

CHAPTER 115

WIND ENERGY SYSTEMS

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115.01 PURPOSE AND GENERAL POLICY. In order to balance the need for clean, renewable energy resources and the necessity to protect the public health, safety and welfare of the community, the City finds that these regulations are necessary in order to establish uniform rules and policies and to ensure that wind energy systems are appropriately designed, sited, and installed.

115.02 DEFINITIONS. For the purpose of this chapter, all words defined herein are in addition to all words defined in other chapters of the City of West Burlington Development Program:

1. **Commercial Wind Energy System** - A wind energy conversion system, which is intended to produce electricity for sale to a rate regulated or nonregulated utility or for use off site.
2. **Dispersed Wind Energy System** - A wind energy conversion system which has a rated capacity of one hundred (100) kilowatts or more and which is incidental and subordinate to a permitted use on the same parcel and which is intended to produce electricity primarily for use on site. Such system may be connected to the electrical grid 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 in accordance with section 199, [chapter 15.11\(5\)](#) of the Iowa Administrative Code.
3. **Height (System)** - The height above grade of the wind energy system, including the tower, generating unit, and the highest vertical extension of any blades or rotors. Height shall be measured from the adjacent grade of the tower to the tip of the turbine (blade) at its highest point.
4. **Height (Tower)** - The height above grade of the wind energy system, exclusive of the rotor blades.
5. **Meteorological Tower** - Those towers that are erected primarily to measure wind speed and directions, including other data relevant to locating an operational wind energy system.
6. **Small Wind Energy System** - A wind energy conversion system which has a rated capacity of up to one hundred (100) kilowatts and which is incidental and subordinate to a permitted use on the same parcel. 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 in accordance with section 199, chapter 15.11(5) of the Iowa Administrative Code.

7. **Tower (WES)** – Vertical structure that supports the electrical generator, rotor blades, or meteorological equipment.
8. **Wind Energy System (WES)** - An electrical generating facility comprised of a wind turbine and accessory facilities, including, but not limited to: power lines, transformers, substations, and meteorological towers.

115.03 PERMIT REQUIREMENTS. A wind energy system shall only be allowed as an accessory use to a permitted principal use and shall require Special Use Permit approval of the Zoning Board of Adjustment prior to construction, installation, alteration, or location of such structure. The Zoning Board of Adjustment may review a Special Use Permit at any time if an approved system does not comply with the rules set forth in this chapter and the conditions imposed by the Zoning Board of Adjustment. The Board may set additional terms or timeframe for compliance for the wind energy system. The owner/operator of the wind energy system shall obtain all other permits required by federal, state, and local agencies prior to construction of the system.

115.04 BULK REGULATIONS. The placement of wind energy systems on private or public property shall comply with the following requirements:

1. Minimum Lot Size:
 - A. Dispersed Wind Energy Systems shall require a minimum of ten (10) acres for location. An additional acre (1) shall be required for each additional wind energy system allowed.
 - B. No minimum lot size is required for Small Wind Energy System, provided they meet all other requirements of this Chapter.
2. Setback Requirements:
 - A. All Wind Energy Systems shall require a setback of 110% of the total (system) tower height from any property line in Business (B-1, B-2) and Industrial (I-1, I-2, I-3) Zoning Districts and shall be setback a minimum of 125% of the total tower height from any property line where the property is zoned residential (R-1, R-2, R-3, R-4).
3. Maximum Tower Height:
 - A. Maximum 80-foot tall wind tower for properties between ½ acre and 1 acre in size; no maximum height of towers for properties over 1 acre in size. (*American Wind Energy Association*)
4. Number of Systems Allowed:
 - A. No more than five (5) dispersed wind energy systems may be placed on any zoning lot, provided the minimum lot size stipulated in this title is met.

- B. No more than one small wind energy system may be placed on any zoning lot.
- C. A commercial wind energy system shall not be allowed within the City of West Burlington.

115.05 LOCATION. Wind Energy Systems shall adhere to the following location requirements in addition to any other relevant location requirements of this Chapter:

1. Shall be located on a lot only as an accessory use / structure to an existing principal use / structure.
2. No part of a wind energy system shall be located within or over drainage, utility or other established easements, or on or over property lines.
3. A wind energy system shall be located entirely in the rear yard.
4. A wind energy system shall not be located in any required setback area.
5. A wind energy system shall be located in compliance with the guidelines of the Federal Aviation Administration (FAA) regulations.
6. A dispersed wind energy system shall be located a minimum of one thousand feet (1,000') from the nearest inhabited residential structure, school, hospital or place of worship not on property owned or controlled by the owner/operator of the dispersed wind energy system.

115.06 DESIGN AND TECHNICAL STANDARDS. The following standards are required of all small wind energy systems and dispersed wind energy systems and shall be deemed to be conditions of approval of every small wind energy system:

1. **Color.** The wind energy conversion system shall be white or light gray in color. Other neutral colors may be allowed at the discretion of the Zoning Board of Adjustment. The surface of the structure shall be nonreflective.
2. **Lighting.** No lights shall be installed on the tower, unless required to meet FAA regulations.
3. **Signs.** One sign, limited to four (4) square feet, shall be posted at or near the base of the tower. The sign shall include a notice of no trespassing, a warning of high voltage, and the phone number of the property owner / operator to call in case of emergency. Such sign shall be directly visible from any external fencing and/or landscaping.
4. **Climbing Apparatus.** All climbing apparatuses shall be located a minimum of twelve feet (12') above the ground and the tower must be designed to prevent climbing within the first twelve feet (12').
5. **Fence.** To limit access to the tower, an opaque fence six feet (6') high with smooth side to the outside, no more than one inch (1") gaps and a locking portal shall be placed around the small wind energy system, unless the system is mounted on a rooftop.
6. **Maintenance.** Facilities shall be well maintained in an operational condition that poses no potential safety hazard.

