CLAYTON COUNTY ORDINANCE #3-2020
WIND ENERGY CONVERSION SYSTEMS

TITLE

An Ordinance Establishing Regulations for Wind Energy Conversion Systems in Clayton County, Iowa.

BE IT ENACTED by the Board of Supervisors, Clayton County, Iowa.

SECTION 1. PURPOSE

The purpose of this ordinance is to set forth regulations for the installation and operation of Wind Energy Conversion Systems (WECS) within the allowed zoning districts of Clayton County, Iowa.

SECTION 2. DEFINITIONS

For use in this ordinance, certain terms or words used herein shall be interpreted or defined as follows:

a) **Wind Energy Conversion System (WECS):** An electrical generating facility comprised of one or more wind turbines and accessory facilities, including but not limited to power lines, transformers, substations and metrological towers that operate by converting the kinetic energy of wind into electrical energy. The energy maybe used on-site or distributed into the electrical grid.

b) **Aggregated Project:** A project developed and operated in a coordinated fashion, with multiple entities separately owning one (1) or more of the individual WECS within the larger project, which may include associated infrastructure such as power lines and transformers that service the facility that may be owned by a separate entity.

c) **Bluff:** A natural topographic features such as a hill, cliff, or embankment having the following characteristics:
   1. The slope rises at least twenty-five (25) feet above the toe of the bluff; and
   2. The grade of the slope from the toe of the bluff to a point twenty-five (25) feet or more above the toe of the bluff averages thirty (30) percent or greater;
   3. An area with an average slope of less than twenty (20) percent over a horizontal distance of fifty (50) feet shall not be considered part of the bluff.

d) **Commercial WECS:** A WECS of equal to or greater than one hundred (100) kilowatts in total name plate generating capacity.

e) **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.

f) **Feeder Line:** Any power line that carries electrical power from one (1) 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.

g) **Meteorological Tower:** Those towers, which are erected primarily to measure wind speed and directions plus other data relevant to site WECS. This does not include towers and equipment used by airports, the Iowa Department of Transportation, or other similar applications to monitor weather conditions.

h) **Micro-WECS:** A WECS of one (1) kilowatt nameplate generating capacity or less and utilizing supporting towers of forty (40) feet or less.

i) **Nacelle:** Contains the key components of the wind turbine, including the gearbox, yaw system, and electrical generator.

j) **Non-Commercial WECS:** A WECS of less than one hundred (100) kilowatts in total name plate generating capacity.
k) **Property line:** The boundary line of the area over which the entity applying for a WECS permit has legal control for the purposes of installation of a WECS. This control may be attained through fee title ownership, easement, or other appropriate contractual relationship between the project developer and landowner.
l) **Rotor diameter:** The diameter of the circle described by the moving rotor blades.
m) **Substations:** Any electrical facility designed to convert electricity produced by wind turbines to a voltage greater than thirty-five thousand (35,000) volts (35 kilovolts) for interconnection with high voltage transmission lines shall be located outside of the road right of way.
n) **Toe of the Bluff:** The point on a bluff where there is, a visually observed, a clearly identifiable break in the slope, from gentler to steeper slope above. If no break in the slope is apparent, the toe of the bluff shall be determined to be the lowest end of the lowest fifty (50) foot segment that exceeds twenty (20) percent slope.
o) **Top of the Bluff:** The point on a bluff where there is, as visually observed, a clearly identifiable break in the slope, from steeper to gentler slope above. If no break in the slope is apparent, the top of the bluff shall be determined to be the highest end of the highest fifty (50) foot segment that exceeds twenty (20) percent slope.
p) **Total height:** The highest point, above ground level, reached by a rotor tip or any other part of the WECS.
q) **Tower:** Vertical structures that support the electrical generator, rotor blades, or meteorological equipment.
r) **Tower Height:** The total height of the WECS exclusive of the rotor blades.
s) **Transmission Line:** Those electrical power lines that carry voltages of at least sixty-nine thousand (69,000) volts (69 kilovolts) and are primarily used to carry electric energy over medium to long distances rather than directly interconnecting and supplying electric energy to retail customers.
t) **Visually Inconspicuous:** Difficult to be seen and readily noticeable from any point on the rivers or valleys during the time when the leaves are on the deciduous trees.
u) **Wind Turbine:** Any piece of electrical generating equipment that converts the kinetic energy of blowing wind into electrical energy through the use of airfoils or similar devices to capture the wind.

SECTION 3. PROCEDURES

A Special Exception Use Permit in accordance with Section 9 of the Clayton County, Iowa, Zoning Ordinance, and site plan are required.

a) The application for all WECS shall include the following information:
    1. The name(s) and address of the project applicant.
    2. The name of the project owner.
    3. The legal description of the site where development is planned.
    4. A preliminary 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.
    5. Preliminary 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.
    6. Documentation of land ownership, land ownership agreements, or legal control of the property.
b) The building permit (after zoning approval) for the Commercial WECS shall also include:
    1. Final site plan.

