Nance County Zoning Regulations
for Wind Energy Conversion Systems

ARTICLE 1: SMALL / NON-COMMERCIAL WIND ENERGY SYSTEMS

Section 1. Purpose

It is the purpose of this regulation to promote safe, effective and efficient use of small wind energy systems installed to reduce the on-site consumption of utility-supplied electricity.

Section 2. Definitions

The following are defined for the specific use of this section:

2.1 MET Tower shall mean a meteorological tower used for the measurement of wind speed. It is also called an Anemometer Tower.

2.2 Small Wind Energy System shall mean a wind conversion system consisting of a wind turbine, a tower, and associated control or conversion electronics, which has a rated capacity of not more than 100 kW and which is intended to primarily reduce on-site consumption of utility power.

2.3 Total Height shall mean the highest point, above ground level, reached by a rotor tip or any other part of the small wind energy system.

2.4 Tower Height shall mean the height above grade of the first fixed portion of the tower, excluding the wind turbine itself.

Section 3. Requirements

Small wind energy systems shall be permitted as an Accessory Use in the A-1 zoning district. In the A-3 and R-1 zoning districts, a Conditional Use Permit shall be required. Certain requirements are as set forth below:

3.1 Tower Height

A. For property sizes between ½ acre and one acre the tower height shall be limited to 80 feet.
B. For property sizes of one acre or more, there is no limitation on tower height, except as imposed by FAA regulations.

3.2 Setbacks

No part of a wind system structure, including guy-wire anchors, may extend closer than 10 feet to the property lines of the installation site.

3.3 Noise

A. Small wind energy systems shall not exceed 60 dBA, as measured at the closest property line.
B. The noise level may be exceeded during short term events such as utility outages and/or severe wind storms.

3.4 Approved Wind Turbines

Small wind turbines must have been approved under the Emerging Technologies program of the California Energy Commission or any other small wind certification program recognized by the American Wind Energy Association.

3.5 Compliance with Building and Zoning Codes

A. Application for small wind energy systems shall be accomplished by standard drawings of the wind turbine structure, including the tower base and footings.
B. An engineering analysis of the tower showing compliance with official building code of the governing body and/or the State of Nebraska and certified by a licensed professional engineer shall also be submitted.
C. The manufacturer may supply this analysis.
D. Wet stamps shall not be required.

3.6 Compliance with FAA Regulations

Small wind energy systems must comply with FAA regulations, including any necessary approvals for installations close to airports.

3.7 Compliance with National Electrical Code

A. Permit applications for small wind energy systems shall be accompanied by a line drawing of the electrical components in sufficient detail to allow for a determination that the manner of installation conforms to the National Electrical Code.
B. The manufacturer may supply this analysis.
C. A Nebraska State Electrical Permit shall accompany the application.

3.8 Utility Notification

A. No small wind energy system shall be installed until evidence has been given that the utility company has been informed of the customer's intent to install an interconnected customer-owned generator.
B. Off-grid systems shall be exempt from this requirement.

Section 4. Setbacks

All towers shall adhere to the setbacks established in the following table:

	Wind Turbines: Small / Non-Commercial WECS	**Meteorological (MET) Towers**
Property lines	One times the total height	One times the tower height
Neighboring dwelling units*		One times the tower height
Road rights-of-way**	One times the total height	One times the tower height
Other rights-of-way	One times the total height	One times the tower height
Wildlife Management Areas and State Recreational Areas	N/A	600 feet
Wetlands, USFW Types III, IV, and V	N/A	600 feet
Other structures adjacent to the applicant's site(s)	N/A	One times the tower height
Other existing WECS not owned by the applicant	N/A	
River bluffs		

* The setback for dwelling units shall be reciprocal in that no dwelling unit shall be constructed within the same distance required for a MET tower setback unless the owner of the dwelling signs a Waiver of Distance.

** The setback shall be measured from any future rights-of-way if a planned change or expanded right-of-way is known.

Section 5. Safety

The following safety measures, in addition to any requirements by the AWEA and federal and state regulations, shall be employed for all small wind energy systems:

5.1 Climb Prevention: All project towers and poles must be unclimbable by design or protected by anti-climbing devices.

5.2 Lightning Protection: All small wind energy towers shall have lightning protection.

5.3 Guy Wire Visibility: If a tower is supported by guy wires, the wires shall be clearly visible to a height of at least six (6) feet above the guy wire anchors.

