State of Wisconsin

Town of Clay Banks

Ordinance #1-2008

Wind Energy Conversion Systems

The Town Board of the Town of Clay Banks does ordain as follows:

I. GENERAL PROVISIONS

A. Title

These regulations shall officially be known, cited and referred to as the Wind Energy Conversion Systems (WECS) Ordinance of the Town of Clay Banks, and hereinafter will be referred to as “The Ordinance.”

B. Findings Of Fact

These regulations are adopted under the authority granted pursuant to Wis. Stat. § 66.0401, which provides:


Regulation relating to solar and wind energy systems.

1. Authority To Restrict Systems Limited: No county, city, town, or village may place any restriction, either directly or in effect, on the installation or use of a solar energy system, as defined in s. 13.48(2)(h) 1.g., or a wind energy system, as defined in s. 66.0403(1)(m), unless the restriction satisfies one of the following conditions:

a. Serves to preserve or protect the public health or safety.

b. Does not significantly increase the cost of the system or significantly decrease its efficiency.

c. Allows for an alternative system of comparable cost and efficiency.

2. State Regulatory History: Pursuant to Wisconsin Act 204, (enacted in 1998) state regulation and oversight (by the PSCW and DNR) of “small” electrical generating facilities less than 100 MW was virtually eliminated. As a direct result, the responsibility for review and approval of these facilities was shifted from Wisconsin state agencies to local units of government.

3. Local Regulatory History: Clay Banks is under the umbrella of a Door County ‘Wind Energy System Ordinance’ since 1999. The county ordinance lacks the appropriate standards to ensure public health and safety of the residents and property owners of the Town of Clay Banks.

4. Local Authority: This ordinance is formulated pursuant to the exercise of the town’s village powers as adopted by the Town of Clay Banks. The Town finds that a Wind Energy System operating in the Town requires special licensing, by the Town, in order to protect and preserve the health, safety, and welfare of it’s citizens and people in general. In this regard, the Town adopts and incorporates by reference a report issued by the National Research Council entitled Environmental Impacts of Wind-Energy Projects, May 2007 (“2007 NRC Report”). The Town further finds that the provisions of the “Draft Model Wind Ordinance for Wisconsin” do not adequately protect public health and safety and have no legal basis under Wisconsin law.
C. Purposes

1. Public Health, Safety & Welfare: Town officials have a duty to protect the public health, safety and welfare of its citizens and their environment and enact appropriate ordinances as they relate to the public health and safety issues associated with wind energy conversion systems. The quality and integrity of the environment are paramount to good health. Our goal is to protect our watersheds and water supplies; to protect forest and scenic areas; to conserve fish and wildlife habitat. To maintain the rural character of our town with respect to its landscape, open spaces, scenery, peace, tranquility, and solitude. We will achieve these principles by addressing the following standards and other standards as part of this ordinance.

2. Noise: We will safeguard the health and safety of our community from noise by assessing the impact of dBA, dBC and dBLinear noise. We will provide adequate setbacks from residences based on the German standard of “35dB(A) for rural nighttime environments,” as reported by the 2007 NRC Report at page 159, and on the need to prevent the types of adverse public health effects from wind turbines as documented and reported by Dr. Nina Pierpont and others who have done research on this issue and lived near wind turbines. See ‘Health Effects of Wind Turbine Noise’, Nina Pierpont, MD, PhD, March 2, 2006, available online at: www.ninapierpont.com. Noise guidelines and setbacks from property lines will also be established.

- ‘The health significance of noise is …… noise-induced hearing impairment; interference with speech communication; disturbance of rest and sleep; psychophysiological, mental-health and performance effects; effects on residential behavior and annoyance; as well as interference with intended activities.’ – WORLD HEALTH ORGANIZATION 1999, GUIDELINES FOR COMMUNITY NOISE, (3) ADVERSE HEALTH EFFECTS OF NOISE

- ‘There is sufficient evidence that noise exposure can induce hearing impairment, hypertension and ischemic heart disease, annoyance, sleep disturbance, and decreased school performance.’ – TNO PREVENTION AND HEALTH, LEIDEN, THE NETHERLANDS; DEPARTMENT OF HEALTH RISK ANALYSIS AND TOXOLOGY, UNIVERSITEIT MAASTRICHT, MAASTRICHT, THE NETHERLANDS

- ‘Noise causes hearing loss, interferes with human activities at home and work, and is in various ways injurious to peoples health and well-being. Although hearing loss is the most measurable health hazard, noise is also linked to other physiological and psychological problems.’ – EPA BULLETIN 550/9-74-004, MARCH 1974, U.S. ENVIRONMENTAL PROTECTION AGENCY

3. Emergency Communications: Emergency communications are vital for the protection of our community’s residents and infrastructure. Emergency communications falls into two categories.

The first is the communications system used by local emergency agencies such as fire departments, police and sheriffs departments, and ambulance services. Communications by these agencies is vital to rapid notification of, and response to any potentially life threatening situation encountered by our residents. This communications system must be protected by degradation by WECS siting and/or operation, which results in interference with either radio transmission or reception, even as emergency radio technology continues to evolve from analog to digital formats.

The second are the signals received by residents in their homes, which alerts them to local and/or national emergencies. These include television, telephone (including cellular and digital), microwave, satellite (dish), navigational, and radio signals.

These communication categories will be protected by the use of setbacks, communication studies, and a requirement that communications be maintained at the performance level which existed prior to the installation of the WECS.
4. **Shadow Flickering:** Shadow flicker can be an annoyance or nuisance but the effects of shadow flicker can also cause health problems as outlined in several studies. In addressing this issue, a shadow map study will be required. Blade material, color, operational times, etc. will be addressed. Placement and setbacks sufficient to eliminate these problems will be established.

5. **Fire Protection:** Fires, although rare, can occur in WECS due to factors such as lightning strikes or mechanical failures. The majorities, of WECS fires, are located in the nacelle portion of the WECS and are nearly inaccessible to fire personnel. Public safety will be provided through preplanning incidents, use of proper setbacks and fire breaks, requiring self contained extinguishment systems in the nacelle, and joint development of a response plan in conjunction with the responsible fire department for all stages of the WECS from construction, through power generation, to final disassembly and site restoration.

6. **Safety Setbacks:** Issues associated with safety will be addressed by placing distance between WECS and people, buildings, property lines, roads, environmental areas, etc. Setbacks will be established to address safety issues.

7. **Water Quality:** Incorporate construction guidelines to protect our aquifers and/or the lateral flow of water to our wetlands, streams or water that is captured by our water-supply wells. Determine setbacks to protect and prevent contamination of our ground water, wetlands and streams from structure collapse, blade throw, etc.

8. **Soil Erosion:** Developing an area for WECS changes the site and topography with increased risks of water and wind erosion. Proper erosion control plans and monitoring will be required.

9. **Visual Impact:** Visual and aesthetic views are necessary for the health and well being of our community. It is in the public interest to minimize the visual impact of wind energy conversion units through careful design and siting standards, particularly in circumstances in which the community places a high value on its visual quality. An assessment of whether a project will be visually compatible with the character of the surrounding features or views will be established. Elements that influence visual and aesthetic views are heights, spacing, setbacks, markings, lighting, etc.

10. **Minimize Conflict Between Incompatible Land Uses:** It is in the public interest to ensure that conflict between incompatible land uses is minimized by limiting wind energy conversion system development in the vicinity of existing or planned residential or development and certain sensitive or high value environmental areas.

11. **Certification:** To assure proper installation, all WECS installations will be required to be certified by a registered professional engineer. Annual inspections and full reporting shall be made to the town.

12. **Decommissioning:** Wind energy conversion systems are expected to have a useful life of 20 or more years. Decommissioning and removal of wind energy conversion systems and restoring the site at some point years into the future has proven to be very expensive, therefore it is in the public interest that the developer and property owner provide financial security to insure the removal of these facilities at some point in the future.

II. **INTENT**

A. Licensing is a legitimate and reasonable means of accountability to ensure that the construction of and operation by employees of wind energy systems comply with reasonable regulations and to ensure that operators and employees do not allow their establishments to be hazardous to the public health or safety.
B. It is not the intent of this ordinance to significantly increase the cost of the system or significantly
decrease the efficiency of any wind energy system proposed to be located in the town.

C. Based upon the findings stated above, it is the intended purpose of the town to regulate wind energy
systems to promote the health, safety, and general welfare of the citizens of the town and to establish
reasonable and uniform regulations for the operation thereof so as to minimize potentially dangerous
effects of these systems on the community.

III. DEFINITIONS

Ampacity: The current carrying capacity of conductors or equipment expressed in Amperes.

Ampere: The basic unit measuring the quantity of electricity.

Anemometer: A device for measuring the speed and direction of the wind.

Applicant: The person, firm, corporation, company, limited liability corporation or other entity which
applies for approval under this ordinance, as well as the applicant’s successor(s), assign(s) and/or
transferee(s) as to any approved WECS or testing facility. An applicant must have the legal authority to
represent and bind the landowner or lessee who will construct, own, and operate the WECS or testing
facility. The duties and obligations regarding any approved WECS or testing facility shall be with the
owner of the WECS or testing facility, and jointly and severally with the owner and operator or lessee of
the WECS or testing facility. Also known as owner or operator.

