

# **Tree and Shrub Replacement Plan**

## **Langdon Wind Project**

Prepared for:

**NEXTERA ENERGY RESOURCES**  
Langdon Wind, LLC  
ND PSC Case Number: PU-07-26 (Wind Farm)

Prepared by:

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**Wenck File #2602-02**

On Behalf of:

**TETRA TECH EC, INC**  
160 Federal Street  
3<sup>rd</sup> Floor  
Boston, MA 02110  
(617) 443-7500

March 2011

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# Table of Contents

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**1.0 INTRODUCTION & REGULATORY BACKGROUND..... 1-1**

**2.0 INVENTORY OF TREES AND SHRUBS IN PROJECT AREA ..... 2-1**

**3.0 LANDOWNER CONSULTATION..... 3-1**

**4.0 PLANTING SCHEDULES..... 4-1**

**5.0 FOLLOW-UP DOCUMENTATION AND MONITORING ..... 5-1**

**TABLES**

1 Location and Number of Trees Removed within Project Area..... 2-1

2 Landowner Preferences for Tree Replacement..... 3-2

**FIGURES**

1 Project Location Map

2 Site Plan

**APPENDICES**

A North Dakota Public Service Commission Findings of Fact, Conclusion of Law, and Order

B Landowner Tree Replacement Waiver Forms

C Planting Plan

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# 1.0 Introduction & Regulatory Background

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The Langdon I Wind Energy Center (Project) was completed in 2007 in Cavalier County, North Dakota, within portions of Township 161N, Range 59W, Township 160N, Range 59W, Township 160N, Range 60W, Township 159N, Range 59W, and Township 159N, Range 60W (**Figure 1**). The Project is operated by Langdon Wind, LLC (Langdon Wind), a subsidiary of NextEra Energy Resources, LLC. Langdon I comprises a 118.5-megawatt (MW) wind generation plant. The Project is under the jurisdiction of the North Dakota Public Service Commission (PSC). Its construction required the removal of trees and shrubs within Project rights-of-way.

Projects under the jurisdiction of the PSC that require the removal of trees or shrubs in the course of Project construction must replace them, following PSC replacement requirements (**Appendix A**, *Findings of Fact, Conclusions of Law and Order*, pages 8-11, Case No. PU-07-26). The PSC requires approval of a Tree and Shrub Mitigation Plan/Replacement Plan before trees or shrubs are planted. Paragraph 16 of the PSC Order (PU-07-26) outlines the specific requirements for tree and shrub replacement, as follows:

16) Trees and other woody vegetation must be replaced with saplings that are two or more years old at a rate of two for every one removed. Landowners shall be given the option of having replacement trees/shrubs planted on the landowners' property or waiving the requirement in writing, and allowing Langdon Wind to plant replacement trees/shrubs elsewhere. Langdon Wind shall inspect tree replacements once a year for three years and send a report on or before October 1 of each year to the Commission documenting work completion and condition of woodlands planting. The Commission may order additional plantings if survival rates are less than 75%.

Langdon Wind retained Tetra Tech EC, Inc. (Tetra Tech) and Wenck Associates, Inc. (Wenck) to assist in the preparation of a tree and shrub mitigation plan for the Project and to assist in contacting landowners to determine their tree replacement preferences.

## 2.0 Inventory of Trees and Shrubs in Project Area

Langdon Wind documented the number, type/species, and location of trees and shrubs removed during construction of the Project (**Table 1**). Langdon Wind surveyed windbreaks, shelterbelts, other planted areas, and native growth areas that were cleared during construction. Counts were completed by direct stem count. Trees were removed from land owned by five landowners (**Figure 2a, 2b**). A total of 24 trees and shrubs were removed from within Project rights-of-way (**Table 1**). The total number of trees/shrubs to be replaced based on this inventory is 48, assuming a 2:1 replacement ratio.

**Table 1. Location and Number of Trees Removed within Project Area**

Location			Location Description	Number of Trees Removed	Type of Tree	Landowner
Township	Range	Section				
159N	60W	13	T51	5	Cottonwood	Kevin & Wendy Waslaski, jointly owned with Kevin's brothers Roger and Doug
159N	59W	5	East of Laydown	8	Cottonwood	Michael Wild / John & Janet Wild
159N	59W	17	T54	6	Cottonwood and shrubs	Walter Gronhovd
159N	59W	17	T56	2	Cottonwood	Richard Sundberg
160N	59W	4	OT18	3	Cottonwood, 1 pine	Edwin Pearson
<b>TOTAL</b>				<b>24</b>		

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## 3.0 Landowner Consultation

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Each of the five affected landowners was contacted via telephone. Landowners were asked whether they preferred trees to be replaced on their property off the Project right-of-way, or whether they preferred not to have trees replaced on their property and instead have them planted at an alternative location. If landowners wanted replacement on their property, they were asked which tree/shrub species they would prefer for replacement and the number of each if more than one species.

Four of the five landowners, Walter Gronhovd, Edwin Pearson, Richard Sundberg, and John and Janet Wild, preferred to waive tree replacement on their property (**Table 2**). Signed waivers are attached to this report (**Appendix B**).

The remaining landowners, Kevin and Wendy Waslaski, along with Kevin's brothers Roger and Doug, requested replacement on their property. The trees allotted to the other four landowners will go to the Waslaski family. The planting plans and tree and shrub choices were coordinated with the Cavalier County Soil Conservation District (**Appendix C**). The Waslaskis requested more than the 48 allotted trees required for replacement. Langdon Wind agreed to pay for the planting of additional trees (totaling approximately 61) and installation of weed barrier fabric. Langdon Wind assumes responsibility for the survival of 75% of 48 trees.

The landowner preferences are listed in **Table 2**. The appropriateness of tree and shrub requests was reviewed by Wenck, Tetra Tech, and the Cavalier County Soil Conservation District. Requested species were suitable to North Dakota growing conditions and are commonly recommended for tree plantings by the North Dakota Forest Service (<http://www.ndsu.edu/ndfs/>) and the Cavalier County Soil Conservation District. Though the type of replacement trees were not a direct replacement of the type of tree removed, the replacement choices were considered appropriate because the purpose of the replacement plantings differed from the purpose of the original plantings where trees were removed.

**Table 2. Landowner Preferences for Tree Replacement**

<b>Landowner</b>	<b>Number of Trees Removed (Actual Count)</b>	<b>Number of Replacement Trees (Estimate)</b>	<b>Tree/Shrub Species Requested</b>	<b>Comments</b>
Waslaski Family (Kevin & Wendy, Roger, Doug)	24	34	Ponderosa Pine	Roger Waslaski requested additional trees and Langdon Wind agreed to compensate for the planting of the additional trees and installation of weed fabric. Langdon Wind will be responsible for 48 trees (10 allotted trees plus 16 trees from John & Janet Wild, 12 trees from Walter Gronhovd, 4 trees from Richard Sundberg, and 6 trees from Edwin Pearson).
		75	Common Lilac	
<b>TOTAL</b>	<b>24</b>	<b>109</b>		<b>Exceeds requirement of 2:1 planting ratio.</b>

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## 4.0 Planting Schedules

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### Spring 2011

The planting for the Waslaski family will be installed in the spring or early summer of 2011 (**Appendix C**). The planting will be in Section 12, Township 160N, Range 61W. The landowner will be responsible for cultivating the area and preparing the soil for planting.

The Cavalier County Soil Conservation District will plant replacement trees and install weed barrier fabric if desired by the landowner. Trees will be 2-year-old saplings and shrubs will be stem cuttings.

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## **5.0 Follow-up Documentation and Monitoring**

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After tree plantings are installed, the number, species, location, and date of planting will be documented and filed with the PSC.

