

TITLE III: PROPERTY/LAND USE AND DEVELOPMENT

CHAPTER VIII.

COMMERCIAL WIND ENERGY CONVERSION SYSTEMS

The requirements of this Ordinance shall apply to all Commercial Wind Energy Conversion Systems (C-WECS) proposed after the effective date of this Ordinance. C-WECS for which a required permit has been properly issued prior to the effective date of this Ordinance shall not be required to meet the requirements of this Ordinance; provided, that any such pre-existing C-WECS, which does not provide energy for a continuous period of twelve (12) months, shall meet the requirements of this Ordinance prior to recommencing production of energy. Also, no modification or alteration to an existing C-WECS shall be allowed without full compliance with this Ordinance.

SECTION 1. DEFINITIONS.

Aggregated Project	Aggregated projects are those which 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 included as part of the aggregated project.
Commercial WECS (C-WECS)	A WECS of equal to or greater than [100/40] kW in total name plate generating capacity.
Easement	A legal interest in land, as defined in a document recorded in the office of the Muscatine County Recorder, granted by the owner to another person or entity, which allows that person(s) or entity(ies) the use of all or a portion of the owner's land, generally for a stated purpose, including, but not limited to, access or placement of utilities.
Fall Zone	The area, defined as the furthest distance from the tower base, in which a guyed tower will collapse in the event of a structural failure. This area is less than the total height of the structure.
Feeder Line	Any power line that carries electrical power from one or more wind turbines or individual transformers associated with individual wind turbines to the point of interconnection with the electric power grid, in the case of interconnection with the high voltage transmission systems the point of interconnection shall be the substation serving the WECS.
Meteorological Tower	For the purposes of this Ordinance, meteorological towers are those towers which are erected primarily to measure wind speed and directions plus other data relevant to siting WECS.
Non-Commercial WECS (Non-C-WECS)	A wind energy 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.

SECTION 2. COMMERCIAL WIND ENERGY CONVERSION SYSTEMS

2.1 General Requirements.

- a. Color and Finish. Wind turbines shall be painted a non-reflective color. Blades may be black in order to facilitate de-icing. Finishes shall be matte or non-reflective. At C-WECS sites, 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 C-WECS to the natural setting and existing environment.

- b. Tower configuration. All wind turbines, which are part of a C-WECS, shall be installed with a tubular, monopole type tower. Meteorological towers may be guyed.
- c. Lighting. C-WECS sites shall not be artificially lighted, except to the extent required by the FAA or other applicable authority. Lighting, including lighting intensity and frequency of strobe, shall adhere to but not exceed requirements established by Federal Aviation Administration permits and regulations.
- d. Signage. The manufacturers or owner's company name and/or logo may be placed upon the compartment containing the electrical generator, of the C-WECS. Wind turbines shall not be used for displaying any advertising except for reasonable identification of the manufacturer or operator of the C-WECS sites.
- e. Feeder Lines. All communications and feeder lines, equal to or less than 34.5 kV in capacity, installed as part of a C-WECS shall be buried except where not possible.
- f. Waste Disposal. Solid and hazardous wastes, 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 in a time period as established by the Muscatine County Zoning Office and disposed of in accordance with all applicable local, state and federal regulations.
- g. Minimum Ground Clearance. The blade tip of any wind turbine shall, at its lowest point, have ground clearance of no less than sixty (60) feet.
- h. Signal Interference. The applicant shall minimize and mitigate any interference with electromagnetic communications, such as radio, telephone or television signals caused by any C-WECS.
- i. Federal Aviation Administration. All C-WECS shall comply with FAA standards and permits.
- j. Electrical Codes and Standards. All C-WECS and accessory equipment and facilities shall comply with the National Electrical Code and other applicable Standards.
- k. Setbacks. The following setbacks and separation requirements shall apply to all wind turbines and meteorological towers; provided that the Board of Adjustment may reduce the standard setbacks and separation requirements if the intent of this Ordinance would be better served thereby. All other structures shall comply with the applicable setbacks as allowed by the base zoning district.
 - 1. Inhabited Structures. Each wind turbine and meteorological tower shall be set back from the nearest residence, school, hospital, church or public library, a distance no less than the greater of (a) two (2) times its total system height or (b) one thousand (1,000) feet.
 - 2. Property Lines. At no time shall any part of the wind turbine and meteorological tower overhang an adjoining property without securing appropriate easements from adjoining property owners.
 - 3. Public Right-of-Way. Setbacks from public right-of-way, railroads, powerlines and structures shall be a minimum of 1.1 times the total system height.
 - 4. Communication and Electrical Lines. Each wind turbine and meteorological tower shall be set back from the nearest above-ground public electric power

line or telephone line a distance no less than 1.1 times its total system height, determined from the existing power line or telephone line.

I. Noise. Audible noise due to C-WECS sites operations shall not exceed sixty (60) DBA, when measured at any dwelling, school, hospital, church or public library existing on the date of approval of any special use permit from the property line.