Aerodynamic Noise: A noise that is caused by the flow of air over and past the blades of a WECU.

Ambient Noise: Intermittent noise events such as from aircraft flying over, dogs barking, mobile farm
or construction machinery, and the occasional vehicle traveling along a nearby road are all part of the
ambient noise environment, but would not be considered part of the background noise unless they were
present for at least 90% of the time.

Background Noise: Sounds that would normally be present at least 90% of the time. The lull in the
ambient noise environment.

Blade Glint: The intermittent reflection of the sun off the surface of the blades of a single or multiple
WECSs.

Board: Means the Town Board for the Town of Clay Banks, County of Door, Wisconsin.

Broadband Noise: The “swishing” or “whooshing” sound emitted as a function of a WECS(s)
operation.

Employee: Means any and all Persons, including but not limited to “operators” who work in or at, or
render any services directly related to operation of Wind Energy Conversion Systems.

FAA: Federal Aviation Administration.

Good Utilities Practice: Means any of the practices, methods and acts with respect to the safe
operation of the Wind Energy Conversion System (WECS) engaged in or approved by a significant
portion of the electric utility industry and, in particular, those portions of the industry with experience in
the construction, operation, and maintenance of wind turbines during the relevant period; or any of the
practices, methods and acts which, in the exercise of reasonable judgment in light of the facts known at
the time the decision was made, could have been expected to accomplish the desired result at a
reasonable cost consistent with good business practices, reliability, safety and expedition. Good Utility
Practice is not intended to be limited to the optimum practice, method, or act to the exclusion of all others, but rather to be acceptable practices, methods or acts generally accepted in the region.

**High Voltage Electrical Termination:** Connecting of conductors to a device or system where the voltage exceeds 600 volts.

**Hub Height:** The distance to the center of the wind turbine hub as measured from ground level.

**Ice Throw:** Accumulated frozen moisture or ice buildup on the rotor and/or blades of a WECU that is or can be thrown during normal spinning or rotation.

**Impermissible Interference:** The blockage of wind from a wind energy conversion unit or system for which a permit has been granted under this ordinance during a use period if such blockage is by any structure or vegetation on property, an owner of which was notified in advance by certified mail or delivered by hand of any property which the applicant proposed to be limited by the permit.

Impermissible interference does not include:

1. Blockage by a narrow protrusion, including but not limited to a pole or wire, which does not substantially block the wind from a wind energy conversion unit or system.
2. Blockage by any structure constructed, under construction or for which a building permit has been applied for before the date the last notice was mailed or delivered.
3. Blockage by any vegetation planted before the date the last notice was mailed or delivered.

**Impulsive Noise:** Short acoustical impulses or “thumping” sounds, which vary in amplitude and are caused by the interaction of the wind turbine blades with the distributed air flow around the tower of downwind WECU’s.

**Inoperable:** A WECU shall be determined inoperable if it has not generated power within the preceding two calendar quarters equal to at least 60% of the expected production.

**Licensee:** Is the applicant and/or successor who has been granted a license under this ordinance.

**Livestock Facility:** A confinement area designed specifically for raising, controlling, feeding, and providing care for livestock. This may include but is not limited to: dairy barns, pastures, feedlots, freestall barns, calf hutches, horse barns, veal barns, feed storage areas, brooder and laying barns, farrowing and finishing barns, veterinary care.

**Low Frequency Noise:** An ongoing debilitation sound emitted during periods of turbulence as the blades are buffeted by changing winds that can cause structural vibration.

**Measurement Point:** (MP): Location where sound and/or vibration measurements are taken such that no significant obstruction blocks sound and vibration from the site.

**Mechanical Noise:** Sound produced as a byproduct of the operation of the mechanical components of a WECU(s). Also known as “tonal noise”. Tonal noises are distinct and tend to be more noticeable at the same relative loudness of other types of noises.

**Meteorological Tower:** Used for the measurement of wind speed and direction, also known as MET tower or wind test tower.

**NFPA:** National Fire Protection Association
Nacelle:  The enclosure located at the top of a WECU tower that houses the gearbox, generator and other equipment.

Noise: Any unwanted sound.

Non-Participating Property Line: A continuous line surrounding all contiguous adjacent parcels of property owned by a single individual, company, corporation, partnership or other entity not part of a proposed Wind Energy Conversion System.

Operator: The person who is designated on the license application to be the person in charge of daily operation of the premises and who is to be the Wind Energy Conversion System contact person for the Town.

Ownership Property Line: A continuous line surrounding all contiguous adjacent parcels of property owned by a single individual, company, corporation, partnership or other entity.

Person: An individual, proprietorship, corporation, association, limited liability entity, or other legal entity.

PSCW: Public Service Commission of Wisconsin

Project Area: All of the properties within the project boundary and within a one-mile radius beyond the project boundary of a proposed or approved WECS project.

Project Boundary: A continuous line, which encompasses all WECU’s and related equipment to be used in association with a WECS project.

Property Line: The recognized and mapped property parcel boundary line.

Related Equipment: Transformers, tower, electrical conductors, termination points, switches, fences, substations, and any other related equipment necessary to operate a WECS.

Residences & Other Buildings: Means all private residences and businesses located 2,640 feet, measured from the foundation of an existing residence or business to the outermost edge of the closest of the circular path of the wind turbine rotor blade of a WECS, further providing a non-participating land owner has applied for a building permit on or before a full and complete application is submitted to the Town Board per Section V of this ordinance.

Sensitive Environmental Area: An identified habitat for endangered species, or other designated area as identified by county, state or federal authorities.

Sensitive Receptor: Places that are likely to be more sensitive to the exposure of the noise or vibration generated by WECS(s). This includes but is not limited to: schools, day-care centers, hospitals, parks, residences, residential neighborhoods, places of worship, and elderly care facilities.

Setback: The minimum allowable horizontal distance from a given point or line of reference, such as a thoroughfare right-of-way, water line, or prospective line to the nearest vertical wall or other element of building or structure.

Setback Area: The land base that falls within a specified setback.
Shadow Flicker: The effect when the blades of an operating wind energy conversion unit pass between the sun and an observer, casting a readily observable, moving shadow on the observer and his/her immediate environment.

Shadow Flicker and Glade Glint Zone: The land area that falls within the setback for shadow flicker or blade glint.

Stray Voltage: Means neutral-to-earth voltage measured from the electrical system neutral and/or any structure bonded to this neutral to earth that adversely affects humans or animals.

Structures: Residences, livestock facilities, communications towers, commercial businesses, and all sensitive receptors.

Total Height: The distance between the ground at normal grade and the highest point of the installed WECS (being the tip of the blade when the blade is in the full vertical position).

Wetland: An area of land, which regularly persists in a wet state, or as otherwise defined by the WDNR.

Wind Energy Conversion Unit (WECU): A wind driven machine with an output rating greater than 100 kilowatts (kW) and with a total height of greater than 170 feet that converts wind energy into electrical power for the primary purpose of sale, resale, or off-site use. The WECU includes the tower, turbine, footings, and all equipment associated with individual units including the land beneath encompassing the equivalent area of the circumference of the rotors. Also known as a Wind Turbine.

Wind Energy Conversion System (WECS): All WECUs, related transformers, electrical conductors substations, and connection points to transmission or distribution lines.

Wind Energy Conversion System Facility or Facility: Means all of the land and equipment used by the wind energy conversion system and its support facilities including the wind turbine, tower, access roads, control facilities, meteorological towers, maintenance and all power collection and transmission systems.

Wind Energy Conversion System Tower: Means any structure that is designed and constructed primarily for the purpose of supporting the Wind Energy Conversion Unit.

Windmill: A wind-driven machine that does not produce electricity.

Wind Test Tower: The tower on which meteorological equipment is located to measure wind speed, direction, strength, etc., for the purpose of evaluating a potential for WECS siting.

Wind Turbine: A wind driven machine that converts wind energy into electrical power, also known as a Wind Energy Conversion Unit (WECU) or turbine.

WDNR: Wisconsin Department of Natural Resources

IV. LICENSING

A. License Required: From and after the effective date of this ordinance, no wind energy systems shall be operated or maintained in the town without first obtaining a license, to operate, issued by the town. However, small scale, wind energy systems of less than 170 feet in height and less than 100 kilowatts are exempt from the licensure requirements of this ordinance.
B. **Effect Other Licenses:** The fact that an applicant possesses any other valid license or permit required by law, does not exempt the applicant from the requirement of obtaining a Wind Energy Conversion System license under this Section.

C. **Non-Assignability Of Licenses:** The license is not assignable or transferable to any other Person, without the express prior written consent of the Town, such consent not to be unreasonably withheld; provided, however, the Licensee may assign the License once to a new entity, upon notice to the Town, if the new Person submits an affidavit demonstrating the following:

1. The new Person wholly owns the new entity.
2. The new entity is properly formed and authorized to do business in Wisconsin.
3. The written assignment requires the new entity to assume all of the Licensee’s rights, duties and obligations under the License including but not limited to the letter of credit requirements and the certificate of insurance requirements.