Replacement plantings will be inspected each year for three years in 2012, 2013, and 2014 near the anniversary planting date. The number and type of each surviving tree or shrub will be recorded. Notes on the condition of the saplings will be taken. Survival rates will be calculated and a report will be submitted to the PSC before October 1 of each fall documenting this information. If the survival rate after three years is less than 75 percent, additional plantings may be ordered based on consideration by the PSC.

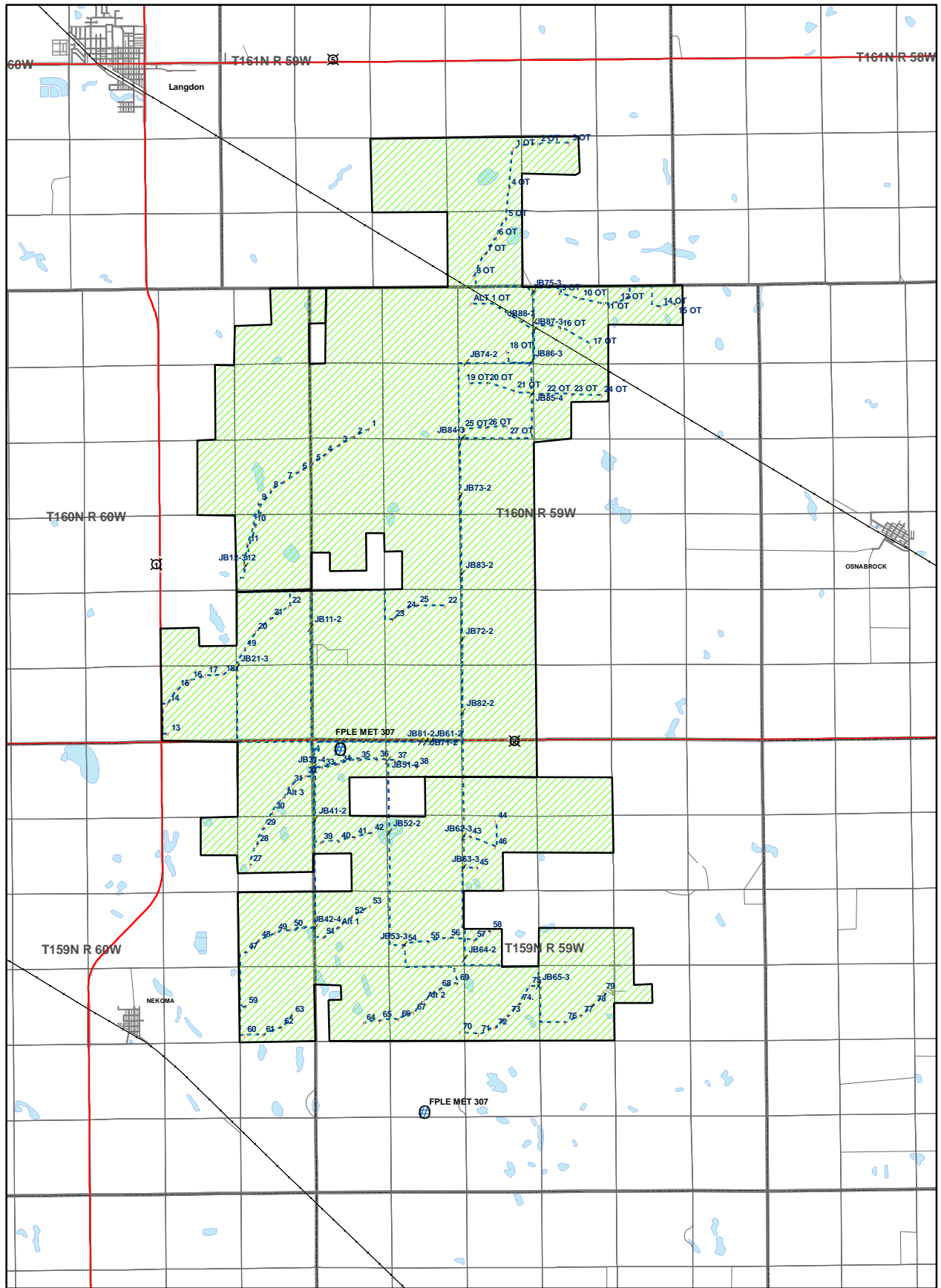
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## **Figures**

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**Project Location Map**

**Site Plan**



**Legend**

- Proposed Turbine Locations
- Collection Lines
- MET (Meteorological Tower)
- Highways
- Collection Junction Box
- County Roads
- Approximate Project Area
- Public Land Survey System (PLSS)
- Township Section Range
- Railroads
- Ponds/Lakes
- Streams/Rivers

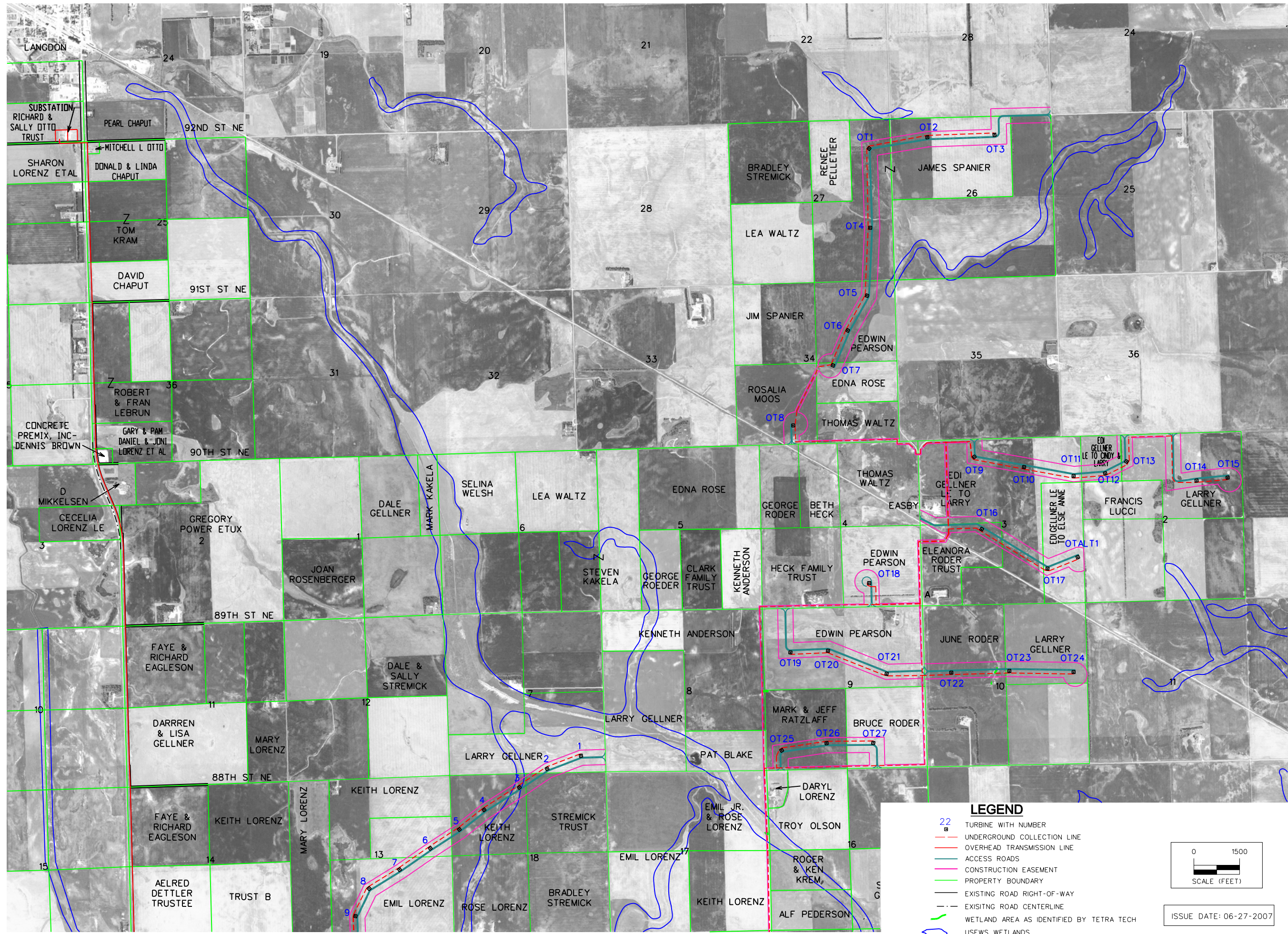


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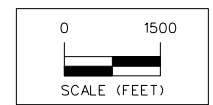
**Figure 1. Project Vicinity  
Langdon Wind Energy Center  
Langdon Wind, LLC  
Cavalier County, North Dakota**

