks; monuments; and wilderness areas.**

None of these areas are found within the proposed Corridor (or route).

- (2) Designated or registered state: parks; historic sites; monuments; historical markers; archaeological sites; and nature preserve areas.**

A Class I Cultural Resources Inventory (file search/literature review) was conducted by Tetra Tech on July 22-23, 2009 at the State Historical Society of North Dakota (**Appendix C**). This research was conducted for the proposed Morton County Wind Energy Center and the Oliver III Transmission Line route at that time. The records search included archaeological and architectural inventory forms, previous surveys, and National Register Inventory Forms. Other historic documents including General Land Office maps, available plat maps, and aerial photographs were searched for trails, roads, campsites, farmsteads, schools, churches, and other features that may be within the project area. A total of 23 archaeological sites were recorded within the transmission line Corridor, including 20 Native American stone feature sites, one Native American isolated find, one Euro-American mine, and one Euro-American farmstead (**Figure 2**). None of the sites have been evaluated for eligibility for the National Register of Historic Places (NRHP), except for the farmstead (Site No. 32OL0560), which was deemed ineligible. No architectural history surveys have been conducted within the Corridor and no previously documented architectural history properties have been identified.

A Class III Cultural Resource Inventory was begun in October 2009 and will be completed in spring 2010 in areas that would be directly impacted by the proposed Transmission Line. The survey only included the southern 3 miles of the Transmission Line due to lack of access in the northern portion of the route. The Cultural Class III Survey included a pedestrian survey, site delineation, site documentation, site evaluation, laboratory methods, and curation.

One site was found (Site No. 010) within the Corridor, approximately 0.45 miles east of the intersection of 30th Street and 35th Avenue (**Figure 2**). It is an abandoned Euro-American farmstead consisting of four foundations, one outbuilding, one corral, and one stone alignment. Tetra Tech recommends avoidance of this site. Disturbance to the site could be avoided by spanning the site and driving vehicles around it during construction. Tetra Tech recommends placing snow fence along the perimeter of the buffer in areas adjacent to ground-disturbing activities during construction.

Results of the survey will be used to avoid impacts to the cultural resources. The Cultural Resources Inventory Report will be submitted to PSC and the SHPO when complete.

**(3) County parks and recreational areas; municipal parks; and parks owned or administered by other governmental subdivisions.**

None of these areas are found in the proposed Corridor (or route).

**(4) Areas critical to the life stages of threatened or endangered animal or plant species.**

No areas critical to the life stages of threatened and endangered animal or plant species have been identified in the Corridor. Whooping cranes are thought to have a low to low-moderate likelihood to occur in the Corridor due to the amount of suitable feeding and roosting sites and the relative attractiveness of the habitat compared to a 35-mile buffer area (Tetra Tech 2009b).

**(5) Areas where animal or plant species that are unique or rare to this state would be irreversibly damaged.**

Based on NDPRD's review of the North Dakota Natural Heritage biological conservation database, potential suitable habitat for two plant species of state concern, *Potamogeton vaginatus* (sheathed pondweed) and *Potamogeton amplifolius* (large-leaved pondweed), has been identified in the northern part of the Corridor (near Nelson Lake). Because both of these plants are aquatic, and impacts to waters will be avoided to the extent practicable, few or no impacts are anticipated.

**b. Avoidance Areas**

**The following geographical areas shall not be approved as a site for a transmission line unless the applicant shows that under the circumstances there is no reasonable alternative. In determining whether an avoidance area should be designated for a facility, the Commission may consider, among other things, the proposed management of adverse impacts; the orderly siting of facilities; system reliability and integrity; the efficient use of resources; and alternative sites.**

**(1) Designated or registered national: historic districts; wildlife areas; wild, scenic, or recreational rivers; wildlife refuges; and grasslands.**

None of these areas are found in the Corridor (or Route).

**(2) Designated or registered state: wild, scenic, or recreational rivers; game refuges; game management areas; management areas; forests; forest management lands; and grasslands.**

None of these areas are found in the Corridor (or Route).

**(3) Historical resources which are not specifically designated as exclusion or avoidance areas.**

None of these areas are found in the Corridor (or Route).