V. **LICENSE APPLICATION PROCEDURE FOR WIND ENERGY SYSTEMS**

A. **Filing Individual:** Any person desiring to secure a Wind Energy Conversion System license shall file an application together with two additional copies of the application with the Town Clerk.

B. **Filing Form:** The application shall be on a form provided by the Town Clerk.

C. **Information Required:** The following information shall be required of each Applicant, and must be provided under oath or affirmation:

1. Name, address, and phone number.
2. If the Applicant is a corporation, partnership, limited liability company or limited liability partnership, the application shall include the name of the business entity; the date of incorporation, registration or organization; the state in which the entity was incorporated, registered or organized; the name and address and home numbers of the registered agent where applicable; the names and addresses of all officers and directors; operating or managing partners or general partners; managing members or managers, whichever is applicable for the particular form of business entity.
3. Name and address of any other current or past Wind Energy Systems operated by the Applicant whether in this State or any other State or District within the United States.
4. Name, address and phone number of an individual who is responsible for the day-to-day operation of the facility, who will be deemed the Operator for purposes of this section, and who will be the contact Person for the municipality.
5. Evidence that the applicant is the owner of the property involved or has the written permission of the owner(s) to make such an application.
6. A signed statement by the landowner acknowledging that the landowner is financially responsible if the owner/operator fails to reclaim the site as required and that any removal and reclamation costs incurred by the town will become a lien on the property and may be collected from the landowner in the same manner as property taxes.
7. A statement that the Applicant is familiar and in compliance with the provisions of this section of the Town’s code, including the responsibility to reimburse all reasonable costs and
professional fees associated with the processing, examination and analysis of the proposed facility.

8. Proof of continuous liability insurance in the minimum amount of five million dollars ($5,000,000.00) per occurrence shall be submitted to the Town of Clay Banks indicating coverage for potential damages or injury to landowners, occupants, or other third parties. The Town shall be named as an additional insured on the policy.

D. Supportive Documentation: Each application shall be accompanied by:

1. Site Plan: A site plan which meets all the requirements of this Section and applicable provisions of the County Zoning Code pertaining to Land Use Permits, as well as any additional site specific requirements of the Town in accordance with the technical requirements in this ordinance. Each application shall be accompanied by a site plan of the WECS Tower Site(s), including:
   a. Total acreage occupied by the facility.
   b. A detailed map of the area showing parcel boundaries and individual Wind Turbine locations and their distances to existing structures.
   c. Existing structures and proposed facilities.
   d. Location of existing and proposed transmission lines, substations, etc. Denote underground and overhead installation method on existing lines. All proposed lines shall be underground.
   e. Location of meteorological or wind testing towers.
   f. Location of wells, abandoned and active, within a half-mile radius of project boundary.

2. WECS Information and Certification: The applicant shall provide specific information on WECS including:
   a. The type, size, total installed height, rotor material, rated power output, performance history, safety history, and noise characteristics of each type of WECS, tower and electrical transmission equipment. Identify the length of service of the proposed components.
   b. A structural safety certificate shall be provided from a professional engineer stating that the structure is of new construction and not refurbished or rebuilt and has been designed to operate in cold weather conditions and is safe.
   c. Photographs or detailed drawings of each wind turbine model including the tower and foundation. Provide design and specifications for all proposed structures and foundations. (Foundation at and around the tower base shall be designed so that no surface water or runoff can access subsurface aquifer at any time during construction, operation or decommissioning.)
   d. Detailed computer and photographic simulation(s) overlaid on existing environment showing the proposed WECS project area fully developed with all proposed wind energy conversion units and related facilities. The format shall meet approval of the Town of Clay Banks.

3. Timeline: The applicant shall provide a timeline showing all aspects of construction with a starting and final completion date.

4. Affected Property Owners: The applicant shall submit the name and address of property owners within WECS setback areas. Considering that development rights of adjacent property owners may be forfeited due to these setbacks as per this ordinance, a written agreement for non-development within the specified setback must be obtained and recorded on the affected properties’ deeds. Copies of the agreements must be submitted with the application.
5. **Impermissible Interference Notification:** The applicant shall deliver by certified mail or by hand a notice to the owner of any property, which the applicant proposes to be restricted by the permit. The applicant shall submit to the Town of Clay Banks a copy of a signed receipt for every notice delivered in addition to the following information:

   a. The name and address of the applicant, and the address of the land upon which the WECS is or will be located.

   b. That the applicant has filed an application.

   c. That the permit, if granted, may affect the rights of the notified owner to develop his or her property and to plant vegetation.

   d. That any person may request a hearing within 30 days after receipt of the notice, and the address and procedure for filing the request.

6. **Wind Access Agreements:** Evidence (a signed statement from the applicant and countersigned by landowner) that the applicant has negotiated with adjacent landowners and has obtained written agreements with all landowners who could potentially interfere with the applicant’s access to the wind.

7. **Easements:** Applicant must submit copies of signed letters of intent to grant easements from all involved landowners and any governmental units responsible for right-of-ways for access, construction, power lines, etc.

8. **Notifications:** The applicant shall notify the following agencies, via certified mail upon submitting an application to the town. Copies verifying proof of delivery shall be provided to the town.

   a. Federal Aviation Administration
   b. Wisconsin Bureau of Aeronautics
   c. Door County Emergency Services
   d. Southern Door Fire Department
   e. Door County Planning Department
   f. Door County Highway Department
   g. Door County Sheriff’s Department
   h. Southern Door School District
   i. Sturgeon Bay Utilities
   j. Wisconsin Public Service Corporation
   k. Wisconsin Department of Natural Resources

9. **Wind Study:** A study documenting minimum, maximum, and average wind speeds and prevailing wind direction over the course of one year. Anemometers shall be calibrated regularly to ensure a measurement of error of 1% or less. All anemometers shall be placed at the expected hub height of the wind turbine to be used. Sufficient wind resources, as described by the U.S. Department of Energy, include areas with a wind power class 4 or higher. The town shall retain the services of an independent, recognized expert to review the results of the wind resources study prior to acting on the application for a permit. Said study shall indicate the long-term commercial economic viability of the project.

10. **Critical Communications:** The applicant shall provide a critical communication study prepared by a registered professional engineer showing that any WECS sited and operated will not interfere with emergency (fire, police/sheriff, ambulance) radio two way communications
(base stations, mobile, and hand held radios, including digital) and/or paging, television, telephone (including cellular and digital), microwave, satellite (dish), navigational, internet or radio reception to neighboring areas. The applicant shall provide a signed affidavit that they will be responsible for the full cost of any remediation necessary to provide equivalent alternate service or correct any problems; including relocation or removal of the facility caused or exacerbated by the operation of such equipment and any and all related transmission lines, transformers, and other components related thereto. The applicant shall maintain equivalent communications throughout the life of the WECS even as future technologies may change.

11. Noise Study: A pre-construction noise survey within a one mile radius of each proposed Wind Turbine location showing ambient background noise levels over a one year period prior to final layout and construction. The study shall be based on the Town of Clay Banks Measurement Protocol for Sound and Vibration Assessment for Proposed and Existing Wind Energy Conversion Systems (see Appendix A).

12. Shadow Flicker and Blade Glint: The applicant shall provide a shadow flicker and blade glint model for any proposed wind energy conversion unit. The study shall be based on the Town of Clay Banks, ‘Shadow Flicker and Blade Glint Model Protocol’ (see Appendix B).

13. Ice Throw Calculations: A report from a Wisconsin professional engineer that calculates the maximum distance that ice from the turbine blades could be thrown. The basis of the calculation and all assumptions must be disclosed.

14. Blade Throw Calculations: A report from a Wisconsin professional engineer that calculates the maximum distance that pieces of the turbine blades could be thrown. The basis of the calculation and all assumptions must be disclosed.

15. Ground Water: An environmental study specifically indicating the impact the project will have on the groundwater beneath and in the vicinity of the proposed Wind Turbine sites. If a Wind Turbine foundation is proposed in a bedrock area, a baseline of all wells and certified public drinking sources in a half-mile radius shall be established and provided to the Town as part of the application.

16. Travel Route: The applicant shall provide the town, county and state notice of intended travel route to proposed WECS site. The applicant shall provide at their cost a pre-construction inventory of road conditions performed by a Wisconsin certified professional engineer mutually agreed upon by applicant and municipality. The applicant shall abide by any town, county or state laws and/or ordinances that may affect travel and/or ingress or egress to properties.

17. Soils Report: A geotechnical report that shall at a minimum include the following:

   a. Soils engineering and engineering geologic characteristics of the site based on on-site sampling and testing.
   b. Slope stability analysis.
   c. Grading criteria for ground preparation, cuts and fills, soil compaction.
   d. Certification from a registered geotechnical engineer that the soils can support a WECS.