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**LEGEND**

- TURBINE WITH NUMBER
- UNDERGROUND COLLECTION LINE
- OVERHEAD TRANSMISSION LINE
- ACCESS ROADS
- CONSTRUCTION EASEMENT
- PROPERTY BOUNDARY
- EXISTING ROAD RIGHT-OF-WAY
- EXISTING ROAD CENTERLINE
- WETLAND AREA AS IDENTIFIED BY TETRA TECH
- USFWS WETLANDS



ISSUE DATE: 06-27-2007

5	RENUMBERED TURBINES	6/27/07	DW
4	LANDOWNER NAME CHANGES ALONG T-LINE	5/29/07	DW
3	TURBINES, ROADS & COLLECTION RELOCATED	5/24/07	DW
2	CORRECTED PROPERTY OWNER NAME IN SEC. 34, 35, 36	04/18/07	DW
1	MARK	04/18/07	DW
REVISION		DATE	BY
Engineer:	JWK	Checked By:	MGG
Technician:	DW	Date:	02-07-07
Project No.:	1070076	Field No.:	
File No.:			

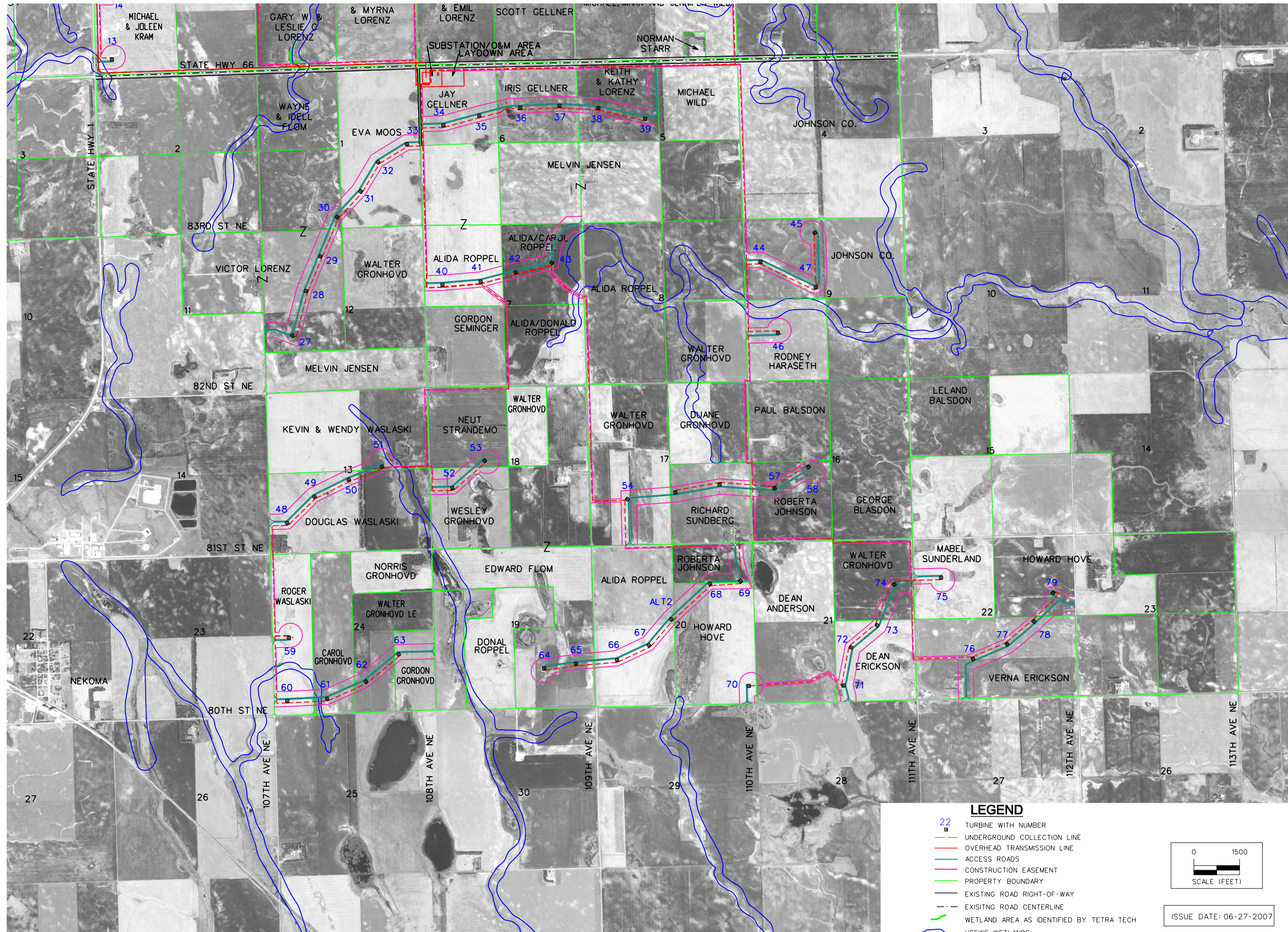
**CAVALIER COUNTY, NORTH DAKOTA**

**FPL - LANGDON, ND**  
**PRELIMINARY SITE PLAN**

**SNYDER & ASSOCIATES** | 1751 MADISON AVENUE | ATLANTIC IA 51224-8605 | 712-243-8605  
 COUNCIL BLUFFS, IOWA 51503 | CEDAR RAPIDS, IA 51564-2620 | 319-362-6384

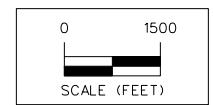
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**LEGEND**

- TURBINE WITH NUMBER
- UNDERGROUND COLLECTION LINE
- OVERHEAD TRANSMISSION LINE
- ACCESS ROADS
- CONSTRUCTION EASEMENT
- PROPERTY BOUNDARY
- EXISTING ROAD RIGHT-OF-WAY
- EXISTING ROAD CENTERLINE
- WETLAND AREA AS IDENTIFIED BY TETRA TECH
- USFWS WETLANDS



ISSUE DATE: 06-27-2007

6	RENUMBERED TURBINES	6/27/07	DW
5	LANDOWNER NAME CHANGES ALONG T-LINE	5/29/07	DW
4	TURBINES, ROADS & COLLECTION RELOCATED	5/24/07	DW
3	CHANGED PROPERTY OWNER NAME IN SEC 21, 25-30	04/27/07	DW
MARK		REVISION	DATE BY
Engineer:	JWK	Checked By:	MGG
Technician:	DW	Date:	02-07-07
Project No.:	1070076	Field No.:	
File No.:		Scale:	1"= 1500'

**FPL - LANGDON, ND**  
**PRELIMINARY SITE PLAN**  
**SNYDER & ASSOCIATES**

CAVALIER COUNTY, NORTH DAKOTA

1751 MADISON AVENUE  
 COUNCIL BLUFFS, IOWA 51503  
 712-322-3202

MARKVILLE, ND  
 712-343-8605  
 ANKENY, IA  
 515-964-2620  
 CEDAR RAPIDS, IA  
 319-362-8384

1070076  
 Sheet 3 of 3

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## **Appendix A**

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# **North Dakota Public Service Commission Findings of Fact, Conclusion of Law, and Order**

**Case No. PU-07-26**

**STATE OF NORTH DAKOTA  
PUBLIC SERVICE COMMISSION**

**Langdon Wind, LLC  
Wind Farm – Cavalier County  
Siting Application**

**Case No. PU-07-26**

**FINDINGS OF FACT, CONCLUSIONS OF LAW AND ORDER**

**May 31, 2007**

**Appearances**

Commissioners Susan E. Wefald and Kevin Cramer.

