STATE OF MINNESOTA
Minnesota Department of Commerce
Issued: September 28, 2007

In the Matter of Establishment of General Permit Standards for the Siting of Wind Generation Projects Less than 25 Megawatts

PUC Docket Number: E,G999/M-07-1102

SUMMARY OF HISTORIC PUC WIND SETBACKS AND STANDARDS

Background
Minnesota Session Laws 2007, Chapter136, Sections 12-14, (relevant sections attached) provides a new option for counties to assume responsibility under Minnesota Statutes Chapter 216F to process wind site permitting for large wind energy conversion systems (LWECS) less than 25 MW in total nameplate capacity. In providing this option, the Legislature recognized that there was a need for some standardization of siting parameters that would support consistent and orderly development of Minnesota's wind resource. It therefore tasked the Commission with establishing general permit standards by January 15, 2008.

The PUC order establishing general permit standards must consider existing and historic Commission standards for wind permits issued by the Commission. The standards adopted by the PUC will apply to wind site permits issued by counties and to permits issued by the Commission for LWECS with a combined nameplate capacity of less than 25 MW. The Commission or counties may grant a variance from a general permit standard if the variance is found to be in the public interest and counties may establish more restrictive standards by ordinance.

This document summarizes the setback and permit standards required by the Minnesota Public Utilities Commission (PUC or Commission) for site permits for Large Wind Energy Conversion Systems (LWECS). PUC issued site permits have consistently required minimum setbacks from certain land uses or structures to protect public safety, to ensure compliance with Minnesota Statutes Chapter 216F and Minnesota Rules Chapter 7836, and to ensure orderly development of wind resources.

The PUC has requested that the Department of Commerce Energy Facilities Permitting staff collect public comments on the PUC permit standards and setbacks and make recommendations to the Commission by the end of November 2007.

Public Comments
Interested parties are encouraged to submit comments on the historic PUC wind siting standards, suggest additional siting standards or modifications to PUC's historic standards. In addition, parties are encouraged to comment on procedural matters related to siting wind facilities by the

PUC or by counties and technical assistance needs which could be provided to counties in the future by the DOC EFP staff.

Interested parties may comment on the proposed delegation process and PUC wind siting standards by submitting written comments by 4:30 p.m. on **October 31, 2007.** Written comments can be sent by mail, fax or by email. Please include the following docket number (E,G999/M-07-1102) on written comments. Written or fax comments should be directed to: Minnesota Department of Commerce, 85 7th Place East, Suite 500, St. Paul, MN 55101-2198, fax 651-297-7891.

Additional information about the process to establish general permit standards, the state wind siting process, rules guiding the review process, and additional information is available and will be updated on the MPUC website at:

http://energyfacilities.puc.state.mn.us/Docket.html?Id=19302

The DOC will take comments into consideration in making its general permit standards and setback recommendations to the PUC in late November 2007.

Historic PUC Wind Setbacks

Wind Access Buffer: The largest setback the PUC requires for LWECS projects is the Wind Access Buffer, which can be from 760 – 1640 feet, depending on turbine rotor diameter and predominant wind direction. This setback is measured from the boundaries of the permittee's wind development rights, which may consist of one isolated parcel of wind rights or thousands of acres of wind and land rights made up of many individual, contiguous parcels. This setback protects the wind developments rights of neighboring wind rights owners by requiring projects be spaced apart to ensure that one permitted project does not "take" or negatively affect the wind development rights owned by or assigned to others.

Homes and Noise: PUC issued site permits require a 500 foot minimum setback from homes and an additional distance sufficient to meet the residential Minnesota Noise Standard, Noise Area Classification 1, L50 50 dBA during overnight hours measured at residential receptors. See Minnesota Rules Chapter 7030. Typical utility scale wind turbines today typically require750 – 1200 foot setbacks from homes to meet the standard. Each turbine, project layout and local vegetative, topographic, and other conditions will dictate the total setback required to meet the noise standard.

Public Roads: PUC issued site permits have historically required a 250 foot minimum setback from the edge of public road rights-of-way.

The table below summarizes all historic PUC LWECS site permit setbacks. Some of these setbacks have evolved over time due to changing circumstances or have been varied on a limited, case-by-case basis.