18. Site Preparation & Erosion Control: The applicant shall submit the following:

   a. A site preparation plan that has been approved by the Door County Soil and Water Conservation Department. The plan shall show planned storage and retention of topsoil, and all types of subsoil for later site restoration. Any permit to remove any subsoil from the WECS site must be applied for by the landowner, under the Door County Mining
Ordinance and/or any other applicable state or county laws. It is prohibitive to remove any topsoil from the site, under this ordinance.

b. A construction site erosion plan and storm water runoff control plan that has been approved by the Door County Soil and Water Conservation Department. The plan shall comply with all state statutes, county and local ordinances to minimize the potential adverse impacts on sinkholes, wetlands and Class I and II streams and the banks and vegetation along those streams and wetlands and to minimize erosion or sedimentation.

19. **Hazardous Waste:** A plan shall be submitted showing compliance with all laws applicable to the generation, storage, clean up, transportation and disposal of hazardous wastes generated during any phase of the project’s life.

20. **Fire Prevention, Emergency Rescue Plan:** The applicant shall submit a plan to outline preventative measures, identify, train and fund fire and rescue personnel to ensure readiness and appropriate response. Further, to identify potential fire, rescue, hazardous materials scenarios over the life of the WECS. This plan shall be based in part on Section H of this ordinance.

21. **Stray Voltage Test Results:** The applicant must perform two pre-construction stray voltage tests on all livestock facilities within the project boundary and a one-mile radius beyond the project boundary. The tests shall be performed by a mutually acceptable Wisconsin certified stray voltage investigator once in the spring and once in the fall. The tests shall be performed according to PSCW Phase II Stray Voltage Testing Protocol identified in Appendix C. A copy of the test results shall be sent to each of the following: property owners, PSCW, Sturgeon Bay Utilities, Wisconsin Public Service and the Town of Clay Banks. Applicant shall receive written permission from property owners prior to stray voltage testing. It shall be understood that when permission is denied, all responsibility for stray voltage remains with the property owner.

22. **Lighting Plan:** A plan showing lighting on and around all WECS and related facilities. Lighting on WECS shall be lit to FAA minimal standards only. Lighting shall be shielded from ground view to FAA maximum standards.

23. **Avian and Bat Impact Study Plan:** The applicant shall submit a plan for monitoring the avian and bat impact of the WECS to the Town of Clay Banks for its review and approval. Such plan shall document and follow accepted scientific study procedures. In addition, the applicant shall agree to submit a quarterly report to the Town of Clay Banks that identifies the number of bird and bat fatalities found within 500 feet of the WECS.

24. **Abandonment, Removal and Site Restoration Plan Required:** The applicant shall submit a removal and site restoration plan and removal and site restoration cost estimate to the Town of Clay Banks for its review and approval. The restoration plan shall identify the specific properties it applies to and shall indicate removal of all materials above and below ground; road repair costs, if any; and all re-grading and re-vegetation necessary to return the subject property to the condition existing prior to establishment of the wind energy facility. The restoration shall reflect the site-specific character including topography, vegetation, drainage, and any unique environmental features and shall be completed within one year. The plan shall reflect any standards set forth in this ordinance. The plan shall include a certified estimate of the total cost (by element) of implementing the removal and site restoration plan.

25. **Application Fee and Financial Security** to cover the following shall be provided by the applicant prior to preliminary project approval:

a. **Application, Legal and Consultant Fees.** The applicant shall pay a fee of $100 to the town upon filing an application under this ordinance. In addition, within fourteen (14) days
of filing an application the applicant shall deposit in a joint escrow account with the town a sum of $25,000, as partial payment for the appropriate town expenses in hiring consultants and experts, as these authorities shall, at their discretion, deem desirable. At any time the balance of this fund shall fall below $15,000, the applicant shall submit an additional $15,000 so that the applicable municipal authority’s full and actual expenses of examining and verifying the data presented shall be covered in total by the applicant. This deposit shall accompany the initial application and be considered a part thereof. If at any time the balance of this fund shall fall below $15,000 for a period of 30 days, the application shall be considered to have been withdrawn. The balance of the escrow account, after all the town expenses have been paid, shall be returned to the applicant.

b. Road Repair: The amount to be agreed upon by the applicant and the appropriate municipal authority with guidance from applicable experts is to be deposited in a joint escrow account. When determining the amount of such required security, the governing authorities may also require an annual escalator or increase based on current construction costs and/or the Federal Consumer Price Index. Such financial security shall be deposited or filed with the appropriate governing authorities prior to commencement of construction. This security shall be kept in full force and effect during the entire time that a WECS is in existence and shall be used to maintain roads during the construction, maintenance and decommissioning of the WECS facility. Such security shall be irrevocable or non-cancelable (except by written consent by both the governing authorities and the current owner of the WECS) for the life of the approved permit. Failure to comply will subject the applicant to all available remedies of the governing authority, including possible enforcement action and revocation of the permit.

c. Site Reclamation: Advance payment for WECS site reclamation and restoration is to be placed in joint escrow account or surety bond, the amount to be determined by the appropriate municipal governing authorities to be sufficient to have the WES fully removed and all components properly disposed of and the land returned to its original state should such structures become abandoned, dangerous, or not in compliance with this ordinance. Such financial security shall be kept in full force and effect during the entire time while a WECS facility exists or is in place. Such financial security shall be irrevocable and non-cancelable until such time as appropriate municipalities certify that reclamation and restoration are complete and release the obligation.

d. Decommissioning: An appropriate continuous renewal bond amount will be set for each Wind Turbine for decommissioning should the Owner/Operator fail to comply with the Ordinance requirements or the Wind Turbine is inoperable for a period of twelve (12) consecutive months.

VI. LICENSING PERMIT PROCEDURE

A. After determining that an application is complete, the Town Board will conduct a public hearing on the application after a class 2 hearing notice is published in the Town’s official newspaper. The public hearing will be held within ninety (90) days, after the Town Board determines that the application is complete. Within fourteen (14) days after the close of the public hearing, the Town Board will meet in open session to deliberate and make a decision concerning the application. The deliberation meeting shall be noticed to the applicant and the public at least five (5) prior to the deliberation meeting. The Town Board may have the assistance of legal counsel at the public hearing and the deliberation meeting.

B. The Town Board shall grant a licensing permit if it determines that the requirements of this ordinance are met and that granting the licensing permit will not unreasonably interfere with the orderly land use and development plans of the Town. The Town Board may include conditions in the permit if those conditions preserve or protect the public health and safety; do not significantly
increase the cost of the system or significantly decrease its efficiency; or allow for an alternative
system of comparable cost and efficiency. In addition to other provisions and standards set forth in
this ordinance, the Town Board may consider the following factors when setting conditions:

1. Proposed ingress and egress.

2. Proximity to transmission lines to link the system to the electric power grid.

3. Number of wind turbines and their location.

4. Nature of land use on adjacent and nearby properties.

5. Surrounding topography.

6. Proximity to residential structures, residential zoning districts, or areas identified for future
residential use.

7. Design characteristics that may reduce or eliminate visual obtrusiveness.

8. Possible adverse effects on migratory birds, raptors, and other animals and wildlife.

9. Possible adverse effects of stray voltage, interference with broadcast signals, shadow effect, and
noise.

10. Impact on the orderly development, property values, and esthetic conditions of the Town.

11. Effect on public roads.

12. Recommendations from the town boards of adjacent towns, which may be affected by a large
wind energy system.

13. Any other factors, which are relevant to the proposed system.

C. If requested by an applicant, the Town Board may waive or reduce the burden on the applicant of
one or more of the standards and requirements of this ordinance, if it concludes that the purpose of
this ordinance will be met, that any requested waiver(s) by an applicant are justified based on credible
evidence or information submitted to the Town Board by the applicant with the application, and that
the requested waiver(s) will not adversely affect public health and safety. The installation and
continued operation of a WECS is contingent on compliance with all standards of this ordinance and
all conditions established by the Town Board relative to the approval or conditional approval of an
application and licensing permit.

D. The Town Board’s decision to approve, conditionally approve or deny an application, the reason(s)
for its decision, and any conditions established by the Town Board relative to a conditional approval
of an application and licensing permit shall be recorded in the Town Board’s minutes. The Town
Clerk shall issue a licensing permit to the applicant or inform the applicant that the application for a
licensing permit has been denied within thirty (30) days of the Town Board’s final action on the
completed application. At the same time, the Town Clerk shall publicly post a notice of the final
decision at the Town Hall.

E. The Town Board’s final decision on approval, conditional approval or denial of an application may
be appealed to Circuit Court by anyone aggrieved by the decision, including but not necessarily
limited to the applicant or any aggrieved resident or property owner of the Town, within thirty (30)
days of the issuance of the decision, and the posting of public notice of the decision, by the Town
Approved by Committee on May 3, 2008 - Scheduled for June Town Board Meeting

Clerk. In addition, any revocation of a licensing permit or other enforcement action by the Town Board under this ordinance may be appealed to Circuit Court by the applicant or any other aggrieved party within (30) days of actual notice to the applicant or other aggrieved party of such revocation or enforcement action.

