

**STATE OF NORTH DAKOTA  
PUBLIC SERVICE COMMISSION**

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

**Case No. PU-07-722**

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

**May 7, 2008**

**Appearances**

Commissioners Susan E. Wefald, Kevin Cramer and Tony Clark.

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.

William W. Binek, Chief Counsel, Public Service Commission, State Capitol, Bismarck, North Dakota 58505, on behalf of the North Dakota 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, October 15, 2007, Langdon Wind, LLC (“Langdon Wind”) filed a Letter of Intent (“LOI”) to submit an application for an amendment to its Certificate of Site Compatibility No. 6 to further develop a wind energy facility, referred to as the Langdon Wind Energy Center, in Cavalier County, North Dakota. Langdon Wind 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 October 24, 2007, the Commission shortened the one-year notice period to one day.

On February 5, 2008, Langdon Wind filed an application for an amendment to its Certificate of Site Compatibility, Certificate No. 6, to authorize construction of a 40.5 MW expansion to the Langdon Wind Energy Center, consisting of up to 27 additional wind turbine generators and associated facilities in Cavalier County, North Dakota.

On February 13, 2008, the Commission deemed the application complete and issued a Notice of Filing and Notice of Hearing, scheduling a public hearing to begin March 19, 2008, at 11:00 a.m. CST in the North Meeting Room at 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 locations 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 March 19, 2008, the hearing was held as scheduled.

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 an addition to its wind energy facility known as the Langdon Wind Energy Center in Cavalier County, North Dakota. The proposed capacity of the addition is 40.5 MW, comprised of up to 27 turbines.
2. Construction of this addition to the Langdon Wind Energy Center is expected to take approximately seven months with an estimated cost of \$73 million.
3. The project site is approximately 25,530 acres (40 square miles). The wind turbines will be placed throughout the project site.
4. Associated facilities to be constructed within the project area include access roads along with underground collection and feeder lines.
5. The project will have a name plate (gross) capacity of up to 40.5 MW. Assuming net capacity factors of between 40 and 45 percent, the projected average annual energy output is estimated between 141,912 to 159,651 MW hours.
6. 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 (254 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).
7. Each turbine is designed to operate at wind speeds of up to 25 meters per second (45 miles per hour), and can withstand sustained wind speeds of over 45 meters per second (100 miles per hour).
8. 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 power collection lines.

9. 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.

10. The electricity to be produced from this addition to the Langdon Wind Energy Center will be purchased by Minnkota Power Cooperative. The generated electricity will be delivered to the regional grid at Minnkota Power's existing Langdon substation.

11. 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 hour. The data from the meteorological tower and the DOE wind map indicated that this is an ideal site for a wind farm.

12. Langdon Wind will construct the addition to its Langdon Wind Energy Center in compliance with the National Electric Safety Code.

13. Langdon Wind contemplates commencing construction in May 2008. Construction is expected to take approximately seven months to complete. Langdon Wind anticipates testing and operation to begin in December 2008, and also anticipates beginning commercial operation in December 2008.

14. Langdon Wind has obtained easements to construct an approximate 40.5 MW addition to its Langdon Wind Energy Center. Land rights acquired include wind easements, buffer easements, access roads, and underground collection and feeder line easements.

15. 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 lightning protection system and is grounded and shielded to protect against lightning.

16. 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.

17. 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.

18. A rare plant, Big Blue Stem, is known to occur in the southwest portion of the project area. The plant is a wetland species and will be avoided along with the wetland.

19. The only Avoidance Areas identified within the project area are woodlands and wetlands. Langdon Wind does not expect to impact any woodlands and wetlands in the construction of the project facilities.