**(4) Areas which are geologically unstable.**

Available data does not identify any unstable areas along the proposed route. A geotechnical survey will be performed prior to construction activities. If unstable sites are identified, measures required to avoid or mitigate unstable areas will be incorporated into the engineering design.

**(5) Within five hundred feet [152.4 meters] of a residence, school, or place of business. This criterion shall not apply to a water pipeline transmission facility.**

Three farmsteads, one occupied and two abandoned, are located within the proposed Corridor. One occupied residence is located within 500 feet of the transmission facility. Locations of these farmsteads are depicted in **Figure 3**. The transmission easement for the occupied residence, which includes a waiver from the 500-foot distance requirement, is included in **Appendix F**.

**(6) Reservoirs and municipal water supplies.**

According to NWI data, surface water accounts for approximately 52 acres of the Corridor. This acreage includes Nelson Lake at the north end. The transmission line pole locations will be microsited to avoid surface waters.

**(7) Water sources for organized rural water districts.**

There are no rural water districts within the Corridor (or route).

**(8) Irrigated Land**

Information on irrigated land inside the Corridor was not available from the SWC Water Permit Retrieval System. The Corridor is primarily pastureland. During the wetlands and cultural field surveys, no irrigation systems or wells were observed along the proposed route, however only the southern portion of the route was surveyed.

**(9) Areas of recreational significance which are not designated as exclusion areas.**

Nelson Lake reaches within the northern part of the proposed Corridor and provides recreation for residents and visitors. Impacts to recreation will be visual in nature.

**c. Selection Criteria**

**A corridor or route shall be designated only when it is demonstrated to the commission by the applicant that any significant adverse effects which will result from the location, construction, and maintenance of the facility as they relate to the following, will be at an acceptable minimum, or that those effects will be managed and maintained at an acceptable minimum (N.D.A.C. §69-06-08-02.3).**

**(1) The impact upon agriculture:**

**(a) Agricultural production**

During construction, agricultural production within the Corridor will not be affected except within certain areas along the route and at selected staging locations. Staging locations will be placed on previously disturbed areas where they are available. Areas disturbed for industrial use such as the substation site will be utilized whenever

practicable, but other disturbed areas such as cropland may also be utilized. Given the small size of these staging areas and the short term of the construction, impacts from staging are expected to be localized and minimal.

Following construction, any disturbed area, either in the ROW or in these staging areas, will be restored as close as practicable to their original condition. The degree of impact to any area will depend upon the extent of construction activities and soil conditions of the particular area. Normal construction should only temporarily affect native rangeland vegetation along the route. Where rangeland and cropland is disturbed and doesn't regrow naturally in the next growing season, NextEra Energy will replant the area with a native grass seed mixture or crop and the area will be reclaimed to conditions compatible with the surrounding area. Staging areas and other sites receiving heavy use will be tilled to the extent necessary to alleviate compaction and prepare a seed bed.

After construction, agricultural production will be unrestricted throughout the bulk of the ROW. Placement of structures for the proposed facility will displace small areas of cropland and hay land, and machinery will need to maneuver around structures. Production and harvesting machinery will otherwise be able to operate without hindrance under the proposed facility. Occasionally, maintenance of the line will require additional construction-type activities along the route. Landowners will be compensated through an easement payment for any potential loss of land and crop production.

Livestock production will not be affected by construction or operation of the proposed facility. Construction crews will work with landowners to ensure that fenced pastureland will remain secure for cattle. Following construction, cattle will be free to graze below the proposed facility and virtually all land will be available for grazing along the route.

**(b) Family farms and ranches.**

The main impact to family farms and ranches would be temporary and minimal disturbance to pastureland and hay land as noted above. Landowners will be compensated through an easement payment for any potential loss of land and crop production.

**(c) Land which the owner can demonstrate has soil, topography, drainage, and an available water supply that cause the land to be economically suitable for irrigation.**

Information on irrigated land inside the Corridor was not available from the SWC Water Permit Retrieval System. The Corridor is primarily pastureland. During the wetlands and cultural field surveys, no irrigation systems or wells were observed along the proposed route, however only the southern portion of the route was surveyed.