Historic PUC Wind Setbacks

Resource Category	PUC Historic Standard	Minimum Setback	PUC Permit Condition
Wind Access Buffer (setback from lands and/or wind rights not under Permittee's control)	5 rotor diameters on the predominant wind axis or downwind (typically north-south), 3 rotor diameters on the secondary or crosswind (typically east-west) axis if wind rose shows lesser winds from secondary or crosswind direction.	3 RD (760 – 985 ft) on east-west axis and 5 RD (1280 – 1640 ft) on north-south using turbines with 78 – 100 m rotor diameters	III.C.1
Homes	At least 500 ft and sufficient distance to meet state noise standard (below).	500 feet + state noise standard.	III.C.2
Noise Standard	Project must meet Minnesota Noise Standards, Minnesota Rules Chapter 7030, at all residential receivers (homes). Residential noise standard NAC 1, L50 50 dBA during overnight hours. Setback distance calculated based on site layout and turbine by developer for each residential receptor near each project.	Typically 750 – 1500 ft required to meet noise standards depending on turbines, layout, site specific conditions.	III.E.3
Public Roads	Minimum setback of 250 feet from edge of public road ROW	250 ft	III.C.3
Wildlife Management Areas	No turbines, towers or associated facilities in public lands.	No setback required historically.	III.C.4
Meteorological Towers	250 foot setback from edge of road rights-of-way and boundary of developer's site control (wind and land rights).	250 ft from road ROW and boundary of site control.	
Wetlands	No turbines, towers or associated facilities in public waters wetlands. However, access road and electric line crossings may be permitted and subject to DNR, FWS, and/or USACOE permits		III.C.5
Native Prairie	Native prairie protection plan to be submitted if native prairie is present.		III.C.6
Sand and Gravel Operations	No turbines, towers or associated facilities in active sand and gravel operations, unless negotiated with the landowner.		III.C.7
Internal Turbine Spacing	Turbines spaced 5 rotor diameters apart for downwind spacing and 3 rotor diameters apart for crosswind spacing. Additional case-by-case analysis based on topographic conditions.	5 rotor diameters downwind spacing 3 rotor diameters apart for crosswind spacing	III.D.5

Questions:

1. Are these the proper resource categories to establish setbacks from?
2. Are there additional resource categories for which a setback should be developed?
3. Are there resource categories and setbacks which should be eliminated in the PUC's general permit standards decision?
4. Do you believe these minimum setback distances are inadequate, adequate, or excessive?
5. How should the minimum setback distances be changed or modified? If so, please describe the rationale for each change.

Additional Standards
The following list summarizes the additional PUC's standards applied to LWECS site permits and references the permit condition where each standard is found. These standards have evolved and have been refined over time in response to changing times, technology, permitting requirements of other agencies, etc...