Brian R. Bjella, Attorney-at-Law, Fleck, Mather & Strutz, Ltd., 400 East Broadway, Suite 600, Bismarck, North Dakota 58501, on behalf of the Applicant, Langdon Wind, LLC.

Annette M. Bendish, Public Utility Analyst, Public Service Commission, State Capitol, Bismarck, North Dakota 58505, on behalf of the Public Service Commission.

Jerry Lein, Public Utility Analyst, Public Service Commission, State Capitol, Bismarck, North Dakota 58505, on behalf of the Public Service Commission.

Allen C. Hoberg, Administrative Law Judge and Director, Office of Administrative Hearings, 1701 North Ninth Street, Bismarck, North Dakota 58501-1882, as Procedural Hearing Officer.

**Preliminary Statement**

On January 23, 2007, FPL Energy, LLC (FPL) filed a Letter of Intent (LOI) to submit an application for a Certificate of Site Compatibility to develop a wind energy facility, referred to as the Langdon Wind Energy Center in Cavalier County, North Dakota. FPL requested that the Commission shorten the prescribed one-year notice period between when the LOI is filed and when the Certificate of Site Compatibility is filed.

On February 7, 2007, the Commission shortened the one-year notice period to one day.

On March 21, 2007, Langdon Wind, LLC (Langdon Wind) filed an application for a Certificate of Site Compatibility authorizing construction of a 159 megawatt (MW) Langdon Wind Energy Center, consisting of up to 106 wind turbine generators and associated facilities in Cavalier County.

On April 2, 2007, FPL filed a letter with the Commission requesting that this case be transferred to Langdon Wind, a newly formed and wholly-owned subsidiary of FPL. Langdon Wind was registered to do business in the State of North Dakota effective February 1, 2007.

On April 4, 2007, the Commission deemed the application complete and issued a Notice of Filing and Notice of Hearing, scheduling a public hearing to begin May 7, 2007, at 10:00 a.m. CDT in the North Meeting Room in the Cavalier County Courthouse, 901 Third Street, Langdon, North Dakota 58429. The Notice identified the following issues to be considered:

1. Will the location, construction and operation of the proposed facilities produce minimal adverse effects on the environment and upon the welfare of the citizens of North Dakota?
2. Are the proposed facilities compatible with the environmental preservation and the efficient use of resources?
3. Will the proposed facility location minimize adverse human and environmental impact while ensuring continuing system reliability and integrity and ensuring that energy needs are met and fulfilled in an orderly and timely fashion?

On May 7, 2007, the hearing was held as scheduled. The Commission has since received certain late filed exhibits as ordered at the hearing.

Having allowed all interested persons an opportunity to be heard, and having heard, reviewed, and considered all testimony and evidence presented, the Commission makes the following:

### **Findings of Fact**

1. Langdon Wind proposes to construct and operate a wind energy facility known as the Langdon Wind Energy Center in Cavalier County, North Dakota, with a project area bordering approximately one-half mile southeast of the City of Langdon. The proposed capacity of the wind energy facility is 159 megawatts, comprised of up to 106 turbines.
2. FPL and its subsidiary companies have developed renewable energy electric generation projects throughout the United States, and collectively own and operate over 4,000 MW of renewable energy generation capacity including 162 MW in North Dakota Edgeley/Kulm, Wilton, and Oliver Wind Projects.
3. Construction of the Langdon Wind Energy Center is expected to take approximately seven months, at an estimated cost of \$250 million.

4. North Dakota Century Code § 49-22-16(3) provides that an applicant for a certificate of site compatibility from the Commission shall obtain all permits that may be required to construct and operate the energy conversion facility. Late filed Exhibit No. 1 is a list of all the permits or approvals that must be obtained for the Langdon Wind Energy Center, and the status of each of those permits or approvals.

5. The project site is approximately 30,400 acres (47.5 square miles). The wind turbines will be placed throughout the project site. However, the approximate area of direct land use for the turbines and associated facilities will be about 120 acres.

6. Associated facilities to be constructed within the project area include the project collection substation, access roads, an operations and maintenance building, along with underground or overhead collection and feeder lines.

7. The project will have a name plate (gross) capacity of up to 159 MW. Assuming net capacity factors of between 40 and 45 percent, the projected average annual energy output is estimated between 460,000 and 630,000 MW hours.

8. Langdon Wind plans to use General Electric 1.5 MW turbines. These are utility-grade wind turbines and have a nominal name plate rating of 1,500 kW. Each turbine will have an 80 meter (262 feet) hub height and a rotor diameter of 77 meters (253 feet). The 1.5 MW turbine begins operation at wind speeds of 3.5 meters per second (7.8 miles per hour) and reaches its rated capacity of 1.5 MW at a wind speed of 14.5 meters per second (32.4 miles per hour).

9. Each turbine is designed to operate at wind speeds of up to 25 meters per second (56 miles per hour), and can withstand sustained wind speeds of over 45 meters per second (100 miles per hour).

10. Each tower is secured by a concrete foundation. Turbine lighting is limited to warning lights required by the Federal Aviation Administration. A control panel inside the base of each turbine tower houses communication and electronic circuitry. Each turbine is equipped with a wind speed and direction sensor that communicates with the turbine's control system to signal when sufficient winds are present for operation. Electricity generated by each turbine is brought to a pad-mounted transformer where the voltage is stepped up to power collection line voltage of 34.5 kV. This electricity is collected by sets of underground or overhead power collection lines.

11. A feeder system delivers the electricity to the project collection substation. At the project collection substation the power will be transformed to 115 kV for transmission to the regional electric transmission grid.

12. The electricity to be produced from the Langdon Wind Energy Center will be purchased by Minnkota Power Cooperative and Otter Tail Power Company. The generated electricity will be delivered to the regional grid at Minnkota Power's existing Langdon substation.

13. Otter Tail Power Company has an option to install wind turbines at the Langdon Wind Energy Center. As of the date of the hearing, Otter Tail Power Company had not exercised this option.

14. Wind data was provided by an existing meteorological tower located near the project site installed by the Cavalier County Jobs Development Authority. In addition, Langdon Wind installed two 50-meter meteorological towers in May, 2006, within and adjacent to the site. This data, along with the May 2004, Department of Energy wind map for the State of North Dakota indicated that wind resources within the project vicinity are Class IV winds or greater. Class IV winds have an average annual wind speed of 13 miles per hours. The data from the meteorological tower and the DOE wind map indicated that this is an ideal site for a wind farm.

15. Langdon Wind will construct the Langdon Wind Energy Center in compliance with the National Electric Safety Code.

17. Langdon Wind contemplates commencing construction in June 2007. Construction is expected to take approximately seven months to complete. Langdon Wind anticipates testing and operation to begin in December 2007, and also anticipates beginning commercial production in December 2007.

18. Langdon Wind has obtained land options to construct an approximate 159 MW project and is in the process of converting those options to easements. Land rights to be acquired include wind easements, buffer easements, access roads, underground collection and feeder line easements, and purchase of the land for the operation and maintenance building. The area of direct land use for the project facilities is approximately 120 acres.

