

Minutes - Woodbury County Board of Adjustment – November 4, 2024

The Board of Adjustment meeting convened on the 4th of November 2024 at 6:00 PM in the Board of Supervisors' meeting room in the Basement of the Woodbury County Courthouse. The meeting was also made available for public access via teleconference.

Meeting Audio:

For specific content of this meeting, refer to the recorded video on the Woodbury County Board of Adjustment "Committee Page" on the Woodbury County website:

- County Website Link:
 - o https://www.woodburycountyiowa.gov/committees/board_of_adjustment/
- YouTube Direct Link:
 - o <https://www.youtube.com/watch?v=CdrYyTOaq1s>

BA Members Present:	Daniel Hair, Doyle Turner, Pam Clark, Tom Thiesen
County Staff Present:	Dan Priestley, Dawn Norton
Public Present:	Kathy Tabke, Kerry Kisslinger, Dan Bittinger

Call to Order

Chair Daniel Hair formally called the meeting to order at 6:00 PM. Ashley Christensen was absent.

Public Comment on Matters Not on the Agenda

None

Approval of Minutes

The minutes of the October 7, 2024, meeting were approved. Motion by Clark, second by Turner. Motion carried unanimously (4-0).

Public Hearing – Conditional Use Permit Application (Action Item): For the Installation and Use of Three 100' Wind Turbines (Parcel #884420300005).

Chair Hair opened the public hearing, and Priestley read the staff report into the record. The hearing concerned the Conditional Use Permit (CUP) application submitted by L & K Tabke Holdings, LLC (Kathy Tabke) for the installation and use of three 100-foot wind turbines to reduce electrical costs on their farm. The property is identified as Parcel #884420300005, located in T88N R44W (Wolf Creek Township), Section 20, in the N ½ of the SW ¼. The proposed location is approximately 5.2 miles southeast of Merville, IA, on the south side of 195th Street, east of Jasper Avenue. The property is zoned Agricultural Preservation (AP), and "Electric wind generator (Private Use)" is classified as a conditional use under Section 3.03.4 of the Woodbury County Zoning Ordinance. The applicant and owner is L & K Tabke Holdings, LLC, located at 3112 195th St., Merville, IA 51039. A motion was made by Turner and seconded by Thiesen to accept additional information into the record. The motion carried 4-0 (see appendix). Priestley presented information from other Iowa counties regarding small wind policies, including setback distances and the use of the Conditional Use process. Priestley explained that a CUP is necessary because the net metering aspect introduces a financial gain, differentiating the project from a straightforward agricultural use, which would otherwise be considered exempt. A CUP requires more scrutiny to meet criteria related to safety, operating procedures, and potential concerns from neighboring landowners. Turner inquired whether a safety data sheet had been provided as previously requested. Staff received a letter from the owner of Bergey Windpower stating that safety sheets for the turbines were not available, as they pertain to larger commercial turbines. These are not required for the smaller turbines being proposed. Tabke clarified that the turbines were intended to reduce energy demand for farm operations, and she was reconsidering the use of net metering after learning it could complicate the agricultural exemption. She stated that there are two separate meters on the farm—one for the house and one for farm activities. Tabke and Kissinger addressed questions regarding safety data sheets and setbacks. They emphasized that these turbines are significantly smaller than industrial turbines and pose minimal risk, supported by historical data showing no injuries or insurance claims in over 40 years of use. Kissinger presented additional materials for Board review. A motion was made by Clark and seconded by Turner to receive the handouts; the motion carried 4-0 (see appendix). Board members raised concerns about the need for specific setback distances for safety, referencing potential risks with larger turbines. Tabke and Kissinger clarified that smaller turbines pose far less risk, noting the lack of injuries or insurance claims associated with this model over its 40-year history. A motion to close the public hearing was made by Thiesen and seconded by Clark. The motion carried 4-0. The

Board then discussed whether the turbine installation qualifies as an agricultural use, given that the generated power would be used exclusively on-site. Iowa Code regarding agricultural exemptions was reviewed, with activities like net metering potentially disqualifying the project from the exemption. Tabke indicated she would finalize the decision with the REC regarding the non-use of net metering. The Board acknowledged the uniqueness of this case, noting that it was the first CUP for small wind turbines on agricultural property in the county. Concerns were raised about future owners not being eligible for the agricultural exemption. Tabke stated that she preferred to proceed with the CUP application to establish a precedent for future similar requests. Priestley explained that each CUP application is unique. The Board discussed potential conditions for the CUP. A motion was made by Hair to approve the installation and use of three 100-foot wind turbines with net metering capabilities, with the condition that L & K Tabke Holdings, LLC shall defend, indemnify, and hold harmless Woodbury County and its officials from any claims, demands, losses, lawsuits, causes of action, damages, injuries, costs, expenses, and liabilities arising from the construction or operation of the wind energy facility. This includes any legal fees incurred, regardless of whether liability is based on contract or tort. Submitting the CUP and building permit applications would constitute agreement to these terms. The motion was seconded by Clark and carried 3-1, with Turner opposing.

Information Item: Consideration of a Recommendation Contemplating Decommissioning Requirements as Part of a New Ordinance Regarding Carbon Pipelines.

Priestley provided background on the agenda item. On August 27, 2024, the Woodbury County Board of Supervisors voted to direct the Planning and Zoning Director to collaborate with the Zoning Commission, Board of Adjustment, and legal counsel to develop a recommendation on decommissioning requirements for a new ordinance concerning carbon pipelines. Staff is continuing research and requests that board members explore potential options.

No Public Comments on matters not on the agenda.

Staff Update: Staff will continue gathering information on nuclear energy and decommissioning of carbon pipelines. There will be upcoming meetings discussing these issues. Public input is encouraged.

No Board Member Comment or Inquiry

Motion To Adjourn

Thiesen motioned. Second by Tuner. Carried 4-0. Meeting adjourned at 8:10 PM

Appendix

Received documents from Dan Priestley and Kerry Kisslinger on subsequent pages.

The following documents were received from Dan Priestley.

County	Turbine Tower Setback	Other
Pottawatomie	Shall not be located closer than a distance equal to one and one-tenth (1.1) times the total height to a dwelling, a property line, or a utility easement. Such distance shall be defined relative to the nearest surface of the WFS as measured at grade.	
Scott	The base of the structure shall be set back from all property lines and road easements a minimum equal to the height of the tower including rotor and/or blades.	
Linn	Free standing tower, or towers attached to a building shall be located on the lot so that the distance from the base of the tower to any adjoining property line, public right-of-way, or above ground public utility lines is a minimum of 100% of the tower height. Guy supported tower shall be located so that the distance from the base of the tower to any adjoining property line, public right-of-way, or above ground public utility lines is a minimum of 70% of the tower height. Guy wire anchors may be located anywhere within the boundaries of the parcel on which the tower is located.	
Black Hawk	Each wind turbine associated with a large wind energy facility shall be set back from the nearest non-participating land-owner's property line and from any other wind turbine a distance of no less than 1.5 times its total height. b. Each wind turbine associated with a small wind energy facility shall be set back from the nearest property line a distance of no less than 1.5 times its total height, except that a wind turbine associated with a small wind energy facility may be located closer than 1.5 times its total height if written consent from the property owners to which the proposed tower would be located closer than 1.5 times its total height is obtained, or if approved by Special Permit. In such cases, the minimum set back from the nearest property line shall be a distance of no less than 0.5 times its total height. As part of the Special Permit approval, the Board of Adjustment may grant a waiver to the setback requirements where strict enforcement would not serve the public interest and where it is demonstrated that such a setback will not have an adverse impact on the adjoining properties, however the setback shall generally not be less than 0.5 times the total height.	
Polk	AWECs shall be setback a minimum distance from the base of the structure to all property lines equal to 1.5 times the height of the tower and rotor as measured from the base to the highest reach of its blade. AWECs including anchors shall not be located within a required principal structure setback in any zoning district. An AWEC shall not be located in front of any residential building located on the same parcel.	

Black Hawk Disclaimer:

The owner of a wind energy facility shall defend, indemnify, and hold harmless Black Hawk County and their officials from and against any and all claims, demands, losses, suits, causes of action, damages, injuries, costs, expenses, and liabilities whatsoever, including attorney fees, arising out of the acts or omissions of the operator or the operator's contractors concerning the construction or operation of the wind energy facility without limitation, whether said liability is premised on contract or tort. Owner's submittal for a building permit for a wind energy facility shall constitute agreement to defend, indemnify, and hold harmless Black Hawk County and their officials.

Plymouth	Private WECS turbines shall be set back from any human occupied dwelling on adjacent property by two times the total height of the WECS turbine. b. Private WECS turbines shall be set back from any property line, public right-of-way or overhead utility easement 115% of the height of the WECS turbine. c. Setback distances shall be measured from the center of the support structure for the WECS turbine to the closest point of the structure, property line, right-of-way or utility easement. d. The height of the WECS turbine shall be measured from the base of the support structure to the tip of turbine rotor at its highest position.	
Monona	The minimum distance between any SWECs and any property line shall be a distance that is equivalent to one hundred ten percent (110%) of the total system height. Fall-Zone Clearance. No existing or proposed dwelling unit or principal structure shall be located closer than a distance equal to the total system height from the base of the tower of any SWECs. Other accessory structures may be located no closer to the base of the tower than seventy-five percent (75%) of the total system height.	
Des Moines Co.	Ordinance 1. The regulations contained within this ordinance shall apply only to Department of Energy Conservation Systems as those defined, along with any structures and equipment directly associated with a CWECs, such as battery Energy Storage Systems (BESS) and Hydrogen Generation from Renewable Energy Storage, in other official action by the County and be required for Renewal Wind Energy Conversion Systems, and their anchors, or any directly associated	
Bremer	Notificaiton Setbacks for the Small Wind Energy Systems tower shall be no closer from the property line than the height of the tower, with a minimum setback of 50 feet from all property lines. Guy wire anchor points may extend to within 10 feet of the property line. Building-mounted systems shall also be required to be no closer than 50 feet from all property lines, and shall not exceed the overall building height as allowed per Article 5 Chapter 6 Section 23 of the Bremer County Zoning Code (350) Building-mounted systems shall comply with structural requirements of the building code. In no case shall a Small Wind Energy System tower be located less than the height of the tower from any road right-of-way.	
Cedar	Setback : No part of the wind system structure, including guy wire anchors, may extend closer than ten (10) feet to the property boundaries of the installation site. The distance of the base of the tower from any property line shall be a minimum of 115% of the total height of the tower. Insurance : The Owner seeking a Zoning Permit to erect a Non-C-WECS shall provide evidence in the form of a certificate of insurance satisfactory to Cedar County, showing general liability coverage for the installation and operation of the system under a standard homeowner's or standard business owner's insurance policy, separate and distinct from any insurance requirements of a public utility.	
Floyd	Tower height and setback : The base of the small wind energy system tower shall be set back from all property lines, public right-of-way, and above ground public utility lines at a distance of not less than 115% of the total extended height of the tower. Towers shall be allowed closer to property lines than the extended height if the shading property owner's written permission, provided that the tower installation complies with the other applicable setback limits provided. No flag or tall extended height tower the setback requirements, there shall be a specific height limitation, except as required by the Federal Aviation Administration regulations as stated in Section 91.103.	