Section 6. Waste

All solid wastes, whether generated from supplies, equipment, parts, packaging, operation, or maintenance of the small wind energy system, including old parts and equipment, shall be removed from the site immediately and disposed of in an appropriate manner. All hazardous waste generated by the operation and maintenance of the wind energy system, including but not limited to lubricating materials, shall be removed from the site immediately and disposed of in a manner consistent with all local, state, and federal rules and regulations.

Section 7. Severability

Should any section, subsection, sentence, clause, or phrase of these regulations be, for any reason, held as unconstitutional or invalid, such decision shall not affect the validity of the remaining portions of these regulations.

Section 8. Effective Date

These regulations shall take effect and be in force from and after their approval and adoption according to law on the 22nd day of June 2010 by the Board of Supervisors of Nance County, Nebraska.

ARTICLE 2: COMMERCIAL/UTILITY GRADE WIND ENERGY CONVERSION SYSTEMS

Section 1. Purpose

It is the purpose of this regulation to promote the safe, effective, and efficient use of commercial/utility grade wind energy conversions systems within Nance County.

Section 2. Definitions

The following are defined for the specific use of this section.

2.1 Aggregated projects shall mean projects that are developed and operated in a coordinated fashion but which have multiple entities separately owning one or more of the individual WECS within the larger project. Associated infrastructure such as power lines and transformers that service the facility may be owned by a separate entity but are also part of the aggregated project.

2.2 Commercial WECS shall mean a Wind Energy Conversion System equal to or greater than 100 kW in total name plate generating capacity.

2.3 Hub height shall mean the distance from the ground level as measured to the centerline of the rotor.

2.4 Fall zone shall mean the area, defined as the farthest distance from the tower base, in which a guyed or tubular tower will collapse in the event of a structural failure. This area may be less than the total height of the structure.

2.5 Feeder line shall mean any power line that carries electrical power from one or more wind turbines to the point of interconnection with the project distribution system. In the case of interconnection with high voltage transmission systems, the point of interconnection shall be the substation serving the wind energy conversion system.

2.6 Meteorological tower (MET tower) shall mean, for the purposes of these regulations, a tower that is erected primarily to measure wind speed and direction plus other data relevant to siting a WECS. Meteorological towers do not include towers and equipment used at airports, the Nebraska Department of Roads, or other applications to monitor weather conditions.

2.7 Property line shall mean the boundary line of the area over which the entity applying for a WECS permit has legal control for the purpose of installing, maintaining, and operating a WECS.

2.8 Public conservation lands shall mean land owned in fee title by State or Federal agencies and managed specifically for conservation purposes, including but not limited to State Wildlife Management Areas, State Parks, Federal Wildlife Refuges, and Waterfowl Production Areas. For the purposes of these regulations, public conservation lands will also include lands owned in fee title by non-profit conservation organizations. Public conservation lands will also include private lands upon which conservation easements have been sold to public agencies or non-profit conservation organizations.

2.9 Rotor diameter shall mean the diameter of the circle described by the moving rotor blades.

2.10 Substation shall mean any electrical facility whose purpose is to convert electricity produced by wind turbines to a higher voltage for interconnection with high voltage transmission lines.

2.11 Total height shall mean the highest point, above ground level, reached by a rotor tip or any other part of the WECS.

2.12 Tower shall mean the vertical structure, including the foundation, that supports an electrical generator or meteorological equipment.

2.13 Tower height shall mean the height above grade of the first fixed portion of the tower, excluding the wind turbine itself.

2.14 Transmission lines shall mean the electrical power lines that carry voltages of at least 69,000 volts (69 kV) and are primarily used to carry electrical energy over medium-to-long distances rather than directly interconnecting and supplying electric energy to retail customers.

2.15 Wind Energy Conversion System (WECS) shall mean an electrical generating facility comprised of one or more wind turbines and accessory facilities, including but not limited to power lines, transformers, substations, and meteorological towers that operate by converting the kinetic energy of wind into electrical energy. The energy may be used on-site or distributed into the electrical grid.

2.16 Wind turbine shall mean any piece of electrical generating equipment that converts the kinetic energy of blowing wind into electrical energy using airfoils or similar devices to capture the wind.