19. Safety factors will be incorporated into the wind turbines. Each will be equipped with a Supervisory Control and Data Acquisitions (SCADA) communication technology to control and monitor the turbine. In addition, each turbine is also equipped with a lightening protection system and is grounded and shielded to protect against lightening.

20. North Dakota Administrative Code Chapter 69-06-08, sets forth certain criteria to guide the Commission in evaluating the suitability of granting an application for the certificate of site compatibility. The criteria set forth in North Dakota Administrative Code § 69-06-08-01, are classified as Exclusion Areas, Avoidance Areas, Selection Criteria and Policy Criteria. With the exception of prime and unique farm land, an energy conversion facility must not be sited within an Exclusion Area. The exception for prime and unique farm land is if the Commission finds that the prime farm and unique farm land that will be removed from use for the life of the facility is of such small acreage as to be of negligible impact on agricultural production, then such exclusion shall not apply. An energy conversion facility must not be sited within an Avoidance Area unless the applicant shows that under the circumstances there is no reasonable alternative. In determining whether an Avoidance Area should be designated for a

facility, the Commission may consider, among other things, the proposed management of adverse impacts; the orderly siting of facilities; system reliability and integrity; the efficient use of resources; and alternative sites. In accordance with the Commission's Selection Criteria, an energy conversion facility shall be approved if it is demonstrated that no significant adverse impacts will result from the location, construction, and operation of the facility. In accordance with the Commission's Policy Criteria, preference may be given to an applicant demonstrating certain benefits of the energy conversion facility.

21. The Commission finds that the unique and prime farm land to be disturbed by this energy conversion facility is of such small acreage as to be of negligible impact on agriculture production.

22. A rare plant (*Carex backii*) is known to occur near the project area. This plant is a wetland species and will be avoided by Langdon Wind. Thus, there is no impact to this rare plant.

23. The only Avoidance Area identified within the project area are woodlands and wetlands. Langdon Wind does not expect to impact any woodlands in the construction of the project facilities. Langdon Wind completed a preconstruction inventory of wetlands in the vicinity of project facilities. The total impacts to wetlands will be less than 0.05 of an acre. Construction of the Langdon Wind project will be covered by a US Army Corps of Engineers Nationwide Permit (NWP).

24. With respect to historical resources which are not designated as Exclusion Areas, Langdon Wind has been in consultation with the North Dakota State Historic Preservation Office (SHPO). A Class I survey, including a search of SHPO site and manuscript files, was completed. In addition, pursuant to agreement with SHPO, a Class II pedestrian survey of a 200 foot wide corridor along the proposed collection lines and between the proposed turbine locations and any other linear portions of the project has also been completed by Metcalf Archeological Consultants, Inc. Two cultural resources, being a railroad and a prehistoric isolated find are within the project area. The railroad will not be impacted by the project. The isolated find consisting of two pieces of flaking debris and a biface fragment were found in a plowed field. This site is recommended as not significant or eligible for the National Register of Historic Places. As a result, the archeological consultant has recommended a finding of No Historic Properties Affected for this project. The archeological consultant will file its report with SHPO. Documentation indicating SHPO concurrence with the finding of the archeological consultant will be filed with the Commission.

25. Langdon Wind agreed to a buffer of 1100 feet from a waterfowl production area managed by the US Fish and Wildlife Service located within the project area. As demonstrated by late Filed Exhibit 2, the US Fish and Wildlife Service has concurred with this buffer distance.

26. Langdon Wind will implement its Wildlife Response Reporting System when turbine construction is completed. The reporting system includes protocols from field technicians during routine maintenance and operations to report and document any avian impacts.

27. Langdon Wind will maintain ground water protection and soil conservation practices to protect topsoil and adjacent resources and to minimize soil erosion during construction and operation of the project. Best management practices for erosion and sediment control will be installed to minimize erosion during and after construction.

28. Langdon Wind submitted substantial evidence to demonstrate that the proposed energy conversion facility would not have any significant impact on the Selection Criteria set forth in North Dakota Administrative Code § 69-06-08-01(3).

29. Langdon Wind submitted substantial evidence to demonstrate its commitment to maximize the benefits of the proposed energy conversion facility as far as is possible so as to meet the Policy Criteria set forth in North Dakota Administrative Code § 69-06-08-01(4).

30. The proposed project is not expected to have any significant adverse economic or social consequences. No significant adverse impact is foreseen on the ability of the affected area to provide community services, such as housing, health care, schools, police and fire protection, water and sewer, solid waste management, transportation, or traffic safety. The proposed project is expected to be of economic benefit to the affected area.

31. No turbines will be placed within 1400 feet of an occupied residence. As a result, average noise levels at such residences will not exceed the generally accepted 50 dB standard.

32. No impacts are expected to animal health or safety, other than the potential for small numbers of avian species and bat species collisions with turbines. Based upon a preliminary study prepared by Langdon Wind's environmental consultant, the impact is expected to be minimal. Langdon Wind will file its final avian study report with the Commission.

33. Langdon Wind has proposed setbacks of 420 feet from existing transmission lines, roads, and railroads.

34. North Dakota Century Code section 49-22-16(3) provides that no energy conversion facility site shall be designated that violates any county or city land use, zoning, or building rules, regulations or ordinances. Langdon Wind has obtained a conditional use permit from the Cavalier County Commission, granting zoning approval for the Langdon Wind Energy Center.

35. Langdon Wind has consulted with numerous other local, state, and federal agencies which are listed on pages 61-64 of its Application. Two agencies providing significant input are the North Dakota Game and Fish Department and the US Fish and Wildlife Service. The North Dakota Game and Fish Department indicated that its primary concern is with the disturbance of native prairie and avian monitoring. Native prairie will not be impacted by the wind farm project. In addition, as previously noted, Langdon Wind is conducting an avian survey. Concerns of the United States Fish and Wildlife Service focused on migratory birds, wetlands, native grasslands, woodland resources, and threatened and endangered species. No significant impacts to any of these resources are anticipated. Neither agency has objected to construction of the project.

36. Langdon Wind reports a contractual obligation to landowners to remove the wind facilities, including foundations to a depth of three feet, when the wind easement expires. Langdon Wind reserves the right to explore alternatives regarding project decommissioning at the end of the project term. Retrofitting the turbines and power systems with upgrades based on new technology may allow the wind farm to produce efficiently and successfully for many more years.

From the foregoing Findings of Fact, the Commission now makes its:

#### **Conclusions of Law**

1. The Commission has jurisdiction over this proceeding under North Dakota Century Code Chapter 49-22.
2. The energy conversion facility proposed by Langdon Wind is an energy conversion facility as defined in North Dakota Century Code § 49-22-03(11).
3. The proposed project is of such design, location and purpose that they will produce minimal adverse effects, as defined in North Dakota Century Code § 49-22-05.2.
4. The application submitted by Langdon Wind meets the site evaluation criteria required by North Dakota Century Code Chapter 49-22.
5. The location, construction, and operation of the proposed energy conversion facility will produce only minimal adverse effects on the environment and upon the welfare of the citizens of North Dakota.
6. The proposed energy conversion facility is compatible with environmental preservation and the efficient use of resources.
7. The proposed energy conversion facility will minimize adverse human and environmental impact while ensuring continuing system reliability and integrity and ensuring that energy needs are met and fulfilled in an orderly and timely fashion.

8. The Commission has jurisdiction to ensure compliance with National Electric Safety Code standards in the construction and operation of the proposed energy conversion facility.