Cedar Co. Small Wind

SECTION 9. NON-COMMERCIAL WECS (Non-C-WECS)

A. Non-Commercial WECS are subject to the following standards. In addition to satisfactorily addressing the requirements of Chapter 174, of the Zoning Ordinance, the applicant must provide documentation that the following requirements have been met:

- 1. Tower Height**: Subject to Section 3 of this Ordinance, Non-C-WECS shall not exceed one hundred (100) feet in height without approval of a Special Exception by the Cedar County Board of Adjustment. Non-C-WECS shall be subject to all height limitations as necessary to comply with other sections of this Ordinance and those imposed by F.A.A. regulations.
- 2. Setback**: No part of the wind system structure, including guy wire anchors, may extend closer than ten (10) feet to the property boundaries of the installation site. The distance of the base of the tower from any property line shall be a minimum of 115% of the total height of the tower.
- 3. Noise**: Non-C-WECS shall not exceed 50 dBA, as measured at the outside wall of the closest neighboring inhabited dwelling. The level, however, may be exceeded during short-term events such as utility outages and/or severe wind storms.
- 4. Shadow Flicker**: A Non-C-WECS shall not create shadow flicker onto a non-participating residence or occupied community building. Should the possibility exist that the Non-C-WECS could create, or be found to create, shadow flicker on a non-participating residence or occupied community building, the Board of Adjustment may only in accordance with Section 6(17) consider a waiver as a condition of approval.
- 5. Engineer Certification**: Applications for Non-C-WECS shall be accompanied by standard drawings of the wind turbine structure, including the tower, base, and footings. An engineering analysis of the tower showing compliance with the applicable regulations and certified by a Iowa licensed professional engineer shall also be submitted. This analysis is frequently supplied by the manufacturer.
- 6. Compliance with F.A.A. Regulations**: Non-C-WECS must comply with applicable F.A.A. regulations, including any necessary approvals for installations close to airports.
- 7. Compliance with National Electric Code**: Applications for Non-C-WECS 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. This information is frequently supplied by the manufacturer.
- 8. Utility Notification**: No Non-C-WECS 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. Off-grid systems shall be exempt from this requirement.
- 9. Insurance**: The Owner seeking a Zoning Permit to erect a Non-C-WECS shall provide evidence, in the form of a certificate of insurance satisfactory to Cedar County, showing general liability coverage for the installation and operation of the system under a standard homeowner's or standard business owner's insurance policy, separate and distinct from any insurance requirements of a public utility.

Floyd Co. Small Wind

W. Small Wind Energy Systems

The purpose of this regulation is to promote the safe, effective, and efficient use of small wind energy systems installed to reduce the on-site consumption of utility-supplied electricity. This ordinance is in compliance with HF110, enacted in 2009, creating the Small Wind Innovation Zone program. Floyd County finds that wind energy is abundant, renewable, and nonpolluting energy resource and that its conversion to electricity will reduce our dependence on nonrenewable energy resources and decrease the air and water pollution that results from the use of nonrenewable energy sources.

Distributed small wind energy systems will help diversify the state's energy portfolio. Small wind energy systems also make the electricity supply market more competitive by promoting customer choice. The State of Iowa has enacted a number of laws and programs to encourage the use of small-scale renewable energy systems, including net metering, sales tax exemptions, property tax exemptions, production tax credits, and the Small Wind Innovation Zone program.

Small wind energy systems shall be a permitted use in all zoning classifications provided a conditional use is issued in conformance with and subject to certain requirements as set forth below. Floyd County shall require the installer of the small wind energy system, or the owner of the property upon which the system will be installed, to obtain a building permit for the system.

1. Tower height and setback.

The base of the small wind energy system tower shall be set back from all property lines, public right of ways, and above ground public utility lines at a distance of not less than 115% of the total extended height of the tower. Towers shall be allowed closer to a property line than its total extended height if the abutting property owner(s) grants written permission, provided that the tower installation complies with the other applicable setbacks herein provided. As long as the total extended height meets the setback requirements, there shall be no specific height limitation, except as imposed by the Federal Aviation Administration regulations as stated in Section VII W(3).

2. Requirement for engineered drawings/approval and soil studies.

A small wind energy system of greater than 20 kW, or a small wind energy system mounted on a structure other than a free-standing tower, shall not be erected in Floyd County, unless the plans and specifications for the system have received the stamped approval of an Iowa registered engineer. In lieu of obtaining the stamped approval of an Iowa registered engineer for each small wind energy system of

20 kW or less mounted on a free-standing tower, a manufacturer may submit its standard plans and specifications for a 20 kW system on a free-standing tower, including its soils study and foundations plans for such system, for a one-time review and stamped approval by an Iowa registered engineer as suitable for construction in any soil condition that exists in the State of Iowa. If such one-time stamped approval is obtained, that manufacturer may thereafter construct such small wind energy systems of 20 kW or less in Floyd County, utilizing the approved soils study and foundation plans for the 20 kW small wind energy system, without obtaining and presenting the stamped approval of an Iowa registered engineer for each such installation.

3. Compliance with Federal Aviation Administration Regulations (FAA).
No small wind energy system shall be constructed, altered, or maintained so as to project above any of the imaginary airspace surfaces described in FAR Part 77 of the FAA guidance on airspace protection.
4. Safety.
Any climbing foot pegs or rungs below 12 feet of a freestanding tower shall be removed to prevent unauthorized climbing. For lattice or guyed towers, sheets of metal or wood may be fastened to the bottom tower section such that it cannot readily be climbed.
5. Sound.
Sound produced by the small wind energy system under normal operating conditions, as measured at the property line, shall: a) not produce sound at a level that would constitute a nuisance; b) shall comply with any local ordinance regulating the volume of sound as a nuisance, if applicable. Sound levels, however, may be exceeded during short-term events out of anyone's control, such as utility outages and/or severe wind storms.
6. Compliance with National Electric Code.
Building permit applications for small wind energy systems shall be accompanied by a line drawing of the electrical components, as supplied by the manufacturer, in sufficient detail to allow for a determination that the design and manner of installation conforms to the state National Electric Code.
7. Utility Notification.
No small wind energy system shall be installed until evidence has been given that the utility company has authorized interconnection of the small wind energy system to its electric distribution or transmission, under an agreement offered by the utility. Properties not connected to the public utility system shall be exempt from this requirement.
8. Insurance.
A person seeking a building permit to erect a small wind energy system shall provide evidence, in the form of a certificate of insurance satisfactory to Floyd County, showing general liability insurance coverage for the installation and operation of the system under a standard homeowner's or standard business owner's insurance policy, separate and distinct from any insurance requirements of a public utility.
9. Abandonment.
If a wind turbine is inoperable for six consecutive months, the owner shall be notified that they must, within six months of receiving the notice, restore the small wind energy system to operating condition. If the owner fails to restore the system to operating condition within the six month time frame, it shall be considered abandoned and the owner shall be required, at the owner's expense, to remove the small wind energy system. A small wind energy system that has been abandoned may be abated as a public nuisance.
10. Signage.
No signs, other than appropriate warning signs, or standard manufacturer's or installer's identification signage, shall be displayed on a wind generator, tower, building, or other structure associated with a small wind energy system, subject to local sign regulation if any.
11. Lighting.
No illumination of the turbine or tower shall be allowed unless required by the FAA.

Des Moines Co. Small Wind

D. Exemptions.

1. The regulations contained within this ordinance shall apply only to Commercial Wind Energy Conversion Systems, as herein defined, along with any structures and equipment directly associated with a CWEDS, such as Battery Energy Storage Systems (BESS) and Meteorological Evaluation Towers. No permits, public hearings, or other official action by the County shall be required for Personal Wind Energy Conversion Systems, as herein defined, or any directly associated

Bremer Co. Wind

5-5-5 DEFINITIONS

5.1 Small Wind Energy System:

A wind energy conversion system consisting of a wind turbine, tower, and associated control or conversion electronics. A system is considered a Small Wind Energy System only if it supplies electrical power solely for on site use, except that when a parcel on which the system is installed also receives electrical power supplied by a utility company, excess electrical power generated and not presently needed for on site use may be used by the utility company (i.e. net

295

metering). These systems are considered Small Wind Energy Systems for the purpose of these regulations regardless if the system is used for agricultural, residential or commercial uses.

5.4 Fall Zone:

The area, defined as the furthest distance from the tower base, in which a tower will collapse in the event of a structural failure. This area is equal to the total height of the structure.

5.5 Property Line:

The boundary line of the area over which the entity applying for a Small Wind Energy System permit has legal control for the purposes of installation of a wind tower. This control may be attained through fee title ownership, easement, or other appropriate contractual relationship between the project developer and landowner.

5-5-6 PERMITTED USE

Small Wind Energy Systems shall be a permitted use in all Zoning District where structures of any sort are allowed. Any such Small Wind Energy System shall be subject to all provisions of these regulations, including setback requirements. Applicants are required to obtain a building permit from the Bremer County Building Department prior to erection of any Small Wind Energy System.

6.1 Parcel Size:

Small Wind Energy Systems shall not be allowed on parcels less than one (1) acre in size.

6.2 Clearance of Blade:

No portion of the Small Wind Energy System blade sweep shall extend within twenty feet of the ground. No blade sweep may extend over parking areas, driveways or sidewalks.

6.3 Setbacks:

Setbacks for the Small Wind Energy Systems tower shall be no closer from the property line than the height of the tower, with a minimum setback of (50) feet from all property lines. Guy wire anchor points may extend to within 10 feet of the property line. Building mounted systems shall also be required to be no closer than fifty (50) feet from all property lines, and shall not exceed the overall building height as allowed per Article 5 Chapter e Section 3.23 of the Bremer County Zoning Code (35ft) Building mounted systems shall comply with structural requirements of the building code. In no case shall a Small Wind Energy System tower be located less than the height of the tower from any road right of way.

6.4 Automatic Over Speed Controls:

All Small Wind Energy Systems shall be equipped with manual (electronic or mechanical) and automatic over speed controls to limit the blade rotation speed to within the design limits of the small wind energy system. Turbine/blade systems shall be rated to wind speeds of no less than 90 MPH, measured at sea level.

6.5 Sound:

On properties below thirty five (35) acres, Small Wind Energy Systems shall not exceed 60 dBA, as measured at the closest neighboring dwelling. The level, however, may be exceeded during short-term events such as utility outages and/or severe wind storms.

6.6 Compliance With Building Code:

Anyone who wishes to erect a Small Wind Energy System shall be required to obtain a building permit. Applications for Small Wind Energy Systems shall be accompanied by a site plan showing applicable setbacks and standard drawings of the wind turbine structure including the tower, base, footing, and guy wire anchors. An engineering analysis of the tower, guy wires, and anchors showing compliance with the Current County Building Code and certified by a licensed professional engineer shall also be submitted. This analysis is frequently supplied by the manufacturer; submission of wet stamped drawings in these cases may not be required, provided this is first approved by the Bremer County Building Official.

6.7 Compliance With FAA Regulations:

Small Wind Energy Systems must comply with applicable FAA regulations.

6.8 Compliance With Airport Tall Structure Ordinance:

No Small Wind Energy Systems tower shall be permitted that violates Title V Chapter 2 of the Bremer County Cod of Ordinance.

6.9 Compliance With National Electric Code:

Building 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 the installation conforms to the National Electrical Code.

6.10 Utility Notification:

No permit for a Small Wind Energy System shall be issued until the applicant provides documentation showing that they have met with the local utility company and have agreed to their net metering and interconnection requirements and that the proposed equipment meets the utility companies requirements. Off-grid systems shall be exempt from this requirement.

6.11 Ice Shedding:

The Small Wind Energy System owner shall ensure that ice from the wind turbine blades does not impact any off-site property including road right of way. Compliance with this requirement shall be indicated on the plans and specifications submitted with the permit application.

SCOTT COUNTY WIND

**CHAPTER 6
ZONING FOR UNINCORPORATED AREAS**

Section 6-6.V. is not permitted.

