Wilton IV Wind Energy Center
Draft Environmental Impact Statement

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Western Area Power Administration

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COVER SHEET

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Title: Draft Environmental Impact Statement for the Wilton IV Wind Energy Center

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Abstract: Western Area Power Administration (Western) prepared this draft environmental impact statement (DEIS) in response to a request from NextEra Energy Resources, LLC (NextEra), on behalf of its subsidiary Wilton Wind IV, LLC (Wilton IV), to interconnect its proposed Wilton IV Wind Energy Center (Project) to Western's power transmission system. The proposed Project is a wind turbine generation facility located in Burleigh County, North Dakota. It would consist of 62 wind turbine generators, with a total nameplate capacity of approximately 99 MW.

NextEra has also requested that the existing interconnection contracts for the Wilton Wind I Energy Center (formerly known as Burleigh County Wind), Wilton Wind II Energy Center, and the Baldwin Wind Energy Center (together called the Existing Projects) be modified to lift their administrative 50 average annual MW production caps.

This DEIS includes a description of the proposed Project and analyzes the impacts associated with the proposed construction, operation, and decommissioning of the Wilton IV Project and lifting the administrative 50 average annual MW cap on the Existing Projects. Western will consider the analysis as well as comments received during the public review period to determine whether (1) Western will execute an interconnection agreement for the proposed Project, and (2) amend the interconnection agreements for the Existing Projects to lift the administrative 50 average annual MW cap.

Comments on this Draft EIS should be received no later than May 6, 2013.

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ACRONYMS

AML	Abandoned Mine Lands
AMP	Adaptive management plan
ANSI	American National Standards Institute
APE	Area of Potential Effects
ATV	All-terrain vehicle
BBCS	Bird and bat conservation strategy
BGS	Below ground surface
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CO	Carbon monoxide
CPEC	Central Power Electric Cooperative
CRP	Conservation Reserve Program
dBA	A-weighted decibel
DOC	Department of Commerce
DOE	United States Department of Energy
DOI	United States Department of the Interior
EIS	Environmental Impact Statement
EMF	Electromagnetic field
EO	Executive Order
EPA	Environmental Protection Agency
EPC	Engineering, procurement, and construction
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FCC	Federal Communications Commission
FEMA	Federal Emergency Management Agency
FSA	Farm Service Agency
GE	General Electric
GPM	Gallons per minute
HDD	Horizontal directional drilling
KOP	Key observation point
MAPP	Mid-Continent Area Power Pool
Met	Meteorological
MW	Megawatts
MWh	Megawatt hour
N_2O	Nitrous oxide
NAAQS	National Ambient Air Quality Standards
NDAC	North Dakota Administrative Code
NDCC	North Dakota Century Code
NDDA	North Dakota Department of Agriculture

NDDoH	North Dakota Department of Health
NDDOT	North Dakota Department of Transportation
NDGFD	North Dakota Game and Fish Department
NDGS	North Dakota Geological Service
NESC	National Electric Safety Code
NextEra	NextEra Energy Resources, LLC
NO_2	Nitrogen dioxide
NOI	Notice of Intent
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NSC	National Safety Council
NTIA	National Telecommunications and Information Administration
NWP	Nationwide Permit
O_3	Ozone
O&M	Operations and maintenance
Pb	Lead
PLOTS	Private land open to sportsmen
PM	Particulate matter
Project	Wilton IV Wind Energy Center
PSC	North Dakota Public Service Commission
SCADA	Supervisory control and data acquisition
SHPO	North Dakota State Historic Preservation Office
SOP	Standard operating procedure
SO_2	Sulfur dioxide
SPCC	Spill prevention, control and countermeasure
TCP	Traditional cultural property
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Service
WCFZ	Worst-case Fresnel zone
Western	Western Area Power Administration
Wilton IV	Wilton Wind IV, LLC
WMD	Wetland Management District
WPA	Waterfowl Production Area
WRRS	Wildlife response and reporting system
WQC	Water quality certification

EXECUTIVE SUMMARY

Western Area Power Administration (Western) prepared this Draft Environmental Impact Statement (DEIS) in response to a request from NextEra Energy Resources, LLC (NextEra), on behalf of its subsidiary Wilton Wind IV, LLC (Wilton IV), to interconnect its proposed Wilton Wind IV Energy Center (Project) to Western's power transmission system. The proposed Project is a wind turbine generation facility located in Burleigh County, North Dakota. It would consist of 62 wind turbine generators, with a total nameplate capacity of approximately 99 MW. Additional facilities include access roads, electrical systems, cabling, a substation, meteorological towers, and a construction laydown area.

NextEra has also requested that the existing interconnection contracts for the Wilton Wind I Energy Center (formerly known as Burleigh County Wind), Wilton Wind II Energy Center, and the Baldwin Wind Energy Center (together called the Existing Projects) be modified to lift their administrative 50 average annual MW production caps.

Western's Federal proposed action is to execute an interconnection agreement for Wilton IV's proposed Project. In addition, as a separate decision, Western proposes to approve NextEra's request to lift the administrative 50 average annual MW cap on their Existing Projects and to modify their existing contracts to reflect this change.

Western's proposed actions under this EIS would involve no construction or other activities that would impact environmental resources. No physical changes to Western's transmission system would be required to interconnect Wilton IV's proposed Project, or to allow additional generation from the Existing Projects. Regardless, the discussion in this EIS considers those impacts that would be expected to occur from the construction, operation, maintenance, and decommissioning of Wilton IV's proposed Wilton IV Wind Energy Center, and any operational changes to NextEra's Existing Projects.

Under the No Action Alternative, Western would not enter into a new interconnection agreement with Wilton IV. Wilton IV could continue to pursue their proposed Project by request for interconnection with another transmission provider in the vicinity. For the purposes of this EIS, however, the No Action Alternative is considered to result in Wilton IV's proposed Project not being constructed.

As a separate No Action Alternative, Western would not lift the administrative 50 average annual MW cap of their Existing Projects and would not modify their existing contracts. In this case, the current operational caps on NextEra's Existing Projects would remain in effect.

A number of environmental protection measures have been included in the proposed Project. Most notably:

- Sensitive areas such as wetlands and known raptor nests would be avoided during construction.
- Wilton IV would bury collection lines from the turbines to the collection substation to avoid avian collisions. There would be one approximately 240-foot length of overhead

tie-line that would connect the proposed Project collector substation to an existing line across 279th Avenue. The line would be outfitted with bird diverters and the poles with perch deterrents. The development of the proposed Project would not require the construction of any additional transmission lines.

- Wilton IV would establish a post-construction monitoring program during spring and fall whooping crane migration seasons (spring: April 1 to May 15; fall: September 10 to October 31) for 3 years post-construction to detect the possible presence of whooping cranes within the proposed Project Area.

- Wilton IV would develop and implement a whooping crane sighting protocol for the operation of the proposed Project. If a whooping crane is observed, Wilton IV would shut down turbines located within 1 mile of the birds, until the birds are no longer observed in the area. In addition, if any dead whooping cranes or sandhill cranes are observed in the proposed Project Area, turbines would be shut down and Wilton IV would request consultation with the U.S. Fish and Wildlife Service under the Endangered Species Act.

The proposed Project analysis indicates there is unlikely to be significant adverse impacts to geology and soils, air resources, land use and recreation, socioeconomics and environmental justice, transportation, and health and safety.

There are no major rivers or traditional navigable waters found within the proposed Project Area. A wetland delineation was conducted for the proposed Project area to determine potential impacts. Eight potentially jurisdictional features were identified in the proposed Project Area. Five of these features were identified within the temporary disturbance buffers around Project facilities (four features were classified as seasonally flooded wetlands, and one feature was classified as a shallow marsh). Most of the other water features consisted of seasonally flooded wetlands and drainage swales. Like the other water features observed within the proposed Project Area, these features were not considered high quality wetlands due to low species diversity. Regardless, collection lines will be bored using horizontal directional drilling if wetlands are encountered. Proper environmental protection measures would be implemented to assure no migration of any facility construction fill is discharged into jurisdictional wetlands. Wilton IV has committed to no permanent impacts to wetlands. The wetlands report is available online at: http://www.wapa.gov/ugp/Environment/EnvWiltonIV-EIS.htm.

Agricultural land is the dominant land cover type in the proposed Project Area. Native prairie surveys results indicate 10 percent of the proposed Project Area is native prairie and 12 percent is planted grasslands; the remaining acreage consists primarily of agricultural croplands with a few residential homesteads and farmyards.

Approximately 400 acres (2.5 percent of the total 15,752-acre proposed Project Area) would be disturbed during the construction of the proposed Project. Construction activities may temporarily disturb soils and vegetation to an extent that would require some re-grading, compaction mitigation, and reseeding following completion of operations. Should such disturbance occur, these soils would be restored to the original contours and

reseeded, if necessary, with native perennial species common to the area. Based on the small percentage of the proposed Project Area that would be disturbed by construction activities and the mitigation measures implemented during and post-construction to allow vegetation to regrow, construction impacts to vegetation are expected to be minimal. Additionally, the areas temporarily affected could be restored to crop production depending on landowner preferences.

Vegetation communities most sensitive to disturbance are native prairie and wetlands. Access road construction would result in the greatest effects to native vegetation, resulting in permanent loss of these habitats where they occur along selected routes. Installation of the proposed buried collector system would result in some temporary effects to native and non-native grasslands. Under the proposed configuration, 12 of the 62 planned turbines would be placed within native prairie. Twenty acres of native grassland would be permanently disturbed. The rest would be previously disturbed agricultural land.

Temporary effects would be mitigated by backfilling the trenched areas and reseeding with an approved mix of native species following completion of construction activities. Based on the small percentage of the proposed Project Area that would be disturbed by construction and operation of the proposed Project compared to the distribution of native prairie in the county and the mitigation measures that would be implemented during construction, impacts to native prairie are not expected to be significant. Introduction of noxious weeds would be minimized by prompt revegetation with regionally native species or restoration of prior land use.

No threatened or endangered plants were observed or previously documented to occur within the proposed Project Area. The proposed Project is unlikely to impact any listed threatened or endangered plants. Any impacts to vegetation from the proposed Project are not anticipated to be significant.

The USFWS identified five wildlife species protected by the ESA that had the potential to occur in the vicinity of the proposed Project: pallid sturgeon (*Scaphirhynchus albus*) – Endangered; interior least tern (*Sterna antillarum*) – Endangered; whooping crane – Endangered; gray wolf (Canis lupus) – Endangered; and piping plover (*Charadrius melodus*) - Threatened with Designated Critical habitat in the vicinity of the proposed Project. Of these five species, the whooping crane, interior least tern, and piping plover have the most potential to be affected by the proposed Project. The wolf has been delisted within the project area (USFWS 25 December, 2011) and no activities would occur in waters that could support the pallid sturgeon.

Wilton IV commissioned a detailed risk assessment for whooping cranes (Tetra Tech 2011c, available online at: http://www.wapa.gov/ugp/Environment/EnvWiltonIV-EIS.htm). The results of this assessment indicate that the likelihood of crane occurrence within the proposed Project Area is low. Although the proposed Project is located within the corridor in which 75 percent of migrating whooping cranes have been observed, there are no historical records of whooping cranes occurring within the proposed Project Area. There have been sightings within 35 miles, which is an appropriate scale to examine whooping crane habitat use. Avian surveys were conducted in the proposed Project Area in the fall

2008, spring 2009, spring 2010, and fall 2011 and no whooping cranes were observed in the project area.

The potential for indirect impacts resulting from whooping crane habitat loss is low. Existing wind turbines on site may deter cranes from using the proposed site. The potential roosting habitat within the proposed Project Area is of marginal quality. Suitable wetland for cranes is identified as unobstructed wetlands and open water. Wetlands surrounded by trees or with nearby structures are considered unsuitable as they present obstructions and/or disturbances that is assumed to be unfavorable for foraging or roosting. The proposed Project Area does not have attractive roosting habitat for cranes in relation to surrounding areas, such as along the Missouri River to the west.

A Biological Assessment was sent to the US Fish and Wildlife Service in Bismarck, ND on August 2, 2012. The Service responded by letter on October 3, 2012 stating the Biological Assessment was insufficient for completing Section 7 consultation. Western is in the process of formulating it's response to the Service's concerns.

Based on the low magnitude of habitat loss, the relative lack of suitable wetland habitat, the low probability of site usage, and buried collection systems, the proposed Project may affect but is not likely to adversely affect the whooping crane.

The nearest interior least tern habitat is located more than 5 miles to the west of the proposed Project. The proposed Project Area contains no sizeable rivers with sandbars, and the proposed Project would not affect water quantity or quality in the Missouri River or its major tributaries. The limited extent of wetlands close to the proposed Project and the low likelihood that existing wetlands contain enough fish to attract foraging terns suggests that the likelihood of terns occurring near the proposed Project would be very low. It is unlikely the proposed Project would have any impact on breeding interior least terns.

To date, no interior least tern fatality has been reported from turbines at a wind farm. No interior least terns were observed during the fall 2008 and spring 2009 avian surveys (WEST 2009), the spring 2010 avian survey, the 2011 fall avian survey (Tetra Tech 2011b), or the 2012 spring avian survey (Tetra Tech 2012b). The avian reports are available online at: http://www.wapa.gov/ugp/Environment/EnvWiltonIV-EIS.htm. The proposed Project may affect but is not likely to adversely affect the interior least tern.

Critical functions considered for piping plovers included water quality, invertebrate abundance, and the location for the project relative to known nesting locations. None of these factors would be affected by the proposed Project. According to the U.S. Fish and Wildlife Service (USFWS), piping plovers nest on midstream sandbars of the Missouri and Yellowstone Rivers, and along shorelines of saline wetlands. Piping plovers are known to nest within alkali wetlands in North Dakota, including in Burleigh County.; However none of these nesting locations are within the proposed Project boundaries, and there is no critical habitat located within the proposed Project boundary. No comprehensive piping plover nest surveys were performed outside the Project boundary. There is the possibly that a flying plover may strike a wind turbine; however, this is unlikely as the plovers tend to fly lower than the rotor swept height of the turbines proposed for this project. The proposed

Project Area does not impact designated critical habitat. Therefore, Wilton IV's proposed Project may affect, but is not likely to adversely affect the piping plover.

Except for a new 240-foot tie-line across 279th Avenue NE, there would be no new proposed Project transmission lines. This short tie-line overcrossing will be marked with bird diverters and perch deterrents. The potential for increased collisions with transmission lines would be negligible.

In general, impacts to visual resources are of some concern by non-participating land owners who expressed their concerns during public scoping. As discussed, the proposed Project is adjacent to existing wind energy developments, and would add 62 wind turbines in an area that already hosts 130 existing turbines. Impacts on visual resources within the proposed Project area were determined by considering the post-construction views from the Key Observation Points. The proposed Project Area does not contain any highly distinctive or important landscape features or unique viewsheds. There are no visual quality standards in place in Burleigh County.

Acoustic and shadow flicker studies were conducted for the proposed Project (available online at: http://www.wapa.gov/ugp/Environment/EnvWiltonIV-EIS.htm). The noise modeling results indicated that the received sound levels are all predicted to be below the most stringent EPA guideline at non-participating (i.e., receptors located outside of the proposed Project boundary) occupied residences. The highest predicted sound level for an occupied residence was 47 dBA at a participating landowners residence. All non-participating receptors are in compliance with the Crofte Township 45 dBA limit. The shadow flicker modeling found two occupied residences had predicted shadow flicker impacts for more than 30 hours per year (just under 37 hours and just over 32 hours); both landowners are proposed Project participants.

Western submitted the archeology and historic architecture survey reports to the SHPO for review in accordance with Section 106 of the National Historic Preservation Act. Sites determined to be potentially significant and/or eligible for listing in the National Register would be avoided during construction and Wilton IV would fence or otherwise clearly mark these avoidance areas to prevent them from being inadvertently disturbed.

The cumulative impacts analysis included the proposed Project, Existing Projects, Minnkota Power Cooperative, Inc. Center to Grand Forks Transmission Line, and rural subdivisions in Burleigh County. Cumulatively, these projects would contribute to the conversion of grasslands. Both Wilton IV and Minnkota have committed to installing perch deterrents and bird diverters on new overhead lines in order to minimize impacts to birds. While posing less of a direct threat to birds and other wildlife from collisions, the increase in rural residential development contributes to reduction of habitat and an increase in habitat fragmentation. Construction of Wilton IV would contribute to minor changes in the visual environment of Burleigh County.

A cumulative impact assessment for these existing and proposed projects was also conducted for noise and shadow flicker based on a total of 194 turbines, including 64 (62 and 2 alternate) Wilton IV turbines and 130 operating turbines from the Wilton I, II, and

Baldwin Wind Energy Centers on residences within approximately 1 mile from these Existing Projects. The cumulative shadow flicker study predicted greater than 30 hours of shadow flicker per year at a total of four residences (all participating). The cumulative noise analysis found that the 48.6 dBA threshold was not exceeded at any non-participating residences under any wind turbine operating condition. There was one exceedance at an occupied residence at maximum wind speed, and two additional exceedances at occupied residences assuming anomalous meteorological conditions. All of the exceedances are at residences belonging to participating landowners. Due to their support of proposed Project development, proposed Project participants have been found to be less likely to become annoyed by low-level turbine sound than non-participants.

Western has consulted with the various Federal, State, and local agencies in the development of this NEPA analysis. A public scoping meeting was held in Wilton, North Dakota, on July 26, 2011. The areas of controversy raised during the scoping process were:

- Cumulative impacts
- Effects on whooping cranes
- Effects on native prairie and the Missouri Coteau
- Noise
- Effects of Project on property values
- Wind turbine malfunctions

The Public Meeting Scoping Report is available online at: http://www.wapa.gov/ugp/Environment/EnvWiltonIV-EIS.htm.

Western sent out letters to 11 tribes in August 2011 inviting them to participate in the proposed Project and initiate government to government consultation. No responses have been received to date.

1.0 INTRODUCTION

Western Area Power Administration (Western), a power marketing agency within the U.S. Department of Energy (DOE), prepared this environmental impact statement (EIS) in response to a request from NextEra Energy Resources, LLC (NextEra), on the behalf of its subsidiary Wilton Wind IV, LLC (Wilton IV), to interconnect its proposed Wilton Wind IV Energy Center (Project) with Western's power transmission system. Additionally, NextEra is proposing to operate its three existing wind energy projects – Wilton Wind I Energy Center (formerly known as Burleigh County Wind), Wilton Wind II Energy Center, and the Baldwin Wind Energy Center (collectively the Existing Projects) – at levels exceeding their administrative cap of 50 average annual megawatts (MW). Wilton IV's proposed Project and NextEra's Existing Projects are located in Burleigh County, North Dakota.

Wilton IV's proposed Project would interconnect to Western's transmission system at Western's existing Hilken Switching Station. The Hilken Switching Station is presently in place and operating, and no construction or system modifications would be required on Western's part to accommodate the interconnection.

While NextEra submitted the interconnection request, NextEra plans to assign the request to its subsidiary Wilton IV, and any resulting interconnection agreement with Western would be with Wilton IV. Therefore, to reduce confusion in this EIS, Wilton IV will be identified as the entity requesting an interconnection and Project proponent. NextEra will continue to be associated with the request to lift the administrative 50 average annual MW cap on their Existing Projects.

Wilton IV's proposed Project is a wind turbine generation facility similar to the Existing Projects in the area. The proposed Project would consist of 62 wind turbine generators, with a total nameplate capacity of approximately 99 MW. The Project Area encompasses approximately 24.6 square miles (15,752 acres) southeast of Wilton, North Dakota, and approximately 12 miles north of Bismarck (Figure 1). The Project Area is located immediately adjacent to the Existing Projects (Figure 2).

Western's proposed Federal action to execute an interconnection agreement for the proposed Project, and to consider NextEra's request to modify existing interconnection agreements to lift the administrative cap of 50 average annual MW for their Existing Projects, requires review under the National Environmental Policy Act (NEPA) (42 U.S.C. 4321-4347), the Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of NEPA (40 CFR parts 1500-1508), DOE NEPA Implementing Procedures (10 CFR part 1021), and other applicable regulations. Western prepared this EIS under these regulations to describe the environmental effects of its Federal proposed action.

Other Western NEPA documents were prepared for the Existing Projects, and were used in the preparation of this EIS. They include *Burleigh County Wind Energy Center, Burleigh County, North Dakota* [Wilton I], DOE/EA-1542, 2006; *EA Supplement to DOE/EA-1542* [Wilton II], 2009; and *Baldwin Wind Energy Center Project, Burleigh County, North Dakota* [Baldwin], DOE/EA-1698, 2010, and their respective findings of no significant impact. These

documents are incorporated here by reference, and may be found online at: http://energy.gov/search/site/1542?gid=19 and http://energy.gov/search/site/1698?gid=19.

1.1 Western's Agency Purpose and Need

Wilton IV requests to interconnect its proposed Project with Western's transmission system at Western's existing Hilken Switching Station. Western's purpose and need is to consider and respond to the interconnection request in accordance with its Open Access Transmission Service Tariff (Tariff) and the Federal Power Act. Western's Tariff is filed with the Federal Energy Regulatory Commission for approval.

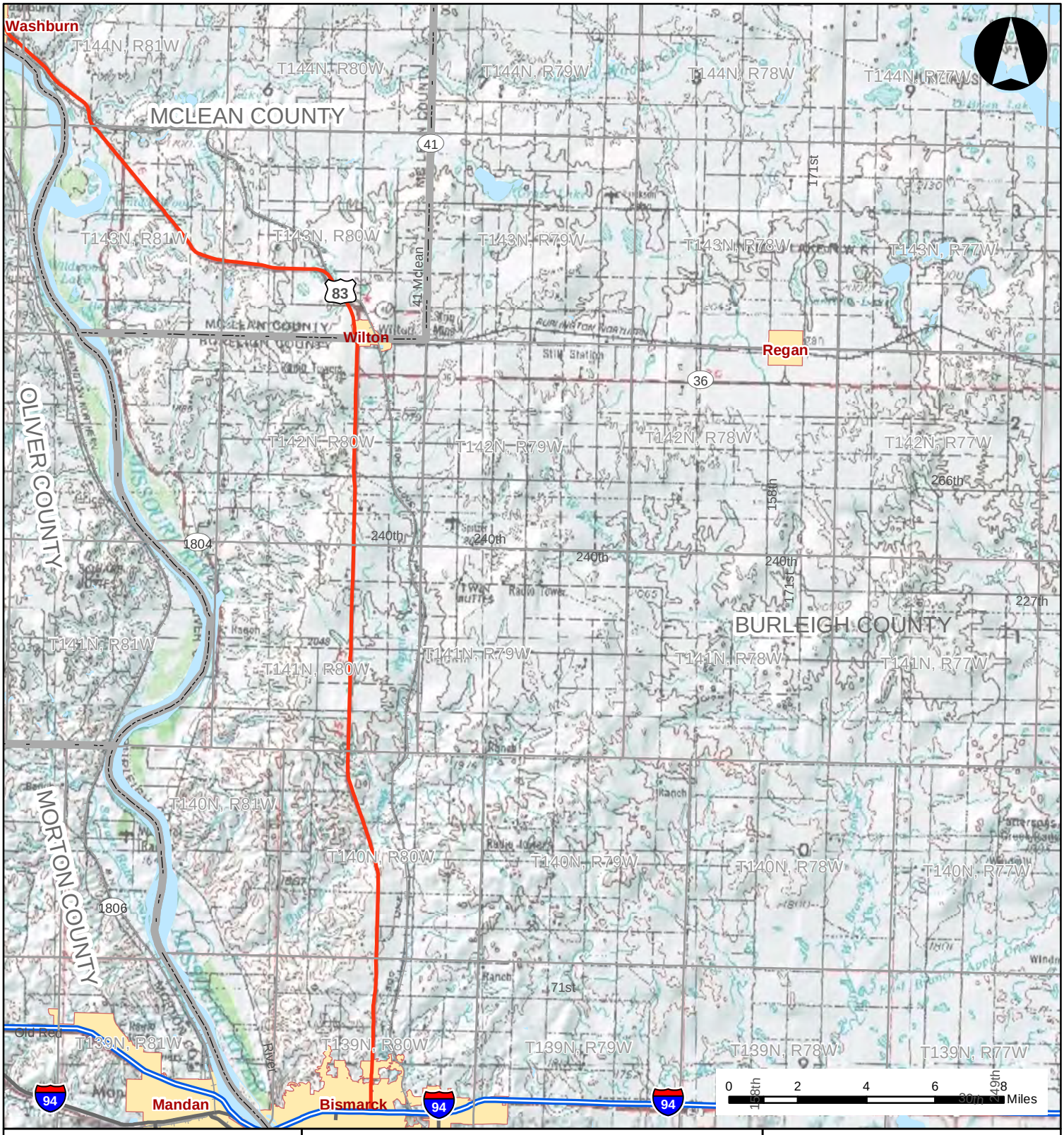
Under the Tariff, Western offers capacity on its transmission system to deliver electricity when capacity is available. The Tariff also contains terms for processing requests for the interconnection of generation facilities to Western's transmission system. In reviewing interconnection requests, Western must ensure that existing reliability and service is not degraded. Western's Tariff provides for transmission and system studies to ensure that transmission system reliability and service to existing customers are not adversely affected by new interconnections. These studies also identify transmission system upgrades or additions necessary to accommodate the proposed project and address whether the upgrades/additions are within the Project scope.

Additionally, NextEra has requested to lift the administrative 50 average annual MW cap on its Existing Projects, requiring changes to the Existing Projects interconnection agreements. Western will consider NextEra's request for these changes as part of this analysis.

1.2 Wilton IV's Purpose and Need for its Proposed Project

Wilton IV's purpose is to develop, operate, and maintain the proposed Project to develop the renewable wind resource and provide renewable energy to meet the region's energy requirements. Developing the wind resource in North Dakota is an opportunity to provide additional capacity to meet forecasted energy deficits with clean, efficient, renewable energy. Once completed, the proposed Project would be a significant source of energy for meeting the region's needs over the next 30 years.

Due partly to high heating demand in winter, North Dakota's per capita energy consumption is among the highest in the nation. Nearly three-tenths of North Dakota households use electricity as their primary energy source for home heating. According to the U.S. Energy Information Administration (EIA 2009), 89 percent of electricity generated in the state of North Dakota is produced from coal-fired power plants. Most of the coal used for power generation is supplied by several large surface mines in the central part of the State. Energy sources such as coal, oil, and natural gas are finite, and their combustion has environmental consequences.



Wilton IV Wind Energy Center

BURLEIGH COUNTY, ND

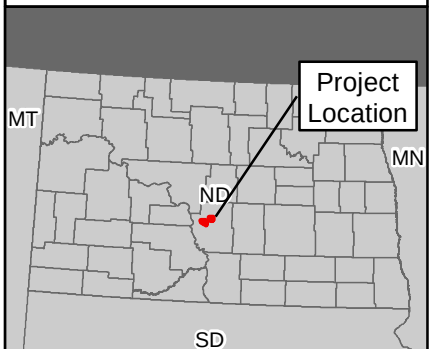
Figure 1. Project Location

FEBRUARY 2013

- Project Area (9/28/11)
- Waterbody
- Limited Access Highway
- Highway
- Major Road
- Railroad
- Populated Place
- County Boundary
- Township Boundary

Source: ESRI Topo 2007, ESRI Roads 2006

OVERVIEW MAP



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WILTON WIND IV, LLC

WILTON IV WIND ENERGY CENTER

BURLEIGH COUNTY, NORTH DAKOTA

Figure 2
Proposed and Existing Projects

FEBRUARY 2013

Legend

- Wilton IV WTG (GE 1.6-100)
- Wilton I WTG (GE 1.5 sle)
- Wilton II WTG (GE 1.5 xle)
- Baldwin WTG (GE 1.6 xle)
- O&M Building

Proposed Project Boundary

- Wilton IV

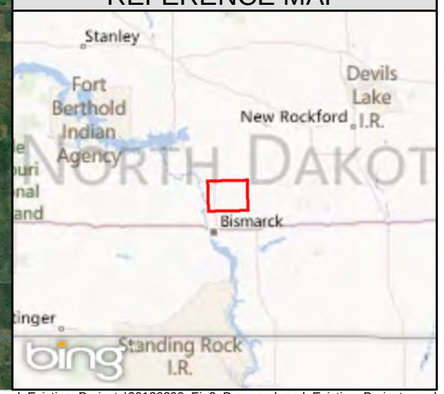
Existing Project Boundary

- Baldwin
- Wilton I
- Wilton II
- Civil Township

N
W E
S

0 0.5 1 2 3 Miles

REFERENCE MAP



Path: P:\GIS\NextEra_WiltonIV\GIS\Spatial\MXD\20121016_Proposed_and_Existing_Projects\20130208_Fig2_Proposed_and_Existing_Projects.mxd

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In March 2007, the North Dakota Legislature enacted legislation (H.B. 1506) adopting a voluntary renewable portfolio objective that aims to have 10 percent of electricity generated from renewable sources by 2015. This legislation establishes a need for renewable energy generation. North Dakota is one of the leading states in the nation in potential wind power capacity and had 1,445 MW of installed wind energy capacity at the end of 2011, ranking it 3rd in the nation in terms of wind generation as a percentage of its total electricity generation (AWEA 2012).

According to a March 2009 report prepared by the EmPower ND Commission, one of the State energy goals is to increase installed wind energy capacity to 5,000 MW by 2025 (EmPower ND2009). North Dakota's goals include the following: general economic development, new wind project investments and construction, new landowner income, and new long-term jobs from broad professional services (such as wind project design, wind resource monitoring, and legal and accounting services), from commercial project operation and maintenance (O&M), and from the manufacturing of wind turbine components. In support of this effort, Wilton IV is cooperating with regional utilities to add wind generated energy to their energy portfolios.

North Dakota has been identified as having more available wind for development than any other state. In recent years, the Mid-Continent Area Power Pool (MAPP) has consistently reinforced the regional need for increased generating capacity in the coming decade. Cost fluctuations and reliability problems serve to reinforce the need for sufficient capacity, low-cost energy, and diverse generation sources. Independent power producers such as NextEra are widely recognized as essential to meeting regional energy needs, stabilizing energy costs, and enhancing energy reliability. The proposed Project offers North Dakota and the MAPP region the opportunity to add to capacity, to stabilize wholesale power prices, and to provide electricity from a clean, cost-effective renewable energy generation facility.

1.3 Authorizing Actions

Federal, State, and local agencies have jurisdiction over certain aspects of Wilton IV's proposed Project. Major agencies and their respective permit/authorizing responsibilities with respect to the proposed Project are summarized in Table 1.

Table 1. Permit/Authorizing Responsibilities

Authorizing Action/Statute	Responsible Agency
Interconnection/Transmission Service Agreement	Western
Certificate of Site Compatibility	North Dakota Public Service Commission (PSC)
Utility Occupancy Agreement	North Dakota Department of Transportation (NDDOT)
Easement Grants and Road Crossing Permits	NDDOT, Burleigh County, Ghylin Township Board
Review and Approval of Weed Control Plan	Burleigh County, Crofte Township Board, Ghylin Township Board
National Environmental Policy Act	Western
National Historic Preservation Act	Western, North Dakota State Historical Preservation Office (NDSHPO)
Construction Storm Water Permit	North Dakota Department of Health (NDDoH), North Dakota Division of Water Quality, Storm Water Program
Safety Plan	Occupational Safety and Health Administration (OSHA)
Migratory Bird Treaty Act	U.S. Fish and Wildlife Service (USFWS), Western
Bald and Golden Eagle Protection Act	USFWS, Western
Endangered Species Act	USFWS, Western
Tower Lighting	Federal Aviation Administration (FAA)
Conditional Use Permit	Burleigh County, Ghylin Township Board
Building Permit	Burleigh County, Ghylin Township Board

1.4 Public Participation

Western published a Notice of Intent (NOI) to prepare an EIS in the *Federal Register* on July 20, 2011 (76 FR 43324). The scoping period extended from July 20 to September 6, 2011.

A public scoping meeting was held in Wilton, North Dakota, on July 26, 2011. In addition to the Federal Register Notice of Intent, the meeting announcements were placed in the Bismarck Tribune from Monday, July 11 through Wednesday, July 20, 2011. In addition, announcements of the meeting were made for the following six radio stations in the Bismarck area from Tuesday, July 19, 2011 through Tuesday, July 26, 2011: KQDY, KFYR, KBMR, ROCK 101, Y93 and ESPN. State and federal agencies were invited to the meeting via direct mailings (see Section 4.0).

Approximately 50 members of the public attended the meeting. Each attendee was asked to sign in, and was given a Project Fact Sheet and a comment sheet. Maps displayed throughout the room illustrated the Project boundary (dated July 2011), the turbine layout, and aerial photography base. Written comments received from agencies and the public during the scoping period were considered in preparing this Draft EIS, and are included in a separate Scoping Meeting Report. A total of 17 written comments were received during the scoping period: seven from agencies, nine from members of the public, and one from the North Dakota Chapter of the Wildlife Society. Copies of all of the written comments are included in the Scoping Meeting Report, which can be found online at The Public Meeting Scoping Report is available online at: http://www.wapa.gov/ugp/Environment/EnvWiltonIV-EIS.htm.

At least one public hearing will be held during the public review period for this Draft EIS to allow interested parties the opportunity to formally comment on the project. Western will accept verbal and written comments during the hearing, and encourages interested parties who plan to speak at the hearing to also provide their comments in writing. Comments may also be mailed or emailed to Western during the announced comment period; all comments will be treated equally, regardless of means of transmission.

Comments may be sent to:

Matt Marsh
Upper Great Plains Regional Office
Western Area Power Administration
P.O. Box 35800, Billings, MT 59107-5800
MMarsh@wapa.gov
(800) 358-3415

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2.0 DESCRIPTION OF FEDERAL PROPOSED ACTION AND ALTERNATIVES, AND DESCRIPTION OF WILTON IV'S PROPOSED PROJECT

This section describes Western's Federal proposed action and the no action alternative, the relationship between Western's Federal proposed action and Wilton IV's proposed Project, and the proposed Project in detail. A description of the pre-construction activities that Wilton IV has completed and intends to complete for their proposed Project is also provided.

2.1 Western's Federal Proposed Action

Western's Federal proposed action is to execute an interconnection agreement for Wilton IV's proposed Project. In addition, as a separate decision, Western proposes to modify NextEra's existing contracts to remove the administrative 50 average annual MW cap on their Existing Projects.

Western's proposed actions under this EIS would involve no construction or other activities that would impact environmental resources. No physical changes to Western's transmission system would be required to interconnect Wilton IV's proposed Project, or to allow additional generation from the Existing Projects. Regardless, the discussion in this EIS considers those impacts that would be expected to occur from the construction, operation, maintenance, and decommissioning of Wilton IV's proposed Wilton IV Wind Energy Center, or to remove the 50 average annual MW cap on the Existing Projects.

Neither NextEra Energy nor Wilton IV has requested firm transmission service from Western for the proposed Project. If, and when a request for firm transmission service is made, Western would conduct appropriate studies to evaluate the request based upon the system conditions existing at that time.