**(2) The impact upon:**

**(a) Noise-sensitive land uses**

Noise-sensitive land uses within the Corridor include residences. There is one occupied residence in the corridor. Based on a preliminary review of applicable noise regulations, there are no local, county, or State level ordinances that specify numerical limits. NextEra Energy will not use equipment that produces 80 dBA of noise during hours outside of normal working hours.

Following construction, there will be a minimal amount of sound from the proposed facility as the result of corona effects. Corona effects occur when air molecules near conducting wire are ionized due to changes in the electric field intensity at the conductor surface, producing audible noise, radio noise, small amounts of ozone, and corona-related energy loss. Corona-generated audible noise from transmission lines and substations is generally described as a crackling or hissing noise. The noise is most noticeable when conductors are wet (as a result of precipitation). During dry weather, noise is barely perceptible, creating only a sporadic crackling sound.

**(b) The visual effect on the adjacent area**

The proposed facility will be visible to landowners and community residents who live near the proposed facility. The tapered design of the structures is intended to, among other things, minimize visual impacts. There are several other existing transmission lines that cross through or near the Corridor, and a power plant and substation are located at the northern end of the Corridor, so the proposed facility would not introduce any new elements to the landscape.

**(c) Extractive and storage resources**

There are two gravel pits at the northern end of the Corridor near Nelson Lake (**Figure 4**).

**(d) Wetlands, woodlands, and wooded areas**

Approximately 52 acres of wetlands and open water are present within the Corridor (**Figure 4**). A part of Nelson Lake is located within the northern portion of the Corridor. Based on the survey completed to date, one feature (PY-33), an intermittent stream near 30th street, was determined to be USACE-jurisdictional, and one feature (PY-34), a drainage swale near 30th street, was determined to be potentially USACE-jurisdictional (**Figure 4**). Once the survey is completed in spring 2010, a Wetland Delineation Report will be submitted.

Economically important forestry resources are not found in the Corridor. Few small patches of trees occur between grassland and agricultural fields or serve as shelterbelts along wetlands. Woody vegetation within the Corridor is depicted in **Figure 4**.

Based on an initial calculation, there are approximately 316 acres of woodlands and wooded areas, including shelterbelts, within the proposed corridor (**Figure 4**). Six

acres of woodlands, wooded areas and shelterbelts are located along the route. However, NextEra Energy will attempt to minimize impacts to these areas during micro-siting to the extent practicable.

**(e) Radio and television reception, and other communication or electronic control facilities**

Tall structures, such as buildings, communication towers, transmission lines and wind turbines, can create obstructions to communication systems in and around surrounding communities. Potential impacts of proposed construction and operation of the Oliver III Transmission Line on existing telecommunications infrastructure within Morton and Oliver Counties are going to be assessed by NextEra Energy. Due to a conversion of full-power television stations in early 2009 from analog to digital, television reception disruption is no longer anticipated to be an issue.

**(f) Human health and safety**

NextEra Energy will employ proper construction methods to ensure the project will result in minimal impacts to human health and safety.

Human health and safety will be NextEra Energy's paramount concern during construction and operation of the proposed facility. Appropriate standards will be met for construction and installation, and all applicable safety procedures will be followed after installation. The proposed facility will be designed and constructed to meet or exceed the standards of the National Electrical Safety Code.

Safety precautions will be taken during construction and line installation. Conductors will be installed by establishing stringing setup areas within the right-of-way approximately every two miles along the route. Conductors will be installed between setup areas using a "controlled tension method," which ensures that the cable comes off the reel at a constant tension without backlashes. Conductor stringing operations will also require brief access to each structure to secure the conductor wires to the insulators or shield wire clamps once final line sag is established. Heavy, truck-mounted winches that also carry reels of conductor and cable would be used for pulling and tensioning work.

Stringing equipment generally consists of wire pullers, tensioners, conductor reels, shield wire reels, and sheave blocks. Stringing operations consist of pulling lightweight cables or ropes through the stringing sheaves located at every structure site. This cable or rope will be used to pull the conductors through the sheaves under sufficient tension to keep the conductor from coming into contact with the ground. Temporary guard or clearance poles will be installed over existing distribution or communication lines, streets, roads, highways, railways, or other obstructions after any necessary notifications are made and/or permits obtained. This ensures that conductors will not obstruct traffic or come into contact with existing energized conductors or other cables, and protects the conductors from damage.