- (2) Home occupations and home industries in compliance with the requirement of Section 6-6.V.
- (3) Roadside stands offering for sale primarily products grown on the premises. Such stands shall be removed during any season or period when they are not being used.
- (4) Private kennel.
- (5) Small Wind generators with rated capacity of not more than 100 kilowatts and associated structures and equipment with the following restrictions:
 - (a) The base of the structure shall be set back from all property lines and road easements a minimum distance equal to the height of the tower including rotor and/or blades;
 - (b) The maximum height of the wind turbine generator shall be 80 feet;
 - (c) The ground clearance for the rotors or blades shall be no less than fifteen (15) feet or one-third (1/3) the height of the tower whichever is greater;
 - (d) The maximum noise level produced by the wind generator shall be no more than 50 decibels as measured at the property line.
 - (e) The wind turbine shall not cause vibration perceptible beyond the property on which it is located nor interfere with television, microwave, navigational or radio transmission;
 - (f) The wind turbine shall be constructed in accordance with plans prepared and stamped by registered professional engineer.

A Guide for Residential Wind Generators and Towers

Zoning Requirements

Small Wind Energy Conversion Systems (SWECS) are allowed as an Accessory Use in every zoning district except M1 (Mobile Home).

Maximum Height (from the base of the tower to the tip of the blade)

For property sizes of less than 1 acre, tower height is limited to the lesser of 80 feet or as limited by setbacks. For properties over one acre in size, the tower height is limited to the lesser of 120 feet or as limited by setbacks.

Setbacks Required

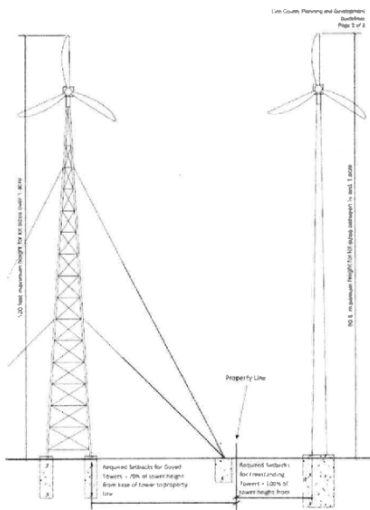
Free standing tower, or towers attached to a building, shall be located on the lot so that the distance from the base of the tower to any adjoining property line, public right-of-way, or above-ground public utility lines is a minimum of 100% of the tower height.

Guy supported tower shall be located so that the distance from the base of the tower to any adjoining property line, public right-of-way, or above-ground public utility lines is a minimum of 70% of the tower height. Guy wire anchors may be located anywhere within the boundaries of the parcel on which the tower is located.

Administrative Exception

An exception may be granted by the zoning administrator from height standards listed above to increase the height and setback by up to 25% of the maximum tower height if both of the following conditions are met.

- The exception is necessary for the bottom of the turbine rotor to clear the highest wind obstacle (i.e. rooftop, mature tree, etc.) by 20 feet measured within a 500 foot radius of the rotor.
- The owners and applicants shall record setback easements that conform to the setback standards on the adjacent property, when required setbacks cross property lines, which restrict new development within the easements.



Structural and Electrical Requirements

Compliance with FAA Regulations
Wind turbines must comply with applicable Federal Aviation Administration regulations.

Noise
Wind turbines shall not exceed 40 dBA, as measured at the closest neighboring inhabited dwelling. The level, however, may be exceeded during short term events such as utility outages and severe wind storms.

Utility Notifications
No wind turbine shall be installed until evidence has been given that the utility company has been informed of the customer-owned generators. Off-grid systems shall be exempt from this requirement.

Additional Requirements
For requirements related to lighting, insurance, access and safety, and structural/unsafe or unsecured towers, please see Article 7, Sections (4) of the Linn County Unified Development Code or contact the Linn County Department of Planning and Development.

Structural Requirements
A building permit is required for each tower installation. Plans must be submitted with tower permit applications. Construction documents are required to be submitted in pdf format. Plans shall include dimensions lines or be drawn to scale. Provide sufficient information for the building official to ascertain the scope of the project. Plans shall also allow for digital signatures and mark-ups. Online submission preferred. Plans can be submitted via the [Linn County Online Submission Portal](https://www.linncountyia.com/online). In-person submission is available by appointment, call 602.5730 to schedule. Plans for towers and tower foundations must be designed or reviewed by a registered professional engineer licensed in the State of Iowa and must bear a signed stamp or signature block of said engineer.
Towers shall be designed to meet the requirements of TIA/ISA 222.
Towers shall be designed for wind loading based on icing conditions.

Electrical Connections
Separate electrical permits are required for all electrical work and shall obtained by the electrician performing the installation.
Electricians shall be licensed under State of Iowa Electrical Licensing laws.

602-573-0400
Center Road, IA 52204
Hours: 8:00 AM - 5:00 PM
Fax: 319.862.0100
www.linncountyia.com

Pottawattamie Small Wind

8.004.240 WIND ENERGY SYSTEMS, NON-COMMERCIAL (WES); (Ordinance #2023-05/03-07-2024)

- 01 **PURPOSE:** This section provides uniform and comprehensive standards for the installation and the use of WES for on-site home, farm and small commercial use that are used primarily to reduce on-site consumption of utility power. The intent of this section is to protect the public health, safety and community welfare without unduly restricting the development of WES.
- 02 **CONSTRUCTION; CONFLICT:** This section does not repeal, abrogate, amend, impair or interfere with any existing ordinance. If this section 8.004.240 conflicts with any other provision of the Pottawattamie County, Iowa, Zoning Ordinance, this section 8.004.240 shall control.
- 03 **ACCESSORY USE:** WES shall be considered an accessory use to a permitted principal or conditional use in any zoning district, except within the A-4, R-1, R-2 and R-3 zoning districts.
- 04 **CONDITIONAL USE:** WES shall require a conditional use permit within the A-4, R-1 and R-2 zoning districts. The use is prohibited in the R-3 zoning district.
- 05 **SETBACKS:** WES shall not be located closer than a distance equal to one and one-tenth (1.1) times the total height to a dwelling, a property line, or a utility easement. Such distance shall be defined relative to the nearest surface of the WES as measured at grade.
- 06 **SPECIAL REQUIREMENTS:** WES shall be subject to the requirements included in this section:
 - A. **MINIMUM LOT SIZE:** WES shall not be placed on a parcel of land or lot which is less than one (1) acre in size.
 - B. **NO INTERFERENCE:**
 - 1. WES shall not cause interference to the radio and television reception on adjoining property and in the event of any such interference the WES owner shall remedy such interference.
 - 2. WES shall not cause interference with emergency communication transmissions of the County. Applicant shall request documentation from the County Sheriff to verify the same and submit said documentation with any building permit application. Any cost associated therewith shall be at the applicant's expense.

07 **BUILDING CODES:** All county, state and federal construction codes shall be followed.

8.65

08 **USE:** WES shall provide electricity for on-site use by the owner. This does not prohibit an owner from making access power available for net metering.

09 **BUILDING PERMIT:** Before a building permit is issued, the following shall be submitted to the Development Director for review Reference.

A. Site Plan Showing.

- 1. Address, email address, and phone number of the property owner;
- 2. Parcel lines;
- 3. All existing structures with heights clearly marked;
- 4. Sanitary infrastructure (i.e., septic field);
- 5. Setback measurements;
- 6. Easements present on the property, including those for utilities;
- 7. Septic field tile location;
- 8. Floodplain location, if applicable;
- 9. Topography lines (2-foot contours);
- 10. Location of all WTGs and associated equipment; and
- 11. Location of the electrical disconnect for the WES.

B. Evidence that the local electric utility has been informed of the customer's intent to install a customer-owned WES.

C. Evidence that the site plan has been submitted to the local fire protection district.

D. Evidence that all contact information for site has been provided to Emergency Management.

E. After a review and acceptance of site plan and required information, a building permit authorizing construction shall be issued.

Black Hawk County Wind

DEFINITIONS OF WIND ENERGY FACILITY

- j. **Wind Energy Facility, Small.** A single wind energy system that generates electricity or performs other work, has a total height of one hundred twenty (120) feet or less or is affixed to an existing structure, has a power output rated capacity of 100 kilowatts or less, and is intended to primarily reduce the on-site consumption

34

of electricity. Any wind energy facilities not falling under this definition shall be deemed a large wind energy facility.

- k. **Wind Farm.** Two or more wind turbines under common ownership or control not falling under the definition of a small wind energy facility.
- l. **Wind Turbine.** A wind energy conversion system which converts wind energy into electricity through the use of a wind turbine generator, and includes the turbine, blade, tower, base, and pad.

4. If required, a plan for site grading, erosion control, storm water drainage, and storm water pollution prevention plan (SWPPP) shall be submitted to the County Engineer for review and approval prior to granting building permits.
5. All other permits, including those for work done in rights-of-way, shall be applied for by the applicant to the appropriate agency prior to construction.
6. Wind energy facilities shall not include offices, vehicle storage, or other outdoor storage. One accessory storage building may be permitted per large wind turbine at the Board of Adjustment's discretion. The size and location of any proposed accessory building shall be shown on the site plan. No other structure or building accessory to the wind energy facility is permitted unless used for the express purpose of the generation of electricity or performing other work related to the wind energy facility.
7. An applicant may submit one Special Permit application for the entire large wind energy facility project or small wind energy project (if required) located in Black Hawk County, provided that a detailed map identifying the precise location of all proposed wind turbine towers is provided at time of submittal of Special Permit. For additional wind turbine towers proposed that were not detailed in a previous Special Permit approval, a new separate Special Permit shall be required, including a detailed map identifying the precise location of all proposed and existing wind turbine towers.
8. No grading, filling, or construction shall begin until a building permit is issued. A separate building permit shall be required for each individual wind turbine tower and appurtenant facilities prior to construction of each wind turbine tower and appurtenant facilities to be constructed.
11. A wind energy facility authorized by Special Permit shall be started within twelve (12) months of Special Permit issuance and completed within thirty-six (36) months of Special Permit issuance, or in accordance with a timeline approved by the Board of Adjustment. Upon request of an applicant, and for good cause, the Board of Adjustment may grant an extension of time.
13. For wind energy facilities requiring Special Permit, the Board of Adjustment may require additional conditions to ensure public health, safety, and welfare.
14. Wind energy facilities that are constructed and installed in accordance with the provisions of this Section shall not be deemed to constitute the expansion of a nonconforming use or structure.
15. Nothing in this Ordinance shall be deemed to give any applicant the right to cut down surrounding trees and vegetation on any property not on the applicant's site to reduce turbulence and increase wind flow to the wind energy facility. Nothing in this Ordinance shall be deemed a guarantee against any future growth or construction or County approvals of future construction that may in any way impact the wind flow to any wind energy facility. It shall be the sole responsibility of the facility operator or owner to acquire any necessary wind flow or turbulence easements, or rights to remove vegetation.