VII. DEVELOPMENT / PERFORMANCE STANDARDS FOR LICENSING

All WECS and testing structures shall comply with the Development/Performance Standards set forth in this section. It is recognized that the standards herein are neither exclusive, nor exhaustive. In instances where a health or safety concern is identified with regard to any application for a Wind Energy Conversion System, additional and/or more restrictive conditions may be included in the license to address such concerns. All rights are reserved to impose additional standards as circumstances warrant. Such additional and/or more restrictive standards may include, but are not limited to: a) longer setbacks from nearby property lines, roads, power lines, residences, businesses and inhabited structures; b) more restrictive noise limitations, and c) more restrictive limitations to protect surface water and groundwater.

A. Design.

1. Each Wind Turbine shall consist of a tower, generator(s), nacelle and blades. Each WECS site must have access roads, underground transmission cabling to connect the generators to local utility electric distribution lines, and underground fiber optic lines. The application shall disclose the nature and type of the proposed Wind Turbine to be installed. Detailed product literature shall accompany the application. Each Wind Turbine shall also comply with the following design requirements

   (a) Wind Turbines shall be painted a non-reflective, non-obtrusive color.

   (b) Each WECS site, the design of the buildings and related structures shall, to the extent reasonably possible, use materials, colors, textures, screening and landscaping that will blend the WECS to the natural setting and the existing environment.

   (c) Wind Turbines shall not be artificially lighted, except to the extent required by the FAA or other applicable authority; strobe or other intermittent lights are prohibited.

   (d) Wind Turbines shall not be used for displaying any advertising.

   (e) Wind Turbines shall not display any name or logo.

   (f) Electrical controls and control wiring and power-lines must be wireless or not above ground, except where wind farm collector wiring is brought together for connection to the transmission or distribution network, adjacent to that network.

   (g) The clearance between the ground and the Wind Turbine blades shall be at least 75 feet.

B. Aircraft Protection:

1. The wind turbine generator tower shall be marked as required by the Federal Aviation Administration (FAA). There shall be no lights on the outside of the tower other than what is required by the FAA or other applicable authority or as otherwise agreed in connection with the issuance of the License. Notwithstanding the foregoing, this restriction shall not apply to infrared heating devices used to protect the monitoring equipment. The tower shall be connected to an uninterruptible back-up power source to ensure continuous compliance with FAA regulations. To the extent consistent with FAA regulations, shrouding for the lights shall direct reflection of light up. Aircraft safety and protection shall also be accomplished by
establishing sufficient setbacks between all Wind Turbines and adjoining properties in order to
allow for safe crop-dusting of agricultural fields, and safe emergency medical aircraft landings on
all adjoining properties.

C. Blasting:

1. Licensee shall not undertake any blasting in connection with the construction of the Facility
   unless Applicant shall have notified the Town and submitted a blasting plan consistent with
   applicable laws and regulations. The plan must be submitted by the Licensee, reviewed and
   approved by the Town Board, before any blasting may take place. The plan shall, at a minimum,
   provide that:

   (a) Blasts must comply with the State ground vibration limitations.

   (b) Fly-rock traveling in the air or along the ground must remain in the controlled blasting area
       site owned or controlled by the applicant.

   (c) All blasting must be performed by or under the direct supervision of a State-licensed blaster.

   (d) A blasting log for each blast will be kept on-site at the WECS office for not less than 5 years,
       and copies of the required blasting log will be promptly submitted to the Town upon its
       request.

   (e) A resident call list must be established for the purpose of notifying neighbors at homes in the
       vicinity of the WECS of eminent blasting activity. This call list must be maintained and
       utilized on a “request basis only” for all residents in the vicinity of the WECS who asked to
       be notified prior to any blast.

   (f) The storage of explosives will be in accordance with Wis. Admin. Code Ch. Comm. 7.

D. Communications Interference:

1. Any WECS shall be sited and operated so that they do not interfere with emergency (fire,
   police/sheriff, ambulance) radio two way communications (base stations, mobile, and hand held
   radios, including digital) and/or paging, television, telephone (including cellular and digital),
   microwave, satellite (dish), navigational, internet or radio reception to neighboring areas. The
   applicant and/or operator of the facility shall be responsible for the full cost of any remediation
   necessary to provide equivalent alternate service or correct any problems; including relocation or
   removal of the facility caused or exacerbated by the operation of such equipment and any and all
   related transmission lines, transformers, and other components related thereto. The applicant
   shall maintain equivalent communications throughout the life of the WECS even as future
   technologies may change.

c. The owner/operator of the WECS shall respond within five business days to any request for
   communications interference investigation by a property owner within the project boundary
   and a three-mile radius beyond the project boundary. Testing will commence within ten
   working days of the request. The owner/operator is responsible for mitigating within ten
   working days from the determination of interference cause attributed to the operation of the
   WECS.

d. The owner/operator of the WECS shall respond within one business day to any request for
   communications interference investigation by any emergency agency (fire, police/sheriff,
   ambulance). Testing will commence within two working days of the request. The
E. Electromagnetic Interference:

1. Any WECS shall be sited and operated so that they do not interfere with television, telephone (including cellular and digital), microwave, satellite (dish), navigational, or radio reception to neighboring areas. The applicant and/or operator of the facility shall be responsible for the full cost of any remediation necessary to provide equivalent alternate service or correct any problems; including relocation or removal of the facility, caused or exacerbated by the operation of such equipment and any and all related transmission lines, transformers, and other components related thereto. The owner/operator of the WECS shall respond within five business days to any request for a communications interference investigation by a property owner within the project boundary and a three-mile radius beyond the project boundary. Testing shall commence within ten working days of the request. Owner/operator is responsible for mitigating within ten working days from determination of interference cause attributed to the operation of the WECS.

F. Groundwater Protection:

1. Licensee shall construct and operate the Facility so as not to cause groundwater contamination in violation of applicable law. Nothing contained in the license is intended to authorize or permit any degradation of the quantity or quality of the groundwater in connection with the WECS.

a. No excavations deeper than nine (9) feet below the surface of the soil shall be allowed in the construction of any Wind Energy Facility or Wind Turbine unless the Licensee submits evidence of increased cost or design necessity based on actual foundation designs. Any change in foundation design shall maintain the water quality standards of this ordinance.

b. Wells shall not be drilled within the boundaries of the WECS site.

c. The licensee shall complete a plan for managing surface water runoff to prevent pollution of groundwater through sinkholes, wetlands and infiltration through the soil and underlying bedrock within a 1,000-foot radius of each Wind Turbine site and along all access roads and driveways leading to Wind Turbine sites. The plan shall provide for surface water management so that the water flows away from the Wind Turbine sites and known sinkholes rather than toward them.

d. If a Wind Turbine foundation is proposed in a bedrock area, a baseline of all wells and certified public drinking sources in a half-mile radius shall be established and permanent remedies shall be the responsibility of the developer if contamination occurs.

G. Noise:

1. Audible Sound Limit

a. No Wind Turbine or group of turbines shall be located so as to cause an exceedance of the pre-construction/operation background sound levels by more than 5 dBA or dBC. The background sound levels shall be the L90 dB sound descriptor (both A and C weighting) measured during a pre-construction noise study during the quietest time of evening or night. Measurements shall be for ten (10) minutes or more. L90 results are valid when L10 results are no more than 15 dB above L90 for the same time period. Noise sensitive sites are to be selected based on wind farm’s predicted sound emissions (in dBA, dBC and 1/3 octaves to blade passage frequency), which are to be provided by developer.
b. A 5 dB penalty is applied for pure tones or when the sound emissions fluctuate in amplitude or frequency over time in reasonable synchronicity with the blade revolution.

2. In-Audible (e.g. Low Frequency) Sound Limit
   a. Not to exceed dBC-dBA greater than 20 dB inside or outside any occupied structure.

3. General Clause
   a. Not to exceed 40 dBA or dBC within 100 feet of any occupied structure.

4. Requirements:
   a. All instruments must meet ANSI Type 1 performance specifications.
   b. Procedures must meet ANSI S12.9 and other applicable ANSI standards.
   c. Measurements must be made when ground level winds are 10 mph or less. Background sound measurements are with winds of 5 mph or less. Wind shear in the evening and night often result in low ground level wind speed. At turbine fan heights, the wind is at or above nominal operating wind speeds.
   d. IEC 61400 procedures are not suitable for enforcement of these requirements. ANSI standards shall be followed for testing procedures.

5. In the event the noise levels resulting from the WECS exceed the criteria listed above, a waiver to said levels may be granted by the Town Board provided that the following has been accomplished:
   a. Written consent from the affected property owners has been obtained stating that they are aware of the WECS and the noise limitations imposed by this Ordinance, and that consent is granted to allow noise levels to exceed the maximum limits otherwise allowed; and
   b. If the applicant wishes the waiver to apply to succeeding owners of the property, a permanent noise impact easement has been recorded in the Office of the County Register of Deeds which describes the benefited and burdened properties and which advises all subsequent owners of the burdened property that noise levels in excess of those permitted by this Ordinance may exist on or at the burdened property.