Regular maintenance and inspections will be performed during the life of the facility to ensure its continued integrity. Periodic inspections will be performed by ground personnel on snowmobile or all-terrain vehicle (ATV), or by aerial means. Inspections will be limited to the right-of-way. If problems are found during inspection, repairs will be assigned to construction crews. If damages to crops are incurred during maintenance and repairs, reimbursement will be made to the landowner, consistent with the terms of the easement.

The term “electromagnetic field” (EMF) refers to the electric and/or magnetic field that is present around any electrical device. Electric fields arise from the voltage or electrical charges and magnetic fields arise from the flow of electricity or current that travels along transmission lines, power collection (feeder) lines, substation transformers, house wiring, and electrical appliances. The intensity of the electric field is related to the voltage of the line and the intensity of the magnetic field is related to the current flow through the conductors (wire). EMF can occur indoors and outdoors. However, there are no known discernible health impacts from power lines (NIEHS Program Staff 1999).

The proposed facility will generate electromagnetic fields (EMF) once energized. The effect of EMF exposure on human health has been a matter of public concern over the past few years. The National Institute of Environmental Health Sciences (NIEHS) issued its final report on June 15, 1999, following six years of intensive research. It concluded that the scientific evidence that extra low frequency EMF exposures pose any health risk is weak. The NIEHS was the lead government agency in directing and carrying out a Congressionally mandated research program on EMF. The EMF levels of the proposed facility are explained below.

The EMF level is related to the power carried by the line, the configuration and sag of the conductors, span length, and location of measurement relative to the line. EMF levels are inversely proportional to the distance from the conductors. For example, operating at 200,000 kVA (the potential future operating level of the project) at a point 3.5 feet above ground at mid-span of an 800 foot span with the conductor height of 27 feet and 70 foot poles, the annual maximum level of EMF will measure approximately 128 mG (milliGauss). At a point 3.5 feet above ground at the base of one of the structures, the annual maximum EMF level will measure approximately 70 mG. At a point 100 feet in transverse direction from the line at a point 3.5 feet above ground at mid-span, the annual maximum EMF will measure approximately 11 mG. At 500 feet in a transverse direction from the line, the annual maximum EMF will measure approximately 0.07 mG. The EMF levels stated in the above example would be annual maximums. The minimum level would be about zero, and an annual time-weighted average would be about 45 percent of the annual maximum.

The Oliver III Transmission Line will be no closer than 500 feet to occupied residences where EMF will be at background levels. NextEra Energy will follow “prudent avoidance” methods to EMF exposure, such as encouraging conservation, encouraging distributed generation, and continue to monitor EMF research. NextEra

Energy will continue to closely monitor this issue and will respond to any new research on EMF as the circumstances require.

**(g) Animal health and safety**

Livestock impacts will be avoided as discussed in **Section D.3.c.1** above.

**(h) Plant life**

NextEra Energy will avoid existing trees and shrubs as practicable. NextEra Energy will use BMPs during construction and operation to minimize impacts. If impacts to trees or shrubs cannot be avoided, the individual trees or shrubs will be replaced according to the PSC's Tree and Shrub Mitigation Specifications. Temporarily disturbed areas will be reseeded per USFWS and NRCS recommendations.

**d. Policy Criteria**

**The commission may give preference to an applicant that will maximize benefits that result from the adoption of the following policies and practices, and in a proper case may require the adoption of such policies and practices. The commission may also give preference to an applicant that will maximize interstate benefits (N.D.A.C. §69-06-08-02.4).**

Because NextEra Energy's proposed Oliver III Transmission Line has taken the PSC's policy criteria into consideration, and because the proposed facility adopts and reinforces these policy considerations and maximizes the benefits resulting from the adoption of these policies, this Application should be given preference.

**(1) Location and Design.**

NextEra Energy has numerous policies that guide the location and design of electric transmission lines (**Appendix A**). These policies include minimizing and mitigating environmental impacts, following the National Electrical Safety Code requirements and policies, designing the system to efficiently transfer electricity, ensuring worker and public health and safety, and constructing facilities to most effectively and efficiently meet its delivery obligations.