c. Regulatory Framework

1. Large wind energy facilities may only be constructed in areas that are zoned "A" Agricultural District, "A-L" Agricultural-Limited District, and "C-M" Commercial-Manufacturing District upon approval of a Special Permit by the Board of Adjustment after recommendation of the County Planning and Zoning Commission.
2. Small wind energy facilities may be constructed in any zoning district as either a principal or accessory use. Small wind energy facilities that are constructed as an accessory use to a principal permitted use, and meet the setback, height, and power output requirements of this Section, shall not require Special Permit approval, and shall only require building permit approval. All small wind energy facilities that are constructed as a principal permitted use, or small wind energy facilities that do not meet the setback, height, or power output requirements of this Section, shall require Special Permit approval.
3. Application for a Special Permit, if required, for a large or small wind energy facility shall be submitted with the following information:
 - a. A properly filled out and signed application.
 - b. A signed statement indicating that the applicant has legal authority to construct, operate, and develop the wind energy facilities under state, federal and local laws and regulations, including Federal Aviation Administration (FAA), Federal Communications Commission (FCC), and state and local building codes.
 - c. A description of the number and kind of wind energy facilities to be installed.
 - d. A description of the large or small wind energy facilities' height and design, including a cross section, elevation, and diagram of how the wind energy facilities will be anchored to the ground, prepared by a professional engineer licensed in the State of Iowa.
 - e. A statement from the applicant that all wind energy facilities will be installed in compliance with manufacturer's specifications, and a copy of those manufacturer's specifications.
 - f. A signed statement from the landowner(s) of the site stating that he/she will abide by all applicable terms and conditions of this Section and the Special Permit, if approved.
 - g. A statement indicating what hazardous materials will be used or stored on the site, and, how those materials will be stored.
 - h. A statement indicating how the wind energy facility will be lit, if applicable.
- i. For small wind energy facilities, a site plan showing the parcel boundaries and a legal description, support facilities, access, fencing, and all other buildings on the site and within the 100 feet beyond the site.
- k. Any utility or easement locations shall be indicated on the site plan.

f. General Requirements

1. **Standards**
 - a. No television, radio or other communication antennas may be affixed or otherwise made part of a wind energy facility, except pursuant to the regulations for wireless communication towers. Applications may be jointly submitted for wind energy facilities and wireless communication facilities.
 - b. Wind energy facilities shall utilize measures to reduce the visual impact of the facility to the extent possible. Facilities with multiple wind turbine towers shall be constructed with an appearance that is similar throughout the site, to provide reasonable uniformity in overall size, geometry, and rotational

37

- speeds. No lettering, company insignia, advertising, or graphics shall be on any part of the tower, hub, or blades except as otherwise provided in this Section.
- c. Small wind energy facilities shall be used primarily to reduce the on-site consumption of electricity.
 - d. For small wind energy facilities not requiring Special Permit approval, the maximum turbine power output rated capacity is limited to 50 kW. For small wind energy facilities requiring Special Permit approval, the maximum turbine power output rated capacity is limited to 100 kW. Power output rated capacity larger than 100 kW shall be deemed a large wind energy facility.
 - e. At least one sign shall be posted on the tower at a height of five (5) feet warning of electrical shock or high voltage, harm from revolving machinery, and the hazard of falling ice. No brand names, logo or advertising shall be placed or painted on the tower, rotor, generator or tail vane where it would be visible from the ground, except that a system of tower's manufacturer's logo or insignia may be displayed on a system generator housing in an unobtrusive manner that is not visible off site.

- f. Towers shall be constructed to provide one of the following means of access control:
 1. Tower-climbing apparatus located no closer than twelve (12) feet from the ground.
 2. A locked anti-climb device installed on the tower.
 3. A locked, protective fence at least six feet in height that encloses the tower.
- g. Anchor points for any guy wires shall be setback ten (10) feet from any property line, and shall not be on or across any above-ground electric transmission or distribution lines, and shall not be located within an easement. The point of attachment for the guy wires shall be enclosed by a fence six feet high or sheathed in bright orange or yellow covering from three to eight feet above the ground.

Design and Installation

- a. Wind energy facilities shall be painted a non-reflective, non-obtrusive color, such as grey, white, or off-white.

- c. Minimum lighting necessary for safety and security purposes shall be permitted. Techniques shall be implemented to prevent causing glare from the site, except as otherwise required by the FAA or other applicable authority.
- d. No form of advertising shall be allowed on the pole, turbine, blades, or other buildings or facilities associated with the use, except for reasonable identification of the manufacturer or contact information of the operator of the wind energy facility.
- e. All wind energy facilities shall be equipped with a redundant braking system. This includes both aerodynamic overspeed

- f. controls (including variable pitch, tip, and other similar systems) and mechanical brakes. Mechanical brakes shall be operated in a fail-safe mode. Stall regulation shall not be considered a sufficient braking system for overspeed protection.
- f. To the extent applicable, all wind energy facilities shall comply with all applicable building codes and standards.
- g. Electrical controls, control wiring, and power lines shall be wireless or not above ground, except where wiring is brought together for connection to the transmission or distribution network, adjacent to that network. This provision can be waived by the Board of Adjustment for any wind energy facility approved by Special Permit if deemed appropriate by the Board.
- h. All electrical components of the wind energy facility shall conform to relevant and applicable local, state, and national codes, and relevant and applicable international standards.
- i. **The owner of a wind energy facility shall defend, indemnify, and hold harmless Black Hawk County and their officials from and against any and all claims, demands, losses, suits, causes of action, damages, injuries, costs, expenses, and liabilities whatsoever, including attorney fees, arising out of the acts or omissions of the operator or the operator's contractors concerning the construction or operation of the wind energy facility without limitation, whether said liability is premised on contract or tort. Owner's submittal for a building permit for a wind energy facility shall constitute agreement to defend, indemnify, and hold harmless Black Hawk County and their officials.**

- k. Where wind energy facility construction cuts through a private or public drain tile field, the drain tile must be repaired and reconnected to properly drain the site to the satisfaction of Black Hawk County.
- l. Any recorded access easement across private lands to a wind energy facility, in addition to naming the wind energy facility owner as having access to the easement, shall also name Black Hawk County as having access to the easement for purposes of inspection or decommissioning. If no such access easement exists, approval of the Special Permit for a wind energy facility

- b. Each wind turbine associated with a small wind energy facility shall be set back from the nearest property line a distance of no less than 1.5 times its total height, except that a wind turbine associated with a small wind energy facility may be located closer than 1.5 times its total height if written consent from the property owners to which the proposed tower would be located closer than 1.5 times its total height is obtained, or if approved by Special Permit. In such cases, the minimum set back from the nearest property line shall be a distance of no less than 0.5 times its total height. As part of the Special Permit approval, the Board of Adjustment may grant a waiver to the setback requirements where strict enforcement would not serve the public interest and where it is demonstrated that such a setback will not have an adverse impact on the adjoining properties, however the setback shall generally not be less than 0.5 times the total height.

shall constitute granting to Black Hawk County a right to access the wind energy facility for purposes of inspection or decommissioning.

- m. Any wind energy turbine or facility that does not produce energy for a continuous period of twelve months shall be considered abandoned and shall be removed in accordance with the removal provisions of this Section. Failure to abide by and faithfully comply with this Section or with any and all conditions that may be attached to the granting of any building permit for a wind energy facility shall constitute grounds for the revocation of the permit by Black Hawk County.
- o. Wind energy facilities exceeding one hundred twenty (120) feet hub height shall be of a monopole (tubular) design except in unusual circumstances as deemed appropriate by the Board of Adjustment as part of the Special Permit approval. For wind energy facilities not exceeding one hundred twenty (120) feet hub height, monopole (tubular) type towers shall be favored over guyed towers, and lattice towers shall be discouraged. For towers that require Special Permit approval, the Board of Adjustment shall have authority to determine required design elements, including type and height.

g. Setbacks 1. The following setbacks and separation requirements shall apply to all wind turbines:

- e. Wind energy facilities must meet all utility setbacks and/or easements. The owner of the wind energy facility is responsible for contacting the appropriate entities to determine the location of all above and underground utility lines on the site including, but not limited to, electricity, natural gas, cable television, communication, fiber optic, etc.

i. Noise and Vibration

1. Except during short-term events including severe windstorms, audible noise due to wind energy facility operations shall not exceed sixty (60) dBA, when measured at the site property lines. If audible noise exceeds sixty (60) dBA the offending wind turbine must be inoperable until repairs are completed, or a waiver is obtained from affected property owners in accordance with Subsection (f) below.
2. Wind energy facilities shall not create an audible steady, pure tone such as a whine, screech, hum, or vibration.
3. 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 site property lines. 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 level measurement location. Any noise level emanating from a wind energy facility falling between two whole decibels shall be determined to be the higher of the two. Any noise monitoring or measurements, with the need determined by the Black Hawk County Planning Staff, shall be paid for by the applicant or wind energy facility owner.
6. In the event the noise levels resulting from the wind energy facility exceed the criteria listed above, a waiver to said levels may be granted 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 wind energy facility and the noise limitations imposed by this Ordinance, and that

6. In the event the noise levels resulting from the wind energy facility exceed the criteria listed above, a waiver to said levels may be granted 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 wind energy facility and the noise limitations imposed by this Ordinance, and that

41

consent is granted to allow noise levels to exceed the maximum limits otherwise allowed; and,

- b. A permanent noise impact easement has been recorded in the Office of the Black Hawk County Recorder 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.

j. Minimum Ground Clearance

1. For small wind energy facilities, the minimum distance between the ground and any part of the rotor or blade system shall be fifteen (15) feet.
2. For large wind energy facilities, the minimum distance between the ground and any part of the rotor or blade system shall be thirty (30) feet.

11. The owner/operator of a wind energy facility shall be responsible for the total cost of any incident(s) that occur on or at their facilities and/or properties.

k. Signal Interference

1. The applicant or wind energy facility owner shall mitigate any interference with electromagnetic communications, such as radio, telephone, computers, communication devices, or television signals, including any public agency radio systems, caused by any wind energy facility. However, in no case shall a wind energy facility be located within the microwave path of an emergency communication tower.

p. Removal

1. All wind generators and appurtenances shall be removed from the site within six (6) months of use termination notice to Black Hawk County by the owner of the facility or its assigns, or within three (3) months of permit revocation by Black Hawk County. Upon request of the owner or assigns of the wind energy facility, and for good cause, the Zoning Administrator may grant a reasonable extension of time.
2. The site shall be stabilized, graded, and cleared of any debris by the owner of the facility or its assigns. If site is not to be used for agricultural practices following removal, site shall be seeded to prevent soil erosion.
3. Any foundation shall be removed to a minimum depth of four (4) feet below grade, or to the level of the bedrock if less than four (4) feet below grade, by the owner of the facility or its assigns. Following removal, the

43

l. Shadow Flicker

1. Wind energy facilities shall attempt to avoid shadow flicker in any off-site residences. The wind energy facility owner and/or operator shall make reasonable efforts to minimize or mitigate shadow flicker to any off-site residence to the satisfaction (determination) of the Zoning Administrator. Any off-site residence owner or wind energy facility owner may appeal the determination of the Zoning Administrator to the Board of Adjustment, as provided in Section XXIV (D), 3(k).

m. Ice Shedding

1. The wind energy facility owner and/or operator shall ensure that ice from the wind turbine blades does not impact any off-site property.

n. Waste Management

1. All hazardous waste generated by the operation and maintenance of the facility, including, but not limited to lubricating materials, shall be handled in a manner consistent with all local, state, and federal rules and regulations.

location of any remaining wind turbine foundation shall be identified on a map as such and recorded with the deed to the property with the Office of the Black Hawk County Recorder.

4. Any access roads shall be removed, cleared, and graded by the owner of the facility or its assigns, unless the property owner wants to keep the access road. Black Hawk County will not be assumed to take ownership of any access road unless through official action of the Board of Supervisors.
5. Any expenses related to the decommissioning and removal shall be the responsibility of the wind energy facility owner, including any expenses related to releasing any easements.
6. Removal shall conform to the contract between property owner and the owner/operator of a wind energy facility, in addition to the requirements set forth in this Ordinance.

o. Safety

1. Wind turbine towers shall not be climbable up to fifteen (15) feet above ground level and all large wind turbine tower access ladders must be located inside of the tower.
2. All access doors to wind turbine towers and electrical equipment shall be locked.