1. In the event audible noise due to C-WECS operations contains a steady pure tone, such as a whine, screech, or hum, the standards for audible noise set forth in this subsection shall be reduced by five (5) DBA.
2. In the event the ambient noise level (exclusive of the development in question) exceeds the applicable standard given above, the applicable standard shall be adjusted so as to equal the ambient noise level. The ambient noise level shall be expressed in terms of the highest whole number sound pressure level in DBA, which is succeeded for more than five (5) minutes per hour. Ambient noise levels shall be measured at the exterior of potentially affected existing residences, schools, hospitals, churches and public libraries. Ambient noise level measurement techniques shall employ all practical means of reducing the effect of wind generated noise at the microphone. Ambient noise level measurements may be performed when wind velocities at the proposed project site are sufficient to allow wind turbine operation, provided that the wind velocity does not exceed thirty (30) mph at the ambient noise measurement location.
3. In the event the noise levels resulting from the C-WECS exceed the criteria listed above, a waiver to said levels may be granted by the Board of Adjustment provided that the following has been accomplished:
 - (i) Written consent from the affected property owners has been obtained stating that they are aware of the C-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
 - (ii) If the applicant wishes the waiver to apply to succeeding owners of the property, a permanent noise impact easement shall be recorded in the Office of the Muscatine County Recorder which describes the 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.

m. Safety.

1. All wiring between wind turbines and the C-WECS substation shall be underground. If the developer can demonstrate the need for an overhead line and the acceptance of landowners for this line, such option may be approved conditionally by the Muscatine County Board of Adjustment.
2. Wind turbine and meteorological towers shall not be climbable up to 15 feet above ground level.
3. All access doors to wind turbine and meteorological towers and electrical equipment shall be locked when not being serviced.
4. Appropriate warning signage shall be placed on wind turbine towers, electrical equipment, and C-WECS entrances.
5. For all C-WECS, the manufacturer's engineer or another qualified engineer shall certify that the turbine, foundation and tower design of the C-WECS is within accepted professional standards, given local soil and climate conditions.
6. For all guyed towers, visible and reflective objects, such as plastic sleeves, reflectors or tape, shall be placed on the guy wire anchor points and along the outer and innermost guy wires up to a height of eight (8) feet above the ground.

Visible fencing shall be installed around anchor points of guy wires. The property owner must sign a notarized acknowledgement and consent form allowing construction of the turbine and guyed wires without fencing as required in this Ordinance to be presented to the Board of Adjustment.

- n. Exceptions to this section may be made for meteorological towers, where concerns exist relative to aerial spray applicators.

2.2 Discontinuation and De-commissioning.

A C-WECS shall be considered a discontinued use after one (1) year without energy production, unless a plan is developed and submitted to the Planning and Zoning Administrator outlining the steps and schedule for returning the C-WECS to service. All C-WECS and accessory facilities shall be removed to four (4) feet below ground level within one hundred eighty (180) days of the discontinuation of use. Each C-WECS shall have a de-commissioning plan outlining the anticipated means and cost of removing C-WECS at the end of their serviceable life or upon becoming a discontinued use. The cost estimates shall be made by a professional engineer licensed in the State of Iowa. The plan shall also identify the financial resources that will be available to pay for the decommissioning and removal of the C-WECS and accessory facilities. The County reserves the right to verify that adequate decommissioning terms are contained in the landowner easement.

2.3 Avoidance and Mitigation of Damages to Public Infrastructure.

- a. Roads. Applicants shall identify all roads to be used for the purpose of transporting C-WECS, substation parts, cement, and/or equipment for construction, operation or maintenance of the C-WECS and obtain applicable weight and size permits from the impacted road authority (ies) prior to construction.
- b. Existing Road Conditions. Applicant shall conduct a pre-construction survey, in coordination with the impacted local road authority (ies) to determine existing road conditions. The survey shall include photographs and a written agreement to document the condition of the public facility. The applicant is responsible for on-going road maintenance and dust control measures identified by the Muscatine County Engineer during all phases of construction.
- c. Drainage System. The Applicant shall be responsible for immediate repair of damage to public drainage systems stemming from construction, operation or maintenance of the C-WECS.
- d. Required Financial Security. The applicant shall be responsible for restoring or paying damages as agreed to by the applicable road authority (ies) sufficient to restore the road(s) and bridges to preconstruction conditions. Financial security in a manner approved by Muscatine County shall be submitted covering 130% of the costs of all required improvements. This requirement may be waived by the Board of Adjustment by recommendation from the Muscatine County Engineer.

2.4 Submittal Requirements.

In addition to the submittal requirements defined for Special Exception Permit applications, all applications for C-WECS must submit the following information (as applicable).

- a. The names of project applicant.
- b. The name of the project owner.
- c. The legal description and address of the project.
- d. A description of the project including: Number, type, name plate generating capacity, tower height, rotor diameter, and total height of all wind turbines and means of interconnecting with the electrical grid.
- e. Site layout, including the location of property lines, wind turbines, electrical wires, interconnection points with the electrical grid, and all related accessory structures. The site layout shall include distances and be drawn to scale.
- f. Engineer's certification(s) as required in these supplemental standards.
- g. Documentation of land ownership or legal control of the property.
- h. The latitude and longitude of individual wind turbines.
- i. A USGS topographical map, or map with similar data, of the property and surrounding area, including any other C-WECS within 10 rotor diameters of the Proposed C-WECS.
- j. Location of wetlands, scenic, and natural areas [including bluffs] within 1,320 feet of the proposed C-WECS.
- k. An acoustical analysis.
- l. FAA Permit Application.
- m. Location of all known communications towers/facilities within 2 miles of the proposed C-WECS.
- n. De-commissioning Plan.
- o. Description of potential impacts on nearby C-WECS and Non C-WECS and wind resources on adjacent properties.
- p. Identification of significant migratory patterns and nesting areas for birds within two (2) miles.

SECTION 3. SAVINGS CLAUSE. If any section, provision or part of this ordinance, or of the Codes hereby enacted by reference, shall be adjudged invalid, illegal or unconstitutional, such adjudication shall not affect the validity of the ordinance as a whole or any section, provision or part thereof not adjudged invalid, illegal or unconstitutional.