From the foregoing Findings of Fact and Conclusions of Law, the Commission now makes its:

### **Order**

The Commission orders:

1. Certificate of Site Compatibility No. 6 for an energy conversion facility is issued to Langdon Wind for the construction, operation, and maintenance of a wind energy facility known as the Langdon Wind Energy Center.
2. The site described in the application borders approximately one-half mile southeast of the City of Langdon, North Dakota, and is designated as the site for construction of the energy conversion facility.
3. Within the permitted area, Langdon Wind is authorized to site and construct up to 159 MW of wind turbines in proposed and alternate locations along with electrical collection and communication lines, access roads, an operations and maintenance building, and other associated facilities as identified in the application.
4. Langdon Wind shall comply with all the rules and regulations of all other agencies having jurisdiction over any phase of the proposed project. Prior to commencing construction of any phase of the proposed project, Langdon Wind shall obtain all other necessary approvals and permits for construction of such phase, and provide copies to the Commission prior to construction of each such phase.
5. Langdon Wind shall conduct a pre-construction conference prior to the commencement of any construction, and must include a Langdon Wind representative, its construction supervisor, and a representative of the Commission staff to ensure that Langdon Wind fully understands the conditions set forth in this Order.
6. Langdon Wind shall inform the Commission of its intent to start construction on the energy conversion facility prior to the commencement of construction, and while construction is underway, Langdon Wind shall keep the Commission updated of construction activities on a weekly basis.
7. Langdon Wind shall construct and operate the energy conversion facility in the manner described in its application and at the hearing, and in accordance with all applicable safety requirements.
8. Langdon Wind shall construct the energy conversion facility in compliance with the National Electric Safety Code.

9. Langdon Wind shall promptly report to the Commission the presence in the permit area of any critical habitat of threatened or endangered species, or of bald or golden eagles that Langdon Wind becomes aware of and that were not previously reported to the Commission.

10. If any cultural resource, paleontological resource, archeological site, historical resource, or gravesite is discovered during construction of the facility, earth disturbing activities in the immediate vicinity of the discovery must be halted. The resource must be marked, preserved, and protected from any further disturbance until a professional examination can be made in consultation with the ND SHPO. A report of such examination must be filed with the Commission, and clearance to proceed must be given by the SHPO and the Commission.

11. All pre-existing roads and lanes used during construction must be restored to a condition that will accommodate their previous use, and areas used as temporary roads during construction must be restored to their original condition.

12. Construction must be suspended when weather conditions are such that construction activities will cause irreparable damage, unless adequate protection measures approved by the Commission are taken.

13. Reclamation, fertilization, and reseeding is to be done by Langdon Wind according to the Natural Resource Conservation Service recommendations for CRP, native prairie, and other non-cropped lands unless otherwise specified by the landowner and approved by the Commission.

14. Langdon Wind's obligation for reclamation and maintenance of the site shall continue throughout the life of the energy conversion facility.

15. When the energy conversion facility is retired, structures and other facilities will be removed to a depth of at least three feet, or in accordance with applicable rules, and the area restored to as near as original condition as is practicable.

16. Trees and other woody vegetation must be replaced with saplings that are two or more years old at a rate of two for every one removed. Landowners shall be given the option of having replacement trees/shrubs planted on the landowners' property or waiving the requirement in writing, and allowing Langdon Wind to plant replacement trees/shrubs elsewhere. Langdon Wind shall inspect any tree replacements once a year for three years and send a report on or before October 1 of each year to the Commission documenting work completion and condition of woodlands planting. The Commission may order additional plantings if survival rates are less than 75%.

17. Langdon Wind shall repair or replace all fences and gates removed or damaged during all phases of construction and operation of the proposed energy conversion facility.

18. Langdon Wind shall repair or replace all drainage tile, broken or damaged, during all phases of construction and operation of the proposed energy conversion facility.
19. Staging areas or equipment shall not be located on cultivated land unless otherwise negotiated with landowners.
20. Langdon Wind shall remove all waste that is a product of construction and operation, restoration and maintenance of the site, and properly dispose of it on a regular basis.
21. Langdon Wind, shall, as soon as practicable, upon the completion of the construction of each wind turbine, restore the area affected by the activities to as near as is practicable to the condition as it existed prior to the beginning of construction.
22. Langdon Wind shall provide, if requested, educational material for landowners within the site boundaries about the proposed energy conversion facility, and any restriction or possible danger concerning the proposed energy conversion facility.
23. Langdon Wind shall provide any necessary safety measures for traffic control or to restrict public access to the energy conversion facility.
24. Langdon Wind shall advise the Commission of any extraordinary events which take place at the site of the energy conversion facility, such as tower collapse, turbine failure, injured worker or private individual, the death of any threatened or endangered species or the discovery of a large number of dead birds or bats on the site within five business days of such event.
25. Langdon Wind shall implement a procedure for how complaints concerning the proposed energy conversion facility will be handled by Langdon Wind.
26. All underground electric line crossings of graded roads must be bored unless the responsible governing agency permits Langdon Wind to open cut the road.
27. Where available, at least 12 inches of topsoil over and along open cut areas, roadways, tower locations, and locations of associated facilities must be stripped and segregated from the subsoil and be replaced only after the subsoil is replaced.
28. Langdon Wind shall bury all underground collection and feeder lines to a depth of at least 48 inches to the top of the lines.
29. Langdon Wind shall work with landowners and residents in the area to mitigate any increase in television and residential radio interference that results from the construction of the energy conversion facility.

30. Langdon Wind shall provide the Commission with engineering design drawings showing surveyed structure and collection substation locations prior to construction and then shall obtain approval from the Commission or from Commission staff prior to any changes in those surveyed locations.

31. Langdon Wind shall provide the Commission with as-built drawings within 90 days after construction is complete.



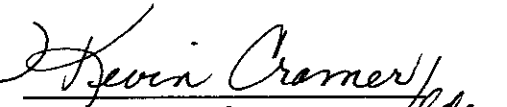
32. The Certificate of Site Compatibility is subject to suspension or revocation and may, in an appropriate and proper case, be suspended or revoked for failure to comply with the Commission's order, the conditions and criteria of the certificate or subsequent modification, or failure to comply with the applicable statutes, rules, regulations, standards, and permits of other state or federal agencies.

33. Langdon Wind shall maintain records which will demonstrate that it has complied with the requirements of this order and the Certificate of Site Compatibility, and that it will preserve these records for Commission inspection at any reasonable time upon reasonable notice.

34. House Bill No. 1317 as passed by the 2007 North Dakota legislature provides that the Commission has the power to establish rules for decommissioning of wind energy conversion facilities. Langdon Wind is required to comply with all applicable rules adopted by the Commission pursuant to such legislation.

35. The authorizations granted by the Certificate of Site Compatibility for this energy conversion facility are subject to modification by order of the Commission if deemed necessary to further protect the public or the environment.

**PUBLIC SERVICE COMMISSION**

		
<hr/>	<hr/>	<hr/>
<b>Tony Clark</b> Commissioner	<b>Susan E. Wefald</b> President	<b>Kevin Cramer</b> Commissioner

**PUBLIC SERVICE COMMISSION**

**STATE OF NORTH DAKOTA**

**Certificate of Site Compatibility**

**Certificate Number 6**

*This is to certify that the Commission has designated an energy conversion site for FPL Energy, LLC, which is described as follows:*

**Township 161N Range 59W**  
**Sections 26, 27, 28, 34**

**Township 160N Range 59W**  
**Sections 2, 3, 4, 5, 6, 7, 8, 9, 10, 16, 17, 18, 19, 20, 21, 28, 29, 30, 31, 32, 33**

**Township 160N Range 60W**  
**Sections 1, 11, 12, 13, 14, 24, 25, 26, 35, 36**

**Township 159N Range 59W**  
**Sections 3, 4, 5, 6, 7, 8, 9, 10, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23**

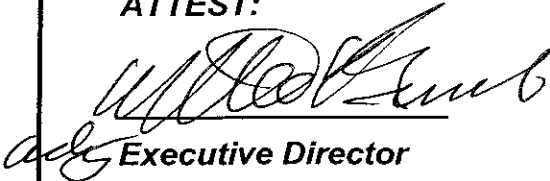
**Township 159N Range 60W**  
**Sections 1, 11, 12, 13, 24**