**(2) Training and utilization of available labor in this state for the general and specialized skills required.**

NextEra Energy will use local and regional labor to the extent practicable.

**(3) Economies of construction and operation.**

NextEra Energy has designed and will operate the proposed facility as economically efficient as possible. NextEra Energy has evaluated all feasible alternatives and selected the project that is least costly, and one that most minimizes impacts to the social, economic, and natural environment.

**(4) Use of citizen coordinating committees.**

No citizen coordinating committees were used for the proposed route or proposed corridor. NextEra Energy has worked with landowners of properties for the project.

**(5) A commitment of a portion of the transmitted product for use in this state.**

The proposed facility will create a more reliable transmission system. NextEra Energy's proposed transmission line will enable the construction of a 48 MW wind energy project in North Dakota. Energy transmitted will be sold at the Square Butte 230 kV substation to regional utilities. This project will benefit the state and local economy.

**(6) Labor relations.**

No labor relations will be affected.

**(7) The coordination of facilities.**

Existing infrastructure was considered in the location of the Corridor. The proposed facility was conceived as a way to coordinate existing transmission facilities, and to strengthen the reliability of the areas electrical facilities. The proposed facility will tie into an existing Minnkota switching station, the Square Butte Substation. This proposed facility will also be included as part of the electrical power grid of MISO. These facility additions will be coordinated with other MISO power suppliers in the region.

**(8) Monitoring of impacts.**

The impacts of the construction and operation of the proposed facility are discussed above in **Section D.3.c**. NextEra Energy will monitor revegetation success following construction along the route. NextEra Energy will also monitoring dust and noise during construction. Any concerns raised by agencies, landowners, or the Public Service Commission, will be addressed immediately. Impacts to wetlands and woodlands will likely require mitigation to replace the losses, and these will also be monitored for three years following construction. NextEra Energy will employ BMPs during construction to monitor soil impacts and segregate topsoil. All disturbance sites exceeding appropriate size criteria will prepare stormwater pollution prevention plans.

**(9) Utilization of existing and proposed rights-of-way and corridors.**

NextEra Energy does not own existing facilities within the corridor and will not be utilizing any existing right-of-ways.

**(10) Other existing or proposed transmission facilities.**

Coordination of the proposed facility with existing and proposed transmission facilities is discussed above.

**e. Summary of Criteria in Proposed Corridor and Route**

Criteria	Acres or Number within Corridor <sup>a</sup>	Acres or Number within Route <sup>b</sup>	Percent of Corridor Occupied by Criteria	Percent of Route Occupied by Criteria
<b>Exclusion Areas</b>				
Designated or registered state: parks; historic sites; monuments; historical markers; archaeological sites; and nature preserve areas	23 archeological sites from file search, 1 site from survey*	1 site from survey*	N/A	N/A
<b>Avoidance Areas</b>				
Within five hundred feet of a residence, school, or place of business	1 occupied and 2 abandoned residences	1 occupied and 2 abandoned residences	N/A	N/A
Reservoirs and municipal water supplies	Nelson Lake is in northern end of Corridor	None	less than 1%	0
Areas of recreational significance which are not designated as exclusion areas	Nelson Lake is in northern end of Corridor	None	less than 1%	0
<b>Selection Criteria</b>				
Noise-sensitive land uses	1 occupied and 2 abandoned residences	1 occupied and 2 abandoned residences	N/A	N/A
Wetlands (based on NWI data)	51.6 acres	0.8	0.7%	0.5%
Woodlands/Wooded Areas	316 acres	6 acres	4 %	4%

<sup>a</sup> Corridor size is estimated at 7,740 acres

<sup>b</sup> Route with 120-foot buffer is 160 acres

**f. Design and construction limitations.**

The location of the Oliver III Transmission Line was chosen in order to satisfy the need expressed in **Section 11.C** of this application. It was necessary to originate the proposed facility at the proposed Morton County Wind Energy Center substation in Morton County and connect it to the Square Butte 230 kV substation in Section 33, Township 142 North, Range 83 West in Oliver County. The location of the substation and the connection at the Square Butte Substation has limited design by dictating the points of terminus for the Transmission Line.