7. All substations shall be fenced to prevent public access. The provisions of Section II (B) shall apply.

4. **Violation and Permit Revocation**

1. All wind energy facilities shall be maintained in operational condition at all times, subject to reasonable maintenance and repair outages. Operational condition includes meeting all noise requirements and other permit conditions. Should a wind energy facility become inoperable, or should any part of the wind energy facility be damaged, or should a wind energy facility violate a permit condition, the owner/operator shall remedy the situation within three (3) months after written notice from Black Hawk County. Upon request of the owner or assigns, and for good cause, the Zoning Administrator may grant a reasonable extension of time.
2. Notwithstanding any other abatement provision, if the wind energy facility is not repaired or made operational or brought into compliance after said notice, the Board of Supervisors may, after a public meeting at which the operator or owner shall be given opportunity to be heard and present evidence, including a plan to come into compliance, (1) order either remedial action within a specified timeframe, or (2) order revocation of the permit and require the removal of the wind energy facility within three (3) months. For large wind energy facilities not removed within the specified time period, Black Hawk County shall have the right to use the irrevocable letter of credit, bond, or cash escrow to cover the costs associated with removal of the large wind energy facility.
3. Any wind energy facility that does not meet the requirements of this Ordinance, including, but not limited to those dealing with noise, height, setback, or visual appearance, or does not meet any conditions attached to approval of the wind energy facility, shall be deemed an unlawful structure and shall provide grounds for the revocation of the permit.

Polk County (Wind)

General Use	Zoning Districts													
	AG	AT	ER	RR	LDR	MDR	HDR	MU	NE	GC	LI	HI	MH	OS
Renewable Energy Uses														
A Accessory Wind - AWECs	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
B Utility Scale Wind - USWECS	C	N	N	N	N	N	N	N	N	N	N	N	N	N
C Accessory Solar - ASECS	Y	Y	Y	Y	GY	GY	GY	GY	GY	GY	GY	GY	GY	GY
D Utility Scale Solar - USSECS	C	N	N	N	N	N	N	N	N	N	N	N	N	N
E Battery Energy Storage - BECS	C	SN	N	N	N	N	N	N	N	N	N	C	C	N

Section 1. Wind Energy Conversion Systems (WECS) Design Standards.

- (A) **Minimum parcel size.** The minimum parcel size for a WECS within a commercial or industrial zoning district shall be 1-acre. The minimum parcel size for a WECS within any agricultural or residential zoning district shall be three acres.
- (B) **Number of systems per parcel.** No more than one Accessory WECS may be placed on any parcel or lot. Utility Scale WECS, where permitted, may be allowed more than one per parcel.
- (C) **Setbacks.**
 - (1) **Accessory WECS (AWECs).**
 - (a) AWECs shall be setback a minimum distance from the base of the structure to all property lines equal to 1.5 times the height of the tower and rotor as measured from the base to the highest reach of its blade.
 - (b) AWECs including anchors shall not be located within a required principal structure setback in any zoning district.
 - (c) An AWECs shall not be located in front of any residential building located on the same parcel.
 - (2) **Utility Scale WECS (USWECS).**
 - (a) USWECS shall be located only in the AG Zoning District and shall be a minimum 1,320-feet from any property lines or residential dwellings, not included in the WECS application, or any public park and/or recreation property line with the following exceptions:
 - (i) Any public park or recreational land when approved by the appropriate County, State, or Federal administrative staff, boards, and/or commissions for a demonstrated public purpose.
- (D) **Rotor size.**
 - (1) AWECs on a parcel with residential as its principal use shall not have a blade diameter in excess of 25-feet.
 - (2) AWECs on a parcel with a non-residential principal use shall not exceed a 30-foot blade diameter.
 - (3) USWECS located in the Agricultural Zoning District and WECS used for federal, state, and local government entities and public schools may exceed the 50-foot maximum blade diameter subject to the setback requirements identified in this ordinance and as may be established by Board of Adjustment approval of the WECS Permit.

(E) Tower height.



Article 2424, Renewal Energy Division 21, Purpose

- (1) AWECs shall meet the following requirements:
 - (a) AWECs on an individual parcel up to 3-acres shall not exceed a combined tower/pole and rotor height of 65-feet.
 - (b) AWECs on a parcel greater than 3-acres and up to 7-acres shall not exceed a combined tower/pole and rotor height of 80-feet.
 - (c) AWECs on a parcel greater than 7-acres shall not exceed a combined tower/pole and rotor height of 100-feet.
- (2) Utility Scale WECS towers, poles and rotors may exceed the height limitations of the Agricultural Zoning District in which located.

- (F) **Blade clearance.** No portion of a horizontal axis WECS blade shall extend within 30-feet off the ground. No portion of a vertical axis WECS shall extend within 10-feet of the ground. No blades may extend over parking areas, driveways, or sidewalks. No blade may extend within 20-feet of the nearest tree, structure, or above ground utility facilities.
- (G) **Building mounted WECS prohibited.** WECS mounted on a roof or wall or otherwise attached to a building are prohibited.
- (H) **Tower.** Only monopole towers shall be permitted for freestanding WECS. Guy-wire supported mast, lattice, and towers of any other type shall not be considered in compliance with this chapter.
- (I) **Signage.** All signs, both temporary and permanent, are prohibited on WECS, except as follows:
- (1) Manufacturer's identification on the wind turbine cowling.
 - (2) Appropriate warning signs and placards including visible warning sign of "High Voltage" placed at the base of all conversion systems. The sign shall have a minimum 6-inch letters with 3/8-inch stroke.
- (J) **Color.** The color of WECS shall be non-reflective and non-obtrusive.
- (K) **Shadow flicker.** No WECS shall be installed and operated so to cause a shadow flicker to fall on or in any existing residential dwelling that is not included as part of the WECS application.
- (L) **Rotor design and overspeed controls.** All WECS shall be equipped with manual and automatic overspeed controls to limit the rotation of blades to a speed below the designed limits. A professional engineer shall certify that the rotor and overspeed control design and fabrication conform to good engineering practices. No changes or alterations from the certified design shall be permitted unless accompanied by a professional engineer's statement of certification.

- (M) **Electrical compliance.** All electrical compartments, storage facilities, wire conduit and interconnections with utility companies shall conform to national and Polk County electrical codes.
- (N) **Experimental or prototype WECS.** Written evidence identifying the proposed use of an experimental or prototype WECS shall be submitted to the County by a professional engineer and/or factory representative. Experimental or prototype WECS are not permitted closer than 300-feet from all property lines.
- (O) **Tower, Poles, and Anchor points.** All towers, poles, and anchor points must be unclimbable by design or protected by anti-climbing devices such as:
- (1) Fences with locking portals at least 6-feet high.
 - (2) Anti-climbing devices 12-feet from base of pole.
 - (3) Anchor points for guy-wires supporting tower shall be enclosed by a six-foot high fence or shall be located within the confines of a yard which is completely fenced.
- (P) **Noise Levels.** The noise level measured at the property line of the property on which the WECS has been installed shall not exceed 55 decibels or cause a noise disturbance as defined in the Polk County Noise Pollution Ordinance. In no event shall the WECS create a nuisance.
- (Q) **Lighting.** Lighting of towers is only allowed when required by the FAA. The lighting method allowed shall be an FAA approved dual lighting system.
- (R) **Stormwater Management.** Depending on the scale and footprint of a proposed USWECS project, a stormwater management prevention plan may be required in accordance with the site plan regulations of Polk County. All site work shall further comply with the National Pollution Discharge Elimination System (NPDES) permit as required by the Iowa Department of Natural Resources (IDNR), including Section 404 of the Clean Water Act (CWA) related to impacts on wetlands and Waters of the United States (WUS).
- (S) **Emergency Access.** Hard surface access for emergency service equipment shall be provided and maintained to all USWECS towers and buildings.

Plymouth County Zoning Ordinance:

C. Private Wind Energy Conversion Systems. Private wind energy conversion system (WECS) turbines may be established as permitted principal uses in the A-1, Primary Agriculture, TA-1, Transitional Agriculture, and R-1, Rural Residential Districts, subject to the following standards and requirements: 1. Setbacks. a. Private WECS turbines shall be set back from any human occupied dwelling on adjacent property by two times the total height of the WECS turbine. b. Private WECS turbines shall be set back from any property line, public right-of-way or overhead utility easement 115% of the height of the WECS turbine. c. Setback distances shall be measured from the center of the support structure for the WECS turbine to the closest point of the structure, property line, right-of-way or utility easement. d. The height of the WECS turbine shall be measured from the base of the support structure to the tip of turbine rotor at its highest position. 2. Other standards. a. Color and finish. Private WECS shall, to the extent possible, use materials, colors and textures that will blend with the natural and existing environment. b. Signage. WECS shall not be used for display of advertising except for reasonable identification of the manufacturer or the owner/developer and appropriate safety warning signage. c. Mitigation. The owner/developer shall be responsible for satisfactory mitigation of any damages to drainage systems, roadways or adjacent properties caused by construction or operation of the WECS. The owner/developer shall be responsible for resolution of substantiated electrical interference issues caused by operation of the WECS.

Monona County Small Wind Energy Conversion Systems

ORDINANCE NO. 58 AN ORDINANCE AMENDING CHAPTER 100 – ZONING REGULATIONS OF THE MONONA COUNTY CODE OF ORDINANCES

WHEREAS, on February 21, 2012 the Board of Supervisors of Monona County, Iowa, adopted Ordinance 40 amending Chapter 100 – Zoning Regulations; and WHEREAS, on June 27, 2017 the Board of Supervisors of Monona County, Iowa adopted Ordinance 1 readopting the County Code of Ordinances as amended; and WHEREAS, the Planning and Zoning Commission and County Board of Supervisors wish to amend and add regulations governing wind and solar energy; therefore BE IT ORDAINED by the Board of Supervisors of Monona County, Iowa, that Chapter 100 – Zoning Regulations of the Monona County Code is hereby amended as follows: Zoning Districts Section 1. 100.13.1 Strike "one (1) overlay district" and insert therein "three (3) overlay districts". Section 2. 100.13.1.B After section "(1) Flood Plain Overlay Districts" insert "(2) Airport Overlay Districts • James G. Whiting

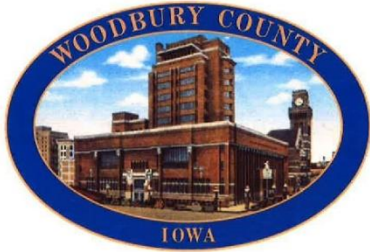
Memorial Field District (3) Loess Hills Overlay District" Section 3. 100.14.5 After section "A. Flood Plain Overlay Districts." insert therein: "B. Airport Overlay Districts (1) James G. Whiting Memorial Field (a) The James G. Whiting Memorial Field Overlay District, which shall also be referred to as the Mapleton Municipal Airport within this Code of Ordinances and amendments thereto, contained in Chapter 300(b), are a part of the Zoning Regulations and are in full force and effect. C. Loess Hills Overlay District (1) The Loess Hills Overlay District is intended to protect the geological, cultural, and historical significance of the Loess Hills in Monona County. (2) The overlay district boundaries shall be defined as extending 1 mile east or west of the Loess Hills. -2- (3) The boundary of the Loess Hills shall be determined by the Iowa Department of Natural Resources. (4) All base zoning ordinances and amendments thereto are allowed in the Loess Hills Overlay District with the exception of: (a) Large Wind Energy Conversion Systems, which shall be prohibited per Chapter 100.23 of this Code of Ordinances. Principal Permitted Uses Section 4. 100.15 Principal Permitted Uses Under the Zoning District A-1 column: Incorporate the following Regulators as Permitted Uses (P): • Sales of feed, seed, fertilizer, and agricultural chemicals except ammonia. • Storage and repair of custom hire machinery, equipment and supplies incidental to farming including tillage equipment, chemical application equipment (ground types only) and similar uses. • Tiling contractor storage and repair facilities. Incorporate the following Regulator as a Permitted Use with Restrictions (PR): • Child Care, including licensed daycares, nursery schools and preschools. Incorporate the following Regulators as Special Use Permit Required (SU): • Minor repair garages, including vehicle servicing • Tire and auto accessory store • Bed & Breakfast, lodging house • Campgrounds, RV parks • Commercial Wind Farms Incorporate the following Regulators as Special Use Permit Required with Restrictions (SR): • Vehicle, trailer, mobile home, and farm implement establishments for sales or lease; but excluding wrecking and used parts yards. • Microwave, radio, television and cellular telephone communication towers and exchanges. Under the Zoning District A-2 column: Strike "P" from "Wineries including accessory wine sales, banquet rooms, catering and food sales and vineyards" and insert in lieu thereof "PR". Add "P" to "Campgrounds, RV parks". Strike "SU" from "Commercial Wind Farms". -3- Insert the following new line at the end of Transportation & Utility uses: Small Wind Energy Conversion Systems. Section 5. 100.22, unnumbered first paragraph: Remove "Small wind energy conversion systems include only those systems having a rated capacity of no more than one hundred kilowatts (100kW)." Insert in lieu thereof: "Small wind energy conversion systems include only those systems having a rated capacity of no more than one hundred kilowatts (15kW) for residential districts and land uses, and no more than one hundred kilowatts (100kW) for all other zoning districts and land uses." Section 6. 100.22.3 Zoning Permit Required. Insert "or their designee" after each instance of "Zoning