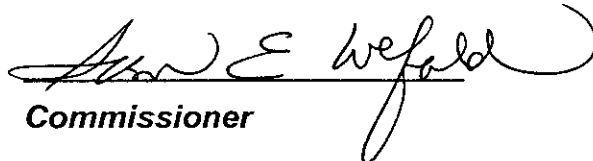
*The facility may be sited in this designated location in compliance with the energy conversion facility siting criteria. This certificate is issued in accordance with the Findings of Fact, Conclusions of Law and Order of this Commission dated May 31, 2007, in Case No. PU-07-26 and is subject to the conditions and limitations noted in the Order.*

*Bismarck, North Dakota, May 31, 2007.*

**ATTEST:**

**PUBLIC SERVICE COMMISSION**

  
**Executive Director**

  
**Commissioner**

**North Dakota Public Service Commission**  
**May 31, 2007**

**Langdon Wind, LLC**  
**Wind Farm – Cavalier County**  
**Siting Application**

**Case No. PU-07-26**

**Summary Sheet**

Company:

Langdon Wind LLC., a subsidiary of FPL Energy, LLC of Juno Beach, Florida, has filed an application for a certificate of site compatibility to construct a proposed Langdon Wind Energy Center in Cavalier County, North Dakota.

Project:

The proposed project would be constructed over an area of approximately 47.5 square miles located southeast of Langdon, North Dakota. The project would consist of up to 106 wind turbine generators, one or more permanent meteorological towers, access roads, underground and overhead collection lines, a substation, and operations and maintenance facilities. The proposed project would contribute up to 159 MW of renewable energy generation to the power grid. A project map is included on the reverse side of this summary sheet.

Cost:

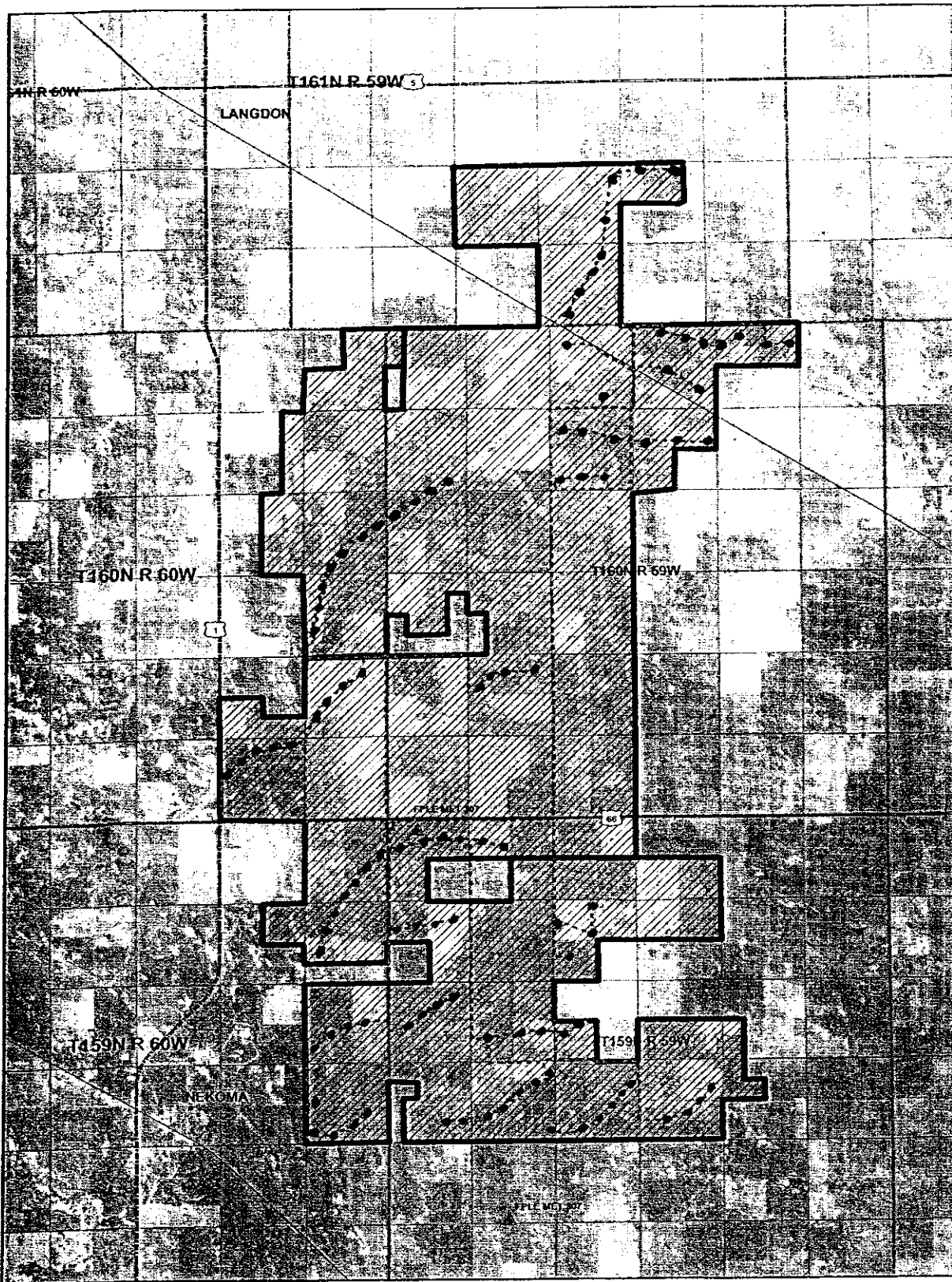
Langdon Wind estimates the cost of constructing the proposed wind farm to be approximately \$250 Million.

Schedule:

Langdon Wind hopes to begin construction in June, 2007 and anticipates completing construction within seven months to begin commercial operation by December 31, 2007.

Commission Action:

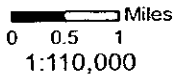
A Public Hearing was held in Langdon on May 7, 2007. Today the Commission will vote whether to issue a Certificate of Site Compatibility authorizing construction of the Langdon Wind Energy Center.



**Legend**

- Proposed Turbine Locations
- ▲ MET (Meteorological Tower)
- ▨ Approximate Project Area
- Public Land Survey System (PLSS) Township/Section Range
- Ponds/Lakes
- Collection Lines
- ▬ Highways
- County Roads
- Railroads
- Streams/Rivers

**TC** TETRA TECH



**Langdon Wind Energy Center**  
**Langdon Wind, LLC**  
**Cavalier County, North Dakota**

**APPROVED**

DATE: 5-31-07  
SPB

**MOTION**

**May 31, 2007**

**Langdon Wind, LLC  
Wind Farm – Cavalier County  
Siting Application**

**Case No. PU-07-26**

I move the Commission adopt the Findings of Fact, Conclusions of Law and Order issuing a certificate of site compatibility to Langdon Wind, LLC for its proposed 160 MW Langdon Wind Energy Center in Cavalier County, North Dakota, Case No. PU-07-26.

JRL

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## **Appendix B**

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### **Landowner Tree Replacement Waiver Forms**

November 11, 2010

Walter Gronhovd  
PO Box 111  
Nekoma, ND 58355

RE: Langdon Wind Farm Tree & Shrub Replacement

Dear Mr. Gronhovd:

During the construction of the Langdon Wind Project by Florida Power & Light (FPL Energy/NextEra Energy), trees and shrubs were removed from your land. FPL Energy has a responsibility to replace any destroyed trees or shrubs at a ratio of two trees/shrubs for every one removed, if that is the landowner's preference. FPL Energy recorded that six ~~cottonwood~~ <sup>GREEN ASH</sup> trees and shrubs were removed from your land in the W ½ of Section 17 in Osnabrock Township, near Turbine 54. FPL Energy would replace these trees with 12 trees of your choosing.