**g. Economic Considerations.**

NextEra Energy has strived and will continue to strive to minimize any economic damage this proposed facility might create. Landowners will be compensated through an easement payment for any potential loss of land and crop production. The route was chosen in as straight a line as possible with consideration given to willing landowner participation, exclusion areas, avoidance areas, and other selected areas.

#### **4. General Mitigative Measures to Minimize Adverse Impacts**

**Discuss the general mitigative measures that will be taken to minimize adverse impacts which result from a route location in the proposed Corridor.**

NextEra Energy will avoid potential impacts to sensitive resources, which includes exclusion, avoidance and selection criteria as noted in the criteria sections above (see **Section II.D.3**). Specific impacts that would be caused by the proposed facility and mitigation for those impacts are provided in the Route Permit Application. Generally, NextEra Energy will follow the philosophy of avoiding impacts to sensitive criteria first and foremost. When avoidance is not possible, efforts are made to compensate or mitigate for those impacts. Possible impacts include damage to and small loss of agricultural land, where NextEra Energy will compensate landowners; impacts to woodlands and wetlands, where NextEra Energy will develop and follow mitigation plans as required by the Commission; and minimizing impacts to soil erosion, noise, and water quality by following certain specifications during construction.

#### **5. Qualifications of People Involved in the Corridor Study**

The qualifications of the people in the various disciplines that contributed to the Corridor location study are summarized below.

NAME PROJECT ROLE	EDUCATION AND PROFESSIONAL EXPERIENCE
<b>JOHN DIDONATO</b> Director, Project Development NextEra Energy	Mr. DiDonato will lead negotiation of all key commercial agreements associated with the project including the PPA. Mr. DiDonato directs all wind energy development efforts in the Mid-Continent region (excluding Texas). Since 2000, Mr. DiDonato has developed over 2,000 MW of generation projects for NextEra Energy. He has directed development efforts and negotiated the PPAs for all of the wind projects that NextEra Energy has developed and constructed in the Dakotas, which will total over 410 MW by the end of 2007. Additionally, he also directed development efforts and negotiated nearly all of the critical agreements for the 680 MW Calhoun Energy Center, a gas fired simple cycle facility located in Oxford, Alabama. Over the past nine years with NextEra, Mr. DiDonato has led or played a major role in the development or acquisition of over \$3 billion in electric generation assets utilizing wind and clean natural gas technologies. Mr. DiDonato holds a BBA in Accounting from Kent State University and a Masters Degree in Taxation from Florida Atlantic University.
<b>SCOTT SCOVILL</b> Director, Project Development NextEra Energy	Project developer representing NextEra Energy in all commercial and regulatory aspects of the project.  Bachelor's degree, Florida Atlantic University. Master's degree, Palm Beach Atlantic University
<b>ALLEN WYNN</b> Environmental Project Manager NextEra Energy	Mr. Wynn has over 15 years of experience preparing NEPA documents and permitting for large linear projects and energy facilities.  B.S.-Environmental and Natural Resource Studies. Southwest Texas State University
<b>DICK RAUSCH</b> Construction Project Manager FPL Energy	Provided input on route from a "constructability" perspective.
<b>TOM FACTOR</b> Land Easement Specialist/ Route Mapping NextEra Energy	Representing NextEra Energy on wind resource, landowner discussions and selection of corridor.
<b>FRANK BERNARDO</b> Land Easement Specialist NextEra Energy	Representing NextEra Energy on landowner discussions and selection of corridor.
<b>BRIAN BJELLA</b> Attorney for Applicants Crowley Fleck PLLP	Applicant's counsel.  J.D. and Bachelor's degree, both from University of North Dakota.
<b>TRACEY MARTORANO, P.E.</b> Project Manager Tetra Tech	Ms. Martorano has over six years in the environmental consulting business. She has experience preparing and securing environmental permits for energy-related facilities, coordinating and managing biological and cultural field surveys, and contributing to National and State Environmental Policy Act (NEPA) documentation. Ms. Martorano manages siting studies, prepares environmental permits, and conducts consultation with local, state and federal stakeholders for wind energy.  Bachelor's degree, Merrimack College.
<b>ANNE-MARIE GRIGER</b> Deputy Project Manager, Environmental Planner Tetra Tech	Ms. Griger has five years in the environmental consulting business. She has experience preparing and securing environmental permits for large infrastructure and energy-related facilities, conducting socioeconomic and environmental justice analyses, and contributing to National Environmental