These studies could identify additional upgrades needed to accommodate the transmission service needs, including modifications at other existing Western substations that could include, but would not be limited to, installing new control buildings; new circuit breakers and controls; adding new electrical equipment, which would include installing new concrete foundations for electrical equipment and buildings, substation bus work, cable trenches, buried cable grounding grid, and new surface grounding material; and/or replacing existing equipment and/or conductors with new equipment and/or conductors to accommodate the requests for transmission service.

In the event that transmission system modifications/additions are required in order to meet a request for firm transmission service from the proposed Project, a separate NEPA process would be initiated and conducted for these facilities at the transmission service requestor's expense.

2.2 No Action Alternative

Under the No Action Alternative, Western would not enter into a new interconnection agreement with Wilton IV. Wilton IV could continue to pursue their Project by applying for interconnection with another transmission provider in the vicinity. For the purposes of this EIS, however, the No Action Alternative is considered to result in Wilton IV's Project not being constructed.

As a separate No Action Alternative, Western would not lift the administrative 50 average annual MW cap of their Existing Projects and would not modify their existing contracts. In this case, the current operational caps on NextEra's Existing Projects would remain in effect.

2.3 Wilton IV's Proposed Project

Wilton IV proposes to construct, own, operate, and maintain the Wilton IV Wind Energy Center in Burleigh County, North Dakota (Project). The proposed Project would consist of 62 wind turbines with a total nameplate capacity of approximately 99 MW. Additional facilities include access roads, electrical systems, cabling, a substation, meteorological towers, and a construction laydown area. No other alternatives were identified during the scoping process.

2.3.1 Pre-construction Activities

Pre-construction activities preceded Wilton IV's finalization of the proposed Project, and included wind resource analysis, site surveys and studies, landowner agreements, engineering design, and layout of proposed Project facilities.

Pre-construction Surveys and Studies

Wilton IV conducted pre-construction surveys to ensure the feasibility of the proposed Project and to avoid, minimize, or mitigate impacts to existing resources. These surveys included:

- Avian Surveys
- Native Prairie Survey
- Wetland Delineation
- Cultural Resources Inventory
- Whooping Crane Likelihood of Occurrence Assessment
- Shadow Flicker Analysis
- Acoustic Analysis
- Licensed Microwave Search

Landowner Agreements

Wilton IV entered into agreements with landowners in order to secure rights to access their property for surveys, testing, construction, operation, and maintenance of the proposed Project components. These agreements were developed with the cooperation of the landowners, and considered their concerns, including compensation for disturbance and loss of farming access during Project construction, operation, and maintenance.

Project Planning and Design

Project planning considered proposed Project components, equipment, and material sources available for use in construction and operation. Sensitive resources were considered in the location and design of Project facilities, and would be avoided to the extent practicable.

2.3.2 Project Location

Wilton IV's proposed Project Area encompasses approximately 15,752 acres (24.6 square miles) in Burleigh County, southeast of Wilton, North Dakota (Figures 3 and 4). The new

proposed Project is adjacent to and immediately to the south and east of NextEra's Existing Projects.

The proposed Project wind turbine generators would be located within Crofte and Ghylin townships. The previously completed Baldwin Wind Energy Center Environmental Assessment (DOE/EA-1698) (Baldwin EA) evaluated 37 alternate turbine locations in Crofte Township. These 37 turbines were never built under the Baldwin project.

Twenty-nine (29) of the newly proposed turbine locations for the proposed Project coincide directly with the Baldwin turbine locations previously evaluated under the Baldwin EA. The remaining 6 proposed turbine locations and 1 alternate turbine location in Croft Township have been tentatively located based on engineering/environmental review and discussions with landowners. A total of 36 turbine locations (35 plus 1 alternate) are located in Croft Township.

The proposed Project also includes 27 turbine locations and 1 alternate turbine location in Ghylin Township.

The EIS impact discussion considers the total impact from construction and operation of all of the proposed turbine locations in both townships. However, some of the environmental resource field surveys for 29 wind turbine locations in Crofte Township were accomplished in 2010 and are described in the Baldwin EA of that year.

The Project layout was selected by Wilton IV on the basis of a number of factors, including wind resource data; topography; the accessibility to the existing electrical grid; the receptiveness of local landowners to wind energy development on their properties; numerous environmental factors; and economic considerations. The proposed Project would be located relatively close to a larger city (Bismarck) and adjacent to existing wind energy facilities, which would eliminate the need for a new transmission line and O&M facility, utilize existing access roads and reduce the need for new access roads, and reduce total Project footprint and overall impacts.

2.3.3 Proposed Project Description

The proposed Project would be located near the rural communities of Wilton and Baldwin in Burleigh County, central North Dakota, approximately 12 miles north of Bismarck, North Dakota. The proposed Project would consist of the following components:

- 62 General Electric (GE) 1.6 MW xle wind turbines
- Up to 2 permanent meteorological (met) towers
- All-weather access roads to each turbine site
- Underground electrical collection lines from each turbine
- Fiber optic communications cables from each turbine
- A collection substation and a 240-foot overhead 230-kilovolt (kV) tie-line

All proposed Project facilities would be constructed in accordance with the National Electrical Safety Code, U.S. Department of Labor Occupational Safety and Health Standards, and Central Power Electric Cooperative's (CPEC) Power System Safety Manual for maximum

safety and property protection. The following sections describe these Project components, pre-construction planning, and construction activities associated with each component.

2.3.4 Proposed Facilities

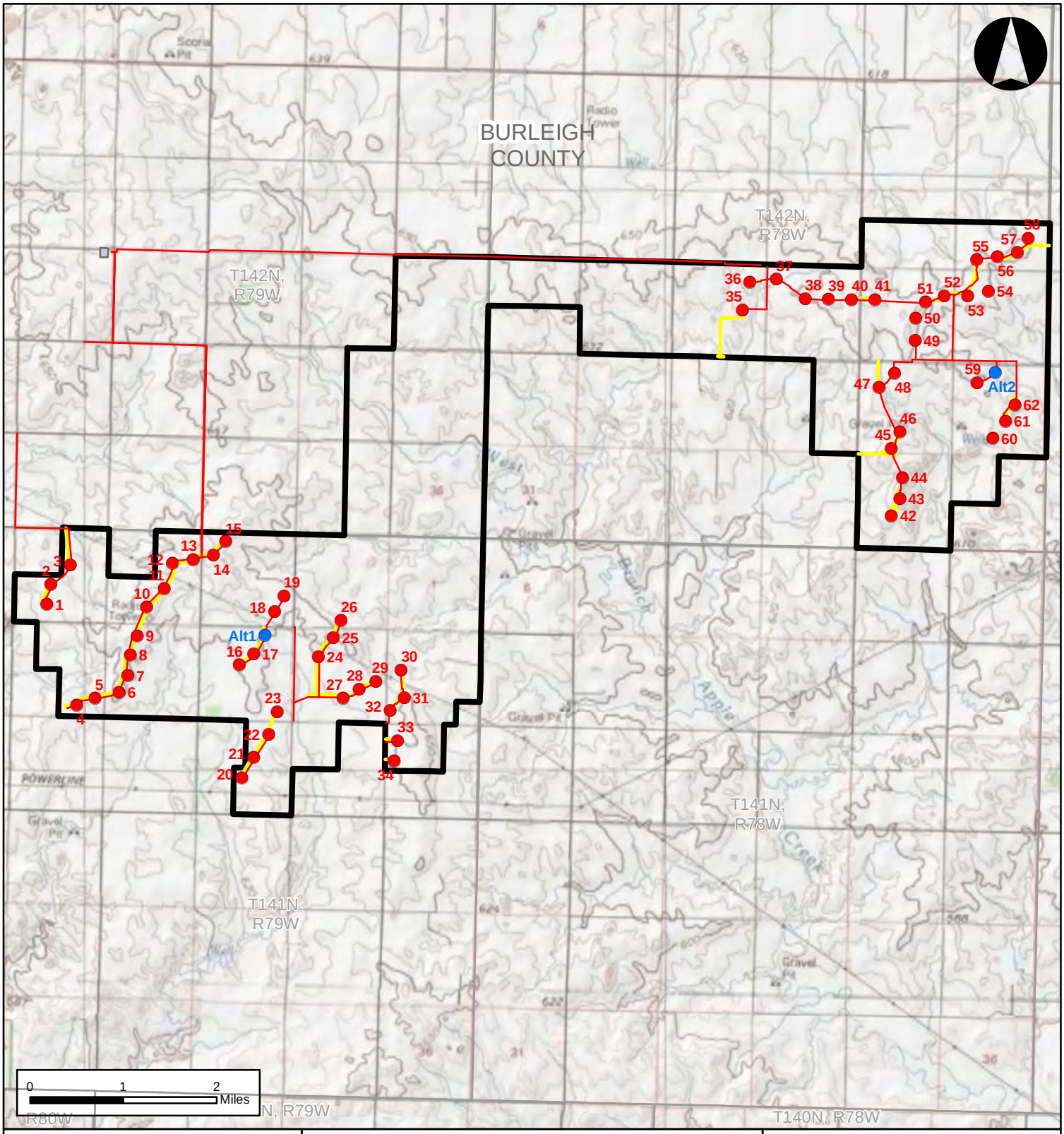
The proposed Project would consist of an array of wind turbines, each with its associated transformer. The turbines would be connected to the O&M facility by an underground fiber optic communication cable and to the collection substation by a 34.5-kV power collection cable network. The Project layout would include approximately 45.8 miles of collection lines, which would consist of 13.7 miles of collection lines that would run parallel to access roads, 23.5 miles of collection lines that would not be co-located with access roads, and 8.6 miles of home run collection lines to the collector substation northwest of the Project Area. The proposed Project would include approximately 24.6 linear miles of new service roads. Some roads may also need to be widened to accommodate turbine deliveries but will be returned to existing condition when complete. The collector substation would be connected to the CPEC Line via approximately 240 feet of 230-kV overhead tie-line. The power would travel approximately 4.2 miles along the existing CPEC Line and off the Project Area to Western's Hilken Switching Station.

Land would be graded on-site for the turbine pads. One half acre of ground disturbance is assumed for each turbine pad during construction, with 0.2 acre remaining as a permanently cleared area, and 0.3 acre re-seeded with native vegetation, if not located in a cultivated area. Drainage systems, access roads, storage areas, and construction/laydown areas would be installed as necessary to fully accommodate all aspects of Project construction, operation, and maintenance. See Figure 5 for a typical wind energy center layout.

The Project would include a computer-controlled communications system that would permit automatic independent operation and remote supervision, thus allowing the simultaneous control of many wind turbines. The proposed Project would be operated and maintained by NextEra Energy Operating Services out of the existing O&M facilities previously constructed to support the Existing Projects. No new O&M building would be required for the Project.

Turbines

Wilton IV's proposed Project would consist of up to 62 1.6-MW turbines (Figures 3–4). Each turbine generator would have a hub height of 262 feet and be up to 427 feet tall from the base of the tower to the tip of the upright blade (Figure 6). Turbines would begin operation in wind speeds of 3.5 meters per second (m/s, or 7.8 miles per hour [mph]) and reach their rated capacity (1.6 MW) at a wind speed of 11 m/s (24.6 mph). The turbines would be designed to operate in wind speeds of up to 25 m/s (56 mph). The turbines would have active yaw and pitch regulation and asynchronous generators. The turbines would use a bedplate drive train design, where all nacelle components are joined on common structures to improve reliability and durability.



Wilton IV Wind Energy Center

BURLEIGH COUNTY, ND

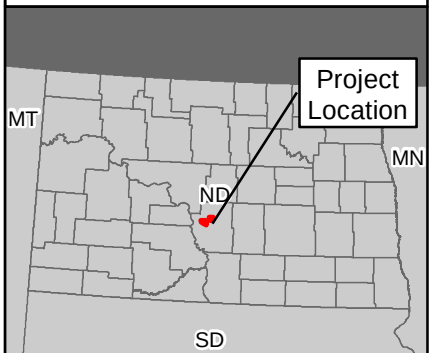
Figure 3. Project Area (Topographical)

FEBRUARY 2013

- Project Area (9/28/11)
- Proposed Turbine Location (1/18/2012)
- Alternate Turbine Location (1/18/2012)
- Substation
- Collection System (10/3/11)
- Access Road (10/3/11)
- County Boundary
- Township Boundary

Source: ESRI Topo 2007

OVERVIEW MAP



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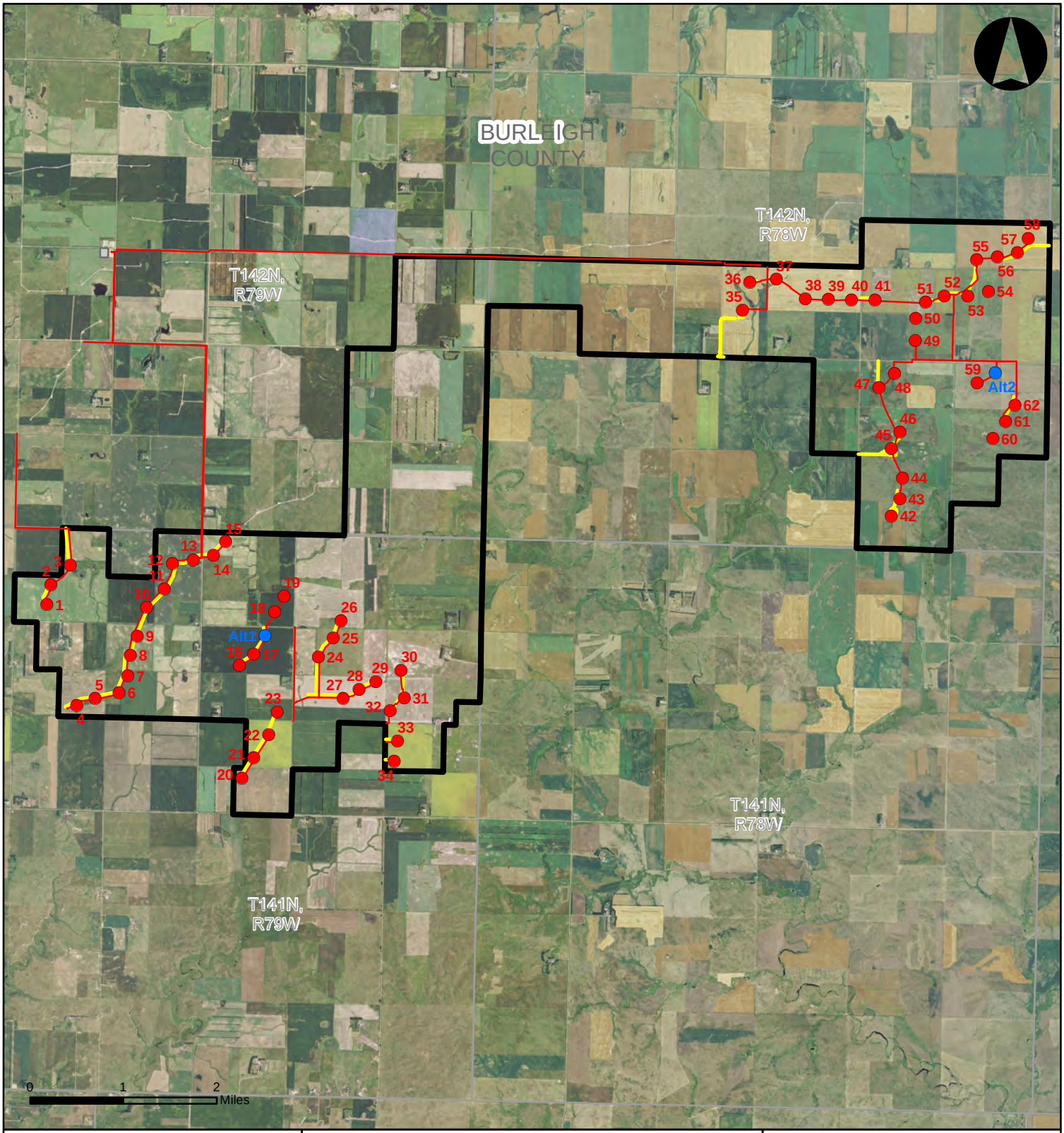


Wilton IV Wind Energy Center

BURLEIGH COUNTY, ND

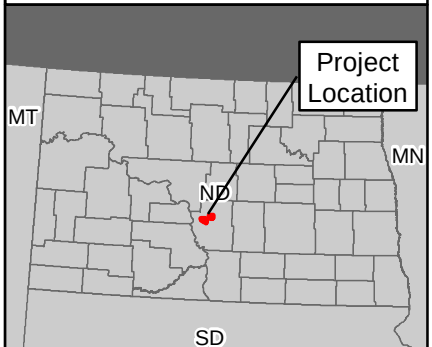
Figure 4. Project Area (Aerial)

FEBRUARY 2013

- Proposed Turbine Location (1/18/2012)
- Alternate Turbine Location (1/18/2012)
- Substation
- Collection System (10/3/11)
- Access Road (10/3/11)
- Project Area (9/28/11)
- County Boundary
- Township Boundary

Source: NAIP 2012 Imagery

OVERVIEW MAP



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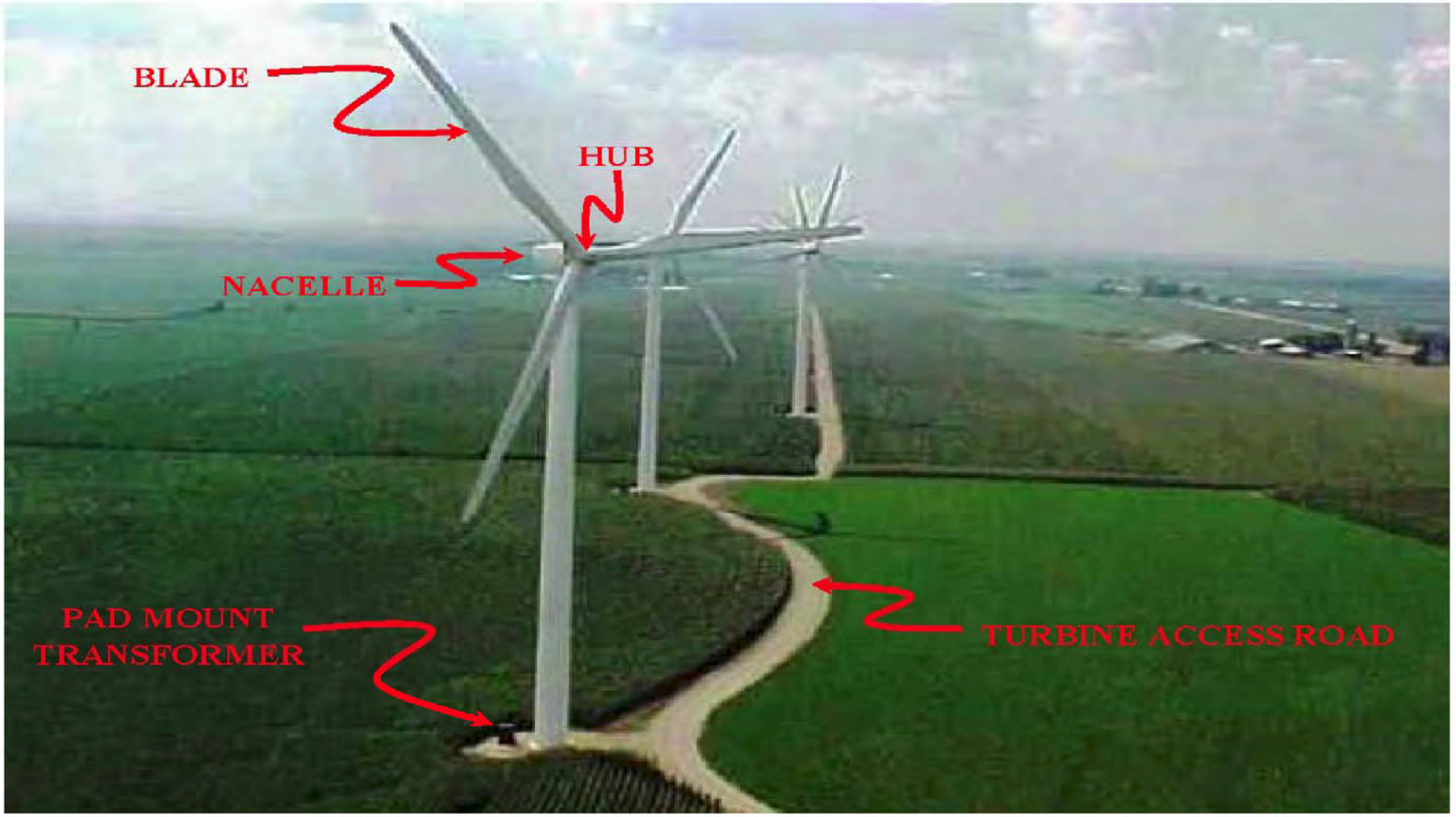

FIGURE 5

Typical Wind Energy Center Layout
Wilton IV Wind Energy Center
Burleigh County, North Dakota
February 2013

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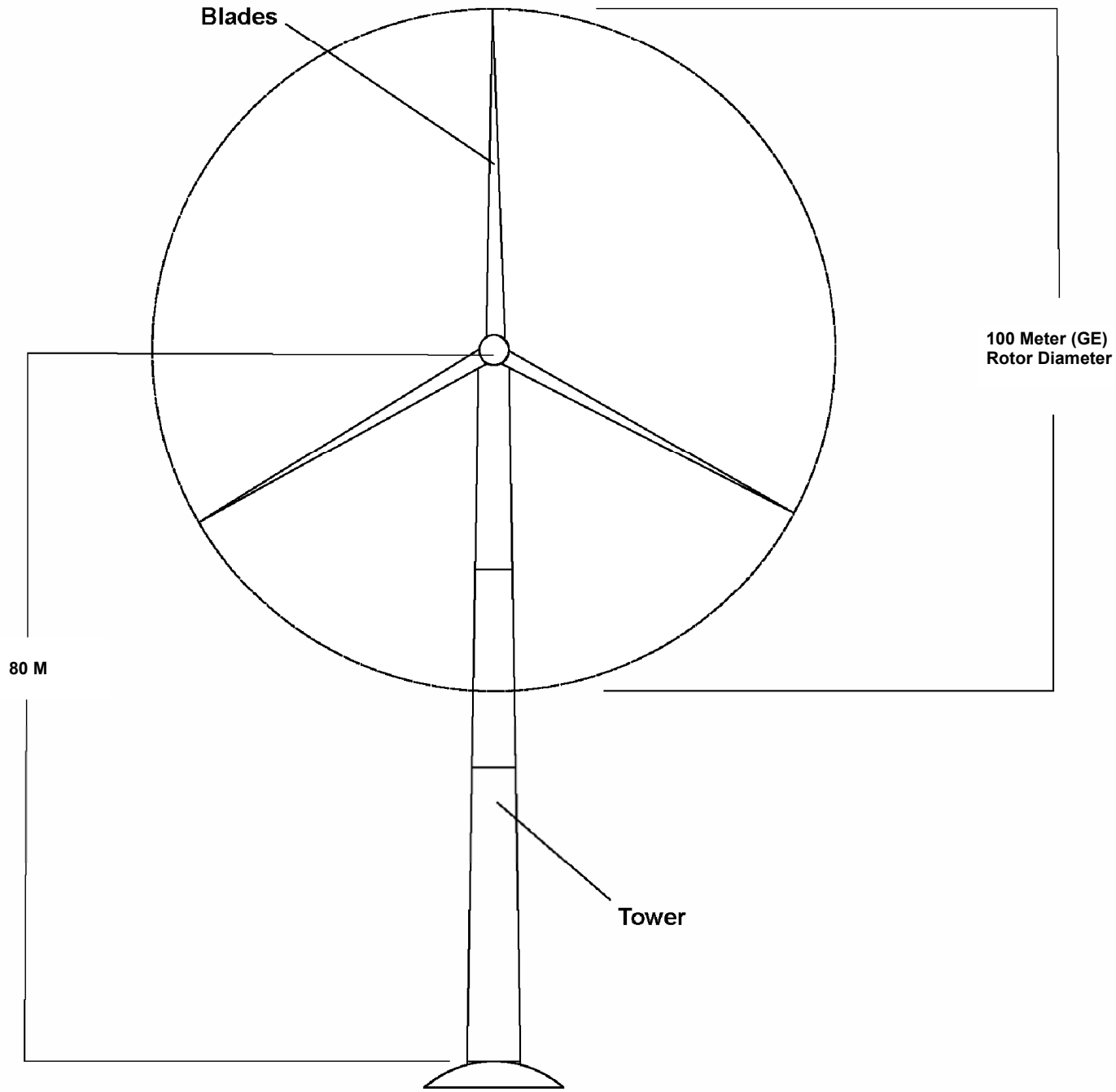

GE 1.6 MW Xle Wind Turbine

FIGURE 6

Wind Turbine Design Features

Wilton IV Wind Energy Center

Burleigh County, North Dakota

February 2013

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The turbines would have supervisory control and data acquisition (SCADA) communication technology to allow control and monitoring of the wind farm. The SCADA communications system would permit automatic, independent operation and remote supervision, thus allowing the simultaneous control of many wind turbines. Operations, maintenance, and service for the proposed Project would be structured so as to provide for timely and efficient operations. The computerized data network would provide detailed operating and performance information for each wind turbine. NextEra Energy Operating Services would maintain a computer program and database for tracking each wind turbine's operational history.

Other specifications of the turbines include:

- Rotor blade pitch regulation
- Gearbox with three-stage planetary/helical system
- Double-fed three-phase asynchronous generator and an asynchronous 4-pole generator with a wound-rotor braking system for each blade (three self-contained systems) and a fail-safe disc brake
- Electromechanically-driven yaw systems

Rotor

The rotor would consist of three blades mounted to a rotor hub. The hub would attach to the gearbox, generator, brake, cooling system, and other electrical and mechanical systems inside the nacelle. The preliminary turbine design specifies a 100-meter (328-foot)-diameter rotor, with a swept area of 7,854 square meters (84,540 square feet) and a maximum rotor speed of 16.2 revolutions per minute (rpm).

Tower

The towers would be conical tubular steel with a hub height of up to 80 meters (262 feet). The turbine tower, on which the nacelle is mounted, would consist of three to four sections manufactured from certified steel plates. All welds would be made by automatically controlled power welding machines and would be ultrasonically inspected during manufacturing per American National Standards Institute (ANSI) specifications. All surfaces would be sandblasted and multi-layer coated for protection against corrosion. The turbines would be painted a light grey color. Access to each turbine would be through a lockable steel door at the base of the tower. An interior ladder would extend up the tower from the base to the nacelle for access and would connect platforms located at each stage of the three-stage cylindrical tower. A bus bar would provide the cabling system for the 690-volt power cables from the nacelle to the base section. Turbine foundations would be generally octagonal, approximately 40 to 60 feet across at the base, and would extend 7 to 10 feet below grade.

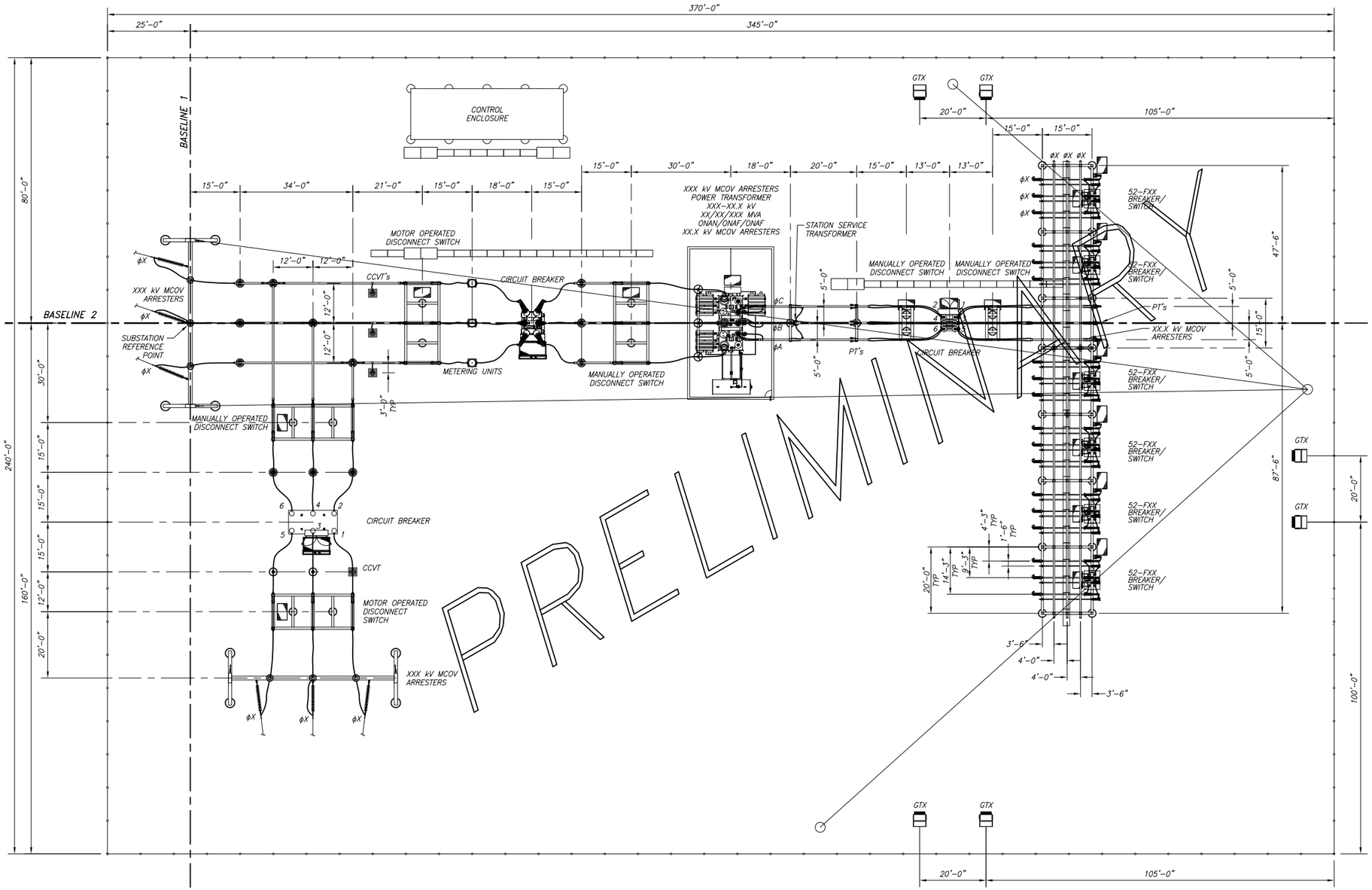
Lightning Protection

Each turbine would be equipped with a lightning protection system. The turbine would be grounded and shielded to protect against lightning. The grounding system would be installed per engineering design during foundation work, and would be designed for local soil conditions. The resistance to neutral earth would be in accordance with local utility or code requirements. Lightning receptors would be placed in each rotor blade and in the tower. The electrical components in the nacelle would also be protected.

Electrical System

At the base of each turbine, a step-up transformer would be installed on a concrete pad to raise the voltage to the power collection line voltage of 34.5 kV. Each step-up transformer would be approximately 8 by 7 feet. The main transformer at the collector substation would be approximately 33 by 22 feet in size and 27 feet tall. The power from these transformers would be conducted through an underground collection system consisting of various-sized direct-buried cables that would either be located alongside the proposed Project access roads or traverse a more direct route from turbine to turbine. Collection system cables would be buried a minimum of 50 inches deep for protection from agricultural activities, which would be allowed above the cable locations. Cable trenches are generally 2 feet wide and over 4 feet deep. At the point where the access and public roads meet, the collection system would continue as underground lines. Eventually, all the collection system cables would terminate at a new collector substation, which would raise the Project voltage to 230 kV and provide the necessary protection and control for interconnection to the transmission grid. The collector substation would be constructed on 279th Avenue NE in Section 20 of Township 142 North, Range 79 West, next to the Baldwin Substation (Figure 7). The figure provides a bird's-eye view of how the proposed Project collector substation would be laid out for both equipment and steel and illustrates the potential land impacts. It shows the associated equipment and their ratings as well as the equipment labels for developing the switching order at time of energization.

The design for the Project collector substation area is not yet final, but it would be located adjacent to the Baldwin Substation and across the road from the existing Ecklund Substation. Although the substation will be constructed in an area that was previously impacted for the Baldwin Wind Energy Center, there may be some minor grading and leveling necessary for the 2-acre area. A security fence will be installed around the new collector substation. There will be a control building inside the substation location. The size will be determined during the design phase. After the subsurface components have been installed, the area will be leveled and gravel will be deposited on the surface. The substation equipment will be mounted on concrete equipment foundations. A secondary containment structure (concrete) for spill prevention will be poured around the main power transformer. The collector substation will be connected to the CPEC Line via approximately 240 feet of 230-kV overhead tie-line across 279th Avenue NE. The line would be connected to the pole structures at approximately 40 feet in height. Across the roadway, the minimum distance to the ground would be 26 feet. The power would travel approximately 4.2 miles along the existing CPEC Line and off the Project Area to Western's Hilken Switching Station (Figure 7). No modifications to the Hilken Switching Station are necessary to accommodate the proposed Project, so there would be no construction activities or potential environmental impacts associated with Western's Federal action.



NOTES

1. REFERENCE DRAWING XXXXX-0201 FOR SUBSTATION REFERENCE POINT LOCATION AND BASELINE BEARINGS.

LEGEND

——— NEW CONSTRUCTION

FIGURE 7
Substation Site Plan
Wilton IV Wind Energy Center
Burleigh County, North Dakota
February 2013

PEAKPOWER ENGINEERING
A UniversalPegasus International Company
P.O. Box 340
Golden, Colorado 80402
(303) 462-1100 phone
(303) 462-2600 fax

Wilton IV Substation

REV	DESCRIPTION	ENG	DWN	CHK	DATE
A	FOR REVIEW	JDS	JDS	BVB	10/13/11

ENG: J. SCOTT
DWN: J. SCOTT
CHK:
APP:
DATE:

NEXTERA ENERGY RESOURCES
WILTON SUBSTATION PHASE IV

GENERAL ARRANGEMENT

SCALE 1/16"=1'-0" (0, 16', 32', 48')
DRAWING XXXXX-0001
REV A

PLOTTED: 10/13/11 05:47:40 PM FILENAME: C:\Documents and Settings\jim.scott\My Documents\Misc Projects\Other 3 and Wilton 4 GA\Wilton 4 Prelim GA.dwg USER: jim.scott

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All utility protection and metering equipment would meet National Electric Safety Code (NESC) standards for parallel operations. The engineering manager would ensure that proper interconnection protection is established including lockout/tagout procedures, breakers, and coordination with off-takers.

Meteorological Towers

The proposed meteorological towers would be 60 meters (164 feet) high when installed. The meteorological towers are typically 8–10 inches wide and would be secured with several guy wires anchored up to 165 feet away. The guy wires would be marked with diverter balls (for aircraft), which also serve as bird diverters. Up to two permanent meteorological towers are proposed for the Project.