H. Fire Protection:

1. The applicant shall prepare a plan in consultation with fire department having jurisdiction over the area prior to construction. The plan shall address all activities at the WES and site from the start of construction through the end of power generation and the final removal and restoration of the site, and shall result in a response plan to address all identified potential fire, rescue, hazardous materials scenarios.

2. The owner/operator shall assure that the WECS and site comply with the following control and prevention measures and incurs associated costs.
   a. Fire proof or fire resistant building materials and buffers or fire retardant landscaping.
b. Incorporation of a self contained fire protection system to address nacelle fires and approved by NFPA or comparable underwriter.

c. Maintain firebreak areas cleared of vegetation and maintained as a fire/fuel break as long as the WECS is in operation. Firebreaks shall be 30 feet in width around the periphery of the proposed WECS site, 10 feet in width around all transformers, and 30 feet in width around all buildings.

c. Fire fighting and rescue services, including programs and costs associated with equipment and training, for local fire protection and rescue personnel.

d. Any additional fire fighting or rescue personnel, services, materials, and/or vehicles as may be required to address any call related to the WECS or site that is beyond the capabilities of local fire fighting and/or rescue services.

e. The owner/operator shall be responsible for compliance with all laws applicable to the generation, storage, clean up, transportation and disposal of hazardous wastes generated during any phase of the project’s life.

I. Public Roads:

1. Construction: Licensee shall, prior to the initiation of construction and use of haul roads, consult with the Town Board, County Highway Commissioner, the Wisconsin State Police and the County Sheriff’s Office for load paths and restrictions on their respective roads or bridges. At Licensee’s expense:

   a. Licensee shall provide, the Town Board, a preconstruction evaluation and identification of road surface materials stating the type and amount of surface cover, PASER ratings, and photographic or video documentation of predetermined designated traffic route, performed by a Wisconsin certified professional engineer mutually agreed upon by applicant and municipality.

   b. Licensee shall contract with qualified contractors, approved by the town, to repair any damage to the haul roads due to transportation of equipment and Facility components (‘Road Repair Obligations’).

   c. In the event a hazardous road condition exists that is not immediately corrected by Licensee, the Town Board may order emergency road repairs, be performed by qualified contractors. Licensee shall promptly reimburse the Town for reasonable emergency road repair costs.

   d. Licensee shall assure funding of the Road Repair Obligations by a letter of credit or guaranty prior to initiation of any construction.

   e. Weather permitting, the final Road Repair Obligations shall be completed to the reasonable satisfaction of the Town Board within six (6) months after completion of construction of the Facility, or as soon thereafter as weather conditions permit.

J. Shadow Flicker or Blade Glint

1. The facility shall be designed such that shadow flicker or blade glint will not fall on, or in any existing sensitive receptor.

2. Shadow flicker or blade glint expected to fall on a roadway or a portion of a residential parcel may be acceptable under the following circumstances;
a. The flicker or glint will not exceed 10 hours per year.
b. The flicker or glint will fall more than 100 feet from an existing residence.
c. The traffic volumes are less than 500 vehicles per day on the roadway.
d. The flicker or glint shall not fall onto an intersection.
e. If shadow flicker or blade glint exceeds any of the conditions listed in Sections J, the source WECS(s) shall be shut down until the flicker or glint problem is remedied.

K. Setbacks:

1. Setbacks shall be measured from the outermost edge of the closest of the circular path of the wind turbine rotor blade. The Town Board may increase the following minimum setbacks on a case-by-case basis, in order to protect public health and safety.

a. Participating Property Line: 1.1 times the total height of the Wind Turbine from the nearest property line of a participating property owner.

b. Non-Participating Property Line: Five (5) times the rotor diameter but not less than 1,000 feet from the nearest property line of a non-participating property, unless the owner of the non-participating property grants an easement for a lesser setback. The easement must be recorded with the County Register of Deeds and may not provide for a setback that is less than 1.1 times the total height of the Wind Turbine.

c. Public Roads and Highways: 1,000 feet or three (3) times the total height of the Wind Turbine, whichever is greater.

d. Above Ground Power/Telephone Lines: 1,000 feet or three (3) times the total height of the Wind Turbine, whichever is greater, from the nearest above-ground public electric power line or telephone line.

e. Residences & Other Buildings: 2,640 feet from the nearest residence, business, school, daycare facility, church, hospital and other sensitive receptors.

f. Wetlands: 1,000 feet from all sinkholes and wetlands.

g. Water Bodies Setbacks: 1,000 feet from the ordinary high water mark of all navigable water bodies.

h. Parks & Public Property: 2,640 feet from any town, county or state park, property, recreational or rest area.

i. Spacing and Density: Minimum setback distances between turbines shall be (2) times the total height of each WES.

L. Signage and Fencing.

1. Licensee shall provide reasonable signage at the Facility, identifying the Premises as being part of the Facility and providing appropriate safety notices and warnings against trespassing. The no trespassing signs shall be posted around the entire premises at an appropriate distance for posting but no less than 2 conspicuous places for every 40 acre parcel within the Facility. Signs should be sized at a minimum to meet the provisions of Wis. Stat. § 943.013(2).

2. No wind turbine, tower, building, or other structure associated with a wind energy system may be used to advertise or promote any product or service. No word or graphic representation, other than appropriate warning signs and owner or landowner identification, may be placed on a
wind turbine, tower, building, or other structure associated with a wind energy system so as to be visible from any public road.

3. This prohibition shall include the attachment of any flag, decorative sign, streamers, pennants, ribbons, spinners or waving, fluttering or revolving devices, but not including weather devices.

M. Electrical Standards

1. All wiring between Wind Turbines and the Wind Energy Facility substation shall be underground.

2. All neutral grounding connectors from Commercial Wind Turbines shall be insulated from the earth and shall be sized to accommodate at least twice the peak load of the highest phase conductor, to absolutely prevent transient ground currents, in order to comply with the National Electric Safety Code and the IEEE Standard 519-1992, approved by the American National Standards Institute, as follows:

3. Grounding of both the electrical transmission lines and the supply lines to the internal electrical systems of the turbines themselves, shall comply with Rule 92D, Current in Ground Conductors: “Ground connector shall be so arranged that under normal circumstances, there will be no objectionable flow of current over the grounding conductor.”

4. Rule 215B: [It is not permissible] “to use the earth as a part of a supply circuit.”

5. Under no circumstances shall any Wind Turbine be connected directly to the grid; connection must be made through a substation or transformer properly grounded and filtered to keep harmonic distortion within recommended limits.

6. Bare, concentric neutrals are specifically prohibited in buried lines between turbines and in underground transmission lines to substations.

7. Electrical controls and control wiring and power-lines shall be wireless or not above ground except where wind farm collector wiring is brought together for connection to the transmission or distribution network, adjacent to that network.

N. Stray Voltage.

1. The Licensee shall respond within (5) five business days to any request for a stray voltage investigation by a property owner within the project boundary and a one-mile radius beyond the project boundary.

2. The tests shall be performed by a mutually acceptable Wisconsin certified stray voltage investigator.

3. The tests shall be performed according to PSCW Phase II Stray Voltage Testing Protocol identified in Appendix C.

4. Testing shall commence within (10) ten working days of the request. If testing cannot be initiated within (10) days, the Wind Turbine(s) in question shall be shut down until the testing can be started.

5. The investigation shall be provided to the property owner at no cost up to a maximum of two investigations within a 12-month period. See Appendix C.
6. At no time shall the operation of a WECS increase the measured cow contact voltage (Vcc) or primary neutral to remote voltage (Vpn) on a livestock facility within the project boundary and a one-mile radius beyond the project boundary, above the maximum pre-construction levels.

7. The owner/operator agrees to abide by all rules, procedures, standards, and reporting established by the PSCW for stray voltage and related electrical phenomena.

8. Owner/operator is responsible for mitigating within five working days from determination any net increase in cow contact voltages (Vcc) or primary neutral to remote voltages (Vpn) attributed to the operation of the WECS. If corrections cannot be initiated within (5) five working days, the Wind Turbine(s) in question shall be shut down until the voltages in question are mitigated.

9. A copy of the test results shall be sent to the property owner, PSCW Rural Electric Power Services staff, and the Town Board within (30) days of test completion.

O. Reporting and Complaint Resolution Procedure.

Licensee shall report to the Town as follows:

1. **Power Production and Monitoring Reports:** The Licensee shall agree to submit the following to the Town:
   a. A quarterly power production report covering the proceeding calendar quarter, and shall include actual power production in kilowatt-hours for each commercial wind energy facility.
   b. A yearly monitoring report, or more periodic as set forth by the Town, containing data on the operations and environmental impacts of the WECS site.
   c. Annual safety inspections by a certified licensed Wisconsin professional engineer.