NAME PROJECT ROLE	EDUCATION AND PROFESSIONAL EXPERIENCE
	<p>Policy Act (NEPA) documents. She also has public involvement experience.</p> <p>Bachelor's Degree: Environmental Policy &amp; Planning, Master's Degree: Urban &amp; Regional Planning, both from Virginia Polytechnic Institute and State University.</p>
<p><b>JOHN KINNY</b> Wetlands Biologist Tetra Tech</p>	<p>Mr. Kinny has more than eight years of professional experience in the natural resource and environmental fields. He has a diverse and well-rounded background in environmental consulting. Mr. Kinny specializes in wetland delineations, permitting, and mitigation. He has significant experience in wetland, prairie, shoreline, and woodland restoration. His professional experience has included preparing categorical exclusions under the National Environmental Policy Act (NEPA) in the Upper Midwest and providing USFWS Section 7 consultation for the Endangered Species Program.</p> <p>Bachelor's Degree: Natural Resources and Environmental Studies, University of Minnesota.</p>
<p><b>ERIKA EIGENBERGER</b> Archaeologist Tetra Tech</p>	<p>Ms. Eigenberger has ten years of experience conducting archaeological field surveys and managing cultural resource projects. Her archaeological field experience includes the completion of Phase Ia, Phase I, and Phase II archaeological surveys for large-scale transportation projects in Arizona, Idaho, Iowa, and Minnesota; multi-state utility corridors; wind energy projects in Illinois, Minnesota, North Dakota, Oklahoma, and South Dakota; multi-state railway projects; and telecommunication projects throughout the upper Midwest. Ms. Eigenberger is also experienced with cultural resource project management, the coordination of construction monitoring in culturally sensitive areas, the analysis of pre-contact and historic period cultural materials, background research and literature review, report writing and assisting in architectural history documentation.</p> <p>Masters Degree: Anthropology, Cultural Heritage Management Program and Minor in Museum Studies, both from University of Minnesota.  Bachelor's Degree: Anthropology and History, both from St. Cloud State University</p>
<p><b>ISABEL KAUBISCH</b> Environmental Planner</p>	<p>Ms. Kaubisch has six years of experience in the environmental consulting business. She has experience in preparing environmental permits for energy-related facilities and infrastructure, conducting site planning and suitability analysis, land utilization and mitigation planning, and preparing Environmental Impact Assessments. She also has public relation and outreach experience.</p> <p>Vordiplom (Bachelor's Degree): Biology, German Diploma (Master's Degree): Geography with specialization in Regional &amp; Land Use Planning, both from Rheinische Friedrich-Wilhelms-Universitaet Bonn; Certificate: Community Environmental Studies from Tufts University</p>
<p><b>WILLIAM SCALES</b> GIS Analyst Tetra Tech</p>	<p>Mr. Scales prepared the application figures, impact calculations, and other GIS tasks.</p> <p>Mr. Scales has five years of professional experience as a GIS Analyst, including database design and management; GIS data conversion, development, migration, and integration; GIS/GPS Deployment; expertise in GIS projects involving utility systems, energy planning/siting, asset management, infrastructure, and constraint/impact analysis.</p>