Operations and Maintenance Facility

The existing O&M facility for the Existing Projects would be used for this Project. No new O&M facility would be required for the proposed Wilton IV Wind Energy Center.

2.3.5 Construction Procedures

Several activities would need to be completed prior to the proposed commercial production date. Below is a preliminary list of activities that would be necessary to develop the Project. Pre-construction, construction, and post-construction activities for the proposed Project would include:

- Ordering of all necessary components including towers, nacelles, blades, foundations, and transformers
- Final turbine micrositing
- Complete survey to microsite locations of structures and roadways
- Soil borings, testing and analysis for proper foundation design and materials
- Complete construction of access roads, to be used for construction and maintenance
- Trenching and installation of underground collection lines
- Design and construction of the Project collection substation and 230-kV overhead tie-line
- Installation of tower foundations
- Tower placement and wind turbine setting
- Acceptance testing of facility
- Commencement of commercial production

Construction equipment anticipated for construction of the Project would include blades, dozers, rollers, water trucks, cement mixers, tractors, excavators, cranes, and telescopic handlers.

All-weather permanent turbine access roads would be constructed to each turbine site, allowing access to turbines during and after construction. These roads would be 36 feet wide with an aggregate surface, and would be adequate to support the size and weight of construction and maintenance vehicles. The specific turbine placement would determine the total access roadway that would need to be constructed for the Project. An estimated 24.6 miles of access roads would be constructed. Any road crossings will be graded to match

existing topography to ensure farming operations are not impacted. Culverts will be installed where necessary to allow proper drainage.

During the construction phase, several types of light, medium, and heavy-duty construction vehicles would travel to and from the site, as well as private vehicles used by the construction personnel. Oversize and overweight vehicle permits would be obtained from the North Dakota Department of Transportation (NDDOT) for delivery of turbine components and cement mixer loads. Wilton IV estimates that there would be approximately 50 additional trips per day in the area during peak construction periods. That volume would occur during the peak time when the majority of the access road and foundation work and tower assembly are taking place, and traffic locations would shift as work is completed at each turbine site. At the completion of each construction phase this equipment would be removed from the site or reduced in number.

Construction Management

An engineering, procurement, and construction (EPC) contractor would be primarily responsible for the construction management of the proposed Project. The EPC contractor would use the services of local contractors, where possible, to assist in Project construction. The EPC contractor, in coordination with local contractors, would undertake the following activities:

- Secure building, electrical, grading, road, and utility permits
- Schedule execution of construction activities
- Forecast Project labor requirements and budgeting
- Complete surveying and geotechnical investigations
- Perform detailed civil, structural and electrical engineering
- Prepare and implement safety plan, traffic plan, stormwater pollution prevention plan, spill prevention, control, and countermeasure (SPCC) plan, erosion control plan, reclamation/restoration plan, and other applicable plans

The EPC contractor would also serve as key contact and interface for subcontractor coordination. The EPC contractor would oversee the installation of communication and power collection lines as well as the substation. The EPC contractor would also oversee the installation of access roads, concrete foundations, towers, generators, and blades, as well as the coordination of materials receiving, inventory, and distribution. The Project would be constructed under the direct supervision of an on-site construction manager with the assistance of local contractors. Construction would consist of the following tasks:

- Site development, including access roads
- Foundation excavation
- Concrete foundation installation
- All electrical and communications installation
- Tower assembly and turbine erection
- System testing

The construction team would be on site to handle materials purchasing, construction, quality control, testing, and start-up. The EPC contractor would manage local subcontractors to complete all aspects of construction. The turbine supplier will have full-time staff on site to assure delivery and installation follows the manufacturer's guidelines.

Throughout the construction phase, ongoing coordination would occur between the Project development and the construction teams. The on-site Project construction manager would help to coordinate all aspects of the Project, including ongoing communication with local officials, citizens groups, and landowners. Before the Project will be fully operational, the O&M staff would be integrated into the construction phase of the Project. The construction manager and the O&M staff manager would work together continuously to ensure a smooth transition from construction through wind farm commissioning and, finally, to operations. As noted earlier, Western has no jurisdiction or authority over Wilton IV's proposed wind generation Project and, therefore, would not have any personnel involved in the construction, operation, or maintenance of the Project

Foundation Design

The wind turbines' freestanding 80-meter (262-foot) tubular towers would be connected by anchor bolts to an underground concrete foundation. Geotechnical surveys, turbine tower load specifications and cost considerations would dictate final design parameters of the foundations. Foundations for similar sized turbines are generally octagonal, approximately 40 to 60 feet across at the base, and extend 7 to 10 feet below grade. The area would be cleared with a bulldozer and/or road grader and excavated with a backhoe to prepare for each concrete foundation. Topsoil removed would be temporarily stockpiled. Steel rebar would be installed and foundation forms placed into the hole. Approximately 150 cubic yards of concrete would be needed for each turbine foundation. Concrete spoil would be disposed of off-site by the contractor in an approved manner to be determined before construction. Once cured, the foundation would be complete and ready to receive the turbine tower. Excavated material would be used for backfill around the foundation, with excess material used for road construction or otherwise disposed of in accordance with applicable regulations and permit conditions. Stockpiled topsoil would be spread over top of the disturbed area after backfilling and leveling. The wind turbine foundation design would be prepared by a registered professional engineer licensed to practice in the state of North Dakota.

Civil Works

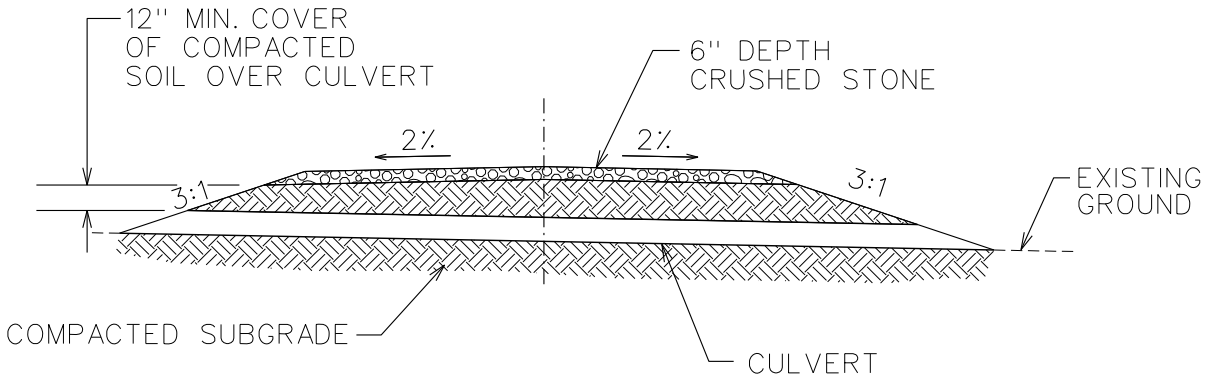
Completion of the Project would require various types of civil works and physical improvements to the land. These civil works may include the following:

- Improvement of existing public access roads to the Project Area
- Construction of Project all-weather access roads adjacent to the wind turbine strings to allow construction and continued servicing of the wind turbines
- Clearing and grading for wind turbine tower foundation installations
- Installation of underground cabling for connecting the individual wind turbines and an on-site feeder system for connecting wind turbine strings for delivery to the electricity collection/metering location

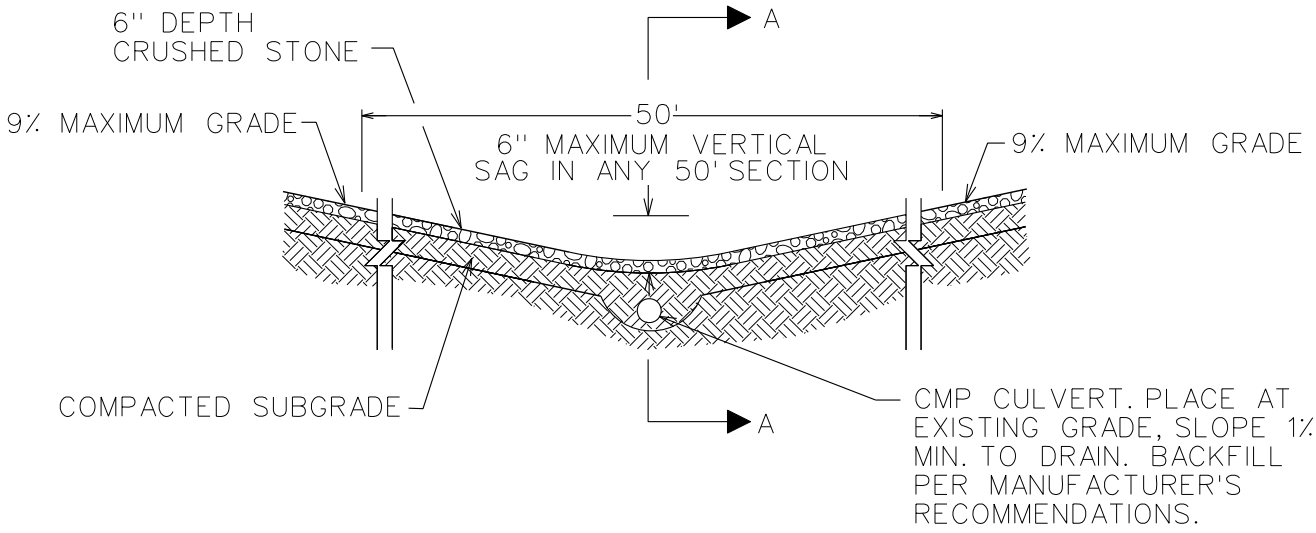
- Restoration and re-vegetation of all disturbed land when construction activities are completed; annual cropland may be excluded as appropriate

Any improvements to existing public access roads would consist of re-grading and filling of the surface to allow access during inclement weather. Some roads may need to be widened to allow for turbine deliveries and would be returned to pre-construction condition after deliveries are complete. Any necessary road damage from heavy vehicle traffic within the project boundary due to construction would be repaired. As currently designed, no bridge reinforcements would be anticipated. Any road damage from construction vehicles within the project boundaries will be repaired. No asphalt or other paving would be anticipated.

Access roads would be constructed along and between turbine strings or arrays. These access roads would be sited in consultation with local landowners and completed in accordance with local building requirements where these roads intersect with public roads. They would be located to facilitate both construction (movement of cranes, trucks delivering turbine components, and other heavy equipment) and continued operation and maintenance. Siting roads in areas with unstable soil would be avoided wherever possible. Roads would be sited to avoid sensitive areas such as wetlands and cultural resources sites, and to avoid or minimize drainage crossings. Where drainage crossings are unavoidable, crossings would be sited away from open water and wetland vegetation, and would take advantage of existing crossings and/or drier areas where possible. All roads would include appropriate drainage and culverts while still allowing for the crossing of farm equipment (Figure 7). The roads would be up to 36 feet wide and would be covered with an aggregate road base designed for all-weather passage. Any road crossings would be graded to match existing topography to ensure farming operations are not impacted. Once construction is completed and heavy equipment removed from the site, the access roads would be regraded, filled, and dressed as appropriate, and then maintained for the life of the Project.



SECTION A-A



PROFILE

SNYDER & ASSOCIATES
Engineers and Planners

Figure 8. Typical Access Road Water Crossing

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Approximately 46 miles of underground collection line would be installed as part of the Project. The collection line cable would consist of a cable buried in trenches at a depth of approximately 50 inches. Trenches are anticipated to be approximately 2 feet wide and over 4 feet deep, and would follow access roads to the extent possible. Where shorter distances can be achieved through more direct paths, shorter routes would be considered. Communication cables would be co-located with the collector lines. The disturbed area along the trenches would generally be 8 feet wide, the width of the trenching equipment.

Trenches would be excavated using both a trencher and a backhoe. Temporary disturbance associated with installation of buried collection lines has been estimated as 50 feet per linear foot of collection line for the purpose of analysis in this EIS. All trenches would be filled with compacted native material and associated disturbances would be reclaimed following burial of electrical cables. Where collection lines would need to cross drainages, wetlands, and other sensitive features, horizontal directional drilling (HDD) below the features would be used to avoid impacts (Figure 9).

Commissioning

The Project would be commissioned after completion of the construction phase. The Project would undergo detailed inspection and testing procedures prior to final turbine commissioning. Inspection and testing would occur for each component of the wind turbines, as well as the communication system, meteorological system, obstruction lighting, high voltage collection and feeder system, and the SCADA system. The Federal Aviation Administration (FAA) lighting is activated as the turbines are commissioned to the grid.

2.3.6 Construction Schedule

Construction would be scheduled to begin as early as July 2013, subject to road restrictions and weather. Wilton IV would anticipate testing and operation to begin October 2013, and commercial operation of the Project to begin producing energy in December 2013.

2.3.7 Project Operation and Maintenance

The Project would be controlled, monitored, operated, and maintained by means of a SCADA computer software program. In addition to regularly scheduled on-site visits, the wind farm would be monitored via computer. The operation of the entire wind farm, including discrete settings for individual turbines, would be managed by the centralized SCADA system. The proposed Project would be primarily operated and maintained by the onsite NextEra Energy Operating Services. Backup operational capabilities will be located offsite.

The SCADA system would offer access to wind turbine generation or production data, status, availability, meteorological and communications data, as well as alarms and communication error information. Performance data and parameters for each machine (generator speed, wind speed, power output, etc.) could also be viewed, and machine status could be changed. There would also be a “snapshot” facility that would collect frames of operating data to aid in diagnostics and troubleshooting of problems. The system would also track maintenance requirements, and various sensors such as temperature monitors that could provide early indications of equipment issues, therefore avoiding malfunctions or failures.

The primary functions of the SCADA system would be to:

- Monitor wind farm status
- Allow for autonomous turbine operation, manual override, and direct control of turbines from remote locations
- Alert operations personnel to wind farm conditions requiring resolution
- Provide a user/operator interface for controlling and monitoring wind turbines
- Collect meteorological performance data from turbines
- Monitor field communications
- Provide diagnostic capabilities of wind turbine performance for operators and maintenance personnel
- Collect wind turbine and wind farm material and labor resource information
- Provide information archive capabilities
- Provide inventory control capabilities
- Provide information reporting on a regular basis

Maintenance Schedule

GE personnel would remain on site for 2 years, and would be responsible for assuring that all equipment is operating properly during that period. In addition, NextEra Energy Operating Services would remotely monitor the Project on a daily basis. This electronic monitoring would be augmented by visual inspections by the on-site operating staff, which will operate from the O&M building for all of the Existing Projects, located adjacent to the Baldwin Substation on the southwest corner of 279th Avenue NE and 52nd Street NE. Several daily checks would be made during the first 3 months of commercial operation to verify that the Project is operating within expected parameters.

Once installed, the Project service and maintenance would be carefully planned and divided into the following intervals:

- First service inspection
- Semi-annual service inspection
- Annual service inspection
- Two years service inspection
- Five years service inspection

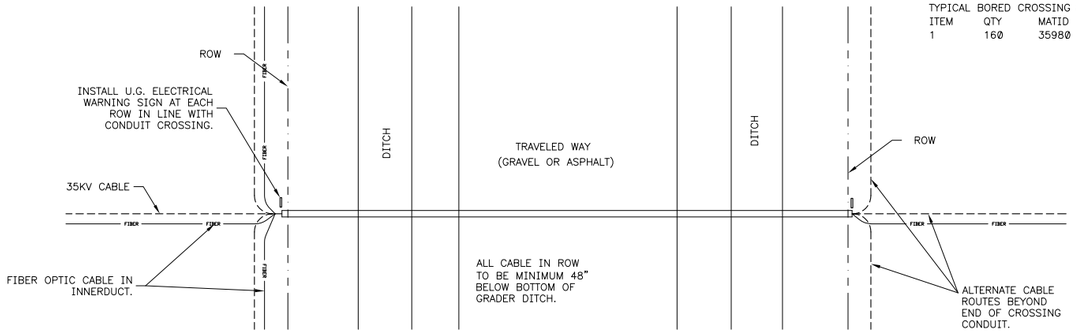
First Service Inspection. The first service inspection would take place 1 to 3 months after the turbines have been commissioned. At this inspection, particular attention would be paid to tightening all bolts to 100 percent, a full greasing, and filtering of gear oil.

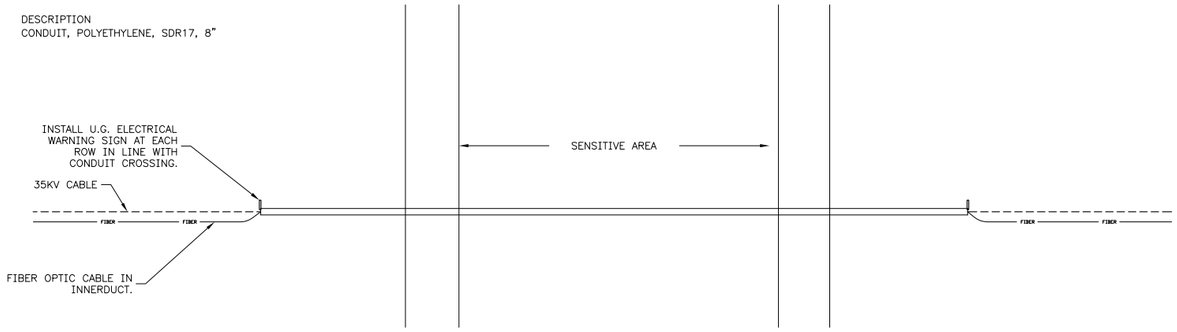
WF641-1
TYPICAL BORED CROSSING 6" HDPE

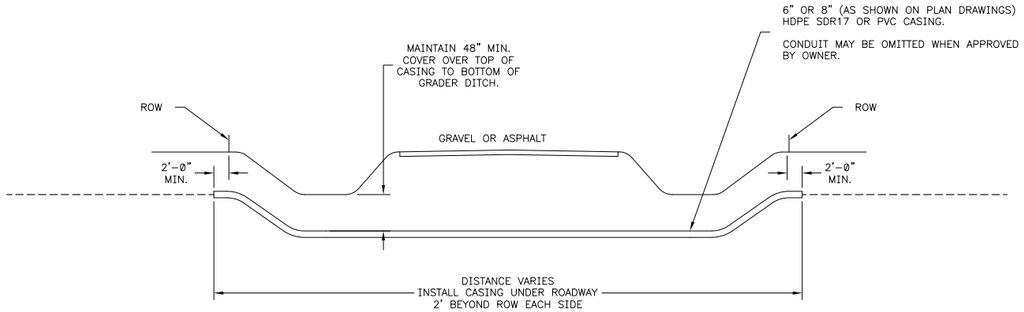
ITEM	QTY	MATID	UNIT	DESCRIPTION
1	160	35979	FT	CONDUIT, POLYETHYLENE, SDR17, 6"

WF642-1
TYPICAL BORED CROSSING 8" HDPE

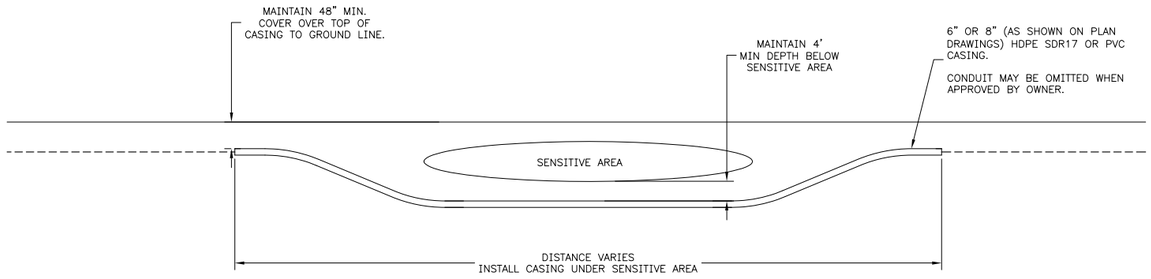
ITEM	QTY	MATID	UNIT	DESCRIPTION
1	160	35980	FT	CONDUIT, POLYETHYLENE, SDR17, 8"







COUNTY ROAD CROSSING DETAIL
N.T.S.
(TYPICAL OF ALL)



SENSITIVE AREA CROSSING DETAIL
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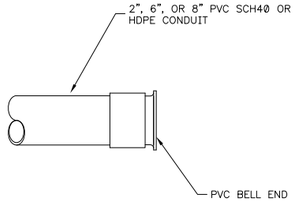
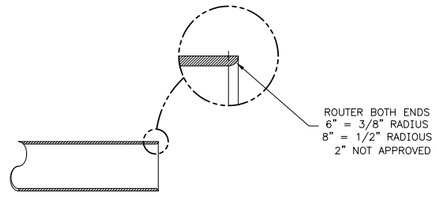
(TYPICAL OF ALL)



ALTERNATE BELL END METHOD OF CABLE PROTECTION
N.T.S.



PREFERRED ROUTERED HDPE END DETAIL
N.T.S.

NOTES:

1. 8" CASING MAXIMUM CAPACITY INCLUDES THE FOLLOWING:
   3-1000 kcmil CABLES (1 CIRCUIT) & 2-FIBER INNERDUCTS.
   3-500 kcmil CABLES (1 CIRCUIT) & 3-FIBER INNERDUCTS.
2. 6" CASING MAXIMUM CAPACITY INCLUDES THE FOLLOWING:
   3-4/0 AWG CABLES (1 CIRCUIT) & 2-FIBER INNERDUCTS.
   1-8-3MC CABLE (1 CIRCUIT) & 1-FIBER INNERDUCT.
3. 2" CASING MAXIMUM CAPACITY INCLUDES THE FOLLOWING:
   1-FIBER INNERDUCT.
4. SEAL ALL CONDUITS WITH EXPANDING FOAM AFTER CABLE INSTALLATION.
5. USE PVC CEMENT TO ATTACH BELL END TO PVC CONDUIT (ALTERNATE METHOD ONLY).
6. USE HDPE-PVC ADHESIVE TO ATTACH BELL END TO HDPE CONDUIT (ALTERNATE METHOD ONLY).

DESCRIPTION	ITEM ID
2" PVC BELL END	35513
6" PVC BELL END	35519
8" PVC BELL END	35524
HDPE ADHESIVE	90252
PVC CEMENT	90253

LEGEND

- FIBER DUCT
- SECTION LINE
- ROAD EDGE
- UNDERGROUND CABLE
- RIGHT OF WAY

P & E ENGINEERING CO.
POWER SYSTEM ANALYSIS AND DESIGN
245 S. 5th
P.O. Box 620
Carlisle, IA 50047
Office: 515-989-3083
FAX: 515-989-3138
peengr@peengr.com

REV NO.	DESCRIPTION	ENG	DWN	CHKD	DATE
A	ORIGINAL DESIGN	P&E	DTD	MCR	02/01/10

ENG: P&E
DRAWN: DTD
CHKD: MCR
APPR: ARP
DATE: 02/01/10

CLIENT/PROJECT: NEXTERA ENERGY RESOURCES
TITLE:
SCALE: MEASURE ON D-SIZE ONLY N.T.S.
DRAWING NUMBER: E-771
REVISION NUMBER: A

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Semi-Annual Service Inspection. Transformers would be inspected every 6 months. Regular service inspections would commence 6 months after the first inspection. The semi-annual inspection would consist of lubrication and a safety test of the turbines, as well as a check for general wear, damage, and functionality.

Annual Service Inspection. The annual service inspection would consist of a semi-annual inspection plus a full component check, which would entail over 100 different inspection items, including but not limited to the following: environmental, safety, and mechanical inspections; general maintenance; and housekeeping. The bolts are checked with a torque wrench. The check would cover 10 percent of every bolt assembly. If any bolts were to be found to be loose, all bolts in that assembly would be tightened to 100 percent and the event would be logged.

Two Years Service Inspection. The two years service inspection would consist of the annual inspection, plus checking and tightening of terminal connectors.

Five Years Service Inspection. The five years inspection would consist of the annual inspection, an extensive inspection of the wind braking system, checking and testing of oil and grease, balance check, and checking the tightness of terminal connectors.

General Maintenance Duties

O&M field duties would encompass performing all scheduled and unscheduled maintenance, such as periodic operational checks and tests, and regular preventive maintenance on all turbines, related plant facilities and equipment, safety systems, controls, instruments, and machinery, including:

- Maintenance on the wind turbines and on the mechanical, electrical power, and communications system
- Performance of all routine inspections
- Maintenance of all oil levels and changing oil filters
- Maintenance of the control systems, all Project structures, access roads, drainage systems, and other facilities necessary for preservation and continued operation
- Maintenance of all O&M field maintenance manuals, service bulletins, revisions, and documentation for the Project
- Maintenance of all parts, price lists, and computer software
- Maintenance and operation of the Project collector substation
- Provision of all labor, services, consumables, and parts required to perform scheduled and unscheduled maintenance on the wind farm, including repairs and replacement of parts and removal of failed parts

- Cooperation with avian and other wildlife studies as may be required, to include reporting and monitoring
- Management of lubricants, solvents, and other hazardous materials as required by
- Federal, State, and local regulations
- Maintenance of appropriate levels of spare parts in order to maintain equipment
- Order and stock spare parts inventory
- Provision for all necessary equipment including industrial cranes for removal and reinstallation of turbines
- Hire, train, and supervise a work force necessary to meet the general maintenance requirements
- Implementation of appropriate security methods

2.3.8 Decommissioning

The estimated useful life of the Project is 30 years, at which time turbines could be rebuilt or replaced, or the Project could be decommissioned. Wilton IV would develop a Decommissioning Plan in accordance with North Dakota Century Code (NDCC) 49-02-27 and North Dakota Administrative Code (NDAC) 69-09-09. Additionally, Wilton IV would have a contractual obligation to the landowners to remove the wind energy facilities, including foundations to a depth of 3 feet, when the wind easement expires. Wilton IV has also reserved the right to explore alternatives regarding Project decommissioning at the end of the Project certificate term. Retrofitting the turbines and power system with upgrades based on new technology could allow the wind farm to produce renewable energy efficiently and successfully for many more years. Based on estimated costs of decommissioning and the salvage value of decommissioned equipment, the salvage value of the wind farm would be expected to exceed the cost of decommissioning.

2.3.9 Construction Waste Management and Restoration/Reclamation

Debris associated with construction would include construction materials such as packaging material, crates, reels, and parts wrapping. This debris may also include excess excavated soil and removed vegetation. Materials with salvage value would be removed from the Project Area for reuse or recycling. Excavated spoil would be back-filled within the area of permanent disturbance, recovered with stockpiled topsoil, and restored in compliance with applicable guidelines. If necessary, solid waste, including excavated materials not otherwise disposed of, would be temporarily stored within the corridor or within the temporary construction easements, and then if not used elsewhere on the Project would be transported to appropriate disposal facilities in accordance with Federal, State, and local regulations.

Following construction, areas not maintained as permanent facilities would be reclaimed for their prior land use. Roads that were widened to accommodate turbine deliveries will be returned to existing condition when complete. Reclamation would initially consist of

grading to replicate the approximate original contour and drainage of disturbed areas. Grading would include removal of any temporary crossing or drainage control structures. Following grading, salvaged topsoil would be spread and blended with adjacent areas to provide a growth medium for vegetation. Soil that has been compacted by equipment operation would be tilled to alleviate compaction and reseeded. Non-cropland disturbed areas would be reseeded in accordance with landowner agreements or with a locally approved weed-free mix of regionally native species. Trees and shrubs removed during construction operations would be replaced at a 2 to 1 ratio according to the North Dakota PSC's Tree and Shrub Mitigation Specifications. Noxious weeds would be controlled in accordance with State regulations.

2.3.10 Environmental Protection Measures

Although Wilton IV has avoided and minimized environmental impacts to the extent practicable through careful siting of project facilities, impacts would be further minimized by implementing the following measures:

- Wilton IV would avoid all identified sensitive resources during siting, construction, maintenance, and operations to the maximum extent practicable. Where it would not be possible to completely avoid a sensitive area, Wilton IV would utilize site-specific mitigation measures to minimize adverse effects.

- Crews would use and maintain silt fencing, straw bales, ditch blocks, and other appropriate erosion control measures during access road construction and electrical line trenching on sloped ground or at ephemeral drainage crossings within the Project Area to further minimize erosion and related environmental impacts.

- Introduction of noxious weeds would be mitigated through prompt revegetation of non-cropland with approved regionally native species seed or restoration of prior land use. A Clean Vehicle Program would be initiated that would require the inspection and washing of vehicles and construction equipment from outside the Project Area to remove adhered soils and plant debris prior to entry into the Project site. Wilton IV will document any noxious weeds during routine inspections and will implement measures to remove and control the spread of noxious weeds throughout the life of the project.

- Vehicle speeds of no more than 15 mph would be required to minimize dust and wildlife collisions.

- Roads would be watered as needed during construction to minimize dust.

- Appropriate erosion control measures would be installed and maintained to avoid deposition of sediment in wetlands near Project facilities.

- Signs would be installed where construction vehicles would frequently enter or exit US Highway 83 and State Highway 36. Signs would be installed in consultation with the NDDOT.

- Wilton IV would coordinate with local law enforcement to ensure public safety.

- Wetlands would be protected and flagged to ensure avoidance.

Specifically regarding potential impacts to federally threatened and endangered species, Wilton IV has committed to the following additional avoidance and minimization measures:

- Wilton IV has conducted avian surveys, native prairie surveys, and wetland surveys early in the development process to support a Project design that avoids sensitive habitats to the extent practicable. Prior to construction, sensitive areas such as wetlands and known raptor nests would be flagged for avoidance during construction.

- Wilton IV would bury collection lines from the turbines to the collection substation to avoid collision risk. There would be one approximately 240-foot length of overhead tie-line that would connect the Project collector substation to the existing CPEC Line across 279th Avenue. The line would be outfitted with bird diverters and the poles with perch deterrents. The development of the proposed Project would not require the construction of any additional transmission lines. As a result, Project construction would not create any additional risk of avian collision or electrocution with overhead transmission lines.

- Wilton IV would require contractors and construction personnel to modify or curtail construction activities if any whooping cranes are observed within 2 miles of the Project Area during the construction phase of the proposed Project, leaving birds undisturbed until they leave the area, in order to minimize disturbance, displacement, and harm of roosting and foraging whooping cranes.

- Wilton IV would establish a post-construction monitoring program during spring and fall whooping crane migration seasons (spring: April 1 to May 15; fall: September 10 to October 31) for 3 years post-construction to detect the possible presence of whooping cranes within the Project Area. A certified biologist would serve as the trained whooping crane observer during these studies. On-site operations personnel have also been trained in whooping crane recognition and response procedures for post-construction monitoring of the Existing Projects and their training would be updated for the proposed Project. If a whooping crane is observed, Wilton IV would shut down those turbines located within 1 mile of the birds and would immediately notify the U.S. Fish and Wildlife Service (USFWS)-North Dakota Field Office and Office of Law Enforcement. The turbines would not commence operation again until Wilton IV, in coordination with the USFWS, determined that there was no longer a risk to whooping cranes in the area. Wilton IV would submit a report to the USFWS-North Dakota Field Office no later than December 31 of each year, detailing the results of that year's monitoring program.

- Wilton IV would implement protocols that include shutting down all turbines if a dead whooping crane or sandhill crane is found in the Project Area, since the area may be utilized by additional cranes. Wilton IV would immediately contact the USFWS-North Dakota Field Office and Office of Law Enforcement to determine the required measures to avoid additional crane mortality before resuming Project operation. If a dead or injured whooping crane is found, Wilton IV would request consultation with the USFWS under the ESA. Seasonal curtailment could be required until consultation is completed.

- As part of their Standard Operating Procedures (SOP), Wilton IV has developed a Wildlife Response and Reporting System (WRRS), whereby any dead or injured birds found within Project boundaries by Project employees would be marked and their locations reported immediately to the on-duty Plant Lead/Site Supervisor. The carcass or injured bird would not be moved or removed by any individual who does not have the appropriate permits. The USFWS-North Dakota Field Office and Office of Law Enforcement would be notified immediately if an injured bird or wildlife is found. If an endangered or threatened species is found dead or injured on the site, Wilton IV would immediately notify the USFWS-North Dakota Field Office and Office of Law Enforcement of the discovery. As with all of their other operating wind farms, Wilton IV would submit WRRS bird mortality reports to the USFWS-North Dakota Field Office annually for 3 years post-construction of the Project. This SOP is conducted for all of the wind farms. No T&E species have been found during WRRS inspections during operation of the Existing Projects.

- In addition to the training provided via the WRRS, Wilton IV would provide all construction and maintenance staff with training in federally listed species identification and would provide identification guides for whooping cranes to be kept in all vehicles.

- Wilton IV would conduct post-construction mortality monitoring surveys for 1 year following construction of the Project.

- Wilton IV has developed a Bird and Bat Conservation Strategy (BBCS), which includes an Adaptive Management Plan (AMP), so that information gathered and experience gained from post-construction monitoring informs knowledge of the impacts of the wind farm and is incorporated into adaptive management of the site, utilizing the Department of Interior's Technical Guide on Adaptive Management (Williams et al. 2007). Similar plans were previously developed for the three Existing Projects.

- The layout of the proposed Project has been designed so that no permanent impacts to wetland areas would occur. As a result, direct effects on roosting whooping cranes, nesting or foraging interior least terns, or nesting piping plovers would be reduced. Also, avoiding wetland impacts would generally reduce potential impacts to migratory birds and sensitive habitat.

- Wilton IV is proposing in its lighting plan to use the minimum number of aviation hazard lights acceptable to the FAA. Wilton IV has also agreed to install motion-activated lighting or down-shielded lighting on other Project facilities that require lighting at night (i.e., the collection substation) to avoid the potential to draw birds and bats toward the facility.

Western does not have jurisdiction over the siting, construction, or operation of the proposed Project. Western's proposed actions are limited to executing an interconnection agreement for the proposed Project, and amending existing interconnection agreements for lifting the 50 MW annual production caps of the Existing Projects. Western's actions do not entail any construction activities, installation of new equipment, or physical changes or modifications to

existing facilities owned by Western. No environmental impacts are anticipated and Western does not anticipate a need for environmental protection measures for its proposed actions.

2.4 NextEra's Proposal to Lift the Production Caps on the Existing Projects

The total production of the combined Wilton I (formerly called Burleigh County) and Wilton II Wind Energy Centers is administratively limited to 438,000 MWh (50 MW x 8,760 hours/year) . The Baldwin Wind Energy Center has its own 438,000 MWh administrative cap under its own contract. If the Existing Projects production exceeds these annual limits, the projects must curtail operations for the remainder of the operating year, which could result in some financial loss from lost production. The Wilton I project has been operating since 2006, the Wilton II project has been operating since 2009, and the Baldwin project since 2010. These Existing Projects have not exceeded their production caps and have not been required to curtail their MWh production to date.

In 2011, the Wilton I project, operating 33 turbines with a 1.5 MW nameplate rating, had a measured 41.4% efficiency factor producing approximately 179,500 MWh. Wilton II, operating 33 turbines with a 1.5 MW nameplate rating, had a measured 47.6% efficiency factor and produced approximately 206,400 MWh. These two Existing Projects produced approximately 385,900 MWh or about 88% of their combined allowable production. The Baldwin project, operating 64 turbines with 1.6 MW nameplate rating, had a measured efficiency factor of 42.4%, producing approximately 380,400 MWh or about 87% of its allowable production.