Section 3. Requirements

Commercial/utility grade WECS shall be permitted as a Conditional Use in the A-1, A-3, and I-1 zoning districts. For WECS facilities involving multiple towers, just one Conditional Use Permit shall be required, but a Zoning Permit shall also be required for each tower location. Temporary MET towers may be permitted with a Zoning Permit for a maximum of three years.

The following requirements shall be met and information supplied prior to the issuance of any permits:

3.1 Name of project applicant(s).

3.2 Name of project owner(s).

3.3 Legal description and 911/EMS address for each tower involved in the project.

3.4 An abstractor's list of all neighboring property owners within 1,000 feet of each tower.

3.5 A description of the project including: number, type, name plate generating capacity, tower height, rotor diameter, and total height of all wind turbines, as well as the means for interconnecting with the electrical grid.

3.6 Site lay out, including the location of property lines, wind turbines, feeder lines, and all related accessory structures. This site layout shall include distances and be drawn to scale.

3.7 Certification by an engineer competent in disciplines of WECS.

3.8 Documentation of land ownership or legal control of property.

3.9 The projected latitude and longitude of each individual wind turbine, as well as an area or zone in close proximity (ie., easting, westing, northing, and southing coordinates) that meets all setback requirements.

3.10 A USGS topographical map, or map with similar data, of the property and surrounding area, including any other WECS not owned by applicant within 10 rotor distances of the proposed WECS.

3.11 Location of wetlands, scenic, and natural areas (including bluffs) within 1,320 feet of the proposed WECS.

3.12 An acoustical analysis that certifies that the noise requirements within these regulations will be met.

3.13 A shadow flicker projection with accompanying aerial photographs, if necessary.

3.14 A basic emergency response plan shall be supplied to the area's emergency management agency and/or fire department(s), which may also require a post-construction tour of the facility.

3.15 If permits are required from the FAA, FCC, Nebraska Game & Parks Commission, U.S. Fish and Wildlife, Army Corps of Engineers, Nebraska Department of Roads, and/or the Nebraska State Historical Society, applicant shall submit the permits or evidence that the permits have been filed with the appropriate agency prior to issuance of a Zoning Permit, which shall be conditional and contingent upon such approval.

3.16 Evidence that there will be no interference with any commercial and/or public safety communication towers.

3.17 A Decommissioning Plan as required by these regulations.

Section 4. Aggregated Projects

Aggregated projects may jointly submit a single application for a Conditional Use Permit and be reviewed under joint proceedings, including notices, public hearings, reviews, and as appropriate, approvals. A Zoning Permit shall be issued separately for each tower location.

Section 5. Setbacks

All towers shall adhere to the setbacks, measured from the outermost edge/side of the tower, established in the following table:

	Wind Turbines: Commercial/Utility WECS	**Meteorological (MET) Towers**
Property lines	One-half the rotor diameter from property lines, though the setback may be less when two adjoining property owners are within a project involving multiple towers	One times the tower height
Neighboring dwelling units*	1,000 feet	One times the tower height
Road rights-of-way**	One-half the rotor diameter	One times the tower height
Other rights-of-way	One-half the rotor diameter	One times the tower height
Wildlife Management Areas and State Recreational Areas***	600 feet	600 feet
Wetlands, USFW Types III, IV, and V***	300 feet	300 feet
Other structures and cemeteries adjacent to the applicant's site(s)	One-half the rotor diameter	One times the tower height
River bluffs	One-half the rotor diameter	N/A

* The setback for dwelling units shall be reciprocal in that no dwelling unit shall be constructed within the same distance required for a commercial/utility grade WECS unless the owner of the dwelling signs a Waiver of Distance.

** The setback shall be measured from any future rights-of-way if a planned change or expanded right-of-way is known. Such rights-of-way shall be verified with the Nebraska Department of Roads and County Road Department. At corners on heavily traveled roads, there shall be a line-of-sight setback measured 120 feet in each direction from the point of intersection along the centerline of the roads.

*** The setback may be reduced (but shall not be less than 100 feet) if the proposed reduction is based on reports by a certified engineer indicating no effects on the identified areas, and if the reduction is approved by the Nebraska Game & Parks Commission, U.S. Fish and Wildlife, and/or the Army Corps of Engineers. The applicant shall submit the engineer's report and either approval from the appropriate agency or evidence that the request for approval has been submitted to the appropriate agency prior to the issuance of a permit, which shall be conditional and contingent upon such approval.