Administrator". Remove "an approved zoning permit or installing the system," and insert in lieu thereof: "an approved zoning permit or installing the system, and shall comply with all applicable overlay district regulations." Section 7. 100.22.4.A(4) Permit Application Required Remove: "(2) The area of the base of each tower and depths; (3) Utility lines, telephone lines and any other lines, both above and below ground, within a radius of 2,000 feet from the tower base; (4) Details as to how the power will be delivered to the grid, including the route and size of poles and towers to be used; (5) Property lot lines, land uses and the location and dimensions of all existing structures and uses on and off site within a radius of 2,000 feet from the tower base; (6) Standard drawings and dimensional representations of the wind turbine structure, including the tower, base and footings; (7) A line drawing of the electrical components in sufficient detail to allow for a determination that the manner of the installation conforms to the National Electric Code; and (8) Design data for the system indicating the basis of design, including manufacturer's dimensional drawings and installation and operation instructions." and insert in lieu thereof: "(2) Utility lines, telephone lines and any other lines, both above and below ground, within a radius of 200% of the tower height measured from the tower base to the highest reach of the rotor tip, or 500 feet, whichever is larger; (3) Details as to how the power will be delivered to the grid, including the route and size of poles and towers to be used; Small Wind Energy Conversion Systems (SWECS) P P SU SU SU SU SU SU SU SU -4- (4) Property lot lines, land uses and the location and dimensions of all existing structures and uses on and off site within a radius of 200% of the tower height measured from the tower base to the highest reach of the rotor tip, or 500 feet, whichever is larger; and (5) Standard site drawings and dimensional representations of the wind turbine structure, including the tower and base." Section 8. 100.22.7.C Remove "shall be one hundred forty (140) feet." and insert in lieu thereof "shall conform to the following restrictions for each specified zoning district and/or land use: (1) one hundred (100) feet for residential properties, (2) one hundred eighty (180) feet for commercial properties, (3) three hundred sixty (360) feet for industrial properties, (4) five hundred (500) feet for agricultural properties Site plans with a SWECS exceeding the height limits of this chapter shall require a special exception prior to the issuance of a building permit. In no case shall a SWECS exceed 150% of the height allowed within this chapter." Section 9. 100.22.12.D Remove "shall be placed around the SWECS," and insert therein "may be required around the SWECS at the discretion of the Zoning Administrator or their designee." Section 10. Remove section 100.22.14 Section 11. 100.22.15 Remove "15." Insert in lieu thereof "14." This section shall henceforth be numbered 100.22.14. Remove "If it is determined that the SWECS is causing electromagnetic interference, the operator shall take the necessary corrective action to eliminate this interference, including relocation or removal of the facilities, subject to the approval of the appropriate County authority. The special use permit may be revoked if electromagnetic interference from the

SWECS becomes evident." Section 12. Remove sections 100.22.17 and 100.22.18 Section 13. 100.22.19 Remove "19." and insert in lieu thereof "16." This section shall henceforth be numbered 100.22.16.-5- Insert ", defined as not being connected to the distribution network of an electric utility," between "Offgrid systems" and "shall be exam

- **Permit Fee: Small Wind Energy Conversion Systems (SWECS): \$100**

The following documents were received from Kerry Kisslinger.



BERGEY EXCEL 15

ADVANCED TECHNOLOGY / MAXIMUM SIMPLICITY

POWERFUL. SUPER EFFICIENT. QUIET.

The Bergey Excel 15 is ideal for agricultural properties, larger rural homes, small businesses, public facilities, and electric car charging.

The EXCEL 15 benefits from 40 years of experience from the world's leading supplier of small wind turbines.

- Only two moving parts
- No scheduled maintenance required
- Direct-drive alternator
- Active speed control
- Certified for tax credit approval
- Carbon fiber blades
- HD galvanized steel structure

PROUDLY MADE IN THE USA

BERGEY WINDPOWER

2200 INDUSTRIAL BLVD, NORMAN, OK 73069 • 405.364.4212 • BERGEY.COM • SALES@BERGEY.COM

BERGEY EXCEL 15

PERFORMANCE:

- AWEA RATED POWER: 15.6 kW
- AWEA ANNUAL ENERGY: 29,800 kWh
- PEAK POWER: 20.6 kW
- CUT-IN WIND SPEED: 7 mph (3 m/s)
- START-UP WIND SPEED: 10 mph (4.5 m/s)
- CUT-OUT WIND SPEED: None
- MAX DESIGN WIND SPEED: 134 mph (60 m/s)
- ROTOR SPEED: 0-140 rpm

SPECIFICATIONS:

- ROTOR DIAMETER: 31.5 ft (9.6 m)
- WEIGHT: 1,400 lbs (640 kg)
- GEARBOX: None
- ACTIVE SPEED CONTROL
- TEMPERATURE RANGE: -40/140° F (-40/60° C)
- TOWERS: Guyed and Non-guyed 80-160 ft (24-49 m)
- INVERTER: 20 kW Powersync 25 (UL-1741 Certified)

INFLATION REDUCTION ACT OF 2022

- 40% investment tax credit through 2032
- 5-year MACRS depreciation (or Sec. 179)
- USDA grants for rural businesses, farms, and ranches, of up to 50% of the project
- Commercial tax credit is transferrable

Current federal incentives can pay up to 90%+ of cost!

AMERICAN Windpower
info@american-windpower.com
Call or Text Us Toll-Free: 833-GO4-WIND

Dear Mr. Priestley,

There are no turbine or tower safety data sheets for our Excel 15 wind energy system. Nor am I aware of any such documents for any small wind systems - which are very different from the utility scale turbine you reference. We have never been asked for such documentation.

We do not recommend any set-back distances and there are no "emergency response" recommendations. Our turbine will be the strongest structure in the area (engineered for winds up to 140 mph) and it does not require any intervention for storm protection.

Bergey Windpower has had roughly 5,000 systems installed in the U.S. and some have been in operation for over 40 years. While we have maintained significant liability insurance for over 40 years we have never had a liability claim and no one has ever claimed an injury.

The long perfect track record of safety speaks for itself. A Bergey 15 kW wind system will not present potential hazards to its owners and their neighbors that should warrant a rejection of its beneficial use.

Respectfully,

Mike Bergey
President & CEO
Bergey Windpower Co.
2200 Industrial Blvd.
Norman, OK USA
Tel: 405-364-4212
E-mail: mbergey@bergey.com
Web: www.bergey.com



DWEA Briefing Paper: Tower Setback

Summary

Excessive setback requirements for distributed wind turbines hinder the effective use of wind energy. Distributed wind turbine setbacks should be in line with setback requirements for other structures.

The Illusion of Prudence

'Setback' defines how close a wind turbine can be installed to existing property lines, roadways, power lines or other structures. The underlying logic is that the wind turbine structure might fall and it should do so safely and within the owner's property. In reality, however, setback restrictions are overreactions to a nearly nonexistent risk and often stand in the way of smart wind turbine siting.

The Strongest Structures in the Area

Many zoning jurisdictions require structural analyses of wind turbine towers and foundations, just as they do for buildings and other constructed facilities. The most common structural design standard in the United States is the International Building Code (IBC). The IBC defines the rules for applying site wind loads to structures and includes maps of extreme wind speeds for the United States. For every site in the country, the IBC defines the worst-case wind conditions expected in 50 years. These conditions are then used to estimate the loads imparted to a structure and form the basis of the structural design.

For example, a tower and foundation to be installed in coastal North Carolina would need to be designed for sustained 140 mph winds and 3-second gusts to 165 mph according to the latest version of the IBC, which is updated every three years. Recent updates reflect increased design requirements in response to losses from hurricanes and other severe storms. The result is that a distributed wind system installed today will be designed to survive winds that would severely damage existing homes, buildings, and power lines that were built to earlier, less stringent, design codes.

What if the Worst Happens

Man-made structures are not the only tall objects that carry a risk of failure; so do trees. The most likely time for such a failure is during severe weather when the winds are at their highest. According to Kent State Professor Tom Schmidlin, 407 people were killed by falling trees in the U.S. between 1995 and 2007; 76% of these deaths occurred during severe weather. Other than accidents to workers during installation, no record can be found of a person being injured, let alone killed, by a falling distributed wind turbine. If you think about it, the prospects are quite remote. First, the risk of a failure is minimal due to the high design standards of the tower. Second, people are not likely to be outdoors in the vicinity of a wind turbine during severe weather.

Alleged risks of ice-throw and blade-throw have never been substantiated. Ice build-up disrupts the aerodynamics of the blades, so wind turbines only turn at very slow speeds when iced up. Therefore,



when the ice sheds it falls straight down, just as it does from trees and power lines. And while it might be possible for a blade to become detached from a defective wind turbine, the likelihood is remote and the chances of causing an injury are almost nil.

Are Setbacks Really Justified?

Setbacks do limit the effective use of distributed wind systems. They can limit allowable tower height, they can keep towers from being placed optimally on a property where a turbine can take the best advantage of the wind, and they can eliminate the use of long and narrow properties. **DWEA recommends that setback requirements be set prudently and in line with actual risks. Our recommendation is for no setback restrictions beyond what is in place for other structures on the property, and we recommend any wind turbine specific setback be referenced to the nearest neighboring occupied dwelling rather than the property line.** No matter how many small wind turbines are installed they will never equal the magnitude of the risk posed by trees, and trees have no setback restrictions.



ICC-SWCC™ CERTIFICATION SWCC-16-05



Small Wind Turbine Certification Program

Certification Number: SWCC-16-05
Original Certification Date: Feb. 1, 2021
Expiration Date: Jan. 1, 2025
Certification subject to renewal annually.

www.smallwindcertification.org (888) 422-7233 3060 Saturn St., Suite 100, Brea, CA 92821 USA
A Program of the ICC Evaluation Service (ICC-ES)

Program: This wind turbine has been evaluated and certified by the Small Wind Certification Council (ICC-SWCC™), an ISO/IEC 17065 accredited Certification Body, in accordance with the Small Wind Turbine Certification Program, as defined in [ICC-SWCC Rules for Wind Turbine Listing Reports](#). This award of certification is subject to all terms and conditions of the current SWT Program Agreement and the documents incorporated therein by reference.