Under their existing contracts, any production curtailment would be required the year following a reported exceedance of a wind project's administrative production cap. During that second year, production curtailment would only be required after close monthly production monitoring and only if and when the production caps were again exceeded. Based on the current operational data and long-term weather models NextEra forecasts that the chance that these Existing Projects will exceed their administrative caps of 438,000 MWh in any 2 consecutive years is unlikely, and estimated at less than five percent for any one year. However, NextEra is requesting to remove the administrative cap entirely for the Existing Projects, thereby eliminating any potential loss of renewable energy production in the future.

No new construction or modification of the Existing Projects or of Western facilities would be required to lift the administrative 50 average annual MW production caps. The potential changes analyzed under this EIS for the Existing Projects are in the areas of noise, visual impacts, and impacts to wildlife.

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This section describes the existing environment and potential environmental impacts resulting from the construction, operation, and maintenance of Wilton IV's proposed Wilton IV Wind Energy Center and addresses impacts from operation of the Existing Projects at levels exceeding 50 average annual MW.

Western's Federal proposed action to execute an interconnection agreement and modify contract language in other agreements would have no potential to cause environmental impacts, since no physical changes to Western's transmission system would be required to interconnect Wilton IV's proposed Project or allow additional generation from the Existing Projects.

The Project Area encompasses all proposed turbines, access roads, and collection lines. The Project collection substation and home run collection lines would be located to the northwest of the Project Area in Ecklund Township near the Existing Projects substations and adjacent O&M facility (Figures 3–4). The Project Area represents the general area for defining the affected environment, but of course is far larger than the area of potential environmental impacts for the majority of the discussed resources. Project facilities would occupy approximately 116 acres during operation, or less than 1 percent of the Project Area. Study areas associated with several resources discussed in this section are more resource-specific. These individual study areas were determined through review of potential direct and indirect impacts from the proposed Project and are defined in the individual resource discussions.

Critical Elements of the Human Environment, as defined and specified in statutes or executive orders, must be considered in an EIS. The critical elements that could be affected by Wilton IV's proposed Project include:

- Geology and Soils
- Air Resources
- Water Resources
- Vegetation, including listed species
- Wetlands
- Wildlife, including listed species
- Land Use and Recreation
- Socioeconomics and Environmental Justice
- Visual Resources
- Noise
- Transportation
- Safety and Health Issues
- Cultural Resources
- Native American Cultural and Religious Concerns

Critical Elements that could be affected by removing the administrative 50 average annual MW production caps on the Existing Projects include:

- Wildlife
- Visual Resources
- Noise

Cumulative impacts to these resources, especially those associated with adding the proposed Wilton IV Project to the three Existing Projects in Burleigh County, are also analyzed and discussed at the end of this section.

Preliminary analysis indicated that the proposed Project would not affect other critical elements of the human environment (as listed below). Justifications for dismissal of these elements from further discussion in this EIS are provided in the following paragraphs.

Floodplains – According to the Federal Emergency Management Agency (FEMA) (2009), the Project Area is located in FEMA Map Panel ID # 38015C0225C, 38015C0250C, 38015C0425C, and 38015C0450C. The proposed Project would be located entirely within FEMA Zone D. This is defined as: "Areas with possible but undetermined flood hazards. No flood hazard analysis has been conducted. Flood insurance rates are commensurate with the uncertainty of the flood risk." Since turbines would be located on higher ground to take advantage of the wind resource, and the collection substation would be co-located with the other substations and O&M facility, flood damage to these Project components would not occur, nor would these Project components be an obstacle to flood flows. Similarly, flooding of areas having access roads, collector lines, or aboveground lines would not affect them, and they would not affect movement of flood flows. The proposed Project would have no or negligible impacts on floodplains.

Paleontology – Review of available maps and local geology did not identify any fossil-yielding sites in the immediate vicinity of the Project Area. An examination of outcrops located in Sections 26 and 35 of Ghylin Township did not identify any paleontological remains weathering from the bedrock. Several small (less than 5 inches) and a few slightly larger pieces of petrified wood were exposed on the surface within cultivated fields in Section 26. An examination of the bedrock exposed in the Northeast quarter of Section 4 of Crofte Township did not identify any paleontological remains weathering from the bedrock. Since they are unlikely to be present, the proposed Project would not be expected to impact paleontological resources.

Wild and Scenic Rivers – Review of the pertinent U.S. Department of the Interior (DOI) National Park Service website indicated that there are no federally designated Wild and Scenic Rivers in North Dakota.

Wilderness – The nearest federally designated wilderness area to the proposed Project is the Chase Lake Wilderness Area, a 4,155-acre isolated alkali lake located approximately 65 miles to the east.

An environmental impact is a change in the status of the existing environment as a direct or indirect result of a proposed action, alternatives to a proposed action, or the no action alternative. In this case, Western's proposed Federal action would have no effect on

environmental resources, but Wilton IV's proposed Project would have environmental impacts. Impacts can be direct or indirect; positive (beneficial) or negative (adverse); and permanent or long-lasting (long-term) or temporary (short-term). Direct impacts are those that are a result of construction, operation, and/or maintenance, and occur at the same time and place. Indirect impacts generally occur later in time following construction and may be farther removed in distance; they may result from changes in natural or socioeconomic processes initiated by the action. Short-term impacts are generally associated with the construction phase of the proposed Project, while long-term impacts remain for the life of the Project or beyond.

For each resource, first the existing conditions are summarized. The potential impacts of Wilton IV's proposed Project and the increase in output from the Existing Projects are then discussed. Measures incorporated into the proposed Project that would reduce, minimize, or eliminate impacts are discussed under each resource. Additional mitigation measures that could be implemented to further reduce environmental impacts are also identified, if any, and their potential effectiveness assessed. If Western were to select the no action alternative as its Federal action, Wilton IV could arrange for transmission on a non-Western transmission line, or elect to not to construct their proposed Project. For purposes of comparing and contrasting potential impacts, this EIS assumes that Wilton IV would not construct the Project if Western selects the no action alternative. The effects of the no action alternative are described in Section 3.15.

3.1 Geology and Soils

The following is a discussion of the geology and soils affected by the proposed Project. Prime farmland soils and soils of statewide importance are also discussed.

3.1.1 Existing Conditions

South-central North Dakota lies within the Glaciated Missouri Plateau section of the Great Plains physiographic province. The Glaciated Missouri Plateau section is comprised of four physiographic districts, with Burleigh County spanning three of these districts: the Missouri River Trench, the Coteau Slope, and the Missouri Coteau. The Project Area is located entirely within the middle district, the Coteau Slope, a glaciated bedrock slope subject to active erosion (Kume and Hansen 1965).

The physiography and surficial geology of south-central North Dakota is primarily a product of repeated glacial advances and retreats during the Wisconsin Glaciation Period (10,000 to 20,000 years before present). The topography of the Project Area is undulating with gentle relief, resulting from a moderately thin sheet (10 to 40 feet) of glacial till deposits masking the underlying stream-eroded bedrock topography. The Project Area is covered extensively but discontinuously by glacial till of the Quaternary Coleharbor Formation (Kume and Hansen 1965; NDGS 1980).

These surficial sediments are underlain by the Tertiary Age bedrock Cannonball and Bullion Creek Formations. These rocks are classified as sedimentary units comprised of interbedded marine sediments, including sandstones, siltstones, shales, and limestones. The Bullion Creek Formation contains beds of lignite. The Paleocene Bullion Creek Formation was

exposed on the surface along the shoulder of a prominent north-south trending ridge in Sections 26 and 35 of Ghylin Township and on the top of a prominent knoll located in Northeast quarter of Section 4 in Crofte Township. The bedrock exposed on the surface at these locations consisted of yellow- brown to tan siltstones and fine sandstones. An examination of outcrops located in Sections 26 and 35 of Ghylin Township did not identify any paleontological remains weathering from the bedrock. Several small (less than 5 inches) and a few slightly larger pieces of petrified wood were exposed on the surface within cultivated fields in Section 26. An examination of the bedrock exposed in the Northeast quarter of Section 4 of Crofte Township did not identify any paleontological remains weathering from the bedrock. At this location, a small Euro-American quarry had been excavated in the bedrock exposing multiple layers of siltstone and sandstone.

The U.S. Department of Agriculture (USDA) has mapped 38 soil map units within the Project Area (USDA 2009). These soils are primarily well-drained loams and silt loams derived from the underlying glacial deposits and, to a lesser extent, the underlying sandstones and siltstones. Twelve soil types comprise approximately 89 percent of the Project Area (Figure 10). The most extensive of these are “Williams loam, undulating” (approximately 34 percent of the Project Area), “Williams loam, rolling” (approximately 13 percent), and “Arnegard and Grassna silt loams, level” (approximately 12 percent). Table 2 provides a summary of the soil map units within the Project Area, including their acreages and percentages of the Project Area.

Table 2. Soil Map Units Within the Project Area

Map Unit Symbol	Map Unit Name	Area (acres)	Percentage of Project Area	Farmland Classification
WsB	Williams loam, undulating	5,401	34.30	Not prime farmland
WsC	Williams loam, rolling	2,061	13.09	Not prime farmland
AgA	Arnegard and Grassna silt loams, level	1,908	12.12	All areas are prime farmland
SnB	Sen silt loam, 3 to 6 percent slopes	935	5.94	Farmland of statewide importance
WeE	Werner-Morton-Sen complex, 9 to 15 percent slopes	635	4.03	Not prime farmland
SnC	Sen silt loam, 6 to 9 percent slopes	583	3.70	Farmland of statewide importance
WsA	Williams loam, nearly level	512	3.25	Not prime farmland
VbC	Vebar fine sandy loam, 6 to 9 percent slopes	470	2.98	Not prime farmland
FmE	Flasher-Vebar complex, 9 to 15 percent slopes	431	2.74	Not prime farmland
WzE	Williams-Zahl loams, hilly	404	2.57	Not prime farmland
RwA	Roseglen-Tansem silt loams, nearly level	341	2.16	Not prime farmland
LeA	Lehr loam, nearly level	323	2.05	Not prime farmland
AgB	Arnegard and Grassna silt loams, gently sloping	280	1.78	All areas are prime farmland
VbB	Vebar fine sandy loam, 3 to 6 percent slopes	240	1.52	Farmland of statewide importance
GlA	Grail silt loam, level	190	1.21	All areas are prime farmland
FrF	Flasher-Vebar-Rock outcrop complex,	162	1.03	Not prime farmland

Map Unit Symbol	Map Unit Name	Area (acres)	Percentage of Project Area	Farmland Classification
	15 to 70 percent slopes			
WlC	Werner-Sen loams, 6 to 9 percent slopes	131	0.83	Not prime farmland
Rc	Regan silty clay loam	102	0.65	Not prime farmland
WsD	Williams loam, hilly	84	0.54	Not prime farmland
GlB	Grail silt loam, gently sloping	83	0.53	All areas are prime farmland
RhB	Regent-Grail silty clay loams, 3 to 6 percent slopes	78	0.50	Farmland of statewide importance
Ch	Colvin silty clay loam	59	0.38	Prime farmland if drained
TeA	Tansem-Lehr loams, nearly level	55	0.35	Not prime farmland
SnD	Sen silt loam, 9 to 15 percent slopes	37	0.23	Not prime farmland
Tp	Tonka and Parnell soils	36	0.23	Not prime farmland
RgC	Regent silty clay loam, 6 to 9 percent slopes	35	0.22	Farmland of statewide importance
Bs	Belfield-Rhoades-Grail silty clay loams	32	0.20	Not prime farmland
NbB	Niobell-Noonan loams, undulating	31	0.20	Not prime farmland
SeA	Savage silt loam, level	19	0.12	Not prime farmland
Sv	Straw, Arnegard, and Colvin soils, channeled	18	0.12	Not prime farmland
FhC	Flasher soils, 6 to 9 percent slopes	15	0.10	Not prime farmland
WaD	Wabek soils, hilly	15	0.10	Not prime farmland
LeB	Lehr loam, undulating	12	0.08	Not prime farmland
TgB	Tansem-Roseglen silt loams, gently sloping	6	0.04	Not prime farmland
WcF	Werner complex, 15 to 35 percent slopes	6	0.03	Not prime farmland
GrA	Grail silty clay loam, level	5	0.03	All areas are prime farmland
NbA	Niobell-Noonan loams, nearly level	5	0.03	Not prime farmland
W	Water	5	0.03	Not prime farmland

Source: USDA 2009.

Prime farmland soils are defined in the USDA-Natural Resources Conservation Service (NRCS) Title 430 National Soil Survey Handbook, issued November 1996, as follows: “Prime farmland is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is also available for these uses. It has the soil quality, growing season, and moisture supply needed to produce economically sustained high yields of crops when treated and managed according to acceptable farming methods, including water management” (USDA 1996).

The majority of the soils within the Project Area (72 percent) are neither prime farmland, farmland of statewide importance, nor prime farmland if drained. Approximately 16 percent of the soils in the Project Area are classified as prime farmland, 12 percent as farmland of statewide importance, and less than 1 percent as prime farmland if drained.

Approximately 1 percent of the Project Area is covered by soils classified as “all hydric”; the remaining area consists of partially hydric soils (i.e., soils containing hydric inclusions) (54 percent), non-hydric soils (45 percent), and unclassified soils (less than 1 percent). All of the soils in the Project Area (with the exception of areas mapped as “Water”, which are unrated) have low to moderate susceptibility to erosion by water (i.e., K-factors from 0.17 to 0.37). Most of the soils (88 percent) also have low to moderate susceptibility to wind erosion (i.e., USDA Wind Erosion Groups 6 or greater) (USDA 2009).

The most important mineral resources in Burleigh County are sand and gravel. Burleigh County was historically a major producer of sand and gravel, ranking sixth in North Dakota in 1962 (Kume and Hansen 1965). North Dakota Geological Survey (NDGS) maps (Anderson 2010) indicate that most of the viable sand and gravel operations are located in glacial outwash deposits to the west and south of the Project Area. Other surficial materials with potential economic uses in construction are also present in the county, including scoria (vesicular volcanic rock), boulders, and clay; however, none have been extracted commercially. No oil and gas production occurs in Burleigh County (Kume and Hansen 1965; DMR 2009). Lignite (coal) from the Bullion Creek Formation is the other major mineral resource in Burleigh County (Kume and Hansen 1965). There are no economically viable mapped lignite reserves within the Project Area (Murphy pers. comm. 2009; Murphy 2008a; Murphy 2008b). There are no active mines in the Project Area (Deutsch pers. comm. 2009; Johnson pers. comm. 2010). The NDGS mapped two historic mining operations in sections adjacent to the Project Area in Crofte Township, as shown on Figure 10 (Murphy 2008a). Additionally, based on available underground mine maps from the PSC Abandoned Mine Land (AML) Division, two abandoned mines are located within approximately 1 to 2 miles of the Project Area (Deutsch pers. comm. 2009). The mines were relatively small operations with mine workings extending no more than a few hundred feet.

Due to the previous underground mining operations, sinkholes are a potential geologic hazard within the Project Area. One sinkhole that was filled in by contractors hired by the PSC AML Division is located within the western portion of the Project Area in Crofte Township in Section 2 of Township 141 North, Range 79 West, as shown on Figure 11 (Deutsch pers. comm. 2009).

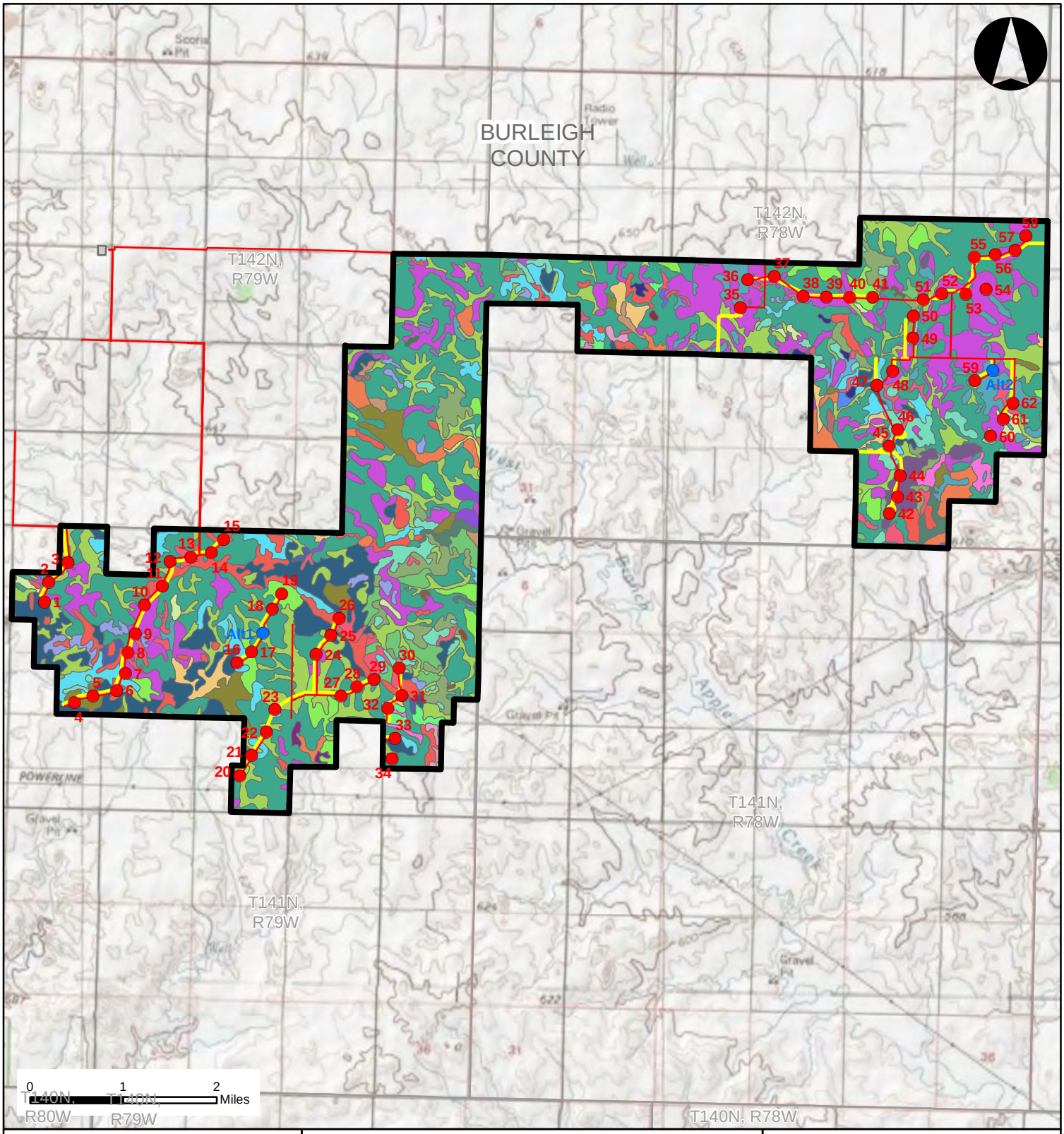
According to the NDGS, North Dakota is located in an area of very low earthquake probability. There are no known active tectonic features in south-central North Dakota and the deep basement formations underlying North Dakota are expected to be geologically stable (Bluemle 1991). This information is supported by U.S. Geological Survey (USGS) seismic hazard maps, which show that the Project Area is located in an area with very low seismic risk (USGS 2008). Related geologic hazards, such as soil liquefaction, are therefore also unlikely.

3.1.2 Potential Impacts of the Proposed Project

A significant impact to geology and soils would occur if: 1) erosion would result in irreversible impacts to other resources, or 2) there would be a loss of mineral resources that are not available elsewhere. Impacts to soils within the Project Area would consist primarily of the removal of areas from agricultural production by occupancy of proposed Project components,

especially wind turbines, access roads, and the collector substation. Underground power collection lines would have limited impact to agriculture, as the trenches would be backfilled and the lines would be deep enough to allow agricultural activities to resume unimpeded. Some soil mixing would occur, but any soil compaction in cropland would be mitigated the next time the field was tilled.

There would be no impacts to geology and soils from an increase in output from the Existing Projects.



Wilton IV Wind Energy Center

BURLEIGH COUNTY, ND

Figure 10. Soils

FEBRUARY 2013

Project Area (9/28/11)

Substation

Proposed Turbine Location (1/18/2012)

Collection System (10/3/11)

Alternate Turbine Location (1/18/2012)

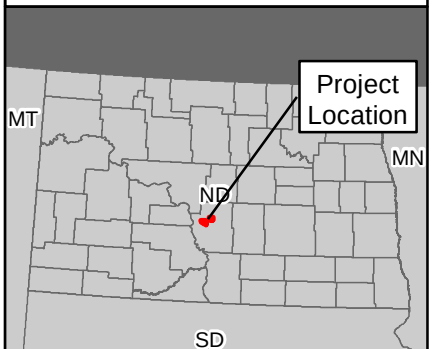
Access Road (10/3/11)

Soils Units (symbols)

AgA	FrF	NbA	SeA	TgB	WcF	WsD		
AgB	GlA	NbB	SnB	Tp	WeE	WzE		
Bs	GlB	Rc	SnC	VbB	WlC			
Ch	GrA	RgC	SnD	VbC	WsA			
FhC	LeA	RhB	Sv	W	WsB			
FmE	LeB	RwA	TeA	WaD	WsC			

Source: ESRI Topo 2007, USDA 2009

OVERVIEW MAP



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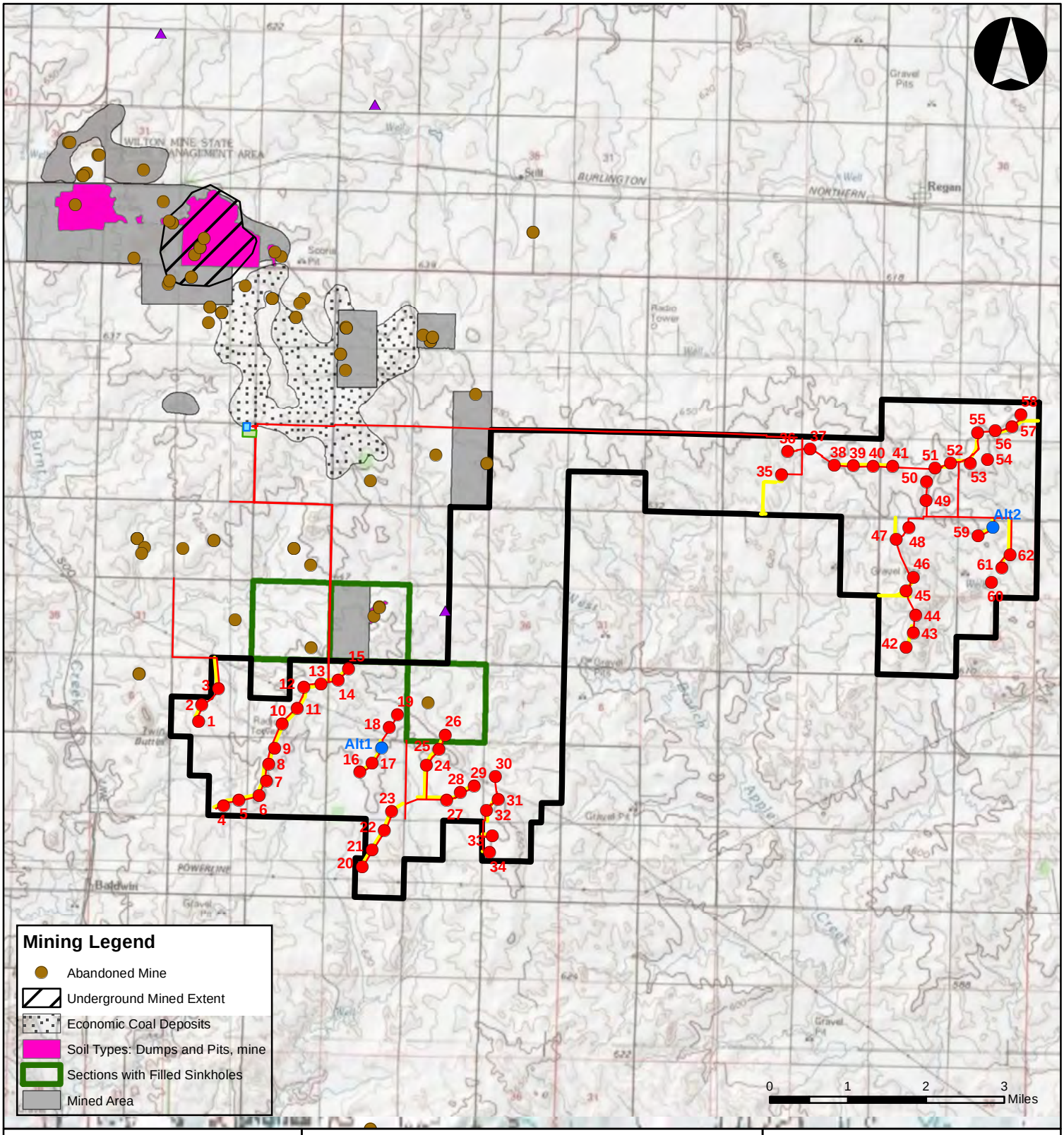


Wilton IV Wind Energy Center

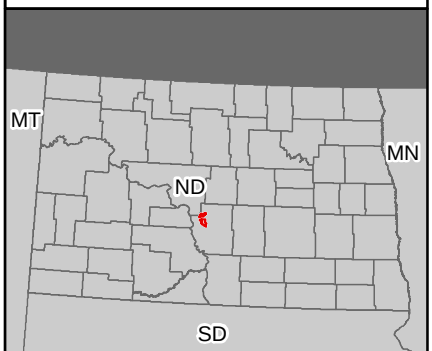
BURLEIGH COUNTY, ND

Figure 11. Coal Mining

FEBRUARY 2013

- Project Area (9/28/11)
- Proposed Turbine Location (1/18/2012)
- Alternate Turbine Location (1/18/2012)
- Met Tower
- Collection System (10/3/11)
- Access Road (10/3/11)
- Proposed Substation
- Temporary Substation Impact Area

OVERVIEW MAP



Sources: Murphy 2008a; Murphy 2008b; Murphy 2008c; USDA 2009; Deutsch pers. comm. 2009; Murphy pers. comm. 2009; Johnson pers. comm. 2010.

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In isolated cases, grading might be required for roadway construction of the proposed Project. Estimated impacts would include up to 116 acres of permanent disturbance for turbine sites, access road construction, and a collection substation. An additional 284 acres would be temporarily disturbed during construction, for a total of 400 acres of estimated impact.

Approximately 13 acres of prime farmland soils and 13 acres of soils of statewide importance would be permanently impacted by Wilton IV's proposed Project, not including the collection lines, which will be buried and would be a temporary disturbance of soil. Burleigh County has a total of 66,688 acres of prime farmland soils and 58,235 acres of soils of statewide importance, so there would be minimal impact to prime farmland or soils of statewide importance as a result of the proposed Project.

Because of the gentle relief in the Project Area, soils with low to moderate susceptibility to erosion, the deliberate siting of facilities on level terrain, and the use of standard construction erosion control practices, the potential for soil loss due to erosion would be low. Impacts to hydric soils, such as compaction, would be expected to be none or minimal due to avoidance during micrositing to avoid wetlands, which are commonly associated with hydric soils.

Wilton IV would restore disturbed areas to pre-construction conditions. Soil erosion, compaction, and other related disturbance would be short-term, and would be minimized by implementing environmental mitigation measures such as wetting work areas, erosion barriers, re-seeding with an approved mix of native seed (in non-agricultural areas), and compaction remediation. With the proper implementation of mitigation measures intended to prevent, minimize, and/or reclaim soil erosion, compaction, and spill effects, no unmitigated loss of highly productive soil would result from the proposed Project beyond unavoidable losses to occupancy of Project components. The temporarily disturbed areas could be used for crop production during operation of the Project, depending on landowner preferences.

No impacts on available mineral resources are anticipated. No sand, gravel, or coal resources are presently actively mined in the Project Area, and economic deposits of lignite coal occur outside of the Project Area. Subsidence hazards related to the potential presence of abandoned underground coal mines would be mitigated by thorough field studies and geotechnical analyses and subsequent micrositing conducted as part of final engineering prior to construction. Consequently, geologic hazards are unlikely to impact the proposed Project, and the proposed Project would not affect geologic hazards. No significant impacts to geology and soils would, therefore, be anticipated.

3.2 Air Resources

The U.S. Environmental Protection Agency (EPA) and the North Dakota Department of Health (NDDoH) regulate air quality in North Dakota through implementation of the Federal Clean Air Act (CAA) (42 U.S.C. §§ 7401-7671q). The CAA is a Federal air quality law, which is intended to protect human health and the environment by reducing emissions of specified pollutants at their source. The CAA outlines three types of airshed classification areas: Class I, II, and III. Class I areas include wilderness areas designated as of August 7, 1977, that are 5,000 acres or greater in size, and also include all National Parks over 6,000 acres. These

areas have the most stringent degree of protection from current and future air quality degradation (EPA 2011).

The CAA requires the adoption of National Ambient Air Quality Standards (NAAQS) to protect the public health and welfare from the effects of air pollution. The CAA defines NAAQS as levels of pollutant above which detrimental effects on human health and welfare could occur. Standards are provided for sulfur dioxide (SO_2), carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), particulate matter less than 10 microns (PM_{10}), particulate matter less than 2.5 microns ($PM_{2.5}$), and lead (Pb), which are known as the criteria pollutants. The EPA has identified PM_{10} particle sizes as the standard for evaluating emissions and its effect on human health. PM_{10} particles are those particles in smoke less than 10 microns in size. These particles are too small to be filtered out by the human respiratory system. These small particulates can cause respiratory problems, especially to smoke sensitive portions of the population.

A state or region is given the status of "attainment" if the NAAQS thresholds have not been exceeded for any criteria pollutant, or "nonattainment" for a specific pollutant if the NAAQS thresholds have been exceeded for that pollutant. An area designated as nonattainment may request redesignation if it can be shown that the area has not exceeded the NAAQS for a period of three years. Redesignation requires the appropriate agency with jurisdiction over the area to prepare a maintenance plan and demonstrate compliance with NAAQS for 10 years (EPA 2009).

3.2.1 Existing Conditions

The entire state of North Dakota is in attainment of all State and Federal air quality standards (NDDoH 2008). Within the Project Area, minimal effects to air quality would likely occur from existing emission sources such as vehicles, trains, and agricultural equipment. Although relatively high concentrations of total suspended particulates (dust) likely occur in springtime from farming operations and high wind, these have not exceeded NAAQS to date.

According to the U.S. Energy Information Administration (EIA 2010), nearly all of the electricity produced in North Dakota is produced by coal-fired power plants. Coal-fired power plants are major sources of air pollution, producing 59 percent of the total SO_2 pollution and 18 percent of the total nitrogen oxides (NO_x) pollution in the U.S. every year (EPA 2003). They are also the largest contributor of toxic mercury pollution (EPA 2000) and hazardous air toxics (Clean Air Task Force 2002), and release about 50 percent of the nation's particle pollution.

Power plants also release over 40 percent of total U.S. carbon dioxide (CO_2) emissions, a prime contributor to global warming (EPA 2000). Coal-fired power plants have the highest output rate of CO_2 per unit of electricity among all fossil fuels (EPA 2000).

3.2.2 Potential Impacts of the Proposed Project

A significant impact to air resources would result if construction, maintenance, or operation of the proposed Project would result in exceedance of Federal or State air quality standards.

There would be no adverse impacts to air quality from an increase in output from the Existing Projects; to the extent that wind energy replaces fossil fuel generation in the region, the increase in wind energy output would have a beneficial impact on air quality.

Vehicle operation during construction activities associated with the proposed Project could temporarily affect local air quality in the Project Area. Temporary emissions would include Nox, hydrocarbons, CO, and SO_2 from vehicles, equipment, and machinery. These impacts would be short-term, and would not have the potential to cause an exceedance of State or Federal air quality standards.

Air quality effects caused by dust would be short-term, limited to the time of construction, and would not exceed the aforementioned NAAQS particulate standards. The NDDoH Air Quality Program does not require a permit for the Project. The limited duration of construction, along with implementation of the environmental protection measures presented in Section 2.4.5, is expected to mitigate air quality effects so that Federal and State standards would not be exceeded and there would not be significant impacts from the proposed Project. Any complaints regarding fugitive dust emissions would be addressed in an efficient and effective manner, but it would be expected that dust resulting from construction activities would be negligible compared to that generated from wind and agricultural activities.

Operation of the proposed Project would have a long-term positive impact on air quality by producing approximately 416,275 megawatt hours (MWh) of emission-free electricity annually. The power supplied by the Project would either possibly displace power provided by power plants in the region, or meet load growth that otherwise would have to be met by the expansion of conventional generation. The amount of pollution displaced by the Project's output would vary by time of day and season and with the mix of fossil-fueled generation. Based on the EPA's Emissions and Generation Resource Integrated Database (EPA 2008), average output emission rates for power generators in the subregion that includes North Dakota are equal to the following: 1,821.84 pounds (lbs)/MWh of CO_2; 28.00 lbs/gigawatt hour (GWh) of methane; and 30.71 lbs/GWh of nitrous oxide (N_2O). Using these figures and assuming an annual average generation of 99 MW and a capacity factor of 48 percent, the proposed Project would annually displace roughly:

- 343,998 metric tons of CO_2
- 5.3 metric tons of methane
- 5.8 metric tons of N_2O

In reducing these and other greenhouse gases, the Project would also have indirect positive impacts on many of the harmful environmental conditions caused by these greenhouse gases.

In comparison to coal, North Dakota's current main source of electricity, wind energy does not produce any ash or sludge that must be disposed of in landfills, and emits no arsenic, lead, cadmium, mercury, or other toxic heavy metals (Union of Concerned Scientists 2009). By reducing emissions of these pollutants, along with those that cause smog and acid rain such as SO_2 and Nox, Wilton IV's proposed Project would have a net positive impact on air quality and climate change as compared to conventional power generation.

3.3 Water Resources

Waters of the United States are defined by the United States Army Corps of Engineers (USACE) as all waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide and all interstate waters (33 CFR part 328). Degradation of any such Waters is prohibited by the Clean Water Act unless authorized by permit. The legal definition of a wetland, as outlined in the USACE Wetlands Delineation Manual, is as follows:

> The term "wetlands" means those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. (33 CFR 328.3(b) 1984)

Federal and State regulations affect construction and other activities in wetlands. The principal Federal laws affecting wetlands and streams are Sections 404 and 401 of the Clean Water Act. Section 404 (regulation of discharge of dredge/fill materials into wetlands) is implemented by the USACE. Section 401 requires that activities applying for a USACE Section 404 permit obtain State Water Quality Certification (WQC) prior to USACE approval.

The following discussion of water resources includes descriptions of the surface water, groundwater, and wetlands found within the Project Area.