2. Final legal description.
3. Engineer's certification.
4. The latitude and longitude of individual wind turbines.
5. The United States Geological Survey (USGS) topographical map, or map with similar data, of the property and surrounding area, including any other WECS within ten (10) rotor diameters of the proposed WECS.
6. Location of wetlands, scenic, and natural areas [including bluffs] within one thousand three hundred twenty (1,320) feet of the proposed WECS. [dependent on DNR/Code]
7. An acoustical analysis.
8. Federal Aviation Administration (FAA) Permit Application.
9. Location of all known Communications Towers within two (2) miles of the proposed WECS.
10. Decommissioning Plan.
11. Description of potential impacts on nearby WECS and wind resources on adjacent properties.

c) Aggregated Projects may jointly submit a single application and be reviewed under joint proceedings, including notices, hearings, reviews, and as appropriate, approvals. Permits will be issued and recorded separately. Joint applications will be assessed fees as one project.

SECTION 4. DISTRICT REGULATIONS

WECS may be permitted as a Special Exception Use in the "A-1" Agricultural District, as set forth in Clayton County Zoning Ordinance, so long as bulk requirements and setback requirements are addressed. Said bulk requirements are shown in Table 1 below.

Table 1. WECS Setback Requirements: Wind Turbines and Meteorological Towers

	Wind Turbine – Non-Commercial Micro WECS	Wind Turbine – Non-Commercial WECS	Wind Turbine – Commercial WECS	Meteorological Towers
Property Lines	Lines 1.1 times the total height or the distance of the fall zone as certified by a professional engineer plus 10 feet.	1.1 times the total height or the distance of the fall zone as certified by a professional engineer plus 10 feet.	1.25 times the total height.	The fall zone, as certified by a professional engineer plus 10 feet or 1.1 times the total height.
Neighboring Dwellings	1,000 feet.	1,000 feet.	1,200 feet.	The fall zone, as certified by a professional engineer plus 10 feet or 1.1 times the total height.
Road Rights of-Way	The distance of the fall zone, as certified by a professional engineer plus 10 feet or 1.1 times the total height.	The distance of the fall zone, as certified by a professional engineer plus 10 feet or 1 times the total height.	1.1 times the height may be reduced for minimum maintenance roads or a road with an average daily traffic count of less than 10.	The fall zone, as certified by a professional engineer plus 10 feet or 1.1 times the total height.
Other Rights of-Way (Railroads, power lines, etc.)	The lesser of 1.1 times the total height or the distance of the fall zone, as certified by a professional engineer plus 10 feet.	The lesser of 1.1 times the total height or the distance of the fall zone, as certified by a professional engineer plus 10 feet.	The lesser of 1.1 times the total height or the distance of the fall zone, as certified by a professional engineer plus 10 feet.	The fall zone, as certified by a professional engineer 10 feet or 1.1 times the total height.
Bluff Land	Visually Inconspicuous as certified by a professional engineer.	Visually Inconspicuous as certified by a professional engineer.	Visually Inconspicuous as certified by a professional engineer.	Visually Inconspicuous as certified by a professional engineer.
Other Structures	The fall zone, as certified by a professional engineer plus 10 feet or 1.1 times the total height.	The fall zone, as certified by a professional engineer plus 10 feet or 1.1 times the total height.	The fall zone, as certified by a professional engineer plus 10 feet or 1.1 times the total height.	The fall zone, as certified by a professional engineer plus 10 feet or 1 times the total height.

Other Existing WECS	NA	NA	To be determined through cup review base on: relative size of the existing and proposed WECS, alignment of the WECS relative to the predominant winds, topography, extent of the wake interference impacts on existing WECS, other setbacks required waived for multiple turbine projects including aggregated projects.	The fall zone, as certified by a professional engineer plus 10 feet or 1 times the total height. Extent of wake interference impacts on existing WECS shall be considered.

a) Setbacks: Substations and Accessory Facilities:
    1. Substation setbacks:
        a. Five (5) feet; structure setback from road ROW; located wholly outside the right-of-way.
        b. Property lines five (5) feet; structure setback from property lines; side yard.

b) The setback for dwellings shall be reciprocal in that no dwelling shall be constructed within one thousand two hundred (1,200) feet of a commercial wind turbine, unless a release of liability is received from the WECS.

c) The setback shall be measured from future rights-of-way if a planned changed or expanded right-of-way is known.