- **Wind Turbines:** Monopole design, uniform white/off white color. Permit condition
- **Topsoil and Compaction.** Must protect and segregate topsoil from subsoil in cultivated lands unless otherwise negotiated with affected landowner. Must minimize compaction of all lands during all phases and confine compaction to as small area as possible. Permit conditions III.B.2 and III.B.3.
- **Fences.** Promptly repair or replace all fences and gates removed or damaged during project life. Provide continuity of electric fence circuits. Permit condition III.B.5
- **Drainage Tile.** Shall take into account, promptly repair or replace all drainage tiles broken or damaged during all phases of project life unless otherwise negotiated with affected landowner. Permit condition III.B.6.
- **Equipment Storage.** Shall not locate temporary equipment staging areas on cultivated lands unless negotiated with landowner. Permit condition III.B.7.
- **Public Roads.** Identify roads to be used in project construction. Inform public jurisdiction controlling each road to determine inspection of road prior to use. Permittee shall make satisfactory arrangements (including obtaining permits) for road use, access road intersections, maintenance and repair of damage with governmental jurisdiction with authority over each road. Permit condition III.B.8.a.
- **Turbine Access Roads.** Construct smallest number of access roads it can. Roads must be low profile to allow farm equipment to cross. Shall be constructed of Class 5 gravel or similar material. Shall not obstruct runoff or watersheds. Permit condition III.B.8.b.
- **Private Roads.** Shall promptly repair private roads or lanes damaged unless otherwise negotiated with landowner. Permit condition III.B.8.c.
- **Soil Erosion and Sediment Control.** Permittee shall submit its Storm Water Pollution Prevention Plan submitted to the Minnesota Pollution Control Agency as part of its NPDES construction permit application. Permit condition III.B.9.
- **Cleanup.** Shall remove all waste and scrap from site. Permit condition III.B.10.
- **Tree Removal.** Minimize tree removal and negotiate all tree or shelter belt removal with landowner. Permit condition III.B.11.
- **Restoration.** Shall restore area affected by any LWECS activity to pre construction condition, to the extent possible within eight (8) months of completion of turbine construction. Permit condition III.B.12.
- **Hazardous Waste.** Shall be responsible for compliance will all laws applicable to the generation, storage, transportation, clean up and disposal of hazardous wastes generated during any phase of the project's life. Permit condition III.B.13.
- **Application of Herbicides.** Restrict use to those herbicides and methods approved by the Minnesota Department of Agriculture. Must contact landowner prior to application. Permit condition III.B.14.
- **Public Safety.** Permittee shall provide any safety measures such as warning signs or gates for traffic control or to restrict public access. Permit condition III.B.15.

- **Fire Protection.** Permittee shall prepare fire protection and medical emergency plan in consultation with local fire department. Shall submit to PUC upon request. Permit condition III.B.16.
- **Tower Identification.** All turbine towers shall be marked with a visible identification marker. Permit condition III.B.17.
- **Native Prairie.** Must submit native prairie protection plans where applicable. Permit condition III.C.6
- **Electromagnetic Interference.** Shall conduct assessment of television signal reception and microwave signal patters in project area prior to construction. Permittee is responsible for alleviating any disruption or interference caused by wind turbines or associated facilities. Permit condition III.D.3.
- **Turbine Lighting.** No lights or paint color on wind turbines or met towers other than what is required by FAA. Permit condition III.D.4.
- **Project Energy Production:** The Permittee shall, by July 15 of each year, report to the PUC on the monthly energy production of the Project and the average monthly wind speed collected at one permanent meteorological tower selected by the PUC during the preceding year or partial year of operation. Permit condition III.H.1-2.
- **Extraordinary Events:** Within 24 hours of an occurrence, the Permittee shall notify the PUC of any extraordinary event. Extraordinary events include but shall not be limited to: fires, tower collapse, thrown blade, collector or feeder line failure, injured LWECS worker or private person, kills of threatened or endangered species, or discovery of an unexpectedly large number of dead birds or bats of any variety on site. Permit condition III.H.3.
- **Complaints:** Prior to the start of construction, the Permittee shall submit to the PUC the company's procedures to be used to receive and respond to complaints. The Permittee shall report to the PUC all complaints received concerning any part of the LWECS in accordance with the procedures provided in permit. Permit condition III.H.4.
- **As-Built Plans and Specifications:** Within 60 days after completion of construction, the Permittee shall submit to the PUC a copy of the as-built plans and specifications. The Permittee must also submit this data in a geographic information system (GIS) format for use in a statewide wind turbine database. Permit condition III.I.1-2.
- **Decommissioning Plan.** Must submit a decommissioning plan describing manner Permittee plans on meeting requirements of Minnesota Rule 7836.0500, subpart 13. Permit condition III.G.1.
- **Special Conditions:** PUC issued site permits often include additional specific and special conditions regarding such issues as threatened or endangered species which are developed on a case-by-case basis. Permit condition III.M.1.

Questions:

6. Are these standards inadequate, adequate, or excessive?
7. Are there standards that should be eliminated in the PUC's general permit standards decision?
8. Are there additional standards that should be considered in the PUC's general permit standards decision?

9. Do these standards conflict with county ordinances, county procedures, or additional county permits required to be issued?
10. Please suggest any modifications to existing standards which should be considered in the PUC's general permit standards decision.

DOC Project Contacts

Questions about PUC site permit standards, the standards review process, or wind development and permitting generally may be directed to:

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