Section 6. Special Safety and Design Standards

All towers shall adhere to the following safety and design standards:

6.1 Clearance: Rotor blades and airfoils must maintain a minimum of 12 feet of clearance between their lowest point and the ground.

6.2 Signage: All commercial/utility grade WECS shall have a sign or signs posted on the tower, transformer, and substation warning of high voltage. Other signs shall be posted on the turbine with emergency contact information.

6.3 Tower type: All wind turbines that are part of a commercial/utility grade WECS shall be installed with a tubular, monopole-type tower.

6.4 Aviation warnings: Whether or not to paint aviation warnings on towers less than 200 feet shall be considered.

6.5 Color and finish: All wind turbines and towers that are part of a commercial/utility grade WECS shall be white, grey, or another unobtrusive color. Blades may be black in order to facilitate deicing. Finishes shall be matte or non-reflective.

6.6 Lighting: Lighting, including lighting intensity and frequency of strobe, shall adhere to but not exceed requirements established by FAA permits and regulations. Red strobe lights shall be used during nighttime illumination to reduce impacts on neighboring uses and migratory birds. Red pulsating incandescent lights should be avoided.

6.7 Other signage: All other signage shall comply with the sign regulations found in the Nance County Zoning Regulations.

6.8 Feeder lines: All communications and feeder lines associated with the project distribution system installed as part of the WECS shall be buried, where physically feasible. Where obstacles to the buried lines create a need to go above ground, these lines may be placed above ground only to miss the obstacle. All distribution and/or transmission lines outside of the project distribution system may be above ground.

6.9 Waste disposal: Solid and hazardous waste, including but not limited to crates, packaging materials, damaged or worn parts, as well as used oils and lubricants, shall be removed from the site promptly and disposed of in accordance with all applicable local, state, and federal regulations.

6.10 Discontinuation and decommissioning:

A. A WECS shall be considered a discontinued use after one year without energy production unless a plan is developed and submitted to the Zoning Administrator outlining the steps and schedule for returning the WECS to service. All WECS and accessory facilities shall be removed to four feet below ground level within 180 days of the discontinuation of use. The 180 days may be extended if proof of weather delays is provided.

B. Each commercial/utility grade WECS shall have a Decommissioning Plan outlining the anticipated means and cost of removing WECS at the end of their serviceable life or upon becoming a discontinued use. The cost estimates shall be made by a competent party, such as a professional engineer, a contractor capable of decommissioning, or a person with suitable expertise or experience with decommissioning. The plan shall also identify the financial resources that will be available to pay for decommissioning and removal of the WECS and accessory facilities.

C. Within one year after the fifteenth (15^{th}) anniversary of commercial operations of the wind facility, the owner of the facility shall place a surety bond or equivalent financial security in an amount estimated to decommission the facility at the end of its useful life according to the Decommissioning Plan in the easement contract. If the wind facility is

repowered or new equipment is added so that decommissioning is not necessary, the security shall be released.

6.11 Noise: No commercial/utility grade WECS shall exceed 60 dBA measured at the nearest structure or use occupied by humans. Such structures or uses shall include, but not be limited to, dwelling units, churches, and daycare facilities. Not included are barns, sheds, and agricultural, commercial, and industrial uses.

6.12 Interference: The applicant shall minimize or mitigate interference with any commercial or public safety electromagnetic communications, such as radio, telephone, microwaves, or television signals, caused by any WECS. The applicant shall notify all communication tower operators within five miles of the proposed WECS location upon application for permits.

6.13 Roads: The applicant shall:

A. Identify all county, municipal, and township roads to be used for the purpose of transporting WECS, substation parts, cement, and/or equipment for construction, operation, and maintenance of the WECS and obtain applicable weight and size permits from the impacted jurisdictions prior to construction.

B. Conduct a preconstruction survey with the appropriate jurisdictions to determine existing road conditions.

C. Be responsible for restoring roads and bridges to preconstruction conditions or better.

D. Enter into an agreement with the county's Road Department outlining liabilities and a road restoration plan.

6.14 Drainage system: The applicant shall be responsible for immediate repair of damage to public drainage systems stemming from construction, operation, or maintenance of WECS.