SECTION 5. REQUIREMENTS AND STANDARDS

a) Safety Design Standards
    1. Engineering Certification: For all WECS, the manufacture's engineer or another qualified engineer shall certify that the turbine, foundation and tower design of the WECS is within accepted professional standards, given local soil and climate conditions.
    2. Clearance: Rotor blades or airfoils must maintain at least thirty (30) feet of clearance between their lowest point and the ground.
    3. Warnings: For all Commercial WECS, a sign or signs shall be posted on the tower, transformer and substation warning of high voltage.

b) Height Standard: Non-Commercial WECS shall have a total height of less than two hundred (200) feet.

c) Meteorological towers may be guyed.

d) Color and Finish: All wind turbines and towers that are part of a commercial WECS shall be white, grey or another non-obtrusive color. Blades may be black in order to facilitate deicing. Finishes shall be matte or non-reflective. Exceptions may be made for metrological towers, where concerns exist relative to aerial spray applicators.

e) Lighting: Lighting, including lighting intensity and frequency of strobe, shall adhere to but not exceed requirements established by Federal Aviation Administration permits and regulations. Red strobe lights are preferred for night-time illumination to reduce impacts on migrating birds. Red pulsating incandescent lights should be avoided. Exceptions may be made for metrological towers, where concerns exist relative to aerial spray applicators.

f) Signage: No signs other than appropriate warning signs, or standard manufacturer's, operator's, or installer's signage shall be displayed. The manufacturer's or owner's company name and/or logo may be placed upon the nacelle of the WECS.

g) Feeder Lines: All communications and feeder lines, equal to or less than thirty-four and one-half (34.5) kilovolts in capacity, installed as part of a WECS shall be buried where reasonably feasible. Feeder lines installed as part of a WECS shall not be considered an essential service.

h) 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 promptly and disposed of in accordance with all applicable local, state and federal regulations.

i) Impacts on Public Infrastructure: Reimbursement of all costs related to excessive wear and tear to any public infrastructure such as but not limited to county roads and bridges, and to any highway system, storm water management related improvements and/or public utilities that are caused by the construction, maintenance, or removal of any WECS shall be reimbursed to the affected local government. A determination shall be made by the Zoning Administrator after consultation with the County Engineer or applicable official to establish if excessive wear and tear or damage has occurred and to estimate the costs of repair for said work. Any damages to any haul routes, as determined by the County Engineer, shall be reimbursed to the local government affected and shall be billed to the corporation or company owning said WECS to be paid within forty-five (45) days of issuance and may be subject to late charges, interest or penalties as allowed by law. Also, all haul routes shall be reviewed and approved by the County Engineer on use of any county roads prior to construction, maintenance or removal of any WECS. In order to review proposed haul routes and/or work locations, WECS owner(s) and/or their contractors shall contact the County Engineer a minimum of one (1) month prior to starting any work in the county.

j) Discontinuation and Decommissioning: A WECS shall be considered a discontinued use after one (1) year without energy production, unless a plan is developed and submitted to the Clayton County Zoning Administrator outlining the steps and schedule for returning the WECS to service.
   1. All WECS and accessory facilities shall be removed to a depth of four (4) feet including footing and foundations within one hundred eighty (180) days of the discontinuation of use.
   2. Each Commercial 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.
   3. 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.
   4. The plan shall also identify the financial resources that will be available to pay for the decommissioning and removal of the WECS and accessory facilities.
   5. Clayton County will require financial security in the form of a cash escrow, and irrevocable letter of credit or a performance bond to ensure that decommissioning of Commercial WECS is completed as required in this subdivision.

SECTION 6. OTHER APPLICABLE STANDARDS

a) Noise: Noise shall not exceed sixty (60) decibels (dBA) at closest setback distance, ground level.
b) Shadow Flicker: Shadow flicker on an occupied building shall not exceed thirty (30) hours per calendar year.
c) Electrical codes and standards: All WECS and accessory equipment and facilities shall comply with the National Electrical Code and other applicable standards.
d) Federal Aviation Administration: All WECS shall comply with FAA standards and permits.
e) Uniform Building Code: All WECS shall comply with the State Building Code adopted by the State of Iowa.
f) Interference: The applicant shall minimize or mitigate interference with electromagnetic communications, such as radio, telephone, microwaves, or television signals caused by any WECS. The applicant shall notify all communication tower operators within two miles of the proposed WECS location upon application to the county for permits. No WECS shall be constructed so as to interfere with County or Iowa Department of Transportation microwave transmissions.

SECTION 7. SEVERABILITY CLAUSE

If any section, provision, or part of this Ordinance shall be held invalid, the invalidity of such section, paragraph, clause, or provision shall not affect any of the remaining provisions of this Ordinance.

SECTION 8. EFFECTIVE DATE

This Ordinance, being deemed urgent and necessary for the preservation of the public health, shall be in force and effect from and after its passage and publication as provided by law.

PASSED AND APPROVED this 6th day of February, 2020.

/s/ Ray Peterson, Chairperson, Board of Supervisors
Attest: /s/ Jennifer Garms, Clayton County Auditor

First Reading: February 4, 2020
Second Reading: February 6, 2020
Third Reading: Waived
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