2. **Extraordinary Events:** Within 24 hours of any extraordinary event, Licensee shall notify the Town. “Extraordinary events” shall include but not be limited to tower collapse, catastrophic turbine failure, fires, leakage of hazardous materials, unauthorized entry to the tower base, thrown blade or hub, any injury to a Facility worker or other person that requires emergency medical treatment, or other event that impacts the public health and safety of the Town.

3. **Complaints:** The Licensee of the Wind Energy System Facility shall, at the licensee’s expense and in coordination with the Town develop a system for logging and investigating all complaints related to the operation of the Wind Energy System Facility. The Town will select a qualified individual to investigate complaints. The Licensee shall provide this qualified individual with direct phone contact and address information of the licensee representative. The reasonable cost and fees incurred by the Town in retaining said qualified individual shall be reimbursed by the owner of the Wind Energy System Facility. After the investigation, if the Town Board reasonably concludes that operational violations or other public or private nuisances are shown to be caused by the Wind Energy System Facility, the Licensee shall use reasonable efforts to mitigate or eliminate such problems on a case-by-case basis, as required by the Town Board, including, but not necessarily limited to, measures such as planting trees and installing awnings, limiting the hours of Wind Turbine operation, repair of WECS and/or removal and decommissioning of Wind Turbines.
P. Emergency Shutdown:

1. Licensee shall be required to immediately cease operations for the duration of any Emergency. Emergency shall mean a proven condition or situation caused by the Facility that presents an imminent physical threat of danger to life or significant threat to property.

2. Any WECS that is found to present an imminent physical threat of danger to life or significant threat of damage to property shall be immediately shut down and repaired or otherwise made safe and certified so by a Wisconsin professional engineer prior to resumption of operation. The Town shall have the right to access a wind energy facility site to verify conditions and/or repair progress with a 12 hour advance notification.

3. Within 24 hours of an occurrence of a tower collapse, turbine failure, property damage or contamination, fires, thrown blade or hub, collector or feeder line failure, injured WECS worker or private person, the owner/operator shall notify the Town of the occurrence and proposed remedial action.

Q. Turbine Decommissioning and Site Restoration Plan.

1. Each Wind Turbine and all related improvements shall be removed in accordance with the Decommissioning and Site Restoration Plan submitted by the applicant and approved by the Town through the permitting process.

2. The owner of a Wind Energy Facility and the underlying property owners shall be jointly liable for the removal of all equipment associated with the Wind Energy Facility at the end of the permit period, the useful life of the facility, or when the facility is abandoned or otherwise out of operation for more than six months, at their expense. Upon removal of a Wind Energy Facility, the owner of the facility and the underlying property owners shall be jointly liable for restoration of the site to its original condition at their expense. To protect the environment, removal shall be done by mechanical means. Blasting is not an approved means for removal. The restoration shall include removal of all materials above and below ground; public road repair, if any; and all re-grading and re-vegetation necessary to return the subject property to the condition existing prior to establishment of the Wind Energy Facility. All hazardous materials shall be removed from the site and disposed of in accordance with state and federal laws.

3. The owner of a Wind Energy Facility and the underlying property owner shall provide proof of financial responsibility for the removal of the facility and restoration of the site in the form of a bond or an irrevocable standby letter of credit held in trust in favor of the Town, in a form to be approved by the legal counsel for the Town.

VIII. INSURANCE AND INDEMNIFICATION

A. Insurance.

All licensees shall maintain the following insurance coverage commencing upon construction of the facility.

1. The owner/operator shall, at its expense, maintain a broad form comprehensive coverage policy of public liability insurance insuring Applicant and Participating Landowners against loss or liability caused by Applicant’s occupation and use of the Property under the Lease, in an amount not less than Five Million Dollars ($5,000,000) of combined single limit liability coverage per occurrence, accident or incident, which has a commercially reasonable deductible. The Town shall be named as an additional insured on the policy.
2. Worker’s compensation coverage in an amount required by Wisconsin law. Applicant shall require subcontractors and others not protected under its insurance to obtain and maintain worker’s compensation and employers’ liability insurance.

3. Certificates of insurance evidencing compliance with these requirements shall be provided upon request of the Town. The insurer will provide notice to the Town in the event there is a lapse in coverage exceeding thirty (30) days. All policies other than worker’s compensation shall be written on an occurrence and not on a claim-made basis.

B. Defense of Land Use Decision and Indemnity.

1. Defense of Land Use Decision.

In addition to the indemnification described below, Licensee shall reimburse the Town its reasonable attorneys’ fees incurred in defending any legal actions brought by third parties challenging the legality or enforceability of this ordinance or any portion thereof, or the issuance of a License by the Town pursuant to this ordinance. If the Town seeks reimbursement, it shall notify Licensee in writing promptly upon discovering any claim entitling it to a land use defense reimbursement, but in no event later than 120 days after receiving written notice of any action, lawsuit, proceeding, investigation or other claim against it which may give rise to a claim for a land use defense reimbursement. Licensee shall not be obligated to reimburse the Town with respect to any such liability, action or claim if the Town fails to notify Licensee thereof in accordance with the provisions of this section in sufficient time including, without limitation, any responsive motion or answer to a complaint, petition, notice, or other legal, equitable action or claim, but only insofar as such knowing failure to notify Licensee has actually resulted in prejudice or damage to Licensee. With respect to any third party action, lawsuit, proceeding, investigation or other claim which is subject to reimbursement under this section, Licensee shall be entitled to assume and control (with counsel of its choice) the defense of such action, lawsuit, proceeding, investigation or other claim at Licensee’s expense; provided, however, that the Town shall be entitled to participate in the defense of such claim and to employ counsel of its choice for such purpose (the fees and expenses of such separate counsel to be borne by the Town) and to assert against any third party any and all cross claims and counterclaims the Town may have, subject to Licensee’s consent, which consent shall not be unreasonably withheld. If Licensee elects to assume the defense of any such claim, it may settle such claim in its sole discretion so long as either (i) such settlement provides an unconditional release of the Town, or (ii) Licensee shall obtain the prior written consent of the Town (which consent shall not be unreasonably withheld). If Licensee elects to assume the defense of any claim, the Town shall fully cooperate with Licensee and its counsel in such defense.

2. Indemnification.

Licensee shall defend, indemnify and hold harmless the Town and its officials, employees and agents from and against any and all claims, demands, losses, suits, causes of action, damages, injuries, costs, expenses and liabilities whatsoever, including reasonable attorneys’ fees (such liabilities together known as “Liability”) arising out of Licensee’s selection, construction, operation and removal of the Wind Turbines and affiliated equipment including, without limitation, Liability for property or personal injury (including death), whether said Liability is premised on contract or on tort (including without limitation strict liability or negligence). This general indemnification shall not be construed as limiting or qualifying the Town’s other indemnification rights available under law.
IX. STANDARDS

A. Construction Standards.

Wind Turbines shall be constructed in compliance with Good Utility Practice for Wind Turbines. In the event after inspection by a qualified expert in Good Utility Practice, the Town concludes that any of the Wind Turbines were not constructed in compliance with Good Utility Practice or constitutes a danger to persons or property, then upon notice being provided, Licensee shall have 90 days to bring the non-compliant Wind Turbine(s) into compliance with such standards. If 90 days is insufficient time to cure the non-compliance, Licensee shall present a plan to the Town describing the reason for the delay and the time frame for the cure to be put in place. Failure to bring such non-compliant Wind Turbine(s) into compliance or failure to provide a plan for compliance within 90 days shall constitute grounds for the Town Board to order immediate removal of said Wind Turbine(s) at Licensee’s expense.

B. Performance Standards.

Any Wind Energy System or Wind Energy System Facility shall be operated and maintained consistent with Good Utility Practice for comparable facilities.

C. State and Federal Standards.

Construction of Wind Turbines shall meet or exceed current standards and regulations, if any, of any other agency of the state or federal government with the authority to regulate wind powered generators. If such standards and regulations are changed and retroactive application is required for the change, then Licensee shall bring the Wind Turbine(s) into compliance with such applicable revised standards and regulations within 6 months of the effective date of such standards and regulations, unless a different compliance schedule is permitted by the controlling state or federal agency or approved by the Town. A Determination of No Hazard for each Wind Turbine must be obtained from the FAA for each Wind Turbine as a condition precedent to the receipt of a license under this ordinance.

D. Wind Turbine Safety Standards.

Licensee shall comply with the following safety standards:

1. All wiring between the Wind Turbines and substations shall be installed at least four (4) feet underground.

2. The outside of Wind Turbines shall not be climbable.

3. All access doors to the towers and electrical equipment shall be locked.

4. Appropriate warning signage shall be placed on each tower, all electrical equipment, and all entrances.

X. REPAIR AND REPLACEMENT

Licensee shall be authorized to repair and replace the wind turbine generator and associated equipment consistent with Good Utility Practice during the Term of this License as needed to keep the Facility in good repair and operating condition. However, no such repair or replacement shall entitle Licensee to any extension of the Term of this License, even if it extends the useful life of the Facility. If Licensee desires to extend the term of this License in the future, Licensee shall be
XI. PROCEDURES FOR ALTERATION OR REVOCATION OF LICENSED PREMISES.