## REFERENCES

- Austin, J. E., and A. L. Richert. 2001. A comprehensive review of observational and site evaluation data of migrant whooping cranes in the United States, 1943–1999. U.S. Geological Survey, Northern Prairie Wildlife Research Center, Jamestown, ND. Northern Prairie Wildlife Research Center Online. <http://www.npwrc.usgs.gov/resource/birds/wcdata/index.htm> (Version 01JUL2003).
- Carter, T.C., S.K. Carroll, J.E. Hofmann, J.E. Gardner, and G.A. Feldhamer. 2002. Landscape analysis of roosting habitat in Illinois, in *The Indiana bat: biology and management of an endangered species* (A. Kurta and J. Kennedy, eds.). Bat Conservation International, Austin, Texas.
- National Institute of Environmental Health Sciences EMF-RAPID Program Staff, 1999. NIEHS Report on Health Effects from Exposure to Power Line Frequency Electric and Magnetic Fields. Research Triangle Park, NC.
- National Wind Coordinating Committee (NWCC). 2004. Wind Turbine Interactions with Birds and Bats: A Summary of Research Results and Remaining Questions. Resolve, Inc., Washington D.C., 7 pp.
- Tetra Tech EC, Inc. 2008a. Spring Avian Survey, Oliver Expansion Wind Resource Area, Phases III, IV and V, Oliver and Morton Counties, North Dakota. Prepared for: FPL Energy. Submitted August 2008.
- Tetra Tech EC, Inc. 2008b. Fall Avian Survey, Oliver Expansion Wind Resource Area, Phases III, IV and V, Oliver and Morton Counties, North Dakota. Prepared for: FPL Energy. Submitted December 2008.
- Tetra Tech EC, Inc. 2009a. Native Prairie Survey, Oliver Expansion Phases III, IV and V Wind Resource Area, Oliver and Morton Counties, North Dakota. Prepared for: NextEra Energy. Submitted October 2009.
- Tetra Tech EC, Inc. 2009b. Whooping Crane Likelihood of Occurrence Report, Oliver Expansion Wind Energy Facility, Oliver and Morton Counties, North Dakota. Prepared for: NextEra Energy. Submitted November 2009.
- Tetra Tech EC, Inc. 2009c. Bat Likelihood of Occurrence Report, Oliver Expansion Wind Energy Facility, Oliver and Morton Counties, North Dakota. Prepared for: NextEra Energy. Submitted November 2009.
- U.S. Army Corps of Engineers (USACE). 2008. Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region. ed. J.S. Wakeley, R.W. Lichvar, and C.V. Noble. ERDC/EL TR-08-27. Vicksburg, MS: U.S. Army Engineer Research and Development Center.
- U.S. Army Corps of Engineers. 2008. Revised Guidance Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in *Rapanos v. United States & Carabell v. United States*, December 2, 2008.

## DEFINITIONS

ANSI	American National Standards Institute
ASTM	American Society for Testing and Materials
Asynchronous Generator	A cage-wound generator, also called an induction generator, used to generate alternating current
BMPs	Best Management Practices; prevents soil erosion and sedimentation
Capacity	The capability of a system, circuit, or device for storing electronic charge
Class I Cultural Resources Inventory	Existing data inventory – a large-scale review and compilation of known cultural resource data
Class II/III Cultural Resources Inventory	Field inventory to identify cultural resources that could be affected by project facilities within the Project Area
Aggregate Surface	Road cover used for proposed access roads
Commission or PSC	North Dakota Public Services Commission
CRP	Conservation Reserve Program
Corridor Certificate (aka Certificate)	Certificate of Corridor Compatibility
CWA	Clean Water Act
DA	Department of the Army
dBa	A-weighted decibel
Distribution	Relatively low-voltage lines that deliver electricity to the retail customer's home or business
EMF	Electric and Magnetic Field
FPPA	Farmland Protection Policy Act
NDGFD	North Dakota Game and Fish Department
kV	kilovolt
kVA	kilovolt-amperes
kW	kilowatt
MW	megawatt
M	meter
m/s	meter per second
MAPP	Mid-Continent Area Power Pool
Micrositing	The process in which the wind resources, potential environmentally sensitive areas, soil conditions, and other site factors, as identified by local, state and federal agencies, are evaluated to locate wind turbines and associated facilities.
mph	miles per hour
NDDOT	North Dakota Department of Transportation
NESC	National Electric Safety Code
NextEra Energy	NextEra Energy Resources, LLC
NDAC	North Dakota Administrative Code
NDCC	North Dakota Century Code
NDPRD	North Dakota Parks and Recreation Department
NHID	Natural Heritage Inventory Database
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NWI	National Wetlands Inventory
NWP	Nationwide Permit
PPA	Power Purchase Agreements
PSC or Commission	North Dakota Public Services Commission
ROW	Right-of-Way
SHPO	North Dakota State Historic Preservation Office

SWPPP  
USACE  
USFWS  
UT  
WPA

Storm Water Pollution Prevention Plan  
U.S. Army Corps of Engineers  
U.S. Fish and Wildlife Service  
Unincorporated Township  
Waterfowl Protection Area