Products: Small Wind Turbines—electricity-producing wind turbines with a swept area up to 200 m²
Reference Standard: AWEA Small Wind Turbine Performance & Safety Standard (AWEA 9.1-2009)

Listee: **Bergey Windpower Company** www.bergey.com
2200 Industrial Boulevard
Norman, OK 73069, USA (405) 364-4212

Model: **Excel 15 (240 VAC, 1-phase, 60 Hz)**

Changes to the design of this wind turbine are to be approved by ICC-SWCC. If changes are made to the turbine without approval, this Certificate is not valid.

The specifications of the certified wind turbine, relevant to this Certificate, are provided on the following page. This document must be reproduced in its entirety.

Shawn Martin

Vice President of Technical Services, ICC-SWCC

Please verify certification is active on the ICC-SWCC website: www.smallwindcertification.org
© Small Wind Certification Council (ICC-SWCC™)

ICC-SWCC™ CERTIFICATION SWCC-16-05



Wind Turbine Specification:

Turbine Parameters	
Manufacturer	Bergey Windpower Co.
Model	Excel 15
Power Form	240 VAC, 1-phase, 60 Hz
Rotor Diameter	9.6 m
Rotor Swept Area	72.4 m ²
Cut-In Wind Speed	3.0 m/s
Cut-Out Wind Speed	N/A
Maximum Power	21.5 kW
Maximum Voltage	600 V _{max}
Maximum Current	55 A _{max}

Turbine Ratings

AWEA Rated Annual Energy @ 5 m/s	29,800 kWh
AWEA Rated Sound Level	48.5 dB(A)
AWEA Rated Power	15.6 kW @ 11 m/s
Peak Power	20.6 kW @ 16 m/s

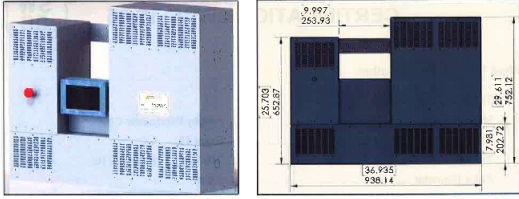
Design and Duration

Turbine design and duration test comply with AWEA Standard 9.1 – 2009 for an IEC Class III SWT with an average wind speed (V_{ave}) of 7.5 m/s and reference wind speed (V_{ref}) of 37.5 m/s.

Please verify certification is active on the ICC-SWCC website: www.smallwindcertification.org
© Small Wind Certification Council (ICC-SWCC™)
3060 Saturn Street, Suite 100 • Brea, CA 92821 • (888) 422-7233

BWC EXCEL 15 Wind Turbine

Powersync 25 Inverter



The Powersync 25 is an advanced power conversion system using high-speed Silicon-Carbide switching technology to provide ultra-clean alternating current (AC) output for the Bergy Excel 15 wind turbine. It is certified to UL 1741 and has a peak efficiency of 97%. The inverter is also available for 230 VAC, 1P, 50 Hz. The Powersync 25 is built under license from Intergrid.



INVERTER SPECIFICATIONS

Input - From Turbine	
Input Voltage Maximum (3 Phase Input)	480 VAC
Input Voltage Minimum	230 VAC
Input Operating Voltage Range	270 to 480 VAC
Input Frequency Maximum	47 Hz
Input Current Maximum	34 Amperes
Output - To Utility	
Model	IG25-240-2
Continuous Output Power Maximum	21.1 kW
Continuous Output Power Tolerance	±10%
Output Voltage Nominal (Single Phase) Line-Line	240 VAC
Output Voltage Nominal (Single Phase) Line-Neutral	120 VAC
Output Voltage Range Line-Line	212-264
Output Voltage Range Line-Neutral	106-132 VAC
Continuous Output Current Maximum	88 Amperes
Output Current Tolerance	10% Amperes peak
Voltage Measurement Tolerance	± 1%
Operating Frequency Nominal	60 Hz
Operating Frequency Range	59.3 to 60.3 Hz
Operating Frequency Measurement Tolerance	± 0.05 Hz
Output Power Factor	1.00 ± 5%
Temperature Range Normal Operation	-4° to 113°F (-20°C to 45°C)
Output Over Current Protection Maximum	120 Amperes
Synchronization In-Rush Current Maximum	15 Amperes
Utility Interconnection Trip Time	Variable, see sheet
Time Measurement Tolerance	2 Cycles ± 32 msec
A. Other Specifications	
Dimensions	see drawing
Weight	193 lbs / 84 Kg
Enclosure	NEMA Type 1

NEMA 1 indicates that the enclosure is constructed for indoor use only. It provides protection to personnel against incidental contact with the enclosed equipment.



Bergy Windpower Co.
2200 Industrial Blvd., Norman, OK 73069

www.Bergy.com
Tel: 405-364-4212



1 Fairholm Avenue
Peoria, IL 61603 USA
Phone: (309)-566-3000
Fax: (309)-566-3079

DATE: AUGUST 07, 2023

PURCHASER: BERGEY WINDPOWER

PROJECT: 100FT SSV SELF SUPPORT TOWER
MOVILLE, IA

FILE NUMBER: 243973

I CERTIFY THAT THE ATTACHED DRAWINGS WERE PREPARED UNDER MY SUPERVISION IN ACCORDANCE WITH THE DESIGN AND LOADING CRITERIA SPECIFIED BY THE PURCHASER AND THAT I AM A REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA.

THE REFERENCED FOUNDATION DESIGN IS BASED ON PRESUMPTIVE SOIL PARAMETERS. A GEOTECHNICAL SITE INVESTIGATION SHOULD BE PERFORMED PRIOR TO INSTALLATION FOR COMPETENT PROFESSIONAL EXAMINATION AND VALIDATION OF THE SUITABILITY OF THE PRESUMPTIVE SOIL PARAMETERS FOR THE SITE.



I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

Allen Schneider
Allen Schneider, P.E. License Number P27223 Date: 08/03/2023

My license renewal date is December 31, 2023
Pages or sheets covered by this seal: all

Products for a Growing World of Technology®



AUTHORIZATION TO MARK

This authorizes the application of the Certification Mark(s) shown below to the model(s) described in the Product(s) Covered section when made in accordance with the conditions set forth in the Certification Agreement and Listing Report. This authorization also applies to multiple listed model(s) identified on the correlation page of the Listing Report.

This document is the property of Intertek Testing Services and is not transferable. The certification mark(s) may be applied only at the location of the Party Authorized To Apply Mark.

Applicant: Intergrid, LLC
Address: 164 Hill Road Temple, NH 03084
Country: USA
Manufacturer: Bergy Windpower Co. LLC
Address: 2200 Industrial Blvd. Norman, OK 73069
Country: USA
Party Authorized to Apply Mark: Same as Manufacturer
Report Issuing Office: Intertek Testing Services NA, Inc., Corland, NY

Control Number: 5026569

Authorized by: *Kenneth L. Lacey*
for L. Matthew Snyder, Certification Manager



This document supersedes all previous Authorizations to Mark for the noted Report Number.

This authorization is made for the exclusive use of Intergrid, LLC, a member company of the Client, and is not to be used by any other party without the written consent of Intertek. Intertek's responsibility and liability are limited to the extent of the agreement. The Client is authorized to use the Client's logo and name in connection with the product(s) covered by this authorization. Only the Client is authorized to apply the Client's logo and name to the product(s) covered by this authorization. The Client is responsible for the accuracy of the information provided in this authorization. The Client is responsible for the accuracy of the information provided in this authorization. The Client is responsible for the accuracy of the information provided in this authorization.

Intertek Testing Services NA, Inc.
545 East Algonquin Road, Arlington Heights, IL 60005
Telephone 800-345-3851 or 847-439-5667 Fax 812-283-1872

Standards:	Inverters, Converters, Controllers and Interconnection System Equipment for use with Distributed Energy Resources (UL 1741:2021 Ed. 3)
Product:	Power Conversion Equipment (CSA C22.2#107.1:2016 Ed. 4)
Models:	Utility Interactive Inverter IG25-240-2

ATM for Report 103481855CRT-001

Page 1 of 2

ATM Issued: 18-Jul-2023

ED 10.1.17.11-18-2023 (R.0266)

SECTION	DESCRIPTION	QUANTITY	UNIT	WEIGHT
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September 3, 2019

To Whom It May Concern,

This statement will certify that all components of the Bergery Windpower Excel 15 wind turbine have been designed in conformance with AWEA 9.1-2009, AWEA Small Wind Turbine Performance and Safety Standard. Towers sold by Bergery Windpower for use with the Excel 15 turbine meet the requirements of ANSI/TIA 222-H, as referenced in the International Building Code IBC 2018. The Rohn Self-Supporting Lattice tower has been used successfully in hundreds of sites over the last four decades with an earlier BWC turbine model which produces similar tower loads. With proper installation and maintenance, the risk of tower failure is extremely minimal.

Sincerely,
Kenneth Craig PhD, PE



Kenneth G. Craig
03 September 2019
20017

MSDS's for these compounds are attached. None of them would be considered hazardous materials.

I will also comment that I have reviewed the proposed siting of the three turbines for L&K Tabke Farms and we have no issues of concern. The use of tall towers allows turbine placements within farmsteads without suffering reduced performance from turbulence caused by the buildings and other structures.

We hope that the Board will rule favorably on the Tabke conditional use permit.

Sincerely,

Michael L. Bergery

Michael L.S. Bergery
President & CEO
mbergery@bergery.com



Bergery Windpower Co.
2200 Industrial Blvd
Norman, OK 73069
Tel: 405-364-4212
Fax: 405-364-2078

Daniel J. Priestley, MPA
Woodbury County Zoning Coordinator
620 Douglas Street #609
Sioux City, IA 51101

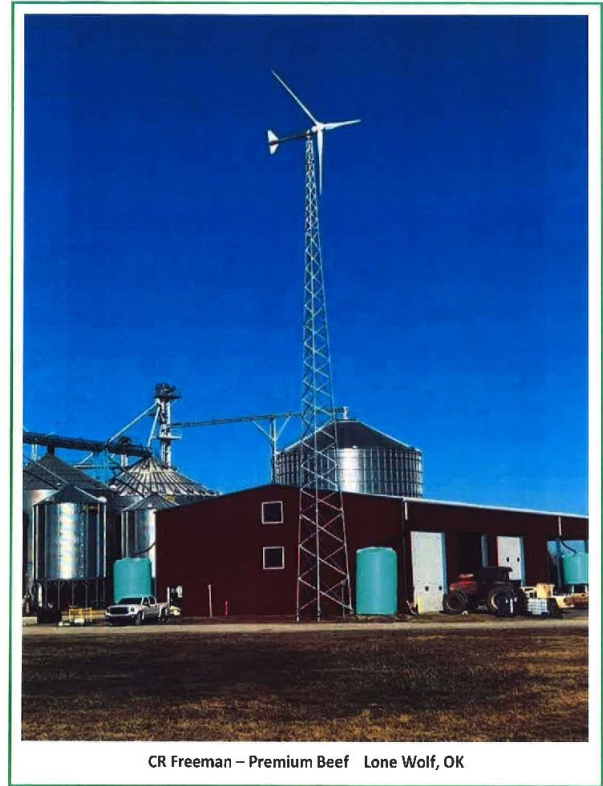
October 14, 2024

Dear Mr. Priestley,

Bergery Windpower is pleased to be of assistance in the consideration of the L&K Tabke Farms' conditional use permit for the installation of our small wind turbines. The Board of Adjustments has requested information on MSDS's associated with our wind turbines. We three compounds in the turbine as shipped that have MSDS's:

1. SKF LGMT 2 ball bearing grease, inside four sealed ball bearings (two for the alternator and two for the yaw axis pintle), ~ 8 oz. total per turbine.
2. Vibra-Lite threadlocker compound packet, 0.06 oz supplied for assembly of the turbine
3. Vibra-Lite Nickel Anti-Sieze Compound packet, 0.06 oz supplied for assembly of the turbine

One of the turbine bearings and the Vibra-Lite packets are shown in the following photo:



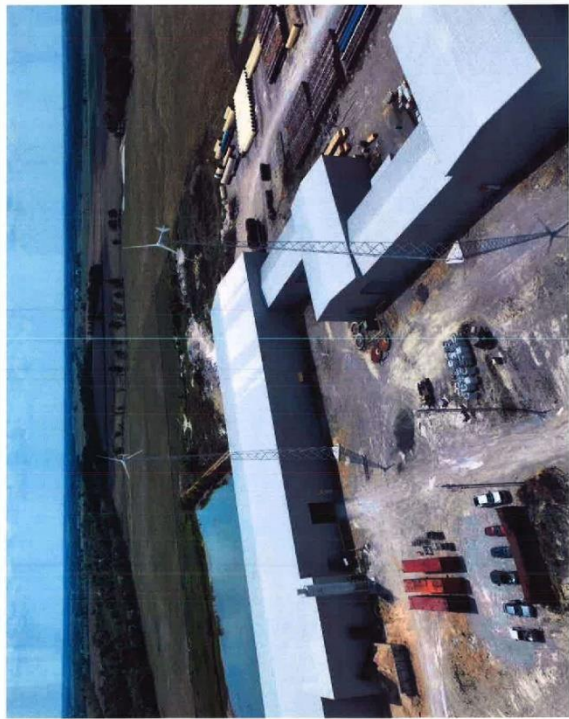
CR Freeman – Premium Beef Lone Wolf, OK



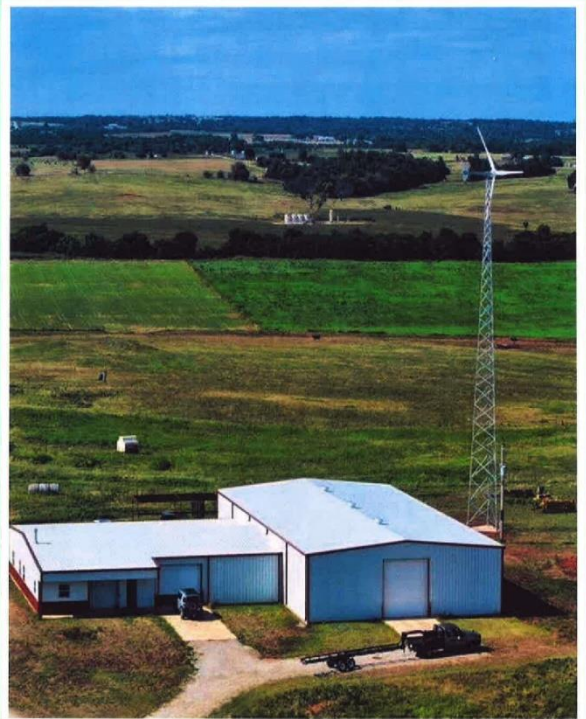
Mark Cavanee Farms Tribune, KS



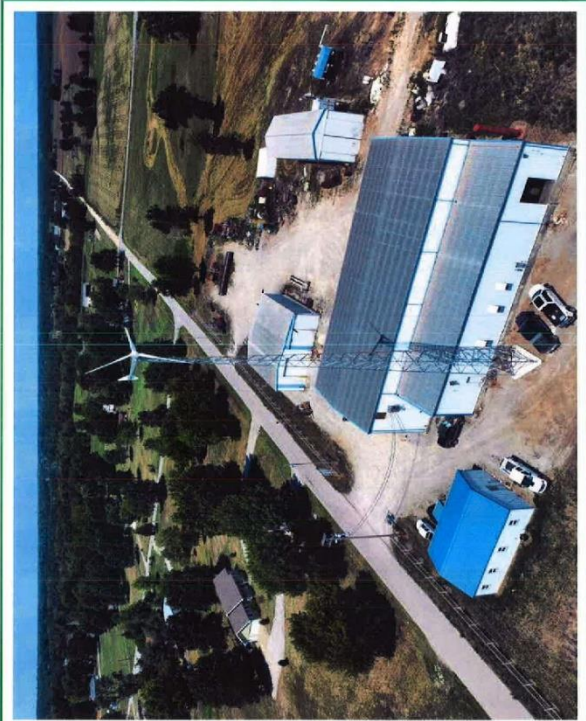
Merle Hoffman FTS Enterprises Juniata, NE



Mid American Pipe Scammon, KS



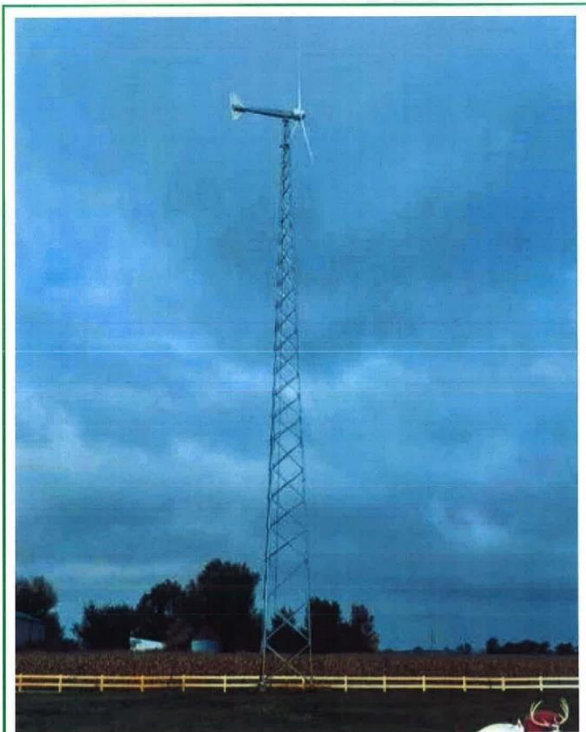
Orr Ranch Maysville, OK



Mid American Pipe Weir, KS



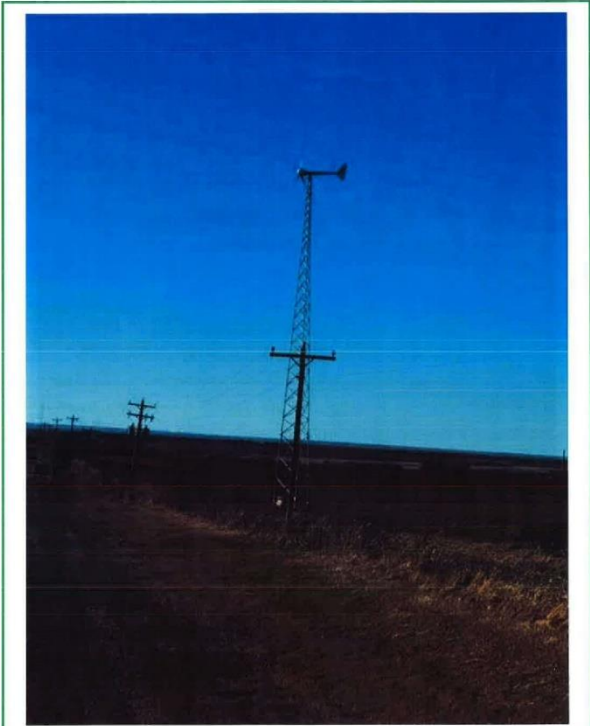
Dean Pudenz Carroll, IA



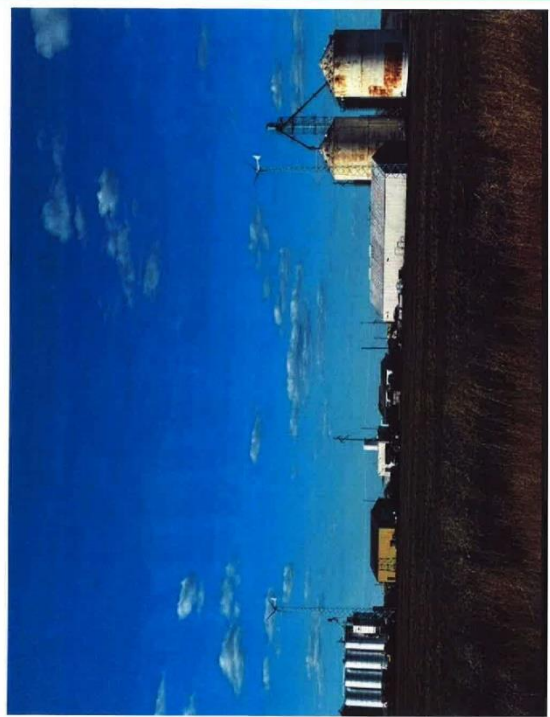
Walker Bros Sloan, IA



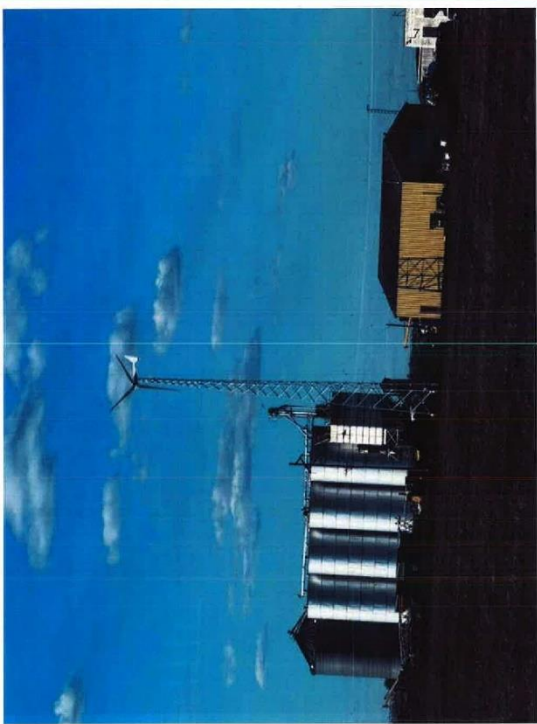
Kirk Duff Hobart, OK



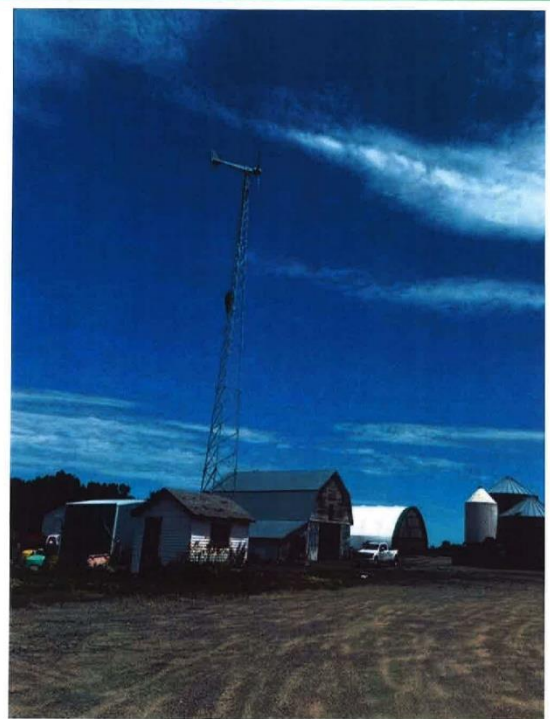
Mark Graf Colony, OK



Darr Grain Cozad, NE



Darr Grain Cozad, NE



Paul Iburg Alexandria, SD