3.3.1 Existing Conditions

Surface Water

The Project Area has been subject to historic landform and hydrology modification. Modifications were made to facilitate coal mining and agricultural commodity production by altering natural drainage contours, which in turn altered the hydrologic regime. Terraces are adjacent to broad floodplains along most of the major drainages. Smaller drainages have been channelized and incised and generally have narrow riparian corridors consisting of native and non-native grasses. Areas in agricultural production have been extensively tilled and drained to facilitate production of row-crops. Many of the upper reaches of drainages have been converted to non-wetland grass swales to control erosion and improve removal of excess soil moisture.

There are no major rivers or traditional navigable waters found within the Project Area. The portions of the Project Area in eastern Crofte Township, southeastern Ecklund Township, and southern Ghylin Township are located in the Apple Creek watershed basin. The remainder of the Project Area is located in the Painted Woods-Square Butte watershed basin. West Branch Apple Creek originates in the southeast portion of the Ecklund Township and flows southeast toward Apple Creek. Apple Creek flows southwest into the Missouri River. The northern portions of Ecklund Township and Ghylin Township in the Painted Woods-Square Butte watershed are drained by unnamed creeks and intermittent streams that flow north toward Painted Woods Creek. Painted Woods Creek flows west into the Missouri River. The western portions of Crofte Township and Ecklund Township are drained by unnamed creeks and intermittent streams that flow generally west toward Burnt Creek. Burnt Creek flows south-

southwest into the Missouri River. Figure 12 shows the surface waters within the Project Area. These tributaries are waters of the United States by the USACE and EPA definitions.

Wetlands

Wetlands are important because they perform hydrologic (e.g., flood attenuation, surface water, groundwater recharge) and water quality (sediment retention, pollution control) functions. Wetlands also provide valuable habitat for species of special interest (e.g., migratory birds) and special status (e.g., state or federally listed endangered, threatened, proposed, and candidate species, or species of conservation concern) discussed in Section 3.5.

Waters of the United States, as defined by Section 404 of the Clean Water Act (1973), are within the jurisdiction of the USACE. Jurisdictional waters within the Project Area are regulated by the USACE-Omaha District. Waters of the United States include both wetlands and non- wetlands that meet USACE criteria. USACE has determined that a jurisdictional wetland must have a predominance of hydrophytic vegetation, hydric soil, and wetland hydrology, and have a surface connection to a Traditionally Navigable Water.

A wetland delineation was conducted for the portion of the Project in Crofte Township in fall 2009 and spring 2010 and the portion of the Project in Ghylin Township, as well as additional surveys of layout modifications in Crofte Township, in fall 2011 and again in fall 2012 to evaluate modifications to Project facility locations (Tetra Tech 2012a, available online at: http://www.wapa.gov/ugp/Environment/EnvWiltonIV-EIS.htm). The following area of investigation was surveyed to determine potential impacts:

- Turbine Pads: 250-foot radius
- Access Roads: 250-foot-wide area (125 feet on either side of centerline)
- Electrical Collection Lines: 100-foot-wide area (50 feet on either side of centerline)
- Substation: approximately 5 acres

USACE jurisdiction was evaluated using the methodologies cited in the USACE Jurisdictional Determination Form Instruction Guidebook (USACE/EPA 2007), including the December 2, 2008 USACE/EPA revised Rapanos guidance (USACE/EPA 2008).

Eight potentially jurisdictional features were identified with the Project Area, including a shallow open water wetland and seven seasonally flooded wetlands. Most of the other water features that were surveyed consisted of seasonally flooded wetlands and drainage swales[1]. Like the other water features observed within the Project Area, these features were not considered high quality wetlands due to low species diversity.

Groundwater

Groundwater resources in Burleigh County are available from both surficial and bedrock aquifers and are generally plentiful (Kume and Hansen 1965). Quaternary sands and gravels of alluvial and glacial outwash deposits provide the highest yields and best quality water;

[1] Determinations of jurisdictional features can only be made by the USACE and EPA.

however, these aquifers are primarily concentrated in the south-central and northeast portions of the county, and in narrow bands along existing rivers in the rest of the county. Bedrock aquifers are more widely distributed throughout the county and provide the primary source for most domestic and stock wells. Along the eastern extent of the southern portion of the Project Area, a productive surficial aquifer is located within a narrow band of alluvial deposits along West Branch Apple Creek. With these two exceptions, the sedimentary bedrock of the Bullion Creek Formation provides the major source of groundwater in the Project Area. Water from these rocks is typically hard, but is adequate for use in domestic and stock wells. Yields are generally less than 20 gallons per minute (gpm) (Randich and Hatchett 1966).

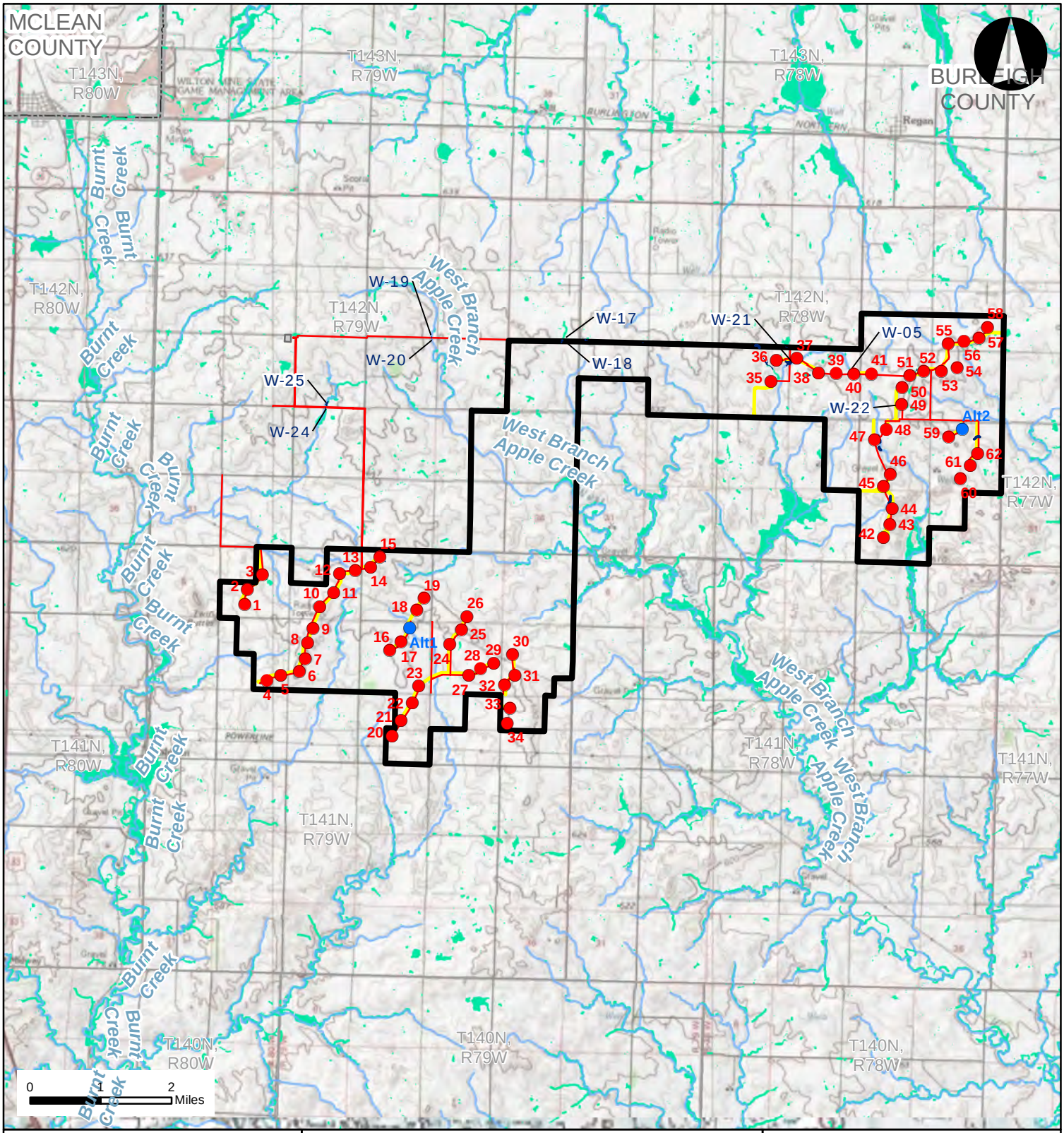
Review of driller logs available from the North Dakota State Water Commission database indicates that at least 39 wells have been drilled within or near the Project Area, all of which are domestic wells, stock wells, or monitoring wells. Well logs indicate that static water levels in the Project Area range mainly from about 60 to 160 feet below ground surface (bgs). Along and outside the eastern edge of the southern portion of the Project Area, a few well logs describe much shallower static water levels, in surficial sediments at about 15 to 25 feet bgs (NDSWC 2011). Based on the proximity of these wells to the West Branch Apple Creek and one of its tributaries, it is likely that they tap alluvial aquifers with locally elevated groundwater levels.

3.3.2 Potential Impacts of the Proposed Project

A significant impact to water resources would occur if 1) the proposed Project would cause a loss or degradation of wetlands in violation of a USACE permit; 2) the proposed Project would cause an increase in susceptibility to on-site or off-site flooding due to altered surface hydrology; 3) the proposed Project would cause a violation of the terms and conditions of a NDDoH stormwater permit; or 4) the proposed Project would cause a loss or permanent degradation of surface water quality.

There would be no impacts to water resources from an increase in output from the Existing Projects.

Wilton IV has committed to no permanent wetland impacts. All wetland and waters features identified in the survey corridor during the wetland evaluation survey are summarized in Table 3. No permanent impacts to wetlands or waters of the U.S. are anticipated as a result of the Project. Approximately 1.3 acres of temporary wetland impacts are estimated in jurisdictional wetlands and 0.01 acres of temporary impacts are estimated in non-jurisdictional wetlands, all from collection line installation by trenching methods. If the collection line is bored using horizontal directional drilling, the boring is initiated and terminated beyond the delineated boundaries of the drainage, and proper environmental protection measures would be implemented to assure no migration of any facility construction fill be discharged into jurisdictional wetlands, potential impacts from the installation of the line would be avoided.



Wilton IV Wind Energy Center

BURLEIGH COUNTY, ND

Figure 12. National Wetlands Inventory and Surface Waters Map

FEBRUARY 2013

- Project Area (9/28/11)
- Proposed Turbine Location (1/18/2012)
- Alternate Turbine Location (1/18/2012)
- Substation
- Collection System (10/3/11)
- Access Road (10/3/11)
- Delineated Linear Wetland Feature
- Delineated Wetland
- Stream
- NWI Linear Wetland Feature
- NWI Wetland

Source: ESRI Topo 2007, NWI 2009, Tetra Tech 2009, Tetra Tech 2011

OVERVIEW MAP

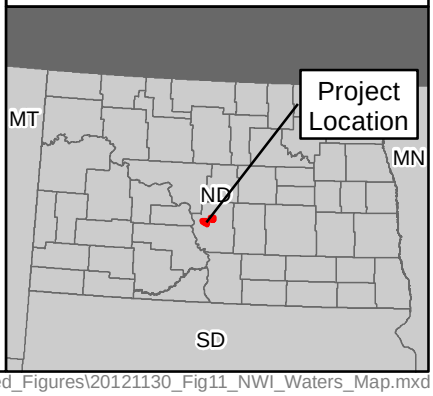


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Table 3. Wetland and Waters Features Identified During The Wetland Evaluation

Feature ID	Feature Type	Jurisdiction [a]	Facility Type	Potential Area of Impact (acre)[b]		
				Permanent	Temporary	Total
W-27	Shallow Open Water Wetland	USACE Wetland	Collection line between Turbine 31 and platted 145th St NE	**0.000**	**0.398**	**0.398**
W-21	Seasonally Flooded Wetland	USACE Wetland	Collection line between Turbine 31 and Turbines 32 and 33 along platted 145th St NE ~0.2 mile south of platted 279th Ave NE	**0.000**	**0.359**	**0.359**
W-26	Seasonally Flooded Wetland	Potential USACE Wetland	Collection line ~0.55 mile east of platted 66th St NE and ~0.5 mile north of platted 227th Ave NE	**0.000**	**0.262**	**0.262**
W-17	Seasonally Flooded Wetland	USACE Wetland	Collection line along platted 279th Ave NE ~0.25 miles west of platted 106th St NE	**0.000**	**0.241**	**0.241**
W-19	Seasonally Flooded Wetland	USACE Wetland	Collection line north of platted 279th Ave NE ~0.1 mile west of 80th St NE	**0.000**	**0.077**	**0.077**
W-15	Seasonally Flooded Wetland	None	Collection line along platted 279th Ave NE ~430 feet west of platted 119th St NE	0.000	0.010	0.010
W-16	Seasonally Flooded Wetland	None	Collection line along platted 279th Ave NE ~370 feet east of platted 106th St NE	0.000	<0.001	0.000
W-05	Seasonally Flooded Wetland	USACE Wetland	Turbine 36, and service road and collection line between Turbine 36 and Turbine 35	0.000	0.000	0.000
W-10	Seasonally Flooded Wetland	None	Service road and collection line between Turbine 47 and Turbine 48	0.000	0.000	0.000
W-14	Seasonally Flooded Wetland	None	Turbine 47, and service road and collection line between Turbine 47 and Turbine 48	0.000	0.000	0.000
W-18	Seasonally Flooded Wetland	USACE Wetland	Collection line along platted 279th Ave NE ~0.25 miles west of platted 106th St NE	0.000	0.000	0.000
W-22	Seasonally Flooded Wetland	USACE Wetland	Turbine 45	0.000	0.000	0.000
W-23	Seasonally Flooded Wetland	None	Collection line and service road between Turbine Alt 6 and Turbine 55	0.000	0.000	0.000
DS-01	Drainage Swale	None	Service road and collection line between 266th St NE and Turbine 58	n/a	n/a	n/a
DS-02	Drainage Swale	None	Turbine 43, and collection line between Turbine 43 and Turbine 44	n/a	n/a	n/a
DS-04	Drainage Swale	None	Service road and collection line between Turbine 40 and Turbine 41	n/a	n/a	n/a
DS-05	Drainage Swale	None	Service road and collection line along platted 279th Ave NE ~0.45 mile west of platted 145th St NE	n/a	n/a	n/a
DS-06	Drainage Swale	None	Turbine Alt 1	n/a	n/a	n/a

Feature ID	Feature Type	Jurisdiction [a]	Facility Type	Potential Area of Impact (acre)[b]		
				Permanent	Temporary	Total
DS-08	Drainage Swale	None	Collection line along 52nd St NE ~0.4 mile south of 266th Ave N	n/a	n/a	n/a
DS-09	Drainage Swale	None	Collection line along 52nd St NE ~0.3 mile north of 253rd Ave NE	n/a	n/a	n/a
DS-10	Drainage Swale	None	Collection line along 227th Ave NE ~0.35 mile west of 80th St NE	n/a	n/a	n/a
DS-11	Drainage Swale	None	Collection line along platted 52nd St NE ~400 feet south of 253rd Ave NE	n/a	n/a	n/a
Potential Project impacts for non-jurisdictional hydrologic features				**0.000**	**0.010**	**0.010**
Potential Project impacts for jurisdictional hydrologic features				**0.000**	**1.337**	**1.337**
Potential total Project impacts				**0.000**	**1.347**	**1.347**

Notes:

a/ Jurisdictional status of features was based on nexus determination completed during the field evaluation, but would require final decision of significant nexus from USACE.

b/ Temporary impacts assumed to be 0.5 acres for turbines (approximately, 84-foot radius), 50 feet for access roads, and 50 feet for collection lines. Of these temporary impacts, 0.2 acres (approximately, 53-foot radius) will be permanent for turbines, and 36 feet will be permanent for access roads.

Wilton IV's proposed Project is below the 0.5-acre threshold, making it eligible under the USACE Nationwide Permit (NWP) 12 for Utility Line Activities. Given the assumptions above, the proposed Project is also below the 0.1-acre notification and mitigation thresholds of NWP 12. Application for a Section 404 Permit as well as notification to the USACE-Omaha District office would not be necessary under the 2012 NWPs.

Wilton IV would obtain a stormwater runoff permit from NDDoH prior to construction. Compliance with the conditions of this permit and those of the associated stormwater pollution prevention plan would ensure that surface water would not be adversely affected by runoff from areas disturbed by Project construction activities.

As with any construction activity, there would always be the possibility of accidentally spilling fuel, hydraulic fluid, or other hazardous substances. The potential of such events would be minimized through implementation of the environmental protection measures described in Section 3.11. Construction equipment would be equipped with spill cleanup kits. Equipment refueling would take place at secure areas, away from wetlands or drainages. Workers would be trained in spill clean-up and the use of the spill cleanup kits. These measures would ensure that surface and groundwater quality would not be degraded through inadvertent spillage of contaminants.

Impacts to groundwater resources in the Project Area would be anticipated to be minimal. Major withdrawals of groundwater would not be necessary due to the limited water supply needs of the proposed Project. No new wells would be drilled. During construction, 15,000 gallons are required per turbine foundation. This water is purchased from the local rural water district. Based on the small amount of increased impervious surface area that would be created by Project components relative to the separation of these components and the size of the entire Project Area, the Project would be expected to have negligible impacts to regional

groundwater recharge. Given the generally deep water levels recorded in well logs in the area, proposed Project construction activities such as excavation and construction of foundations would be unlikely to affect groundwater quality or flow patterns. If impacts were to occur, they would likely be minor and highly localized, and not affect local water supply wells. In addition, each turbine would be located a minimum distance of 1,400 feet away from existing residential structures, thereby minimizing the risk of impacts to private residential wells in the area, which are reasonably assumed to be located in proximity to the structures they serve.

In the event that subsurface blasting is required, a blasting plan would be developed and implemented to keep the impacts localized and fracture the least amount of bedrock necessary for construction. Potential disturbances due to blasting would be localized and temporary, with groundwater likely to resume its natural course of flow downgradient of the foundation. Dewatering of excavations is not anticipated, but if necessary, water would be discharged to the surrounding surface, allowing it to infiltrate back into the ground to minimize potential impacts.

No significant impacts to water resources are anticipated from the proposed Project. Unlike coal generation, which uses large amounts of water for cooling, wind energy generation uses no water for cooling. No turbine blade washing would be necessary for this Project.

3.4 Vegetation

The vegetation resources in the Project Area were investigated to assess impacts of the proposed Project on biological resources.

3.4.1 Vegetation Communities

The Project Area is located in the Missouri Coteau region of the Northwestern Glaciated Plains (USGS 2007). The Northwestern Glaciated Plains ecoregion marks the western-most extent of North American continental glaciation and is characterized by significant surface irregularity and high concentrations of wetlands. The wetlands of the Missouri Coteau and the neighboring prairie pothole region are the major waterfowl production areas in North America. Land use on the coteau is a mixture of tilled agriculture in flatter areas and grazing lands on steeper slopes or areas with shallow soils. Native prairie, characterized by western wheatgrass (*Pascopyrum smithii*), big bluestem (*Andropogon gerardii*), needle-and-thread grass (*Stipa 3-23meric*), and green needlegrass (*Stipa viridula*), remains on unbroken areas. Table 4 identifies current land use in the Project Area based on the USGS National Land Cover Database (USGS 2006). According to these data, which are based on satellite data interpretation, land use in the Project Area is dominated by cultivated crops (48 percent) and grassland (45 percent). Pasture/hay lands are also present but limited, accounting for 2 percent of the Project Area. Developed/open space covered less than four percent of the Project Area, while forests and water features were each less than 1 percent of the Project Area (Figure 13).

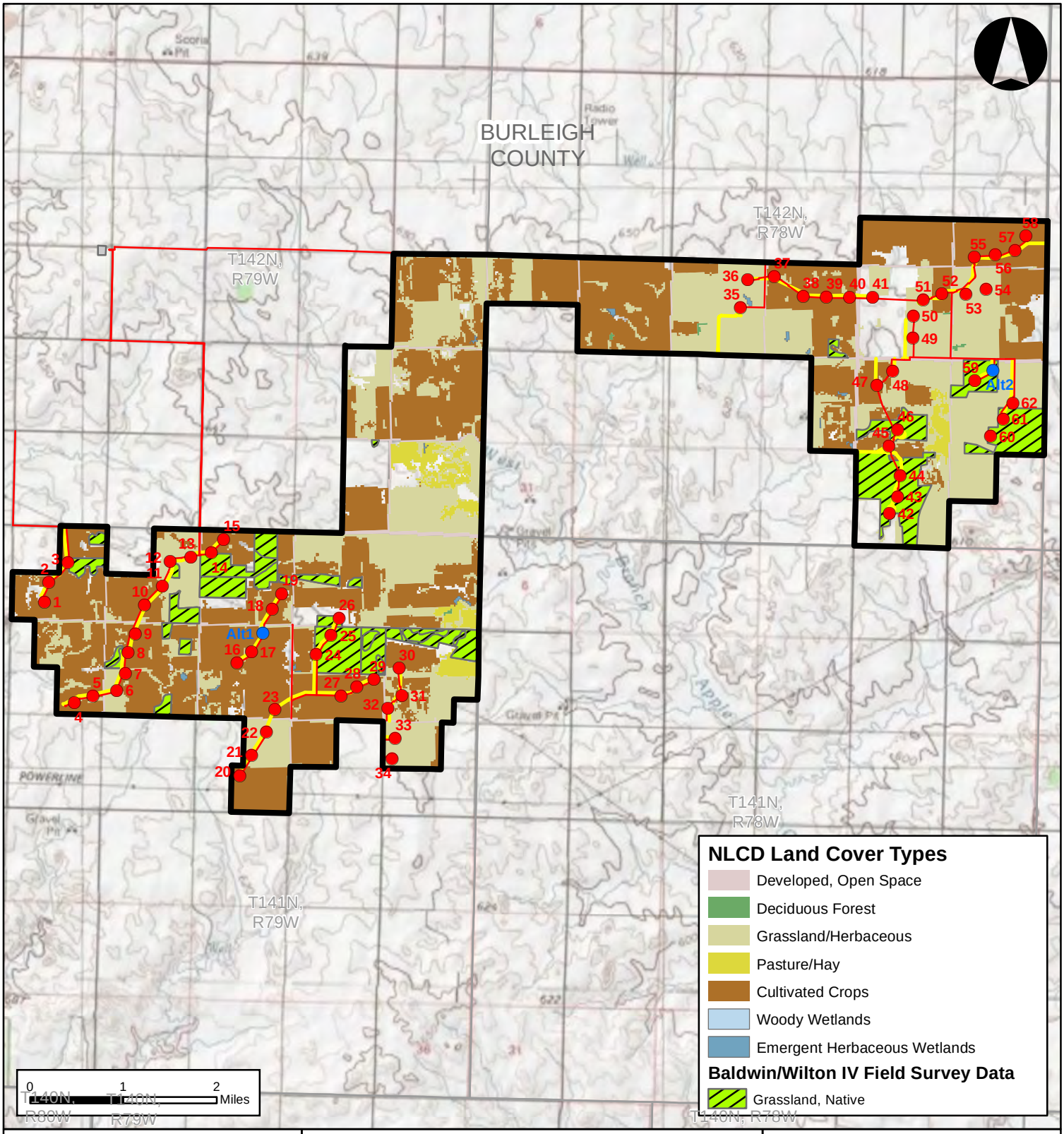
Table 4. Land Cover within the Project Area

Land Cover	Acreage	Percent of Project Area*
Grassland/Herbaceous	7,136	45
Cultivated Crops	7,558	48
Pasture/Hay	358	2
Developed, Open Space	652	4
Emergent Herbaceous Wetlands	35	Less than 1
Open Water	0	0
Deciduous Forest	12	Less than 1
Woody Wetlands	1	Less than 1
Evergreen Forest	0	0
Developed, Low Intensity	0	0

Source: USGS NLCD 2006.
*Percentages do not add to 100 due to rounding.

Agricultural Lands

Agricultural land is the dominant land cover type in the Project Area. In Burleigh County, the most common crops in production are dry land wheat (primarily spring wheat), sunflower, barley, soybeans, corn, canola, and hay. Hayland, cropland, and pasture are managed for the production of livestock forage and cereal crops within agricultural tracts. Section 3.6 provides further discussion of crop production in the context of agricultural land use and discusses potential impacts and proposed mitigation measures.



Wilton IV Wind Energy Center

BURLEIGH COUNTY, ND

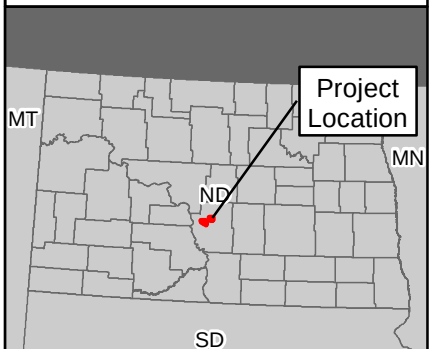
Figure 13. Land Cover Map

FEBRUARY 2013

- Project Area (9/28/11)
- Proposed Turbine Location (1/18/2012)
- Alternate Turbine Location (1/18/2012)
- Substation
- Collection System (10/3/11)
- Access Road (10/3/11)
- County Boundary
- Township Boundary

Source: ESRI Topo 2007, NLCD 2006

OVERVIEW MAP



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Grassland

Grasslands within the Project Area are typically grazed or hayed annually and include native species and mixed (native and non-native) pasturelands. Since the 1800s, 75 to 90 percent of North Dakota's native grasslands have been lost due to cropland conversion. Although there are no Federal or State regulations explicitly protecting native prairie, the North Dakota Game and Fish Department (NDGFD) and the USFWS both highlight the significance of native prairie.

According to the USFWS, native prairie has significant natural resource values including the following:

- Provides habitat for a number of migratory and resident grassland birds whose populations are declining.
- Provides nesting habitat for millions of waterfowl.
- Contains 200-300 plant species, which provide genetic diversity important to agriculture and medicine.
- Provides habitat for thousands of insects, including the Dakota skipper (*Hesperia dacotae*), a candidate species for listing under the Endangered Species Act (ESA), and other butterflies (e.g., regal fritillary [*Speyeria idalia*] and tawny crescent [*Phyciodes atesii maconensis*]). Crucial for soil and water conservation.
- Provides recreational opportunities, including hunting, bird watching, wildlife observation and hiking.

A field biologist conducted field surveys on June 29 to 30, July 1 to 2, and August 8, 2011, to determine the extent of mixed (a combination of shortgrass and tallgrass species) native prairie within the Project Area (Tetra Tech 2011a, available online at: http://www.wapa.gov/ugp/Environment/EnvWiltonIV-EIS.htm). The majority of the Project Area in Crofte Township was originally surveyed as part of the Baldwin Wind Energy Center from September 18 to 21, 2009; the results of the previous survey were incorporated into the native prairie survey report for the 15,752-acre Project Area. A total of 1,532 acres (10 percent of the total Project Area) was classified as native prairie, and 1,897 acres (12 percent of the total Project Area) were classified as tame grasslands; the remaining acreage consists primarily of agricultural croplands with a few residential homesteads and farmyards. The largest contiguous areas of native prairie were found in the southern part of the portion of the Project Area in Ghylin Township.

For the purpose of field survey, native prairie is considered untilled grassland dominated by non-introduced species or previously tilled grassland that has reverted back to native vegetation. In contrast, tame grassland (e.g., pasturelands) is comprised primarily of non-native species. Native prairie further differs from tame grassland in that native prairie is found primarily on unbroken soil, whereas tame grassland occurs on tilled soils that have been planted. Further, tame grassland has less value as habitat due to the lack of diversity

in vegetation, which is typically comprised of singular species that grow on the previously disturbed soil areas.

Forest and Shelterbelt

Trees and shrubs in the Project Area are limited to mostly windbreaks around residential properties and between fields and include native species such as juneberry (*Amelanchier* sp.) and leadplant (*Amorpha canescens*) and non-native species such as Siberian elm (*Ulmus pumila*). Other native species observed within the lowland areas of the Project Area include cottonwood (*Populus deltoids*) and boxelder (*Acer negundo*). Native and non-native species of ash (*Fraxinus* sp.) are also present.

Aquatic and Riparian

Aquatic and riparian habitats can be disproportionately important to wildlife because they tend to have high species richness and diversity, and often exhibit high vertical habitat diversity. These habitats represent approximately 1 percent of the Project Area based on NLCD data (USGS 2006; Figure 13). Riparian areas within the Project Area are small and are associated with ditches along roads and other modified land areas. No riparian areas associated with undisturbed surface waters were observed within the Project Area during field visits and site surveys. Representative species include water smartweed *(Polygonum amphibium)*, water sedge (*Carex aquatilis*), reed canary grass *(Phalaris arundinacea)*, narrowleaf cattail *(Typha angustifolia)*, and black willow *(Salix nigra)*.

3.4.2 Rare Plant Populations

The ESA mandates that actions are not to jeopardize the continued existence of listed species. The USFWS maintains a list of federally threatened and endangered plant species. Species listed by the USFWS often have low population sizes, are sensitive to habitat alterations, or have cultural significance and require protective measures for their perpetuation.

The only plant of special concern in North Dakota is the western prairie fringed orchid (*Platanthera praeclara*), which is listed as threatened by the USFWS. This species is only found in tallgrass prairie and sedge meadow habitats, neither of which occurs to a notable extent within the Project Area. Populations are known to exist well outside of the Project Area in southeast North Dakota. USFWS has determined that this species does not occur in Burleigh County (Western 2005). While no specific surveys were conducted throughout the entire Project Area to determine if the species is present, surveys did evaluate habitat, and this species was not incidentally observed during any site visits or native prairie surveys.

3.4.3 Noxious and Invasive Weeds

The North Dakota Department of Agriculture (NDDA) defines two categories of invasive species: 1) “noxious weeds,” any plants that have been designated as injurious to public health, livestock, land or other property 2) “invasive species,” species that are non-native and whose introduction causes or is likely to cause economic or environmental harm or harm to human health (NDDA 2003; North Dakota Century Code 2003).

During the 2009 and 2011 native prairie surveys, four species listed as North Dakota State noxious weeds were found within the Project Area: absinthe wormwood (*Artemisia absinthium*), Canada thistle (*Cirsium arvense*), field bindweed (*Convolvulus arvensis*), and leafy spurge (*Euphorbia esula*). Two additional species, common ragweed (*Ambrosia artemisiifolia*) and prairie goldenrod (*Solidago missouriensis*), considered troublesome native species, were also observed. An additional three species listed as North Dakota State invasive species for Burleigh County were found within the Project Area: yellow sweet clover (*Melilotus officinalis*), crested wheatgrass (*Agropyron cristatum)*, and goat's beard (*Aruncus dioicus*). These species were observed scattered throughout the Project Area in areas of crop production, which are regularly disturbed during tilling and haying, and along roads and ditches.

3.4.4 Potential Impacts of the Proposed Project

A significant impact to vegetation resources would occur if Wilton IV's proposed Project resulted in: 1) a loss of habitat resulting in the listing of or an adverse impact on the continued existence of plant or animal species; 2) uncontrolled expansion of noxious weeds; or 3) the removal of habitat important to the continued survival and reproduction of other wildlife species.

There would be no impacts to vegetation from an increase in output from the Existing Projects.

Approximately 400 acres (2.5 percent of the total Project Area) would be disturbed during the construction of the proposed Project. Construction activities may temporarily disturb soils and vegetation to an extent that would require some re-grading, compaction mitigation, and reseeding following completion of operations. Should such disturbance occur, these soils would be restored to the original contours and reseeded, if necessary, with native perennial species common to the area. Temporary construction routes necessary to maintain access to the site would remain cleared of vegetation, and coarse surface material would be left in place to ensure access during adverse weather conditions. If surface disturbance does not significantly impact vegetation, plants may regenerate or sprout from on-site propagules, thus augmenting or negating the need for additional revegetation. Based on the small percentage of the Project Area that would be disturbed by construction activities and the mitigation measures implemented during and post-construction to allow vegetation to regrow, construction impacts to vegetation are expected to be minimal. Additionally, the areas temporarily affected could be restored to crop production depending on landowner preferences.

Vegetation communities most sensitive to disturbance are native prairie and wetlands. Access road construction would result in the greatest effects to native vegetation, resulting in permanent loss of these habitats where they occur along selected routes. Installation of the proposed buried collector system would result in some temporary effects to native and non-native grasslands. Wilton IV has sited proposed Project facilities within previously disturbed agricultural land as much as practicable and the total Project footprint (roads, collection lines) has been minimized to reduce impacts to native prairie.

Under the proposed configuration (proposed turbine layout dated January 18, 2012), 12 of the 62 planned turbines would be placed within native prairie. Of the approximately 116 acres of land that would be permanently disturbed during operation and the additional 284 acres that would be temporarily disturbed during construction, only a small portion (20 acres permanent and 23 acres temporary) would be land classified as native prairie during surveys. Effects would be mitigated by backfilling the trenched areas and reseeding with an approved mix of native species following completion of construction activities. Based on the small percentage of the Project Area that would be disturbed by construction and operation of the Project compared to the distribution of native prairie in the county and the mitigation measures that would be implemented during construction, impacts to native prairie are not expected to be significant.

New road construction would also include dust control measures to reduce impacts from dust on adjacent vegetation communities. Introduction of noxious weeds would be mitigated through prompt revegetation with regionally native species or restoration of prior land use, and monitoring of disturbed areas for weed infestations. Wilton IV will document any noxious weeds during routine inspections and will implement measures to remove and control the spread of noxious weeds throughout the life of the project.

As no threatened or endangered plants were observed or previously documented to occur within the Project Area, the Project is unlikely to impact any listed threatened or endangered plants. The USFWS lists western prairie fringed orchid (threatened) as the only listed plant species occurring in North Dakota. However the species is known only to occur in tall grass prairie regions of far eastern North Dakota near the border with Minnesota. The habitat requirements for the orchid are calcareous prairies and sedge meadows (wetlands) that are most often unplowed. The Project Area is primarily composed of already well disturbed agriculture lands, with existing wind farms abutting the Project Area. In addition, since the orchid requires areas normally classified as wetlands, suitable prairie habitat areas for the orchid would be avoided in the design of the Project layout. Finally, native prairie was avoided in the design of the Project layout to the extent practicable. The impacts to vegetation from the proposed Project are not anticipated to be significant.

3.5 Wildlife

Although the evaluation of wildlife resources focused on the Project Area (Figure 3), some regional discussion is included. This is necessary because of the greater mobility of wildlife and the high usage of the region by migratory birds. Existing literature and other information related to known species distributions, including endangered, threatened, proposed, candidate, and sensitive species; migration pathways; and wetlands and unique habitats within the Project Area, were reviewed for relevance to the proposed Project.

3.5.1 Wildlife Species

A detailed list of wildlife species is not readily available for the Project Area. Based on issues identified at wind generation sites throughout the United States, those species of greatest concern are federally or state-protected species, avian species, and bats that may occur in the Project Area.