20. 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). Class I, II and III surveys, including a search of SHPO's site and managed files, were conducted by Metcalf Archeological Consultants, Inc. for the project area. Two prehistoric isolated finds were located. These isolated finds are recommended as not eligible for the National Register of Historic Places, and no further investigation or avoidances are recommended. One historic site, the Safeguard Complex is located approximately 1.1 mile southeast of the nearest proposed wind turbine, and out of the project area. The pyramid within the complex is 1.3 miles from the closest turbine. The project will minimally modify the viewshed of this National Register Eligible Historic Property. The principal component of the site, the pyramid, is well over one mile from the nearest turbine, and while its viewshed will be modified, the modification will not greatly reduce the feeling or association of the site. Langdon Wind has submitted a mitigation plan to SHPO and to the US Army to assist in development of an interpretive system to improve the preservation efforts of the Safeguard Complex. Langdon Wind received a response from SHPO on February 12, 2008. In this letter, SHPO stated that it concurs that the two sites are not significant and are not eligible for listing in the National Register of Historic Places. Also, SHPO concurred with the "No Historic Properties Affected" and "No Significant Site Affected" determinations for the project, provided it is of the nature stated and it takes place in the locations plotted, and with no effects to the Safeguard Complex as described in Langdon Wind documentation.

21. Langdon Wind agreed to a buffer of 0.25 mile from waterfowl production areas managed by the US Fish and Wildlife Service located within the project area. The US Fish and Wildlife Service has concurred with this buffer distance.

22. Langdon Wind has implemented a Wildlife Response Reporting System that includes protocols from field technicians during routine maintenance and operations to report and document any avian impacts.

23. Langdon Wind will maintain groundwater 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.
24. Langdon Wind submitted substantial evidence to demonstrate that the proposed energy conversion facility addition would not have any significant impact on the Selection Criteria set forth in North Dakota Administrative Code § 69-06-08-01(3).
25. Langdon Wind submitted substantial evidence to demonstrate its commitment to maximize the benefits of the proposed energy conversion facility addition as far as is possible so as to meet the Policy Criteria set forth in North Dakota Administrative Code §69-06-08-01(4).
26. 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.
27. 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.
28. 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 studies prepared by Langdon Wind's environmental consultant, the impact is expected to be minimal.
29. Langdon Wind has proposed setbacks of 420 feet from existing transmission lines, roads, and railroads.
30. 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 this 40.5 MW addition to the Langdon Wind Energy Center.
31. During site planning of both the initial Langdon Wind Energy Center and the proposed 40.5 MW expansion, Langdon Wind has consulted with numerous other local, state and federal agencies as listed on pages 59-63 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. Langdon Wind conducted an Avian Survey in Spring of 2007. Results were submitted to the Commission. 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.

32. 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. First Amended 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 as described in the application is located southeast of the City of Langdon, North Dakota, and is designated as the site for construction of the energy conversion facility.

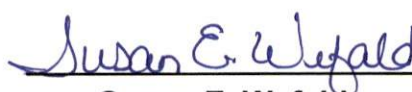
3. Within the permitted area, Langdon Wind is authorized to site and construct up to 40.5 MW of wind turbines in proposed and alternative locations along with electrical collection and communication lines, access roads, and other associated facilities as identified in the application.
4. Langdon Wind 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 must be removed to a depth of at least four feet, or in accordance with applicable rules, and the areas 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 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. North Dakota Century Code § 49-02-27 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 statute.
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**

  
 Tony Clark  
 Commissioner

  
 Susan E. Wefald  
 President

  
 Kevin Cramer  
 Commissioner

**PUBLIC SERVICE COMMISSION  
STATE OF NORTH DAKOTA**

**Certificate of Site Compatibility for Energy Conversion Facility  
First Amended  
Certificate Number 6**

*This is to certify that the Commission has designated an energy conversion facility site for Langdon Wind, LLC, to construct and operate a wind energy facility in Cavalier County, North Dakota.*

*The energy conversion facility site designated by the Commission's May 31, 2007 Order in Case No. PU-07-26 for a 159 MW wind energy facility is amended by the Commission's May 7, 2008 Order in Case No. PU-07-722 authorizing a 40.5 MW expansion of that facility.*

*This certificate is subject to the conditions and limitations noted in those orders.*

*Bismarck, North Dakota, May 7, 2008.*

**ATTEST:**

**PUBLIC SERVICE COMMISSION**

  
**Executive Director**

  
**Commissioner**