On September 30, 2010, you were contacted by Ms. Sara Simmers of Western Plains Consulting, Inc. on behalf of FPL Energy, regarding whether you preferred trees/shrubs be replanted on your land.

You stated that you would prefer not to replace the trees/shrubs that were removed during construction. Please sign below to acknowledge this and return this form in the self-addressed, stamped envelope at your earliest convenience. A second copy of this letter is included for you to sign and keep for your records. This documentation is required of FPL Energy by the ND Public Service Commission. The number of trees you were allotted will be replaced elsewhere or put into a state tree planting program.

Please contact me at any time with further questions at 701-221-3113 or by email at [ssimmers@wpcnd.com](mailto:ssimmers@wpcnd.com).

Sincerely,



Sara Simmers,  
Natural Resource Specialist

I acknowledge that I am declining trees/shrubs to be planted on my property for replacement after construction of the Langdon wind farm.

  
Landowner:

11-17-2010  
Date:



[www.wpcnd.com](http://www.wpcnd.com)  
PO Box 1401  
Bismarck, ND 58502-1401  
701-221-3113  
Toll Free 888-821-3113  
Fax 701-221-2140

November 11, 2010

Edwin Pearson  
1223 9<sup>th</sup> Ave East  
Langdon, ND 58249

RE: Langdon Wind Farm Tree & Shrub Replacement

Dear Mr. Pearson:

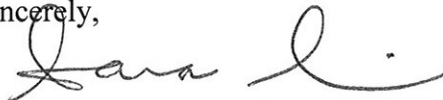
During the construction of the Langdon Wind Project by Florida Power & Light (FPL Energy/NextEra Energy), trees and shrubs were removed from your land. FPL Energy has a responsibility to replace any destroyed trees or shrubs at a ratio of two trees/shrubs for every one removed, if that is the landowner's preference. FPL Energy recorded that two cottonwood trees and one pine tree were removed from your land in the SE /14 of Section 4 in Easby Township. FPL Energy would replace these trees with 6 trees of your choosing.

On November 11, 2010, you were contacted by Ms. Sara Simmers of Western Plains Consulting, Inc. on behalf of FPL Energy, regarding whether you preferred trees/shrubs be replanted on your land.

You stated that you would prefer not to replace the trees/shrubs that were removed during construction. Please sign below to acknowledge this and return this form in the self-addressed, stamped envelope at your earliest convenience. A second copy of this letter is included for you to sign and keep for your records. This documentation is required of FPL Energy by the ND Public Service Commission. The number of trees you were allotted will be replaced elsewhere or put into a state tree planting program.

Please contact me at any time with further questions at 701-221-3113 or by email at [ssimmers@wpcnd.com](mailto:ssimmers@wpcnd.com).

Sincerely,



Sara Simmers,  
Natural Resource Specialist

I acknowledge that I am declining trees/shrubs to be planted on my property for replacement after construction of the Langdon wind farm.

  
\_\_\_\_\_  
Landowner:

11-28-10  
Date:



[www.wpcnd.com](http://www.wpcnd.com)  
PO Box 1401  
Bismarck, ND 58502-1401  
701-221-3113  
Toll Free 888-821-3113  
Fax 701-221-2140

November 11, 2010

Richard Sundberg  
210 Park Drive  
Harwood, ND 58842

RE: Langdon Wind Farm Tree & Shrub Replacement

Dear Mr. Sundberg:

During the construction of the Langdon Wind Project by Florida Power & Light (FPL Energy/NextEra Energy), trees and shrubs were removed from your land. FPL Energy has a responsibility to replace any destroyed trees or shrubs at a ratio of two trees/shrubs for every one removed, if that is the landowner's preference. FPL Energy recorded that two cottonwood trees and shrubs were removed from your land in the SE 1/4 of Section 17 in Osnabrock Township, near Turbine 56. FPL Energy would replace these trees with 4 trees of your choosing.

On October 20, 2010, you were contacted by Ms. Sara Simmers of Western Plains Consulting, Inc. on behalf of FPL Energy, regarding whether you preferred trees/shrubs be replanted on your land.

You stated that you would prefer not to replace the trees/shrubs that were removed during construction. Please sign below to acknowledge this and return this form in the self-addressed, stamped envelope at your earliest convenience. A second copy of this letter is included for you to sign and keep for your records. This documentation is required of FPL Energy by the ND Public Service Commission. The number of trees you were allotted will be replaced elsewhere or put into a state tree planting program.

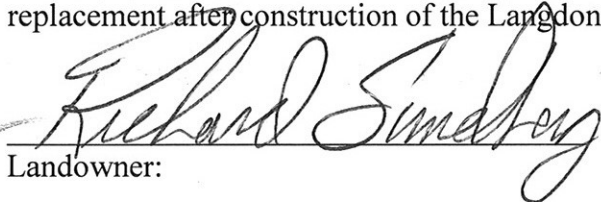
Please contact me at any time with further questions at 701-221-3113 or by email at [ssimmers@wpcnd.com](mailto:ssimmers@wpcnd.com).

Sincerely,



Sara Simmers,  
Natural Resource Specialist

I acknowledge that I am declining trees/shrubs to be planted on my property for replacement after construction of the Langdon wind farm.

  
Landowner:

11/23/10  
Date:



[www.wpcnd.com](http://www.wpcnd.com)  
PO Box 1401  
Bismarck, ND 58502-1401  
701-221-3113  
Toll Free 888-821-3113  
Fax 701-221-2140

December 21, 2010

John Wild  
11021 Highway 66  
Osnabrock, ND 58269

RE: Langdon Wind Farm Tree & Shrub Replacement

Dear Mr. Wild:

During the construction of the Langdon Wind Project by Florida Power & Light (FPL Energy/NextEra Energy), trees and shrubs were removed from your land. FPL Energy has a responsibility to replace any destroyed trees or shrubs at a ratio of two trees/shrubs for every one removed, if that is the landowner's preference. FPL Energy recorded that eight cottonwood trees were removed from your land in the NE 1/4 of Section 5 in Osnabrock Township, east of the laydown area. FPL Energy would replace these trees with 16 trees of your choosing.

On December 21, 2010, you were contacted by Ms. Sara Simmers of Western Plains Consulting, Inc. on behalf of FPL Energy, regarding whether you preferred trees/shrubs be replanted on your land.

You stated that you would prefer not to replace the trees/shrubs that were removed during construction. Please sign below to acknowledge this and return this form in the self-addressed, stamped envelope at your earliest convenience. A second copy of this letter is included for you to sign and keep for your records. This documentation is required of FPL Energy by the ND Public Service Commission. The number of trees you were allotted will be replaced elsewhere or put into a state tree planting program.

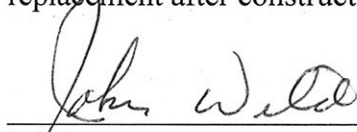
Please contact me at any time with further questions at 701-221-3113 or by email at [ssimmers@wpcnd.com](mailto:ssimmers@wpcnd.com).

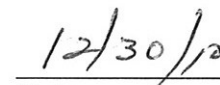
Sincerely,



Sara Simmers,  
Natural Resource Specialist

I acknowledge that I am declining trees/shrubs to be planted on my property for replacement after construction of the Langdon wind farm.

  
\_\_\_\_\_  
Landowner:

  
\_\_\_\_\_  
Date:



[www.wpcnd.com](http://www.wpcnd.com)  
PO Box 1401  
Bismarck, ND 58502-1401  
701-221-3113  
Toll Free 888-821-3113  
Fax 701-221-2140

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## **Appendix C**

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### **Planting Plans**