During the avian surveys conducted for the Project (see below), incidental mammal observations were recorded. The most abundant mammal species recorded was white-tailed deer (*Odocoileus virginianus*) with 164 individuals observed within 15 groups. Six coyote (*Canis latrans*), two white-tailed jack rabbits (*Lepus townsendii*), one fox squirrel (*Sciurus niger*), and one thirteen-lined ground squirrel (*Spermophilus tridecemlineatus*) were also observed. Based on the general habitat characteristics of the Project Area and the location of the Project in this part of North Dakota, fox, raccoon, coyote, skunk, and perhaps cottontail and badger would also be expected to be present.

Avian Species

Avian use surveys were conducted in fall 2008 and spring 2009 in an area slightly larger than the current Project Area (WEST 2009). The surveys included 18 point count locations. In the 2008–2009 surveys, waterfowl use was highest in the spring, and raptor use was highest in the summer and lowest in the fall. Three species (3.9 percent of all species) composed approximately 49 percent of the observations: sandhill crane (*Grus canadensis*), Canada goose (*Branta canadensis* and red-winged blackbird (*Agelaius phoeniceus*). The most common raptors were red-tailed hawk (*Buteo jamaicensis*) and northern harriers (*Circus cyaneus*). Five active nests (three red-tailed hawk and two unidentified hawk) were reported. The 2011 fall avian use survey yielded comparable results. The red-winged blackbird, unidentified blackbird, horned lark (*Eremophila alpestris*), and snow goose (*Chen caerulescens*) comprised 78 percent of the observations.

More recent avian use surveys for the Project Area were conducted to in fall 2011 and spring 2012 and included seven point count locations within the Project Area (Tetra Tech 2011b, Tetra Tech 2012b). The species with the highest mean use during the fall 2011 surveys include unidentified blackbird, red-winged blackbird, horned lark, snow goose, and common grackle (*Quiscalus quiscula*). During the spring 2012 surveys, the species with the highes mean use were Canada goose, sandhill crane, unidentified sparrow, red-winged blackbird, and Franklin's gull (*Leucophaeus pipixcan*).

Two bird species of primary interest to wind energy development in the central and north-central United States are whooping cranes (*Grus americana*) and sharp-tailed grouse (*Tympanuchus phasianellus*). No whooping cranes or sharp-tailed grouse leks (mating displays) were observed during the surveys, although individual grouse were observed. All of the avian reports are available online at:
http://www.wapa.gov/ugp/Environment/EnvWiltonIV-EIS.htm.

3.5.2 Sensitive Wildlife Species

The ESA, as administered by the USFWS, mandates protection of species federally listed as threatened or endangered and their associated habitats. The ESA makes it unlawful to "take" a listed species without special exemption. Take is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect or attempt to engage in any such conduct." Significant modification or degradation of listed species' habitats is considered "harm" under ESA regulations and projects that have such potential require consultation with USFWS and may require the issuance of an incidental take permit or mitigation measures to avoid or reduce impacts to these species. Candidate species receive no statutory protection from the

USFWS; however, they do receive full protection once listed. Federal action agencies may elect to treat candidate species as listed, and Western does so.

In their August 2011 reply to Western's consultation letter (see the Scoping Meeting Report, available online at: http://www.wapa.gov/ugp/Environment/EnvWiltonIV-EIS.htm), the USFWS identified five wildlife species protected by the ESA that had the potential to occur in the vicinity of the Project: pallid sturgeon (*Scaphirhynchus albus*) – Endangered; interior least tern (*Sterna antillarum*) – Endangered; whooping crane – Endangered, gray wolf (*Canis lupus*) – Endangered; and piping plover (*Charadrius melodus*) – Threatened with Designated Critical habitat in the vicinity of the proposed Project.

The USFWS identified the same wildlife species protected by the ESA as part of the original environmental reviews associated with the Existing Projects. These species have not changed, although the bald eagle has since been delisted. No take of any of these species has been reported within the Existing Projects.

In addition to the ESA, the Bald and Golden Eagle Protection Act prohibits the take of any bald or golden eagle.

Whooping Crane

The whooping crane is protected by both State and Federal laws in the United States. It was considered endangered in the United States in 1970 and the endangered listing was 'grandfathered' into the ESA in 1973. Under the North Dakota comprehensive wildlife conservation strategy guide, the whooping crane is a level three species of conservation priority. This classification indicates species of moderate priority, but that are believed to be peripheral or non-breeding in North Dakota (Hagen et al. 2005).

One self-sustaining wild population of whooping cranes currently exists in the world. Members of this population breed primarily within the boundaries of Wood Buffalo National Park in Canada and migrate through the central United States in route to the wintering grounds at Aransas National Wildlife Refuge (NWR) along the Gulf Coast of Texas. This flock is referred to as the Aransas-Wood Buffalo Population. Due to intensive management, this population has increased from 15 birds in 1941 to 279 as of the start of spring migration in 2011 (WCCA 2011).

Whooping cranes undertake a 5,000-mile annual round-trip migration from the breeding area in Canada to the wintering area in Texas. Individuals depart the breeding ground in Canada and travel south through Northwest Territories, Alberta, Saskatchewan, Montana, North Dakota, South Dakota, Nebraska, Kansas, and Oklahoma, and reach the wintering ground on the Texas coast. The migration route is well defined and 95 percent of all observations occur within a 200-mile-wide corridor during spring and fall migration (CWS and USFWS 2007). The Project Area is centrally located in the migration corridor. The percentage of available wetlands within the Project Area is lower than the surrounding 35-mile buffer area. There have been no recorded observations of whooping cranes within the Project Area, although 79 observations have occurred within the 35-mile surrounding buffer area from 1961 to 2007. No whooping cranes were observed during the 2008–2009 avian surveys (WEST 2009) or the 2011 fall and 2012 spring avian surveys (Tetra Tech 2011b, Tetra Tech 2012b).

Pallid Sturgeon

The pallid sturgeon historically occupied the Mississippi and Missouri rivers and their major tributaries (USFWS 1990a). The reason for decline of the sturgeon has been water control and development projects on the Mississippi and Missouri rivers. The sturgeon still occupies portions of the main stem of the Missouri River. Neither the pallid sturgeon nor suitable habitat is found in the Project Area.

Interior Least Tern

The interior population of the least tern was listed as endangered species in 1985 (USFWS 1985a). This tern nests on barren sandbars on the Missouri River and feeds on small fish in the river (USFWS 1990b). In North Dakota, the interior least tern is primarily found on sandbars on the Missouri River between the Garrison Dam and Lake Oahe, in the reservoirs, and on the Missouri and Yellowstone Rivers upstream of Lake Sakakawea (USFWS North Dakota Ecological Field Services Office 2008). Although terns could fly across the Project Area, they would be expected to stay close to the river corridors. There is no tern habitat within the Project Area, and the nearest suitable river habitat is the Missouri River over 5 miles to the west of the Project Area.

Piping Plover

The Great Plains population of the piping plover was listed as a threatened species in 1985 (USFWS 1985b). The plover nests in 23 counties in North Dakota, primarily in alkali wetlands in the Missouri Coteau and on barren sandbars in the Missouri River and system reservoirs. Reasons for decline of the piping plover include habitat loss and nest depredation in the wetlands, but the main reason for decline of the species along the Missouri River is habitat loss due to water development projects (e.g., Fort Peck Dam, Garrison Dam, and Oahe Dam) and loss of wetlands due to agriculture and other developments.

Critical habitat for the piping plover was designated on September 11, 2002 (USFWS 2002), and includes the entire length of the Missouri River in North Dakota and the following locations in Burleigh County: Lake Arena, Long Lake NWR, Rachel Hoff Waterfowl Production Area, and Rath Waterfowl Production Area. The closest parcel of critical habitat to the Project Area is over 5 miles away, and there is no suitable nesting habitat within the Project Area.

Gray Wolf

The gray wolf was listed as an endangered species in 1978 (USFWS 1978). In 2003, the USFWS downlisted the two northern subpopulations (western and eastern distinct population segments) to threatened (USFWS 2003). While additional decisions regarding the western populations of gray wolf have been made more recently, the eastern population remains listed as threatened. Once common throughout North Dakota, the last confirmed sighting in the state was 1991, although there have been more recent but unconfirmed reports of sightings in the Turtle Mountains in the north-central portion of the state. Although individual gray wolves could pass through the Project Area, the likelihood is very low.

State-listed Species

Although North Dakota does not have a state endangered species law, the NDGFD has identified 100 species of conservation priority, or those in greatest need of conservation in

the State (NDGFD 2008). They are categorized into three levels according to the need to conserve them:

- Level I – Species in greatest need of conservation
- Level II – Species in need of conservation, but have had support from other wildlife programs
- Level III – Species in moderate need of conservation, but are believed to be on the edge of their range in North Dakota

The interior least tern is a Level I species, the piping plover and pallid sturgeon are Level II species, and the whooping crane and gray wolf are Level III species. In a letter dated August 12, 2011, in response to the EIS scoping, the NDGFD did not list particular species of concern that may be found in the Project Area; rather, the agency noted that disturbance of native prairie and wetlands are of primary concern with regard to wind energy development (see Scoping Meeting Report, available online at: http://www.wapa.gov/ugp/Environment/EnvWiltonIV-EIS.htm).

During the avian surveys (WEST 2009), 17 species of conservation priority were observed. These were: canvasback (*Athya valisineria*), northern harrier, Franklin's gull (*Larus pipixcan*), redhead (*Aythya Americana*), northern pintail (*Anas acuta*), bobolink (*Dolichonyx oryzivorus*), sharp-tailed grouse, grasshopper sparrow (*Ammodramus savannarum*), upland sandpiper (*Bartramia longicauda*), Swainson's hawk (*Buteo swainsoni*), marbled godwit (*Limosa fedoa*), loggerhead shrike (*Lanius ludovicianus*), bald eagle (*Haliaeetus leucocephalus*), Wilson's phalarope (*Phalaropus tricolor*), black tern (*Chilidonias niger*), ferruginous hawk (*Buteo regalis*), and horned grebe (*Podiceps auritus*). The two bald eagles that were observed were during the 2008-2009 surveys were incidental observations. Bald Eagles tend to forage along rivers and streams and do not usually stray far from these riparian areas, regardless of an occasional flight into other non-foraging areas.

Ten state-listed species of conservation priority were also observed during the 2011 fall and 2012 spring avian surveys (Tetra Tech 2011b, Tetra Tech 2012b): grasshopper sparrow, Swainson's hawk, ferruginous hawk, northern harrier, Franklin's gull, upland sandpiper, golden eagle, northern pintail, peregrine falcon, and sharp-tailed grouse. One adult golden eagle was observed incidentally near survey point 7 on March 26, 2012 in flight within the anticipated rotor swept area.

Bats

According to the USGS Northern Prairie Wildlife Research Center (2006), there are nine bat species that can be found in North Dakota, including the little brown bat (*Myotis lucifugus*), silver-haired bat (*Lasionycteris noctivagans*), big brown bat (*Eptesicus fuscus*), eastern red bat (*Lasiurus borealis*), hoary bat (*Lasiurus cinereus*), western long-eared myotis (*M. evotis*), western small-footed myotis (*M. ciliolabrum*), Keen's myotis (M*. keenii*), and long-legged myotis (*M. volans*).

Of these nine species, five potentially occur within the Project Area based on current known distribution ranges (NatureServe 2008, BCI 2009). None of the species that potentially occur within the Project Area are federally listed as threatened or endangered. Three of the species that could potentially occur within the Project Area (hoary bat, silver-haired bat, and eastern red bat) are highly migratory and are found in the greatest abundance in North Dakota during late May through early September (Cryan 2003). The likelihood of migratory bats passing through the Project Area is low. The nearest open water feature that could attract migratory bats, the Missouri River, is located far enough away (6 miles west of the Project Area) that increased bat use would not be expected. There is no suitable roosting habitat, such as forested areas and caves, within the Project Area that would provide shelter to migratory bats during daytime.

3.5.3 Potential Impacts of the Proposed Project

A significant impact to wildlife resources would occur if the proposed Project resulted in the loss of individuals of a population leading to the listing of or jeopardizing the continued existence of animal species. A significant impact to endangered, threatened, proposed, and candidate species would occur if: 1) the proposed Project resulted in the loss of individuals of a population leading to a jeopardy opinion from the USFWS; or 2) the proposed Project resulted in the loss of individuals leading to the upgrade (e.g., change in listing from threatened to endangered) of the Federal listing of the species.

Impacts to avian and bat species include collisions with wind turbines, transmission lines, and guyed meteorological towers. Impacts to wildlife can be short-term (one or two reproductive seasons, generally during the construction period), or long-term (affecting several generations during the life of the Project). Impacts can also be direct (an immediate effect to an individual, population, or its habitat), or indirect (an effect that may occur over time or at a different place than other Project actions).

Most wildlife species do not use annual row crop fields for habitat, except for post-harvest foraging. In general, wildlife species do not use disturbed agricultural land as their primary habitat. As a result of the proposed Project being largely located in agricultural areas, impacts would be minimal to most species. Some wildlife displacement in grassland areas would be expected from construction activities, but the effects would be limited to the short construction period, and individuals would be expected to return after construction activities cease. Some loss of nests and burrows would occur in grassland areas, affecting some individuals, but not population levels. Wilton IV would conduct a nest survey prior to construction and implement an appropriate buffer after consultation with wildlife biologists to avoid impacts to nests during construction.

If Western modifies the existing interconnection agreements to lift the administrative cap of 50 average annual MW for their Existing Projects, the increased time that the turbines at the Existing Projects would be operating to increase output would not increase the existing risk of collisions for avian and bat species. This is because any curtailment of generation under the current contract conditions would occur at the end of the year, during the winter season, when most avian species and bats are either absent from the area or hibernating.

No adverse effects on these species would occur as a result of no curtailment, or the continuing of generation in the winter.

Each of the Existing Projects has a WRRS, and an Avian and Bat Protection Plan (now referred to as BBCS) was prepared for Wilton II and Baldwin (it was not a requirement for Wilton I). According to the WRRS for the Existing Projects, there have been observed bird fatalities but no injuries have been reported. Per the WRRS protocol, if an injured bird is found, it would have to be reported to USFWS and a wildlife rehabilitator. No bats have been recorded during WRRS inspections by site personnel. No listed or protected species have been recorded as injuries or fatalities at the Existing Projects to date.

Sensitive Wildlife Species

Whooping Crane

Wilton IV commissioned a detailed likelihood of occurrence assessment for whooping cranes (Tetra Tech 2011d, available online at: http://www.wapa.gov/ugp/Environment/EnvWiltonIV-EIS.htm). Results of this assessment indicate that the likelihood of crane occurrence within the Project Area is low. Although the proposed Project is located within the 75 percent of observations migration corridor, there are no historical records of whooping cranes occurring within the Project Area. There have been sightings within 35 miles, which is an appropriate scale to examine whooping crane habitat use. The Project Area is adjacent to and south and east of the existing Wilton I, Wilton II, and Baldwin Wind Energy Centers (Figure 2), which have a combined total of 130 existing wind turbines. No whooping cranes have been observed in the Existing Projects or during avian surveys conducted in the Project Area in the fall 2008, spring 2009, spring 2010, fall 2011, and spring 2012.

The potential for indirect impacts resulting from habitat loss is also low. The potential roosting habitat within the Project Area is of marginal quality. Suitable wetland for cranes should be unobstructed wetlands and open water. Wetlands surrounded by trees or with nearby structures are considered unsuitable as they present obstructions and/or disturbances that a crane would find unfavorable for foraging or roosting. The Project Area does not have attractive roosting habitat for cranes compared to surrounding areas, such as along the Missouri River to the west.

Based on the low magnitude of potential habitat loss, the relative lack of suitable wetland habitat, the low probability of site usage, and the avoidance and minimization measures discussed in Section 2.4.10 (e.g., buried collection systems), the proposed Project may affect but is not likely to adversely affect the whooping crane.

A Biological Assessment was sent to the US Fish and Wildlife Service in Bismarck, ND on August 2, 2012. The Service responded by letter on October 3, 2012 stating the Biological Assessment was insufficient for completing Section 7 consultation. Western is in the process of formulating its response to the Service's concerns.

Pallid Sturgeon

The proposed Project would not affect water quantity or quality in the Missouri River or its major tributaries. The pallid sturgeon would not occur in the ephemeral streams in the Project Area. The proposed Project would have no effect on the pallid sturgeon.

Interior Least Tern

The proposed Project is located more than 5 miles to the east of interior least tern habitat; the Project Area contains no sizeable rivers with sandbars; and Project development would not affect water quantity or quality in the Missouri River or its major tributaries. Therefore, the Project would have no impact on breeding interior least terns. Furthermore, the limited extent of wetlands close to the proposed Project and the low likelihood that existing wetlands (e.g., farm ponds) contain enough fish to attract foraging terns suggests that the likelihood of terns occurring near the Project would be very low. Given that there would be no new transmission lines as part of the proposed Project and all new electrical collection lines would be buried (except the one short new tie-line across 279th Avenue NE), in the highly unlikely event of this species occurring in the Project Area, the potential for collisions with transmission lines would be negligible. To date, no interior least tern fatality has been reported from turbines at a wind farm. No interior least terns were observed during the fall 2008 and spring 2009 avian surveys (WEST 2009) or the 2011 fall avian survey (Tetra Tech 2011b). Therefore, the proposed Project may affect but is not likely to adversely affect the interior least tern.

Piping Plover

There are no alkali lakes within 0.5 mile of the Project, minimizing the possibility of piping plovers breeding in the Project Area. The closest parcel of designated critical habitat to the Project (the Missouri River) is over 5 miles away; breeding piping plover rarely travel more than 1 mile from their nest sites during the breeding season (USFWS 2002), thereby minimizing the potential for piping plovers to occur on site while foraging during the breeding season. In the highly unlikely event of this species occurring in the Project Area, the avoidance of permanent wetland impacts and the burying of all new power collection lines would minimize potential impacts. To date, no piping plover fatality has been reported at a wind farm and no piping plover were observed during the fall 2008 and spring 2009 avian surveys (WEST 2009) or the 2011 fall avian survey (Tetra Tech 2011c). As a result, the proposed Project may affect but is not likely to adversely affect the piping plover. There would be no construction in designated critical habitat and no changes to water quantity or quality associated with the Project, and as a result, the proposed Project would not result in the destruction or adverse modification of designated critical habitat.

Gray Wolf

It is possible that a transient gray wolf may move through the Project Area, thereby being exposed to potential negative interactions with moving vehicles. However, the establishment of speed limits on Project access roads would minimize the potential for collisions. No other aspect of proposed Project construction or operation would affect the survival of a transient individual. Therefore, the proposed Project may affect but is not likely to adversely affect the gray wolf.

Bats

Bats typically use farm buildings and dead/dying trees with cavities and loose bark as roosting and maternity habitat, and use riparian corridors and wetlands as feeding habitat. During an October 2009 site visit, no abandoned farm buildings were observed and trees were limited to mostly windbreaks around residential properties and between fields, providing few options for roosting bats. Further, neither riparian corridors nor wetlands are present in the Project Area in significant amounts, indicating that the Project Area may not be very attractive to bats, although they could still pass through the region during migration. The likelihood of migratory bats passing through the Project Area is low. The nearest open water feature that could attract migratory bats, the Missouri River, is located far enough away (6 miles west of the Project Area) that increased bat use would not be expected. There is no suitable roosting habitat, such as forested areas and caves, within the Project Area that would provide shelter to migratory bats during daytime.

3.6 Land Use and Recreation

The Project Area is located in Burleigh County in central North Dakota, a primarily rural agricultural area located north of Bismarck and southeast of the community of Wilton. This analysis focuses on the Project Area, with a short discussion on the land uses within Burleigh County.

3.6.1 Existing Conditions

The land in Burleigh County within the Project Area boundary is primarily agricultural with scattered farmstead residences, supporting both crops and livestock grazing. The proposed Project would be located in north-central Burleigh County, 7 miles southeast of Wilton. The Project Area is adjacent to and south and east of the existing Wilton I, Wilton II, and Baldwin Wind Energy Centers (Figure 2), which have a combined total of 130 existing wind turbines. The development of the proposed Project would not displace any residents or existing or planned industrial facilities, and would have minor impacts on agricultural activities.

Wind turbines would be sited a minimum of 1,400 feet from occupied residences in Ghylin Township, a minimum of 1,400 feet from participating occupied residences in Crofte Township, and a minimum of 1,750 feet from non-participating occupied residences in Crofte Townships, in accordance with applicable wind development zoning ordinances and permits. Wind turbines will also be set back 440 feet (1.1 times turbine height) from property lines, public roadways, and existing overhead transmission lines. In Crofte Township, turbines will be set back 515 feet (1.1 times the turbine height plus 75 feet) from county or township roads specifically.

The Project Area is primarily rural agricultural land, and the proposed Project would be located entirely on privately-owned land. Wilton IV is considering entering into an agreement with the North Dakota State Land Department to construct access roads through one state-owned property in Ghylin Township. Land ownership boundaries follow the township, range, and section survey pattern, resulting in a north-south, east-west grid of mile-square sections bounded by section line roads and trails. This area of North Dakota has 66-foot-wide public road easements on all section lines, with fence lines often set back 33 feet from the section lines. Current property use is almost exclusively limited to pastures used for cattle grazing

and cultivated fields planted with corn, soybeans, sunflowers, wheat, barley, and canola. The majority of cultivated areas have drain tile systems installed to improve agricultural production. Receiving drainages have been channelized, deepened, and/or contoured to accommodate drainage system flows and to facilitate agricultural equipment crossing.

In addition to rural residences and associated farmstead facilities, developments in the Project Area include existing wind energy projects, overhead and/or underground transmission and distribution lines, and communications and meteorological towers. U.S. Highway 83 runs north-south approximately 3 miles west of the Project Area at the nearest point. The roads within the Project Area include asphalt-paved county and township roads, gravel surfaced roads, and two-track grassed farm access roads and trails, largely located on section lines.

Easements and Other Protected Lands

The USFWS has been purchasing wetland easements in the Prairie Pothole Region since 1989. Easement wetlands are part of the National Wildlife Refuge System. A wetland easement is a legal agreement that pays landowners to permanently protect wetlands. Wetlands covered by an easement cannot be drained, filled, leveled, or burned. When these wetlands dry up naturally, they can be farmed, grazed, or hayed. Wetland easements often include surrounding non-wetland areas. No signs are placed on the properties and the easement does not affect hunting or mineral rights (USFWS 2009). There are no USFWS waterfowl production areas (WPAs) or grassland easements within or adjacent to the Project Area. There are three wetland easements near the Project Area (Figure 14). They are administered by the Long Lake Wetland Management District (WMD).

The Long Lake WMD also manages four national wildlife easement refuges in the vicinity of the Project Area. The closest is Canfield Lake NWR, located approximately 4 miles to the northeast.

The Wilton Mine State Game Management Area is located north of the Project Area east of Wilton. Cross Ranch State Park, along the Missouri River, is located approximately 14 miles northwest of the Project Area.

The USDA-NRCS and Farm Service Agency (FSA) administer a number of conservation-based programs for private landowners. The Conservation Reserve Program (CRP) conserves soil and water resources and provides wildlife habitat by removing enrolled tracts from agricultural production, generally for a period of 10 years. The NRCS conservation tracts cannot be hayed, tilled, seeded, or otherwise disturbed without the authorization of the NRCS.

The number of acres enrolled can fluctuate widely as parcels are entered into the CRP, or current leases expire. Landowner participation in any of the conservation programs is partly based on agricultural commodity prices and trends; high crop prices may result in previously natural untilled areas being ‘broken’ and brought into production, while low prices may mean more land is enrolled in the CRP. Wilton IV will work with individual landowners to help identify potential impacts to land enrolled in CRP within their properties. If necessary to develop within CRP lands, only the area of the Project footprint would have to be removed from the contract; the remaining area can remain under contract.

The Project Area also includes properties that participate in the Private Land Open To Sportsmen (PLOTS) program. The NDGFD administers and regulates the PLOTS program to allow hunting access on private lands through lease agreements with landowners. The PLOTS program allows for walk-in hunting during the legal hunting season only. Activities such as horseback riding, camping, baiting, driving all-terrain vehicles (ATVs) or snowmobiles, dog training, and many others are not regulated by the PLOTS program agreement and are not allowed without landowner permission. Properties within the Project Area that participate in PLOTS occur in the northeastern portion of the Project Area in Ghylin Township (Figure 14).

3.6.2 Potential Impacts of the Proposed Project

Land use impacts would pertain to physical and operational effects of Wilton IV's proposed Project on existing and future land use. In the Project Area, these impacts are primarily related to agricultural practices. A significant impact would occur if: 1) the proposed Project resulted in the uncompensated loss of crop production; or 2) the proposed Project resulted in the foreclosure of future land uses.

There would be no impacts to land use or recreation from an increase in energy output from the Existing Projects.

While the final site layout has not yet been determined, it is anticipated that the Project would include 62 wind turbines, one substation, approximately 46 miles of underground collection line, and 24.6 miles of new access roads. Wilton IV is also seeking to obtain an easement of approximately 15 acres for laydown and contractor staging areas, which would be temporarily affected during the construction phase of the Project. Impact calculations are based on the following assumptions:

- 62 turbine pads: 0.2 acres of permanent impact during operation; an additional 0.3 acres of temporary impact during construction; 0.5 acres of total impact
- Service roads and access roads, and expanded access roads: 36 feet per linear foot of road permanent impact; an additional 14 feet per linear foot of road temporary impact;
- 50 feet per linear foot of road total impact
- Underground electrical collection lines: no permanent impact; in general the collection line temporary impacts will be 50 feet per linear foot (approximately 75 feet per linear foot on average)
- Substation: 5 acres of permanent impact
- Construction laydown area: 15 acres of temporary impact.

Based on these impact assumptions and removing overlapping facilities, it is estimated that the proposed Project would require the permanent disturbance of 116 acres and the temporary disturbance of an additional 284 acres, for a total impact of 400 acres of disturbance, or about 2.5 percent of the Project Area. The area would retain the rural sense

and remote characteristics of the vicinity in terms of land use; however, the proposed Project would add visually to the number of wind turbines already present. At the wind energy facilities in the immediate vicinity of the proposed Project, as well as other wind developments in the upper Midwest, landowners normally plant crops and/or graze livestock to the edge of the access roads and turbine pads. The access roads would be 36 feet wide and low profile, so they would be easily used by or crossed with farming equipment. Wilton IV would work closely with landowners in locating access roads to minimize land use disruptions to the extent possible. Access roads would be located to minimize impact on current or future row crop agriculture and environmentally sensitive areas. No fencing would be required by the proposed Project with the exception of the 5-acre collection substation site, although gates or cattle guards would be required where access roads would cross existing fences. Wilton IV would repair fences as needed where crossed by underground collection lines. During the construction of the wind power facilities, additional areas would be temporarily disturbed for construction laydown and staging areas and underground collection lines. Locations would be established in advance with the landowner. These areas would be graded to original contour as needed and, if appropriate, reseeded with an approved mixture of native species. The development of the proposed Project would not result in a significant change in land use. If Project facilities would be proposed for parcels enrolled in CRP, landowners would consult with the FSA to determine whether the parcel would have to be removed from the program, and if reimbursement would be necessary.

3.7 Socioeconomics and Environmental Justice

Due to limited localized data, the socioeconomic and environmental justice analysis focuses on Burleigh County as a whole.

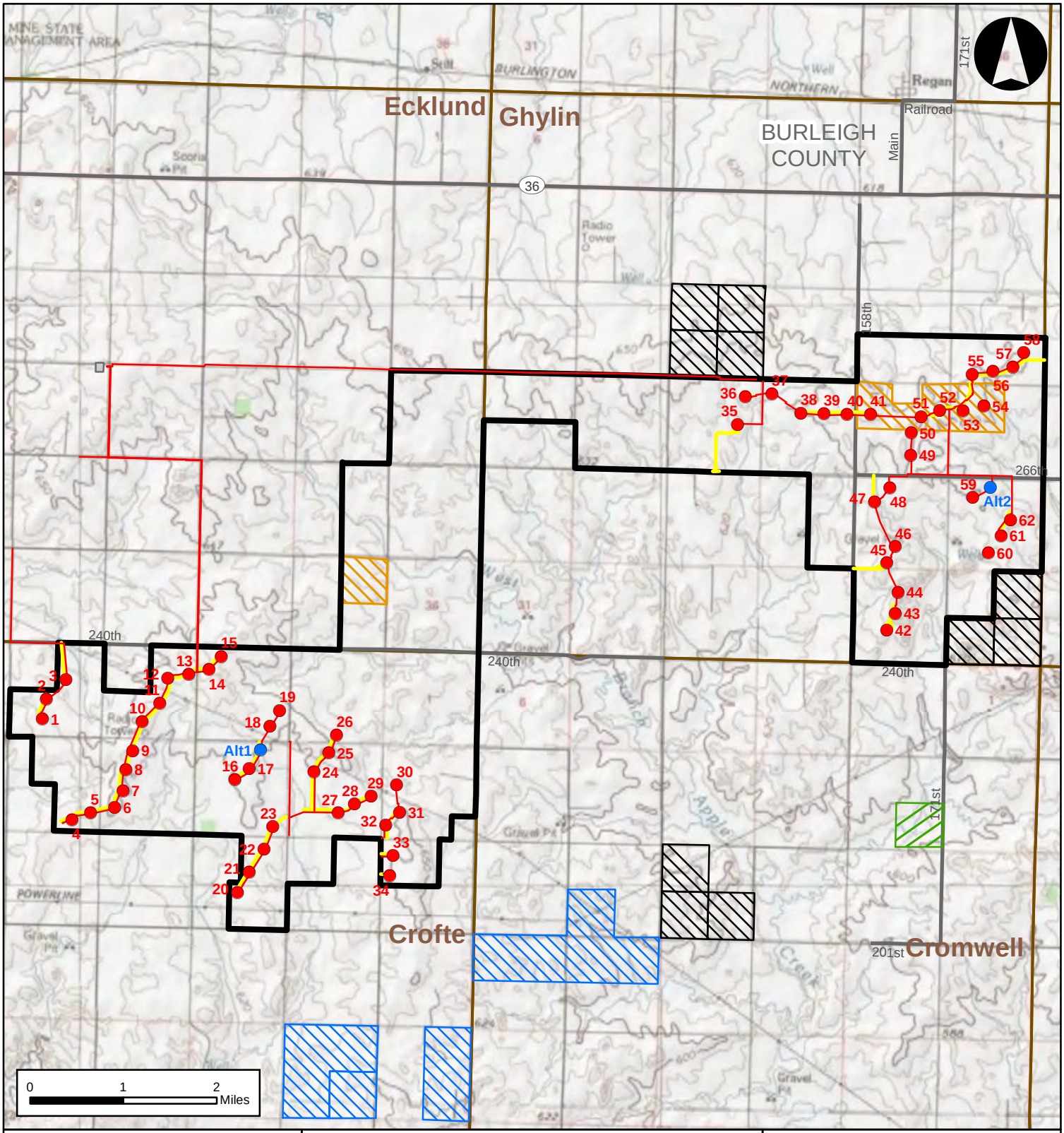
3.7.1 Socioeconomics

The proposed Project is located in Burleigh County, North Dakota, a primarily rural agricultural area located east of U.S. Highway 83 and north of Interstate 94 approximately 12 miles north of Bismarck, North Dakota. There is no indication of any new residential construction in the Project Area. The 2010 population of Burleigh County was 81,308 (U.S. Census Bureau 2011a), an increase of 17 percent from the 2000 Census count of 69,416.

The county contains 1,633 square miles of land, with a density of approximately 50 persons per square mile. The majority of the county population (75 percent) resides in Bismarck, the county seat and also the capital of North Dakota. The population density within the rural area surrounding the Project is therefore much lower than the county average at approximately 12 persons per square mile. Approximately 92 percent of the population is composed of white persons who are not of Hispanic or Latino origin. The median age of Burleigh County residents is 37.3 years. It is estimated that 13.4 percent of the county population is 65 years or older while only 6.6 percent of the population is under 5 years of age (U.S. Census Bureau 2010a).

There are several small cities and one unincorporated town near the Project Area. Wilton (2010 population 711) is located approximately 7 miles to the northwest; Regan (2000 population 43) is located approximately 2 miles to the north of the Project; and Wing (population 152), is located approximately 12 miles to the east. The unincorporated town of

Baldwin is located approximately 1 mile to the southwest; census data were not available for Baldwin.



Wilton IV Wind Energy Center

BURLEIGH COUNTY, ND

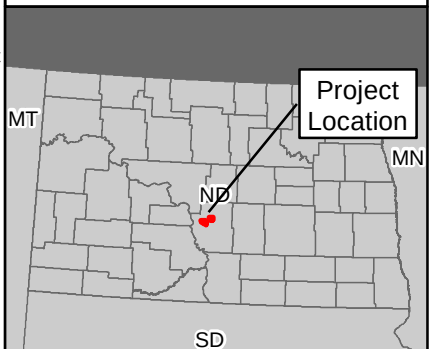
Figure 14. Public Lands and Easements

FEBRUARY 2013

- Project Area (9/28/11)
- Proposed Turbine Location (1/18/2012)
- Alternate Turbine Location (1/18/2012)
- Substation
- Collection System (10/3/11)
- Access Road (10/3/11)
- ND State Land Dept.
- USFWS Conservation Easement
- USFWS Wetland Easement
- ND PLOTS Data
- County Boundary
- Township Boundary

Source: ESRI Topo 2007, ND GIS Data Hub, ND G&F

OVERVIEW MAP



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The economy of Burleigh County is primarily tied to government jobs in Bismarck. According to the 2010 U.S. Census Bureau American Community Survey (2010b), over a quarter of the workforce worked in education, health, and social services, and another 9 percent worked in public administration. Retail trade accounts for approximately 13 percent of the jobs in the county. Per capita income estimated in 2010 was $28,350; median household income was $55,489. Approximately 9.6 percent of the county population lived below the poverty level (U.S. Census Bureau 2010b), compared to 14.3 percent nationwide (U.S. Census Bureau 2011b).

Agriculture continues to play a significant role in the county's land use and economy. In 2007, there were 1,026 farms in Burleigh County, comprising approximately 84 percent of the land area. According to the 2007 Census of Agriculture (USDA 2007), total market value of agricultural products produced in Burleigh County was $82,236,000, 62 percent of which was from crops and 38 percent from livestock sales. The primary livestock is cattle and the principal crops include wheat and forage. Sunflowers, canola, corn, soybeans, wheat, and barley are also grown.

3.7.2 Environmental Justice

The goal of environmental justice is to ensure the fair treatment and meaningful involvement of all people with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no group of people, including a racial, ethnic, or socioeconomic group, should bear a disproportionate share of potentially adverse human health and environmental effects of a Federal agency action, operation, or program. Meaningful involvement means that affected populations have the opportunity to participate in the decision process and their concerns are considered.

Executive Order (EO) 12898 was signed by President Clinton in 1994 and orders Federal agencies to identify and address "disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States" (EPA 1994).