A. Amendment.

Following the granting of a license any licensee who wishes to materially alter any aspect of the licensed premises which was required to be described in the building plan or site plan required under this Section, shall apply to the Town Board for an amendment to the license. The application shall explain the nature of the alteration and the reasons therefore and include a non-refundable application fee. The Applicant shall pay the reasonably necessary engineering expenses, if any, associated with the review. The Town Board shall act on the amendment application consistent with the terms of this ordinance.

B. Revocation of License.

1. An unsafe WECS and an inoperable WECS is hereby declared a public nuisance, which shall be subject to abatement by repair, rehabilitation, demolition, or removal. An inoperable WECS shall not be considered a public nuisance provided the owner can demonstrate that modernization, rebuilding or repairs are in progress or planned and will be completed within no more than six months. During this six-month period, monthly reports shall be provided to the Town Board of Clay Banks.

2. Each of the following occurrences shall constitute a violation of the terms and conditions of this License (a “Violation”) and any such Violation shall be grounds for revocation of this License (whatever the reason for such an event of default and whether it shall be voluntary or involuntary or be effected by operation of law or pursuant to any judgment, order or regulation) after the expiration of the notice and cure period and revocation hearing as set forth below:

   a. The Licensee abandons the wind turbine generators located on the premises for a period of six months or more.

   b. The Licensee fails to observe or perform any material condition or provision of this License for a period of 30 days after it has received written notice of such failure from the Town; provided, however, that a Violation shall not occur if Licensee commenced performance of such obligation within such 30 day period and is diligently proceeding to complete such performance.

   c. There is a material failure by Licensee to comply with any statute, regulation, rule, or license administered by any federal, state or county department, agency, or commission directly related to the operation of the wind turbine generator, and if Licensee fails to cure the material failure to comply for a period of 30 days after the date Licensee receives written notice of such failure from the Town or the federal, state or local governmental body or agency with jurisdiction; provided, however, that a Violation shall not occur if Licensee commences performance of such obligation within such 30 day period and is diligently proceeding to complete such performance.

3. Each Wind Turbine and all related improvements shall be removed in accordance with the Decommissioning and Site Restoration Plan submitted by the applicant and approved by the Town through the permitting process.

4. The owner of a Wind Energy Facility and the underlying property owners shall be jointly liable for the removal of all equipment associated with the Wind Energy Facility at the end of the
permit period, the useful life of the facility, or when the facility is abandoned or otherwise out of
operation for more than six months, at their expense. Upon removal of a Wind Energy Facility,
the owner of the facility and the underlying property owners shall be jointly liable for restoration
of the site to its original condition at their expense. To protect the environment, removal shall be
done by mechanical means. Blasting is not an approved means for removal. The restoration
shall include removal of all materials above and below ground; public road repair, if any; and all
re-grading and re-vegetation necessary to return the subject property to the condition existing
prior to establishment of the Wind Energy Facility. All hazardous materials shall be removed
from the site and disposed of in accordance with state and federal laws.

C. Hearing.

The Town shall not revoke any License without first providing Licensee a hearing and the right to
respond, including the right to present evidence regarding any defenses or extenuating circumstances
(such as Applicant’s prompt commencement of remedial measures that cannot reasonably be
concluded within 30 days) regarding the alleged Violations or public or private nuisance.

XII. LICENSE EXPIRATION

Unless the Town Board authorizes a different term based upon analysis of the useful life of the Wind
Energy Systems Facility, every license issued pursuant to this Section will terminate upon the
expiration of twenty five years from the date of issuance.

XIII. FEES AND EXPENSES

A. Tax Hold Harmless.

The parties acknowledge that the shared revenue payments payable to the Town under current state
law may be revised or revoked by future Legislatures. In the event that the shared revenue payments
payable to the Town are eliminated by the Legislature, Licensee will pay to the Town an amount not
less than $1,667 per megawatt per year for Wind Turbines actually installed and operating within the
Town. Such payments shall be on an annual basis and payable on the 180th day after notice from the
Town of Licensee’s obligation to pay under this paragraph. Licensee’s obligation to make such
payments shall cease if the State adopts or implements a new mechanism to replace the shared
revenue payments, to the extent that the new payment mechanism produces revenue not less than
the revenue payable under the predecessor program.

The parties acknowledge that the shared revenue payments referenced above are paid to the Town
directly by the State of Wisconsin, not Licensee. Regardless, Licensee agrees to supplement the
Town’s annual shared revenue payments actually received by an amount equal to the annual
percentage change of the Consumer Price Index as of January 1 of each calendar year beginning on
the first January following the date that the Town receives its first payment. For purposes of this
escalator clause, the Consumer Price Index means the U.S. Department of Labor, Bureau of
Statistics, Consumer Price Index for the United States, All Urban Consumers, all items, unadjusted
index.

B. Property Taxes

The parties acknowledge that the property tax exemption for WECS under current state law may be
revised or revoked by future Legislatures. In the event that the property tax exemption for WECS is
eliminated by the Legislature, Licensee will be responsible for all related assessments and taxes
associated with the license and WECS site. Failure to pay such tax obligation shall be considered a
non-compliance and subject to Section XI-B of this ordinance.
C.  Reimbursement of Fees and Costs.

Licensee agrees to reimburse the Town’s actual reasonable fees and costs incurred in the application, negotiation, administration and enforcement of this ordinance, including, without limitation, the Town’s attorneys’ fees, engineering consultant fees, Town Board meeting and hearing fees, and the costs of public notices relative to the review and considerations of each application filed by an applicant under this ordinance. The preceding fees are payable within 30 days of invoice. Unpaid invoices shall bear interest at the rate of 1% per month until paid. The Town may recover all reasonable costs of collection, including attorneys’ fees.

XIV. WESF NEIGHBOR AGREEMENT

Licensee may offer to non-participating landowners the opportunity to enter into a Windpower Facilities Neighbor Agreement, provided:

1. Landowner has not otherwise entered into a Ground Lease, Easement or Setback Waiver Agreement with Licensee.

2. Has a primary residence or private business located within the setbacks provided for under Section VI-K and VI-K-(c) of this ordinance.

3. Owns the property in fee simple and has applied for a building permit on or before the issuance of a license pursuant to this ordinance. A landowner who enters into such an agreement is not a Participating Residence for purposes of this ordinance.

The terms and form of such agreements shall be subject to negotiation between the Licensee and non-participating landowners who may be interested in such an agreement. However, such agreements, once signed, shall be subject to review and approval by the Town Board.

XV. ADMINISTRATION and ENFORCEMENT

A. This ordinance shall be administered by the Town Board or its designee.

B. The Town Board or its designee may enter upon any property for which a licensing permit has been issued under this ordinance to conduct inspections to determine whether the conditions stated in the permit and other standards and requirements of this ordinance are being complied with.

C. The Town Board or its designee may issue orders to abate any violation of this ordinance or any condition attached to a licensing permit approved by the Town Board.

D. The Town Board or its designee may issue a citation for any violation of this ordinance. The Town Board may refer any violation of this ordinance to the Town’s legal counsel or to special counsel for enforcement. Nothing in this ordinance shall be construed to prevent or limit the Town from using any other lawful means of enforcing this ordinance.

XVI. PENALTIES

Any person, applicant or licensee who fails to comply with any provision of this ordinance or of any licensing permit issued pursuant to this ordinance shall, upon conviction thereof, forfeit at least five-hundred dollars ($500.00) but not more than one-thousand dollars ($1,000.00) for each offense. A separate offense shall be deemed committed on each day during which a violation occurs or continues. Any person, applicant or licensee who is in default of payment of forfeiture or costs may be imprisoned in the county jail until the forfeiture or costs are paid, except that the period of imprisonment may not exceed thirty (30) days.
XVII. RELATIONSHIP to OTHER ORDINANCES

This ordinance does not abrogate, annul, impair, interfere with, or repeal any existing ordinance of the Town.

XVIII. SEVERABILITY

The provisions of this ordinance are severable, and the invalidity of any section, subdivision, paragraph, or other part of this ordinance shall not affect the validity or effectiveness of the remainder of the ordinance.

XIX. EFFECTIVE DATE

This ordinance shall take effect upon passage and posting or publication as provided by law.

Adopted this ____ day of __________ 2008.

________________________________________
Myron Johnson, Chairman

________________________________________
Mark Heimbecher, Supervisor

________________________________________
Patrick Olson, Supervisor

________________________________________
Attest: Jessica Bongle, Clerk
Town of Clay Banks

Date Posted: ________________________________
REFERENCES


Wind Turbines, Noise and Health, Harry,(2007)

Noise Radiation from Wind Turbines Installed Near Homes: Effects on Health, By Barbara J Frey, BA, MA and Peter J Hadden, BSc, FRICS, 2007


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A Study of Wind Energy Development in Wisconsin, Prepared for: State of Wisconsin Department of Administration, Division of Energy, July 1, 2004


International Standards Organization, ISO 1996-1971, Recommendations for Community Noise Limits