The analysis of potential environmental justice issues associated with the proposed Project followed guidelines described in the CEQ's Environmental Justice Guidance under the National Environmental Policy Act (CEQ 1997). The analysis method has three parts: 1) the geographic distribution of low-income and minority populations in the affected area is described; 2) an assessment of whether the impacts of construction and operation of the proposed project would produce impacts that are high and adverse is conducted; and 3) if impacts are high and adverse, a determination is made as to whether these impacts would disproportionately impact low-income or minority populations.

A description of the geographic distribution of low-income and minority population groups was based on demographic data from the 2000 Census. According to the guidance (CEQ 1997), low-income populations in an affected area should be identified with poverty thresholds from the Census Bureau. The Block Group in which the Project Area is located was chosen as the environmental justice analysis area, because most of the impacts (e.g., land use, noise, and visual) would be felt there, and economic data are not available at the block level. The

Project Area is located in Block Groups 1 and 2 of Tract 115 in Burleigh County. Block Group 2 includes the area bounded by the Missouri River to the west, State Highway 14/314th Street NE to the east, State Highway 36/305th Avenue NE to the north, and 162nd Avenue NE to the south; Block Group 1 includes the rest of Burleigh County. The county as a whole and the state of North Dakota were selected as comparison areas. According to the 2000 Census, 20.6 and 10.9 percent, respectively, of the population in Block Groups 1 and 2 was below the poverty level, compared to 7.8 percent of the Burleigh County population and 11.9 percent of the state population (Table 5).

Table 5. Minority and Low-Income Populations, Census 2000

Location	Total Population	Percent Minority	Percent Below Poverty
Block Group 1 in Tract 115	879	1.9	20.6
Block Group 2 in Tract 115	601	2.8	10.9
Burleigh County	69,416	5.4	7.8
State of North Dakota	642,200	8.3	11.9

Source: U.S. Census Bureau, Census 2000, Summary File 1, Table P4 and Summary File 3, Table P87.

Minority is defined as individual(s) who are members of the following population groups: American Indian or Alaskan Native; Asian or Pacific Islander; Black, not of Hispanic origin; or Hispanic. The CEQ guidance states that minority populations should be identified where either: (a) the minority population of the affected area exceeds 50 percent or (b) the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis. For this analysis, the number of white alone, not Hispanic individuals in the analysis area was subtracted from the total population for the minority population, since the Census also includes the Native Hawaiian and Pacific Islander, Other, and Two or More Races categories. The minority population in 2000 in the analysis area was 1.9 and 2.8 percent, respectively, compared to 5.4 percent for Burleigh County and 8.3 percent in the state (Table 5).

3.7.3 Potential Impacts of the Proposed Project

Significant socioeconomic impacts would occur if the proposed Project resulted in the degradation or commitment of existing goods and services to an extent that would limit the sustainability of existing communities. With regard to EO 12898, an impact would be considered significant if a low-income, minority, or subsistence population in the region of the proposed Project was disproportionately affected by the proposed Project.

There would be no socioeconomic impacts from an increase in output from the Existing Projects.

A recent case study evaluated the socioeconomic impacts of a wind energy facility constructed in 2007 and 2008 in Cavalier County, northeastern North Dakota (Leistritz and Coon 2009). The study authors felt that the project area was typical of Great Plains communities where many similar wind energy projects are being constructed. Leistritz and Coon (2009) found that the 159-MW project resulted in a peak workforce of 269 workers during construction, 10 permanent jobs, and $1.4 million in annual expenditures to local

businesses and households. This includes payments to landowners totaling $413,000 the first year, annual local property taxes to the county and school district, and direct payments for wages and materials in Cavalier County and adjacent counties. Table 6 summarizes the economic impacts from the construction and operation of the project.

Table 6. Economic Impacts of Wind Project in Cavalier County, ND

Impact	Construction (one time) in Millions of Dollars	Operation (annual) in Millions of Dollars
Direct	$56.4	$1.4
Secondary (indirect and induced)	$169.3	$3.0
Total	$225.7	$4.4

During construction, temporary housing in Cavalier County was full, and local service businesses (hotels, restaurants, etc.) experienced a short-term increase. An increase in traffic on local roadways during shift changes was noticeable. There was little or no impact to public services, as only 5 percent of the construction workers brought their families, and most of the long-term jobs were filled locally. There were no added costs to the county, school district, or State. The increase in property taxes to the school district and the county were largely due to payments from the project, but also due to an anticipated increase in residential and property values (Leistriz and Coon 2009).

On a per-MW basis, the project's economic impacts were: $8,900 in local expenditures during construction; $2,600 per year in landowner payments; and $2,900 per year in property taxes. Project-specific impacts would vary based on the local availability of materials, services, and labor.

The public has expressed concerns over potential devaluation of property in and adjacent to proposed wind projects, and studies have come to varying conclusions on the impact of wind development on home value. A study published in October 2002, "Economic Impacts of Wind Power in Kittitas County, Final Report," conducted by Dr. Stephen Grover of ECONorthwest of Portland, Oregon, summarized survey results as follows:

> "Views of wind turbines will not negatively impact property values. Based on a nationwide survey conducted of tax assessors in other areas with wind power projects, we found no evidence supporting the claim that views of wind farms decrease property values" (Grover 2002, p.2).

Sterzinger et al. (2003) analyzed the effect of 10 wind projects built during the period 1998 to 2001 on housing sale prices. The study used a hedonic statistical framework that attempts to account for all influences on change in property value and used evidence of 25,000 property sales, both within view of recent wind developments and in a comparable region with no wind projects, before and after project construction. The results of the study indicate that were no negative impacts on property values, and in some cases, property values increased for properties with view of turbines.

In 2009, the Lawrence Berkeley National Laboratory completed a study on the impact of wind power projects on residential property values in the United States (Hoen et al. 2009). The study found that neither the view of wind facilities nor the distance of homes to those facilities is found to have any consistent, measurable, and statistically significant effect on sales prices. The study consisted of a hedonic analysis of transaction data from 10 study areas surrounding 24 wind facilities in 9 states that became operational through the end of 2005. The total study sample consisted of 7,459 sales transactions that were evaluated with various models and using data subsets based on distance to turbines, timing of sale in relation to timing of wind project announcement and construction, and view of turbines from the site. Visibility of turbines, existing amenities, and other information was also collected during field visits to the residences over the course of the 3-year study period. The analysis found that home sales prices are very sensitive to the overall quality of the scenic vista from a property, but that a view of a wind energy facility did not demonstrably impact sales prices.

The results of the study indicate that while the possibility exists that individual homes have been or could be impacted, if these impacts do exist, they are either too small and/or too infrequent to result in widespread, statistically observable impacts. The study did not find evidence that prices of sales occurring after construction of the facility for homes within a mile of the nearest wind turbine are affected and found some evidence that sales occurring prior to construction are affected. Notably, the study was not able to obtain information on whether turbine easement payments or neighbor agreements were in place at any of the projects in the study sample. Such mitigation measures have become more common and create a socioeconomic benefit that is not factored into the study results.

A study conducted by Appraisal Group One examined the effects on property values of three wind farms in two counties in Wisconsin. The study was composed of three parts: a literature study, an opinion survey of area realtors, and sales studies comparing residential lot sales near the wind farms and comparable lots outside the wind farms. Specifically for properties 1-5 acres in size within 1,000 to 2,640 feet from wind turbines, the negative impact on property values was between 24 and 29 percent (Appraisal Group One 2009).

More recently, another hedonic study completed in July 2011 found that wind farms reduced the value of nearby real estate in two Northern New York counties, but not in a third (Heintzelman and Tuttle 2011). The authors collected data from 11,331 residential and agricultural property transactions over nine years from Clinton, Franklin and Lewis counties. They found that in some of the cases in New York, nearby wind facilities significantly reduced property values. Decreasing the distance to the nearest turbine to 1 mile results in a decline in price of between 7.73% and 14.87%. According to the report, “Overall, the results of this study are mixed as regards the effect of wind turbines on property values.”

The available literature also indicates that every case is unique, however, so it is not possible to determine with certainty if this particular proposed Project would have positive, negative, or neutral impacts on property values. Properties with wind energy developments would be expected to increase in value, due to the guaranteed revenue stream from the turbine leases. Al Vietmeier, Tax Equalization Director and County Assessor for Burleigh County, recently re-assessed property values in Ecklund Township in the spring of 2012. The value for most of

the properties increased because they were generally so low before, and because of the booming statewide economy. He stated that there are not a lot of sales data for this area, so it would be difficult to draw conclusions on the effects of wind turbines on nearby properties, but that he has not yet taken that into account as part of his assessment. Generally, properties in these areas are assessed based on the distance from Bismarck, location in relation to maintained roads, and agricultural production value (Vietmeier pers. comm. 2012).

The proposed Project would have positive economic impacts for the local population, including lease and royalty payments for participating landowners, employment, and property and sales tax revenue. Up to 116 acres (less than 1 percent) of the total Project Area would be permanently affected due to conversion to turbine sites, access and service roads, and substation. Landowner compensation would be established by individual lease agreements, and would be anticipated to total over $600,000 annually. Annual property tax payments to local entities would be an estimated $200,000. Agricultural activities would continue in areas surrounding each wind turbine, and landowners would only lease properties for the proposed Project while retaining ownership of their land. In addition, in an environment of uncertain and often declining agricultural prices and yields, the supplemental income provided to landowners from wind energy leases would provide stability to farm incomes and thus help assure the continued viability of farming in the Project Area.

The proposed Project is expected to create up 2 full-time permanent jobs and up to 125 peak construction jobs. To the extent that local contractors are used for portions of the construction, total wages and salaries paid to contractors and workers in Burleigh County would contribute to the total personal income of the region. Additional personal income would be generated for residents in the county as well as the state by circulation and recirculation of dollars paid out by Wilton IV as business expenditures and State and local taxes. Expenditures made for equipment, energy, fuel, operating supplies and other products and services would benefit businesses in the county.

It is likely that general skilled labor is available in Burleigh County to serve the basic infrastructure and site development needs of the Project. Specialized labor would be required for certain components of wind farm development, such as experienced wind turbine constructors. Technical personnel from the turbine manufacturer would also be expected to be on-site for some period of time after commissioning. It is likely that this labor would be imported from other areas of the State or from other states, as the relatively short duration of construction does not warrant special training of local or regional labor.

No effects on permanent housing are anticipated. During construction, out-of-town laborers would likely use lodging facilities in and around Burleigh County, particularly Bismarck. Operation and maintenance of the facility would require few laborers. Sufficient permanent housing is available within the county to accommodate these laborers.

Local businesses such as motels, restaurants, bars, gas stations, and grocery stores would likely experience some increase in revenue resulting from new employment of the non-resident portion of Project construction crews. In particular, the consumption of goods, services, and temporary lodging in and near Bismarck, Wilton, and surrounding cities could be expected to minimally increase due to the presence of these non-local workers. Other

local area businesses that may benefit through increased sales would likely include ready-mix concrete and gravel suppliers, hardware and general merchandise stores, welding and machine shops, packaging and postal services, and heavy equipment repair and maintenance services.

This relatively small increase in demand for local goods and services would be minimal due to the small size of the non-local workforce and the short-term nature of the construction phase of the proposed Project. For the same reasons, the effects to infrastructure such as schools, hospitals, housing, and utilities would also be minimal.

While the proposed Project would be capable of generating electricity to power over 24,000 homes in the region, it would not produce significant air or water pollution, would have minimal water use, and would allow most of the land in the Project Area to remain in agricultural use.

With regard to environmental justice, there is no indication that any minority or low-income population is concentrated in any one area of the Project Area, or that wind turbines would be placed in an area occupied primarily by any minority group. Although the Project Area block groups do have a higher percentage of persons below the poverty level compared to the county, the proposed Project would have positive economic impacts. The proposed Project would be developed on the properties of willing landowners, who would benefit from long-term lease payments. Other anticipated impacts from the proposed Project have not been identified as high and adverse, as required by the third factor of the CEQ Environmental Justice Guidance, so no population would be disproportionately affected by the Project. The proposed Project would not have significant socioeconomic impacts.

3.8 Visual Resources

This section evaluates the existing visual setting in the vicinity of the proposed Project. The analysis of the visual study area included areas within and adjacent to the Project Area from which a person may be able to observe changes to the visual landscape resulting from development of the proposed Project.

Scenic quality is determined by evaluating the overall character and diversity of landform, vegetation, color, water, and cultural or manmade features in a landscape. Typically, more complex or diverse landscapes have higher scenic quality than those landscapes with less complex or diverse landscape features.

Visual sensitivity is dependent on viewer attitudes, the types of activities in which people are engaged when viewing the site, and the distance from which the site would be seen. Overall, higher degrees of visual sensitivity are correlated with areas where people live, are engaged in recreational outdoor pursuits, or participate in scenic or pleasure driving. Lesser degrees of viewer sensitivity are anticipated for people living further away, landowner hosts, workers who construct or maintain the projects, or people who are just transiting through the area.

3.8.1 Existing Conditions

The visual setting of the proposed Project Area consists primarily of agricultural land and existing wind energy facilities. The Project Area lies in a rural location with farming, livestock grazing, and related agricultural operations dominating land use. There are existing wind turbines to the north and west of the Project Area, and the wind turbines are the dominant component of the visual landscape where they are visible. The visual resources of the area are neither unique to the region nor entirely natural.

Structure and color features in the visual region of influence include those associated with wetlands, cultivated cropland, pasture, forested shelterbelt, and additional human-caused features described above. Colors vary seasonally and include green crop and pasture land during spring and early summer, green to brown crops and pasture during late summer and fall, brown and black associated with fallow farm fields year round, and white and brown associated with late fall and winter periods.

Key observation points (KOPs) are viewing locations that represent the location of the anticipated concentration of sensitive viewers (or the highest incidence of sensitive viewers) near the proposed Project. KOPs for the proposed Project include occupied residences within the Project Area and roadways such as U.S. Highway 83 (located west of the Project Area), State Highway 36/305th Ave NE (located north of the Project Area), 106th Street NE (located between both portions of the Project Area), and 201st Avenue NE (located south of the Project Area). Residences were identified via a desktop study and then ground-truthed in the field to determine occupancy. Residences out to 5,000 feet were inventoried.

Currently, no distinctive landscape features exist in the Project Area that would require specific protection from visual impairment. Existing views are primarily agricultural activity, undeveloped land, existing wind farm facilities, and vehicles traveling on U.S. Highway 83; State Highway 36; and low-traffic gravel roads such as 201st Avenue. The principle viewers include the 35 occupied residences in the vicinity of the Project Area (17 of which are not participating in the Project), as well as travelers on the aforementioned roadways.

North Dakota (ND) Routes 1804 and 1806, on the eastern and western side, respectively, of the Missouri River, are designated Lewis and Clark auto tour routes. The route is a network of roads that generally tracks the Lewis and Clark National Historic Trail and provides vistas as well as historic markers. The closest point along the route is located over 6 miles west of the Project Area.

3.8.2 Potential Impacts of the Proposed Project

Significant impacts to visual resources would occur if the proposed Project would interrupt a unique viewshed from a KOP. There would be no new visual impacts from an increase in output from the Existing Projects.

Wind turbines and access roads would result in changes to some public views. Given the location of the proposed substation being located next to the Existing Facility substation, impacts from the substation itself would be minor. The uppermost portion of the turbine blades would reach almost 400 feet above ground surface and could be visible for up to

several miles. With the presence of the Existing Facilities, the addition of the proposed Project would not change the current visual character of the area to any substantial degree. Some of these structures would likely be visible from all of the identified KOPs. Some of the turbines would require flashing lights for aircraft safety, which would change views from the KOPs at night. Visual effects would decrease as the distance from the proposed Project increases.

In general, significant impacts to visual resources would not be anticipated. As discussed, the proposed Project is adjacent to existing wind energy developments, and would add 62 wind turbines in an area that already hosts 130 existing turbines. Impacts on visual resources within the Project Area were determined by considering the post-construction views from the KOPs, as discussed above. The Project Area does not contain any highly distinctive or important landscape features or unique viewsheds. There are no visual quality standards in place in Burleigh County.

However, as stated at the start of this section, viewer attitudes are a factor in determining the visual impact on each individual, and individual attitudes can vary widely. Comments collected during the scoping process for this EIS ranged from total support of the proposed Project to a few extremely strong negative comments from nearby non-participating residents. The Public Meeting Scoping Report is available online at: http://www.wapa.gov/ugp/Environment/EnvWiltonIV-EIS.htm.

A landowner might look at a wind turbine and view it extremely favorably; any visual impact would be more than offset by the reliable income stream the turbine would represent. That landowner's neighbor may detest the 'industrialization' of their view by the same turbine. Other individuals have found operating wind turbines mesmerizing and calming, while still others have had no strong reaction one way or the other. As a rule, pro-development people, renewable energy supporters, and landowners with leases would be expected to have few visual impact issues, while those who are generally opposed to change, who live closest to a turbine site, or who place high values on the rural character of the area may feel the proposed Project would have extremely high visual impact. Using traditional methods of visual impact assessment, the proposed Project would not overall result in significant visual impacts. However, Western acknowledges that some area residents strongly believe that the Project would have significant visual impact on them.

In the vicinity of the proposed Project, the Lewis and Clark National Historic Trail auto route corresponds with ND Route 1804, on the eastern side of the Missouri River, and ND Route 1806, on the western side of the Missouri River. At its closest, ND Route 1804 is more than 6 miles from the nearest Project element; ND Route 1806 is located even further from the Project. While the Project and other existing wind farms in the area would be visible from certain points along the Trail, the addition of these elements, at distances of 6 miles and greater, into the already modern landscape would not be expected to diminish a visitor's experience of the Trail. The visual impacts on the Trail and on historic resources within 1 mile of the Project Area are discussed further in Section 3.12.

If the administrative 50 average annual MW production cap on the Existing Projects is removed, the visual impacts would be negligible. The Existing Projects currently have less

than a five percent chance of being required to shut down at the end of the year if they exceed the cap; this minor chance would be eliminated if the cap is removed.

Shadow Flicker

A wind turbine's moving blades can cast a moving shadow on locations within a certain distance of a turbine. These moving shadows are called shadow flicker, and can be a temporary phenomenon experienced by people at nearby residences or public gathering places. The impact area depends on the time of year and day (which determines the sun's azimuth and altitude angles) and the wind turbine's physical characteristics (height, rotor diameter, blade width, and orientation of the rotor blades). Shadow flicker generally occurs during low angle sunlight conditions, typical during sunrise and sunset times of the day. Shadow flicker intensity for receptor-to-turbine distances beyond 1,500 meters (4,921 feet) is very low and generally considered imperceptible. Shadow flicker intensity for receptor-to-turbine distances between 1,000 and 1,500 meters (between 3,281 and 4,921 feet) is also low and considered barely noticeable. At this distance shadow flicker intensity would only tend to be noticed under conditions that would enhance the intensity difference, such as observing from a dark room with a single window directly facing the turbine casting the shadow.

The Epilepsy Action (working name for the British Epilepsy Foundation) states that there is no evidence that wind turbines can cause seizures (Epilepsy Action 2008). However, they recommend that wind turbine flicker frequency be limited to 3 hertz (Hz). Since the proposed Project's wind turbine blade pass frequency is approximately 0.9 Hz (less than 1 alternation per second), no negative health effects to individuals with photosensitive epilepsy are anticipated.

Shadow flicker impacts are not regulated in applicable State or Federal law, and there is no permitting trigger with regard to hours per year of anticipated impacts to a receptor from a wind energy project. Due to the significant growth of the wind energy industry in recent years, some states have published model guidelines or bylaws for local governments to adopt or modify at their own discretion which sometimes includes guidance and recommendations for shadow flicker levels and mitigation. However, a general precedent has been established in the industry both abroad and in the United States that fewer than 30 hours per year of shadow flicker impacts is acceptable to receptors in terms of nuisance. In German court case for example, a judge found 30 hours of actual shadow flicker per year at a certain neighbor's property to be tolerable (WindPower 2003). Crofte Township adopted a standard of 30 hours per year as the maximum level of shadow-flicker exposure for non-participating occupied residences within one mile of a turbine; there are no shadow flicker requirements for turbines in Ghylin Township. Wilton IV will also provide commercially reasonable efforts to remedy shadow flicker complaints from any non-participating owners of an occupied residence with a window view of a turbine on a case-by-case basis by undertaking measures such as trees or vegetation plantings, awning installations or providing light blocking curtains or shades; there are 17 non-participating occupied residences in the Project area.

A shadow flicker analysis was conducted for the proposed Project (Tetra Tech 2012c, available online at: http://www.wapa.gov/ugp/Environment/EnvWiltonIV-EIS.htm). Since the

Project is using a minimum turbine siting setback requirement of 427 meters (1,400 feet) from occupied residences in Ghylin Township, 427 meters (1,400 feet) from participating occupied residences in Crofte Township, and 533 meters (1,750 feet) from non-participating residences in Crofte Township, sensitive receptors (occupied residences) are generally not located in the worst case potential shadow flicker impact zones, which ensures that shadow flicker impacts are minimized. A total of 84 sensitive receptor locations were identified in the vicinity of the Project Area. These locations correspond to houses or other structures in the Project Area. Of the 84 identified, 35 are occupied residences. Of the 84 receptor locations identified within approximately 1 mile of the proposed Wilton IV turbines, two occupied residences had expected shadow flicker impacts predicted for more than 30 hours per year (just under 37 hours and just over 32 hours); both are Project participants. Results from the cumulative shadow flicker analysis are discussed in Section 3.14.

Because the cumulative shadow flicker analysis for the proposed Project and Existing Projects assumed full operation of turbines based on wind speed and without regard for any administrative cap on MW produced, there would be no additional impacts from an increase in energy output for the Existing Projects.

The analysis of potential shadow flicker impacts from the Project on nearby receptor locations shows that shadow flicker impacts within the area of study are not expected to be significant. The analysis assumes that the houses all have a direct in line view of the incoming shadow flicker sunlight and does not account for trees or other obstructions which may block sunlight.

The potential effects of shadow flicker on wildlife are unknown. Anecdotal observations suggest that birds may perceive passing turbine shadows as the shadows of avian predators (hawks, owls, falcons and eagles) passing overhead. However, these observations are limited by the lack of scientific study.

Blade Glint

Blade glint occurs when sunlight reflects off of the turbine blades and into a person's eye. However, the blades on the turbines proposed for Wilton IV would be coated with a low reflectivity treatment that prevents reflective glint from the surface of the blade. Therefore, the risk of blade glint is low.

3.9 Noise

At the State level, the NDAC (Article 69-06-08, Section 3) requires that the potential for adverse impacts at noise sensitive receptors be assessed during the site selection process. However, there are no numerical decibel limits or explicit definitions of the locations of compliance given either by the North Dakota PSC or any other agency at the State level. Wilton IV would employ appropriate environmental noise criteria such as the guidelines provided by the EPA and the generally accepted average noise impact threshold level for wind turbines of less than 48.6 A-weighted decibels (dBA) at any residence, day or night. Additionally, Wilton IV will adhere to the Crofte Township noise limits for turbines in Crofte Township; there is no comparable ordinance that applies to turbines in Ghylin Township but the EPA guideline of 48.6 dBA was used. The Crofte Township ordinance states that sound levels from wind turbines within 100 feet of any non-participating residence shall not exceed

45 dBA (Leq). Therefore, sound levels within 100 feet of all non-participating receptors located in Crofte Township were assessed against the 45 dBA limit.

The National Safety Council (NSC) recommends no more than 85 dBA for 8 hours of exposure as the safe limit for farm operations. Industrial standards of the Occupational Safety and Health Administration (OSHA) regulations would apply to those involved in the construction, operation, and maintenance of the facilities. OSHA permissible noise exposures are shown in Table 7.

Table 7. OSHA Permissible Noise Standards

Duration (number of hours per day)	Sound Level (dBA)
8.0	90
6.0	92
4.0	95
3.0	97
2.0	100
1.5	102
1.0	105
0.5	110
0.25 or less	115

3.9.1 Existing Conditions

Noise is generally defined as unwanted or excessive sound. Some land uses are considered more sensitive to intrusive noise than others due to the type of activities typically involved at the receptor location. Specifically, sensitive human noise receptors normally include residences, schools, libraries, religious institutions, hospitals and nursing homes, daycare centers, and other businesses.

The Project Area is located in a rural, predominantly agricultural area, with the existing wind turbines of the Existing Projects. As a result, sources of background noise to rural residents and occasional visitors to the area include wind; agricultural activity; recreation (primarily hunting); vehicles traveling on U.S. Highway 83, State Highway 36, and low-traffic gravel roads such as 266th Avenue, 52nd Street, 93rd Street, and 132nd Street; wind turbines; bird and insect noises; and occasional aircraft. Typical baseline noise levels in the Project Area likely range from approximately 38 average day-night sound levels measured in dBA to 48 dBA (EPA 1978). Potential noise receptors in the vicinity of proposed facilities include scattered rural residences. Wilton IV has utilized the Ghylin and Crofte setbacks in designing the turbine layout in this locality, and as a result, turbines are located a minimum of 1,400 feet from occupied residences.

Burleigh County would generally be characterized as a rural agricultural land-use area, and existing ambient sound levels are expected to be relatively low, although sound levels may be sporadically elevated in localized areas due to roadway noise or periods of human activity. Background sound levels would vary both spatially and temporally depending on proximity to

area sound sources, roadways, and natural sounds. In addition to the existing wind farms, other principal contributors to the existing acoustic environment likely include motor vehicle traffic; farming equipment; farming activities such as plowing, harvesting, and irrigation; ATVs; local roadways; rail movements; periodic aircraft flyovers; and natural sounds such as birds, insects, and leaf or vegetation rustle, especially during elevated wind conditions in areas with trees or crops. As proven by the development of other wind farms in the area, this area is subject to high winds; therefore, natural wind noise would also be a contributing factor to sound levels. Diurnal effects result in sound levels that are typically quieter during the night than during the daytime, except during periods when evening and nighttime insect noise dominates in warmer seasons or when higher winds are present at night.

In areas with elevated background sound levels, sound may be obscured through a mechanism referred to as acoustic masking. Seasonal effects such as cricket chirping, certain farming activities, and especially wind-generated ambient noise as airflow interacts with foliage and cropland, contribute to this masking effect. The latter is most pronounced in rural and suburban areas with established tree stands. Wintertime defoliate conditions typically have lower background sound levels due to lower wind masking effects and reduced outdoor activities in colder climates. Also, newly fallen snow tends to absorbs sounds due to the trapped air between individual snow crystals. During colder seasons, people typically exhibit lower sensitivities to outdoor sound levels, particularly in this geographical region of the United States where windows are typically closed and limited time may be spent outdoors. Other factors that further enhance outdoor to indoor noise transmission losses as compared to more temperate climates include installation of storm windows, increased indoor noise levels from furnace operations, and use of seasonal insulation consisting of plastic film placed over windows.

3.9.2 Potential Impacts of the Proposed Project

Significant impacts would occur if the proposed Project results in noise levels in exceedance of local or national standards (whichever standard is more stringent). An engineering analysis was developed to address sound levels resulting from wind turbine operations, as well as the consideration of sound from the electrical substation and sound generated during Project construction and maintenance activities (Tetra Tech 2012d, available online at: http://www.wapa.gov/ugp/Environment/EnvWiltonIV-EIS.htm). Because the cumulative acoustic analysis for the proposed Project and Existing Projects assumed that the turbines are continuously operating, there would be no additional noise impacts from an increase in energy output at the Existing Projects.

Sound generated by an operating wind turbine is comprised of both aerodynamic and mechanical sound, with the dominant sound component from utility scale turbines being largely aerodynamic. Aerodynamic sound refers to the sound produced from air flow and the interaction with the turbine tower structure and moving rotor blades, while mechanical sound is generated at the gearbox, generator, and cooling fan, and is radiated from the surfaces of the nacelle and machinery enclosure and by openings in the nacelle casing. Wind farms, in comparison to conventional energy facilities, are somewhat unique in that the sound generated by each individual turbine will increase as the wind speed across the site increases. Wind turbine sound is negligible when the rotor is at rest, increases as the rotor tip

speed increases, and is generally constant once rated power output and maximum rotational speed are achieved.

The acoustic modeling analysis employed the most recent version of DataKustic GmbH's CadnaA, the computer-aided noise abatement program (v 4.2.140). CadnaA is a comprehensive 3-dimensional acoustic software model that conforms to the Organization for International Standardization (ISO) standard ISO 9613-2 "Attenuation of Sound during Propagation Outdoors." The engineering methods specified in this standard consist of full (1/1) octave band algorithms that incorporate geometric spreading due to wave divergence, reflection from surfaces, atmospheric absorption, screening by topography and obstacles, ground effects, source directivity, heights of both sources and receptors, seasonal foliage effects, and meteorological conditions.

Topographical information was imported into the acoustic model using the official USGS digital elevation dataset to accurately represent terrain in three dimensions. Terrain conditions, vegetation type, ground cover, and the density and height of foliage can also influence the absorption that takes place when sound waves travel over land. The ISO 9613-2 standard accounts for ground absorption rates by assigning a numerical coefficient of G=0 for acoustically hard, reflective surfaces and G=1 for absorptive surfaces and soft ground. A mixed (semi-reflective) ground factor of G=0.5 was used in the acoustic modeling. In addition to geometrical divergence, attenuation factors include topographical features, terrain coverage, and/or other natural or anthropogenic obstacles that can affect sound attenuation and result in acoustical screening. Sound attenuation through foliage and diffraction around and over existing anthropogenic structures such as buildings were ignored under all acoustic modeling scenarios.

In order to assist project developers and acoustical engineers, wind turbine manufacturers report turbine sound power data at integer wind speeds referenced to the effective hub height, ranging from cut-in to full rated power. Wind turbine operation was analyzed for the Project layout dated January 18, 2012, which employed the GE 1.6-100 MW turbine model and the substation located in Section 20, Township 142 North, Range 79 West. Acoustic modeling was completed at both wind turbine cut-in and maximum rotational conditions, inclusive of the entire range of future Project operational conditions. Project compliance was assessed at a total of 84 receptors near the Project Area, 48 of which were determined to be not currently in use for residential purposes (Swenson Hagen 2011). Acoustic modeling was also conducted to determine sound emissions for the Project electrical collection substation operation. The noise modeling results indicated that the received sound levels are all below the most stringent EPA guideline at all non-participating (i.e., receptors located outside of the Project boundary) occupied residences. The highest modeled sound level for an occupied residence was 47 dBA, which belongs to a participating landowner (Tetra Tech 2012c). All non-participating receptors are in compliance with the Crofte Township 45 dBA limit. Results from the cumulative acoustic analysis that includes the Wilton I, II, and Baldwin Wind Energy Centers are discussed in Section 3.14.

Substations with transformer sizes of 10 to 150 MVA can present a noise concern if the separation distance is less than a few hundred feet between the transformer and noise

sensitive receptors. In very quiet rural areas where the nighttime ambient acoustic environment can reach levels of 20 to 25 dBA under calm wind conditions, the sound generated from transformers of this size may be periodically audible at distances of half a mile or greater. Therefore, the transformer may be periodically audible at the nearest residences on infrequent occasions when background sound levels are very low (Tetra Tech 2012d). The transformer 'hum' would be similar to that produced by the existing two substations, which have not been found objectionable. The closest occupied structure to the proposed substation location (fence line) is approximately 3,000 feet.

Construction of the proposed Project may cause short-term but unavoidable noise impacts. The sound levels resulting from construction activities vary significantly depending on several factors such as the type and age of equipment, the specific equipment manufacturer and model, the operations being performed, and the overall condition of the equipment and exhaust system mufflers. Sounds generated by construction activities are typically exempt from State and local noise oversight provided that they occur within weekday, daytime periods as may be specified under local zoning or legal codes. Wilton IV would make all reasonable efforts to minimize the impact of noise resulting from construction activities.

Construction activity would generate traffic having potential noise effects, such as trucks travelling to and from the site on public roads. At the early stage of the construction phase, equipment and materials would be delivered to the site, such as hydraulic excavators and associated spreading and compacting equipment needed to construct access roads and foundation platforms for each turbine. Once the access roads are constructed, equipment for lifting the towers and turbine components would arrive. Traffic noise is categorized into two categories: 1) the noise that would occur during the initial temporary traffic movements related to turbine delivery, haulage of components, and remaining construction; and 2) maintenance and ongoing traffic from staff and contractors, which would be expected to be minor. No significant noise impacts are anticipated from these activities.

Research into the effects of noise on wildlife has generally focused on very loud, intermittent disturbance (e.g., aircraft fly-overs or weapons testing). Although it is likely that construction activity would result in short-term disturbance of wildlife, it would be difficult to assess whether the disturbance comes from the noise of construction activities or the activities themselves (e.g., construction vehicles moving along roads). As the activity is short-term, the impacts are also expected to be short-term.

Wind manufacturers and developers have used past experience in order to minimize wind turbine mechanical noise emissions through use of enhanced noise damping materials within the nacelle, including elastomeric elements supporting the generator and gearbox. However, the potential disturbance resulting from exposure to wind turbine noise, as would be experienced by terrestrial wildlife in the vicinity of an operational wind energy facility is unclear.

There are few studies specifically focused on the noise effects of wind energy facilities on birds, bats, and other wildlife, although scientific evidence regarding the effects of other noise sources—such as traffic and natural gas compressor stations—suggest that anthropogenic noise can impact animal behavior, communication, and reproduction (Barber et al. 2009).

Response to noise disturbance cannot be generalized across species or among genuses, however (Larkin et al. 1996). There might even be response differences among individuals or groups of individuals of the same species. An animal's response to noise can depend on a variety of factors including noise level, duration, variation over time, rate of onset, time of year, time of day, animal activity and location, age and sex class, and past exposure/experience. Operational wind turbine noise is generally considered low-level noise. Some literature on industrial sound sources suggests that animals might temporarily avoid an area until they become familiar with or acclimatized to the sound source.

3.10 Transportation

The analysis area for transportation impacts is the area delineated by roadways adjacent to the Project Area. These roadways have been identified as U.S. Highway 83 (located west of the Project Area), State Highway 36 (located north of the Project Area), 201st Avenue (located south of the Project Area), and 197th Street (located east of the Project Area).

3.10.1 Existing Conditions

The Project Area is located east of U.S. Highway 83 and south of State Highway 36. U.S. Highway 83 has a junction with Interstate 94 approximately 10 miles south of the Project Area. Several section line county and township roads lie within or near the Project Area. All of these roads have gravel surfaces and support a low volume of traffic. Motor vehicle traffic along the majority of roads within the vicinity of the Project Area is considered light, with low speed and low volume. Existing traffic volumes on the area's major roadways are documented in Table 8. No vehicle count data are available for the county and township roadways in the Project Area.

Table 8. Existing Daily Traffic Levels

Roadway Segment	Existing Average Annual Daily Traffic (AADT)/ Commercial Truck Traffic
U.S. Highway 83 through Wilton	6,835/820
U.S. Highway 83 west of Wilton	7,110/825
U.S. Highway 83 south of Wilton	7,550/800
State Highway 36 south of Wilton	475/50
State Highway 36 west of State Highway 14 near Regan	315/45
State Highway 36 south of State Highway 14 near Regan	280/45
State Highway 14 north of State Highway 36 near Regan	305/30
State Highway 14 south of State Highway 36 near Regan	430/80

Source: 2010 Traffic Volumes (NDDOT 2010).

3.10.2 Potential Impacts of the Proposed Project

Significant impacts would occur if: 1) the proposed Project resulted in the permanent disruption of regional and local traffic; or 2) the proposed Project resulted in damage to or destruction of existing transportation infrastructure.

There would be no impacts to transportation from an increase in output from the Existing Projects.

Construction of the proposed Project would temporarily increase traffic on local roads to the Project Area, possibly causing temporary impacts to local traffic flow while equipment is hauled to the site. There are several roads adjacent to the Project Area in which construction-related traffic would be concentrated. Construction-related vehicles would likely use State Highway 36 to access the wind turbines in Ghylin Township, as they access the Project Area off of U.S. Highway 83. Construction-related vehicles would likely access the turbines in Crofte Township by 201st Ave NE. The construction company hired to build the proposed Project would obtain any necessary permits for transporting equipment.

Construction activities associated with the proposed Project would use the existing section line roads whenever possible. The proposed Project would include approximately 25 miles of access roads associated with the turbines. These roads would be constructed to assist with access and maintenance of the proposed facilities.

Operation of the Project is not expected to result in any significant traffic issues on the area highways or State roads because there would be only a minor increase in traffic (only a few vehicles per day). In addition, the necessary permits would be obtained and safety protocols would be implemented. Wilton IV would coordinate with local law enforcement to provide periodic traffic control and other services for enhanced public safety and security.

3.11 Safety and Health Issues

There are several different topics covered under safety and health, and the analysis area varies. For air traffic safety, the analysis area is 6 nautical miles. Separate studies were conducted for Federal and non-Federal telecommunication interference. For electromagnetic fields and hazardous materials, the analysis area is the Project Area (Figures 3–4).

3.11.1 Existing Conditions

Air Traffic

There are three private airports and no public airports within 6 nautical miles of the Project Area. Nautical miles are the standard measure for aviation; 1 nautical mile is equal to 1.15 statute miles. The Spitzer Airport (FAA ID ND80) is located 0.8 nautical mile northwest of the Project Area near Baldwin, North Dakota. It is privately owned and permission is required prior to landing (AirNav 2011). There is no control tower. The Diamond Strip Airport (FAA ID 4NA4) is located 0.5 nautical mile west of the Project Area. The Ghylin Airport (FAA ID 5NA3) is located 5 nautical miles northeast of the Project Area near the town of Regan (Ventyx 2011). The nearest airport certified for commercial carrier operations is the Bismarck Municipal Airport (FAA ID BIS), located 3 nautical miles southeast of Bismarck and approximately 18 nautical miles south of the Project Area.

Telecommunication Interference

Wind turbines can cause loss of detection, false alarms, and corrupt data for primary and weather surveillance radar. This is a concern for air traffic control, the Department of Defense (DOD), Department of Homeland Security (DHS), FAA, and for weather radar. The potential

impacts to NEXRAD (next generation weather radar) area are greatest within 10 nautical miles of a radar unit. Non-Federal beam paths (microwave beam paths) can also occasionally be impacted.

Electromagnetic Fields

The term electromagnetic fields (EMF) refers to electric and magnetic fields that are present around any electrical device. Electric fields arise from voltage, or electrical charges, and magnetic fields arise from current, or the flow of electricity that travels along transmission lines, power collection lines, substation transformers, house wiring, and common electrical appliances. EMF can occur indoors and outdoors. The intensity of the electric field is related to the voltage, and the intensity of the magnetic field is related to the level of current flow through the conductors (wire). Electric fields are easily shielded by trees, buildings, and earth, while magnetic fields are not. EMF levels fall off in intensity rapidly with distance from the source. Despite over 30 years of active scientific research, no known human health impacts from EMF exposure have been demonstrated.

Hazardous Materials/Hazardous Waste

The Project Area is located in a relatively rural area of North Dakota. Pre-existing hazardous wastes from large industrial or commercial activities are not likely. Potential hazards may exist in rural areas from old gasoline facilities, landfill sites, pesticide and herbicide spills from agricultural activities, and contamination from other private activities.

Potentially hazardous materials associated with the proposed Project include fluids found in construction and maintenance equipment, turbines and transformers, and substation equipment. Construction equipment would use gasoline, oil, and hydraulic fluid. There would be no petroleum products stored on site for fueling purposes. The Project Area would not have partially buried tanks, underground tanks, or field-constructed tanks. There would be three types of fluids used in the operation of the wind turbines, all of which would be petroleum products. These fluids would be necessary for the operation of each turbine and include gearbox oil, hydraulic fluid, and gear grease. The transformers would contain mineral oil. Herbicides would be kept on site for weed control in accordance with Federal and State regulations and guidance, and would be applied by a licensed applicator in accordance with label requirements.

The SPCC plan has not been completed that would include measures on whether containment is required based on potential impact to navigable waters. The following are estimated quantities over 55 gallons of petroleum products expected:

Turbines: Approximately 137 gallons of hydraulic and lubricating oil per turbine. Oil spills would be contained within the turbine itself.

Substation Transformer: 8,400-gallon capacity of mineral oil. Containment includes concrete curbing and a concrete floor with all joints sealed providing approximately 11,000 gallons of containment for the oil in the transformer and freeboard for a 25-year, 24-hour rainfall event.

Grounding Transformers: Up to approximately 392 gallons of mineral oil per transformer. If a small spill occurs, the spill will likely be contained in the gravel/rock base. Absorbents

maintained on site are available to stop or retard the flow of the discharge. In case of a larger spill, an appropriate response contractor may be called to provide cleanup.

Pad-Mounted Transformers: Approximately 633 gallons of mineral oil for each transformer. If a small spill occurs, the spill will likely be contained in the gravel/rock base. Absorbents maintained on site are available to stop or retard the flow of the discharge. In case of a larger spill, an appropriate response contractor may be called to provide cleanup. Depending on proximity to navigable waters, some of the transformers may also have a gravel/rock-filled containment system providing a minimum of 1,380 gallons each for the oil in the transformer and freeboard for a 25-year, 24-hour rainfall event.

Used oil and new oil and other fluids: There are currently up to six drums of used oil and new oil that are located inside the existing O&M building. These include spill containment pallets (up to 66 gallons each). There are also 6 additional drums for oily debris, coolant, and aerosols. Two dumpsters are located onsite for dirty/replaced oil filters. There will also be up to 15 5-gallon buckets for hydraulic fluid. No additional drums will be necessary for operation of Wilton IV. Approximately 55 gallons of degreaser and couple cases of contact cleaner in aerosol cans will be also be located onsite.

Sabotage and Terrorism

Unauthorized or illegal access to site facilities and the potential for members of the public to attempt to climb towers, open electrical panels, or encounter other hazards is a concern. The section below evaluates the potential for vandalism, sabotage, and terrorism-related impacts (also referred to as Intentional Destructive Acts).

3.11.2 Potential Impacts of the Proposed Project

For the purpose of this analysis, a significant impact to public safety and health would occur if 1) the proposed project would violate FAA regulations concerning private airfields or turbine lighting; 2) the proposed Project would cause interference to radar or microwave beam paths; 3) the proposed Project would result in an increase in personal injuries; 4) the proposed Project would result in an increase in health risk to area residents; 5) the proposed Project would result in impacts to public health as a result of increased electric and magnetic fields; or 6) the proposed Project would result in a violation of Federal, State, or local regulations regarding handling, transport, storage, or containment of hazardous materials.

Air Traffic

The installation of wind turbines could create a potential for impacts to air traffic. However, the proposed Project would be an expansion of the Existing Projects, no new transmission lines would be constructed as part of the Project, and the wind turbines and meteorological towers themselves would be visible from a distance. The FAA issued Determinations of No Hazard for the turbines in Crofte Township in May 2010 when they were considered alternate turbines for the Baldwin Wind Energy Center. These Determinations are valid through May 2012 and may be extended with permission from the FAA. Wilton IV will submit Notices of Proposed Construction or Alteration to the FAA for the turbines in Ghylin Township and any turbines that have been relocated in Crofte Township since the FAA Determinations were issued. The wind turbines and meteorological towers would have lighting and markings that

comply with FAA requirements. Per FAA requirements, all turbines would be painted white and some of the turbines would have red synchronized lights in accordance with FAA regulations. Due to minimal air traffic, generally good visibility, approved lighting, and compliance with FAA requirements, no impacts to air traffic would be anticipated.

There would be no impacts to air traffic from an increase in output from the Existing Projects.

Telecommunication Interference

The National Telecommunications and Information Administration (NTIA) was contacted during review of the Baldwin Wind Energy Center. The NTIA provided a response for a larger area that also encompasses the portion of the Project Area in Ghylin Township. After a 45-day period of review, only the Department of Commerce (DOC) identified concerns regarding blockage of their radio frequency transmissions. Their response included a review of a larger area that encompasses the current Project Area. The proposed Project would be in the radar line of sight of the Bismarck, North Dakota Weather Surveillance Radar-1988 Doppler (WSR-88D and has a low risk of impacting radar data; no further analysis or follow-up was requested by the DOC (Ciardi pers. comm. 2010).

A beam path study was conducted to identify all non-Federal microwave telecommunication systems (Comsearch 2011) and a media impact study was conducted to review potential impacts to AM and FM radio transmissions and television tower locations (Comsearch 2009). The worst-case Fresnel zones (WCFZ) for each beam path were calculated. Telephone and fiber optic cables within the Project Area would be located in the field by the respective utility companies prior to construction and will not be negatively affected during construction. Wilton IV has avoided the WCFZs for the Federal Communications Commission (FCC)-licensed microwave beam paths identified in the Project Area. With the switch to digital television in 2009 throughout the United States, the concern of ghost images and flickering that may be caused by wind turbine interference with analogue signals is no longer an issue.

There would be no impacts to telecommunications from an increase in output from the Existing Projects.

Electromagnetic Fields

Turbines and collector lines would be operated at a relatively low 34.5-kV voltage, or comparable to a main power distribution line. Transmission line voltages are generally accepted to be 69 kV and above, and can range upwards to 500 and even 765 kV. Given that measured field strengths are low outside of substation fence lines and that the turbines and their associated 34.5-kV transformers would be no closer than 1,400 feet to occupied residences, EMF from those sources would be very minor. Because the collector lines are buried, the magnetic fields generated decrease rapidly due to shielding from the earth (Western Area Power Administration no date).

While the general consensus is that electric fields pose no risk to humans, the question of whether exposure to magnetic fields can cause biological responses or health effects continues to be the subject of research and debate. Based on the most current research on

electromagnetic fields, the voltages and current (and associated EMF levels) associated with operation of the proposed Project, and the distance between turbines or collector lines from occupied dwellings, the proposed Project would have no impact to public health and safety due to EMF (National Institute of Environmental Health Sciences 1999).

There would be no additional EMF impacts from an increase in output from the Existing Projects.

Hazardous Materials/Hazardous Waste

Threats to human health and safety and the environment from hazardous materials storage, use, and disposal would not be anticipated due to the known historic uses of the Project Area, requirements for construction crews to be trained in spill response, the presence of appropriate spill containment materials in each vehicle, and the small amount of hydrocarbons that would be required by each. In addition, only limited amounts of solvents and cleaners used for degreasing and cleaning would be located onsite. Pesticides would not be stored onsite.

During construction, there would be no petroleum products stored on site for fueling purposes. Equipment refueling would take place at secure areas, away from wetlands or drainages.

During operation, there is a small potential for oil or grease to leak from the turbine, but any such leak would likely be confined to the turbine nacelle.

During decommissioning, hazardous materials or hazardous waste would be evacuated from turbines and other Project components, and disposed of in accordance with applicable regulations in force at that time. Any use of pesticides or herbicides would be by licensed applicators, and all label requirements would be adhered to during application.

No significant impacts to the environment from hazardous materials or waste are anticipated from the proposed Project or from an increase in energy output from the Existing Projects.

Vandalism, Sabotage, and Terrorism

The proposed Project would be located in a fairly remote area having few residents, and on private property. Resident landowners would be expected to be vigilant concerning unauthorized persons on their property, and the presence of Project personnel on site would add additional observers. Security measures would be taken during construction and operation, including temporary and permanent safety fencing at the substation, and warning signs and locks on equipment and wind power facilities. Turbines would sit on solid-steel-enclosed tubular towers within which all electrical equipment would be located, except for the pad-mounted transformer at the base of each turbine. Access to the turbines would only be through a solid steel door that would be locked when not in use. The substation would be security fenced and controlled by key and lock. These measures would act to reduce potential vandalism, sabotage, and terrorist acts.

The proposed Project would not constitute an attractive target for sabotage or terrorism, as the facilities would be difficult to damage, and the impact from any successful act would be

negligible, both from a practical and political perspective. Western believes, therefore, that the proposed Project would present an unlikely target for an act of terrorism, and would have an extremely low probability of attack.

The highest risk of damage to the proposed Project would be from casual vandalism and targeted metal theft. Vandalism could take many forms, and would be very difficult to entirely prevent, as these acts are often spontaneous and opportunistic in nature. Examples would include damage to tower doors due to attempts to gain access, or damage to Project components from shooting or vehicles. Metal theft is an increasing problem for utilities, as the industry uses large amounts of copper and aluminum. Theft of these metals can be extremely hazardous to the thieves because of electrocution risk. Standard security measures would limit access and deter many potential intruders, as would landowner and maintenance worker monitoring. The potential for the Project to be targeted by sabotage or terrorism would be negligible. There would be some risk of vandalism or theft, but no more than that to other similar facilities in the area.

There would be no increase in likelihood of terrorist acts or vandalism from an increase in output from the Existing Projects.

3.12 Cultural Resources

Cultural resources include archeological sites, historic standing structures, objects, districts, traditional cultural properties, and other properties that illustrate important aspects of prehistory or history or have important and long-standing cultural associations with established communities or social groups. Significant archeological and architectural properties are usually defined by eligibility criteria for listing in the National Register of Historic Places (NRHP), and in consultation with the State Historic Preservation Office (SHPO).

3.12.1 Existing Conditions

Wilton IV provided the necessary information for the State Historical Society of North Dakota (SHSND) review by performing a Class I Literature Review and a Class III Cultural Resources Inventory (Tetra Tech 2012e, this report is not available for public review due to the confidentiality of cultural sites). The Class I Literature Review completed on August 26, 2011 included identifying archaeological sites and surveys within 1 mile (1.6 kilometers) of the Project layout dated August 15, 2011, and structures, bridges, and cemeteries within 1.5 mile (2.4 kilometers) of the turbine layout dated August 5, 2011. The review was updated on September 21, 2012 for a revised Project layout. The Class III Cultural Resources Inventory (Tetra Tech 2012e) included a pedestrian survey of the Area of Potential Effects (APE) for direct effects (based on construction footprint of the Project facilities). An area larger than the anticipated construction footprint was surveyed to facilitate micrositing and included surveying a 250-foot (76.2-meter) radius for each of the proposed turbine locations, a 250-foot (76.2-meter) corridor for service roads, and a 100-foot (30.5-meter) corridor for collection line routes.

Class I Literature Review

Due to the large area covered by previous surveys, 19 site leads and 9 archaeological sites have been documented within 1 mile (1.6 kilometer) of the APE for direct effects. Of these,

four site leads are located within the APE. A site lead is a site which has been historically documented from a plat map, county history, or an interview and has not been field verified, or a site that has limited field information (i.e., isolated find).

Class II Architectural Inventory

Tetra Tech conducted a Class II Architectural Reconnaissance Survey in September 2012 (Tetra Tech 2012f, available online at: http://www.wapa.gov/ugp/Environment/EnvWiltonIV-EIS.htm). The portion of the Project in Crofte Township was previously evaluated as part of the Baldwin Wind Energy Center, which included 37 alternate turbines in Crofte Township. These turbines were not constructed as part of the Baldwin Wind Energy Center and some of these locations are currently proposed to be constructed as part of this Project.

The Class II Reconnaissance Survey for the current Project, covering the area within one mile of the nearest turbine that was not previously surveyed for Baldwin, examined 15 above ground resources including 13 farmsteads, one cemetery, and one former radio station. In addition, two previously unsurveyed farmsteads in the western section of the APE (the portion formerly surveyed for the Baldwin project) were also documented during this survey effort. In total, 17 properties were examined. Documentary research determined that only twelve of these properties were 45 years old or older. These twelve properties have been documented using North Dakota Cultural Resources Survey Architectural Site Forms. Tetra Tech recommended that these properties are not eligible for inclusion in the NRHP. With respect to potential effects of the proposed Project on architectural properties in the study area Tetra Tech recommended a determination of No Historic Properties Affected.

Class III Pedestrian Survey

Tetra Tech conducted a Class III Pedestrian Survey of the APE for direct effects of the Project layout in August 2011, October 2011, and September 2012 (Tetra Tech 2012e). Project facilities in Crofte Township were previously surveyed and the results evaluated in Baldwin EA in 2010. Because the previous survey was conducted very recently and was reviewed and approved by the SHPO (ND SHPO Ref.: 09-1801), Tetra Tech did not resurvey these areas. The 2011 survey included the portion of the Project in Ghylin Township and layout revisions in Crofte Township that have occurred after the previous study was completed. Due to a change in turbine technology, the turbine layout was modified, resulting in 9 turbines that were shifted outside of the 2011 survey area. A survey of the new areas was conducted in fall 2012.

During the course of these pedestrian surveys, Tetra Tech documented nine new archaeological sites, including four Native American stone feature sites, three Native American isolated finds, one depression, and one pile of indeterminate cultural affiliation. In addition, 6 Euro-American stone line sites, 27 Euro-American stone pile sites, and 4 sites that contained both lines and piles were documented within the area surveyed. Upon the request of Western and the SHPO, the Euro-American stone sites were not recorded with the State and were not given an official site number.

The results are described in detail and the locations of the identified sites are presented in the Class III Cultural Resources Inventory (Tetra Tech 2012e). Due to the sensitive nature of

archaeological information, the report was provided to the SHPO as part of Section 106 consultation and is not available for public distribution.

Avoidance was recommended for the Native American stone feature sites, the sites with indeterminate cultural affiliation, the Euro-American dump/stone pile site, and two Euro-American stone pile sites. Avoidance buffers were created and will be observed for the Native American stone cairns, Native American tipi rings and alignment, sites with indeterminate cultural affiliation, and Euro-American stone piles.

Native American Consultation

Western sent out letters to 11 tribes in August 2011 inviting them to participate in the project and initiate government to government consultation. No responses have been received to date. Western sent another letter on May 4, 2012, requesting interest in consultation, an offer to share the cultural resource reports, and notification that the EIS will soon be available for review.

3.12.2 Potential Impacts of the Proposed Project

A significant impact to cultural resources would occur if a site or archaeological, tribal, or historical value that is listed, or is eligible for listing, in the NRHP could not be avoided or mitigated during siting or construction of the proposed Project.

There would be no impacts to cultural resources from an increase in output from the Existing Projects.

Western submitted the Class III survey results to the SHPO for review in accordance with Section 106 of the National Historic Preservation Act. In a letter dated January 8, 2013, the SHPO concurred with the “no historic properties affected” determination, and agreed with the recommendations for avoidance proposed by Tetra Tech. Sites determined to be potentially significant and/or eligible for listing in the National Register will be avoided during construction and Wilton IV will fence or otherwise clearly mark these avoidance areas to prevent them from being inadvertently disturbed.

An Unanticipated Discovery Plan has been prepared for the proposed Project and outlines the procedure that would be followed to prepare for and address any unanticipated discoveries of cultural resources, including archeological sites and possible human remains. It provides direction to on-site personnel and their consultants as to the proper procedure to follow in the event that unanticipated discoveries were to be made during construction of the Wilton IV Wind Energy Center. No significant impacts to cultural resources would, therefore, be anticipated from the proposed Project.

Western is currently reviewing the Class II architectural inventory report and will submit it to the SHPO for review and concurrence.

3.13 Native American Religious Concerns

The Native American Graves Protection and Repatriation Act of 1990 allows tribes to protect American Indian graves and to repatriate human remains. Wilton IV must comply with this Act

if a burial site is encountered during construction, as the aforementioned Act applies to all developments regardless of the funding source. Any burial site identified, including tribal or pioneer, must be referred to the North Dakota Intertribal Reinterment Committee and the State Historical Society of North Dakota. The North Dakota Indian Affairs Commission was invited to the scoping meeting and to provide comments; no response has been received to date.

3.13.1 Existing Conditions

Research of cultural resources indicates that Native Americans who inhabited the region throughout prehistoric times typified the culture of the North American Plains Indians.

Subsistence was focused on hunting, gathering, and small-scale agriculture. As discussed in Section 3.12, a pedestrian archaeological survey identified Native American stone feature sites, Native American finds, a Euro-American farm dump, a depression, a pile of indeterminate cultural affiliation, and Euro-American stone line/pile sites within the surveyed area. In addition, a stone feature/lithic scatter site, is located just outside the surveyed area.

There are no reservations or Bureau of Indian Affairs trust lands in Burleigh County.

3.13.2 Potential Impacts of the Proposed Project

A significant impact would occur if the proposed Project caused an unmitigated, adverse effect to a traditional cultural property (TCP) or a burial site. In the event that burials or cultural sites with Native American religious values are identified during construction of the proposed Project, work would immediately halt within 200 feet of the site and the site protected until Native Americans are notified and consulted about how to proceed.

If the skeletal remains are possibly human, the Burleigh County Sheriff's office will be contacted. The Sheriff will call the North Dakota State Forensic Examiner to determine if the remains are associated with a crime scene. If the remains are historic or prehistoric, the North Dakota Chief Archeologist will be contacted.

There would be no impact to TCPs or other Native American religious concerns from an increase in output from the Existing Projects.

3.14 Cumulative Effects

The CEQ defines cumulative effects as:

> The impacts on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time (40 CFR 1508.7).

The NEPA cumulative effects analysis is focused on defining the incremental effects of the proposed Project in context with the effects from:

- Past actions with relevance to the current resource conditions
- Present actions of relevance, but not part of the proposed Project or action alternatives
- Reasonably foreseeable future actions of relevance, but not part of the proposed Project or action alternatives

The effects of various past, present, or future actions (regardless of the entity pursuing the action) and natural processes have the potential to coincide either in time or space with the effects of the proposed Project.

Analysis Area

This cumulative analysis includes the past, present, and reasonably foreseeable actions in Burleigh County.

Actions Included in Analysis

Outside of the city of Bismarck, development in Burleigh County has largely consisted of agriculture. Starting in the 1990s, however, there has been an increase in the new lots and new building permits issued in the city of Bismarck's extraterritorial area (ETA) and the rest of the county, rather than within city limits (City of Bismarck 2003). This trend appears to be continuing in the county, particularly large-lot single-family residential subdivisions. As a result, both agricultural land and undeveloped areas such as grassland are being converted into residential use. However, in the area of the proposed Project, little or no residential development is evident.

A list of reasonably foreseeable actions within Burleigh County was developed based on a search of projects listed on the North Dakota PSC online case information and on information from the City of Bismarck Planning Department website. In addition to the proposed Project and the proposed increase in energy output from the Existing Projects, and past development, other past and reasonably foreseeable actions that are included in this cumulative impact analysis are:

- Wilton I, Wilton II, and Baldwin Wind Energy Centers
- Minnkota Power Cooperative, Inc. Center to Grand Forks Transmission Line
- Rural housing subdivisions

The existing wind energy facilities in Burleigh County are Wilton I, Wilton II, and Baldwin Wind Energy Centers, located directly north and west of the proposed Project (Figure 2). Wilton I was commissioned in 2006 and includes 33 turbines. Wilton II was commissioned in 2009 and includes 33 turbines. Baldwin was commissioned in 2010 and includes 64 turbines.

Minnkota Power Cooperative, Inc. has proposed the construction of approximately 250 miles of 345-kV transmission line from Center to Grand Forks, North Dakota. This project is referred to as Center to Grand Forks or CGF. It is anticipated to be completed by early 2013 to enable the transmission of energy from the existing Milton R. Young power station directly into the Minnkota service territory. On September 7, 2011, the North Dakota PSC approved

the Certificate of Corridor Compatibility for the Center to Grand Forks Transmission Line Project. The approved corridor includes approximately 7 miles through Painted Woods Township in the northwestern corner of Burleigh County (Minnkota 2011).

Potential Cumulative Impacts

Wind energy development is anticipated to have some positive and some negative cumulative impacts. Cumulative impacts would be negligible on several resources, including geology, soils, water, safety and health issues, and cultural resources. Socioeconomic impacts would be anticipated to be positive, as the rural economy and energy production is diversified, and air quality impacts would be net positive, as wind generation would displace potential increased fossil fuel generation.

The principal resources of concern for cumulative impacts are anticipated to be land use and vegetation, wildlife, and acoustic and visual resources. Each of these is discussed below.

Land Use and Vegetation

On a regional scale, a 2007 Congressional Research Service (CRS) report on land conversion in the Northern Plains (North Dakota, South Dakota, and Montana) found that many forces encouraging the conversion of land from grassland to crop production have been intensifying (CRS 2007). Some of these forces include 1) high market prices for corn as a renewable biofuel, 2) advances in biotechnology, and 3) Federal farm commodity support programs. Other causes may include the expiration of CRP contracts and the increase in wind energy development. As mentioned above, in Burleigh County as a whole there has also been an increase in large-lot single-family residential development, although this trend has not been noted in the vicinity of the proposed Project.

With the increase in land being used for wind energy generation activities and new transmission lines to support the new facilities, farming may decrease slightly. The cumulative impacts would be a concern for the rural communities that have historically made their living from agricultural activities. However, additional income from wind development on their land may make it more feasible for farmers to keep most of their land in agricultural uses rather than being developed for suburban development. Wind energy development would remove less total land from agricultural use than other forms of development and may also alleviate the economic pressure to convert pasture and grassland to cropland.

Cumulative impacts from wind energy projects to native prairie have been raised as a concern (see Scoping Meeting Report, available online at: http://www.wapa.gov/ugp/Environment/EnvWiltonIV-EIS.htm). As noted in Section 3.4, the majority of North Dakota's grasslands have been lost, primarily as a result of conversion to cropland. Because not all of Burleigh County has been surveyed for native prairie, the total remaining amount of native prairie is not known. A vegetation and land cover map for North Dakota was created, however, as part of the North Dakota Gap Analysis Project for the USGS National Gap Analysis Program (GAP). Vegetation and land cover was mapped from a multi-temporal analysis of May, July, and September Landsat Thematic Mapper images acquired from August 1992 to September 1998. According to GAP data, there are 342,141 acres of grassland in Burleigh County. It is estimated that a total of 400 acres of land cover would be

impacted by the Project (and of that, 116 acres would be permanent), and only a small portion of that (20 acres permanent, 23 acres temporary, for a total of 43 acres) would be native prairie; there would be no land use impacts from the increase in energy output from the Existing Projects.

The proposed Project would convert a smaller portion of grassland than additional crop production and residential subdivisions, however. For the Baldwin Wind Energy Center, a total of 93 acres of impact was estimated (Tetra Tech 2009). Acreages are not available for Wilton I and II; however, given the size of these projects compared to the Wilton IV and Baldwin Projects (approximately half the size for 33 turbines compared to 62 and 64 turbines, respectively) and the general homogeneity of the landscape, total impacts are likely comparable. An analysis of native prairie impacts from the Minnkota Center to Grand Forks Transmission Line is not available. The right-of-way is anticipated to be approximately 150 feet wide. Transmission lines typically follow existing road rights-of-way or fencelines where possible, which minimizes impacts to cropland and native vegetation. The proposed Project would cause a minor contribution to the cumulative conversion of the grassland in the county.

Wildlife

With regard to the cumulative impacts to wildlife, there is a concern that, even if no wetlands and other sensitive habitat are directly affected by wind energy projects, the wetlands surrounding the projects would no longer be used by wildlife, particularly causing impacts to whooping cranes. Wetlands used by whooping cranes for feeding, roosting, and as a stopover habitat are abundant in the region but the percentage of available wetlands within the Project Area is lower than the surrounding 35-mile buffer area. Wilton IV has committed to zero impacts to wetlands and no new transmission line construction (with the exception of a 240-foot overhead 230-kV tie-line across a road). In addition, to mitigate for whooping crane avoidance of wetlands within 0.5 mile of all the turbines in the Wilton I, Wilton II, and Baldwin wind energy centers, NextEra has purchased conservation easements to preserve up to 236 acres of wetlands and associated upland habitats. This acreage is located within the whooping crane migration corridor and could serve as stopover habitat for whooping cranes. There would be no impacts to wetlands from the increase in energy output from the Existing Projects.

Both Wilton IV and Minnkota have committed to installing perch deterrents and bird diverters on new overhead lines in order to minimize impacts to birds. The increase in energy output from the Existing Projects may increase the potential for avian and bat collisions, due to the increased time the turbines would be operating. While posing less of a direct threat to birds and other wildlife from collisions, the increase in rural residential development contributes to reduction of habitat and an increase in habitat fragmentation.

Acoustic and Visual Resources

Cumulative impacts from wind energy projects to acoustic and visual resources in particular have been raised as a concern (see the Scoping Meeting Report, available online at: http://www.wapa.gov/ugp/Environment/EnvWiltonIV-EIS.htm). A cumulative impact assessment was conducted for noise and shadow flicker based on a total of 194 turbines, including 64 (62 and 2 alternate) Wilton IV turbines and 130 operating turbines from the Wilton

I, II, and Baldwin Wind Energy Centers on residences within approximately 1 mile from these projects (Tetra Tech 2012c; Tetra Tech 2012d, available online at: http://www.wapa.gov/ugp/Environment/EnvWiltonIV-EIS.htm). The cumulative shadow flicker study predicted greater than 30 hours of shadow flicker per year at a total of four residences (all participating). The cumulative noise analysis found that the 48.6 dBA threshold was not exceeded at any non-participating residences under any wind turbine operating condition. There was one exceedance at an occupied residence at maximum wind speed, and two additional exceedances at occupied residences assuming anomalous meteorological conditions. All of the exceedances are at residences belonging to participating landowners. Due to their support of Project development, Project participants have been found to be less likely to become annoyed by low-level turbine sound than non- participants.

There would be no additional acoustic and visual impacts from the increase in energy output from the Existing Projects; the acoustic and shadow flicker analyses assumed full operation of the wind turbines.

The Minnkota Center to Grand Forks Transmission Line is unlikely to contribute to cumulative acoustic impacts, but it would introduce an additional new visual infrastructural element in the landscape. The growth of rural residential development would be expected to contribute to the cumulative change in the acoustic and visual environment of Burleigh County with the additional development and increase in vehicles. The proposed Project would cause a minor contribution to the cumulative impacts acoustic and visual resources in the immediate vicinity of the Project, which is a small portion of the county.

3.15 No Action Alternative

Under the No Action Alternative, Western would deny Wilton IV's interconnection request for its proposed Project and would not execute an interconnection agreement. Wilton IV could continue to pursue their Project by applying for interconnection with another transmission provider in the vicinity. For the purposes of this EIS, however, the No Action Alternative is considered to result in Wilton IV's Project not being constructed.

As a separate No Action Alternative, Western would not modify any contracts and the Existing Projects would continue to operate under the existing administrative cap of 50 average annual MW.

In these cases, none of the environmental impacts from construction, operation, maintenance, and decommissioning associated with the proposed Project would occur. Environmental conditions and trends described in this EIS for both actions would be expected to continue. The need for renewable energy would not be satisfied in part by construction of the proposed Project which could provide the impetus for a similar wind energy project elsewhere.

4.0 AGENCIES CONTACTED/CONSULTED

A public scoping meeting was held on July 26, 2011, in Wilton, North Dakota. Several Federal, State, and local agencies were invited to the meeting and encouraged to provide comments regarding the proposed Project during the public scoping period. Western published a Notice of Intent to prepare an EIS for the Project in the Federal Register on July 20, 2011, and accepted comments through September 6, 2011. Wilton IV has also met with local officials (county and township) and participating landowners during the development of the Project. A summary of the meeting and the comments received from agencies and the public are found in the Scoping Meeting Report, available online at: http://www.wapa.gov/ugp/Environment/EnvWiltonIV-EIS.htm.

4.1 Federal Agencies

The following Federal agencies have been contacted as part of the EIS scoping process:

- U.S. Army Corps of Engineers
- U.S. Environmental Protection Agency
- U.S. Fish and Wildlife Service
- U.S. Department of Agriculture, Natural Resources Conservation Service and Farm Service Agency
- Federal Energy Regulatory Commission
- Advisory Council on Historic Preservation
- Federal Emergency Management Agency
- U.S. Department of Transportation, Federal Highway Administration
- U.S. Department of the Interior, Office of Environmental Policy and Compliance
- U.S. Geological Survey
- Federal Aviation Administration

4.2 State and Local Agencies

The following state and local agencies have been contacted as part of the EIS scoping process:

- North Dakota Department of Agriculture
- North Dakota Game and Fish Department
- North Dakota Department of Transportation
- North Dakota Public Service Commission
- State Historical Society of North Dakota, State Historic Preservation Office
- North Dakota Indian Affairs Commission
- North Dakota State Land Department
- North Dakota Parks and Recreation Department
- Office of the Governor
- North Dakota Department of Commerce
- Burleigh County Commission
- Burleigh County Soil Conservation District
- Boards of Supervisors for Crofte, Ecklund and Ghylin townships
- Wilton School District
- City of Wilton, Mayor's Office

4.3 Native American Tribes and Associated Bodies

Western sent letters to 11 tribes on August 10, 2011 inviting them to participate in the project and initiate government to government consultation. No responses have been received to date. Western sent another letter on May 4, 2012, requesting interest in consultation, an offer to share the cultural resource reports, and notification that the EIS will soon be available for review. The tribes that were consulted include:

- Crow Tribe
- Northern Cheyenne Tribe
- Turtle Mountain Band of Chippewa
- Three Affiliated Tribes
- Ft. Peck Tribes
- Lower Brule Tribe
- Cheyenne River Sioux Tribe
- Rosebud Sioux Tribe
- Sisseton-Wahpeton Dakota Nation
- Spirit Lake Tribe
- Standing Rock Sioux Tribe

4.4 Other Organizations

Comments on the Project were submitted by the North Dakota Chapter of the Wildlife Society (see Scoping Meeting Report, available online at: http://www.wapa.gov/ugp/Environment/EnvWiltonIV-EIS.htm). The following non-governmental organizations have also been contacted as part of the EIS scoping process, but no response has yet been received:

- The Nature Conservancy
- Sierra Club
- Dakota Prairie Audubon Society
- Ducks Unlimited
- Pheasants Forever, Inc.

5.0 LIST OF PREPARERS/DISCLOSURE STATEMENT

The DEIS was prepared under the supervision of Western. The individuals who contributed to the preparation of this document are listed below, accompanied by their organization, education, and project role.

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Disclosure Statement

I hereby certify as a representative of my organization that, to the best of my knowledge and belief, neither I or my organization have any financial or other interest in the outcome of the project.

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