7. **Displacement of Parking Prohibited.** The location of the wind energy conversion system shall not result in the net displacement of required parking.
8. **Clearance of Blade Aboveground.** No portion of the small wind energy system blade shall extend within twenty feet (20') of the ground. No portion of a dispersed wind energy system blade shall extend within fifty feet (50') of the ground. No blades may extend over parking areas, driveways or sidewalks.
9. **Noise.** Except during short term events including utility outages and severe wind events, a wind energy conversion system shall be designed, installed and operated so that the noise generated does not exceed the maximum noise levels established in Chapter 58, Noise Control of the Code of Ordinances of the City of West Burlington, Iowa.
10. **Use Of Electricity Generated.** A wind energy conversion system shall be used exclusively to supply electrical power for on site consumption, except that when a parcel on which a wind energy conversion system is installed also receives electrical power supplied by a utility company, excess electrical power generated by the wind energy system and not presently needed for on site use may be used by the utility company in accordance with section 199, chapter 15.11(5) of the Iowa Administrative Code.
11. **Automatic Overspeed Controls.** All wind energy conversion systems shall be equipped with manual and automatic overspeed controls to limit the blade rotation speed to within the design limits of the wind energy conversion system.
12. **Electromagnetic Interference.** All blades shall be constructed of a nonmetallic substance. No wind energy conversion system shall be installed in any location where its proximity with existing fixed broadcast, retransmission, or reception antenna for radio, television, or wireless phone or other personal communication systems would produce electromagnetic interference with signal transmission or reception. No wind energy conversion system shall be installed in any location along the major axis of an existing microwave communications link where its operation is likely to produce electromagnetic interference in the link's operation. If it is determined that the wind energy conversion system 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 zoning board of adjustment. The zoning board of adjustment may revoke a conditional use permit granting a wind energy conversion system if electromagnetic interference from the wind energy conversion system becomes evident.
13. **Interconnection.** The wind energy conversion system, if interconnected to a utility system, shall meet the requirements for interconnection and operation as set forth by the utility and the Iowa utilities board.
14. **Wind Access Easements.** The enactment of this chapter does not constitute the granting of an easement by the city. The owner/operator shall provide covenants, easements, or similar documentation to assure sufficient wind to operate the wind energy conversion system unless adequate accessibility to the wind is provided by the site.
15. **Complaint Resolution.** The owner/operator of the wind energy conversion system shall develop a process to resolve complaints from nearby residents. The process shall use an

independent mediator or arbitrator and include a time limit for acting on a complaint. The applicant shall make every reasonable effort to resolve any complaint.

115.07 SHADOW FLICKER. A shadow flicker model demonstrates that shadow flicker shall not fall on, or in, any existing residential structure. Shadow flicker expected to fall on a roadway or a portion of a residentially zoned parcel may be acceptable if the flicker does not exceed thirty (30) hours per year; and the flicker will fall more than one hundred feet (100') from an existing residence; or the traffic volumes are less than five hundred (500) vehicles on the roadway. The shadow flicker model shall:

1. Map and describe within a one thousand foot (1,000') radius of the proposed dispersed wind energy system the topography, existing residences and location of their windows, locations of other structures, wind speeds and directions, existing vegetation and roadways. The model shall represent the most probable scenarios of wind constancy, sunshine constancy, and wind directions and speed;
2. Calculate the locations of shadow flicker caused by the proposed project and the expected durations of the flicker at these locations, calculate the total number of hours per year of flicker at all locations;
3. Identify problem areas where shadow flicker will interfere with existing or future residences and roadways and describe proposed mitigation measures, including, but not limited to, a change in siting of the wind energy conversion system, a change in the operation of the wind energy conversion system, or grading or landscaping mitigation measures.
4. A dispersed wind energy system shall be located at least seven hundred fifty feet (750') from any public right of way.

115.08 APPEARANCE. The property owner of any wind energy system shall maintain such system in a safe and attractive manner, including replacement of defective parts, painting, cleaning, and other acts that may be required for the maintenance and upkeep of the function and appearance of such a system. The owner shall also maintain the ground upon which the system is located in an orderly manner, such that is free of debris, tall grass and weeds, and any structures remain quality in appearance.

115.09 APPLICATION PROCESS. All applicants who wish to locate a wind energy system on public property or private property must submit to the City's Community Development Department a plan including the following information:

1. Complete property dimensions.
2. Location and full dimensions of all buildings existing on the property where the system is located, including exterior dimensions, height of buildings, and all uses on the property.
3. Location and distances of all buildings within two hundred feet (200') of the property and uses on property.
4. Location and dimensions of any other natural or manmade features within two hundred feet (200') of the property such as trees, ridges, highways, streets, bridges and underpasses.
5. Location of all easements upon the property where the system is to be located.
6. Proposed location of tower, including height and setbacks from property lines.

7. Drawings, to scale, of the structure, including the tower, base, footings and guy-wires, if any, and electrical components. The drawings and any necessary calculations shall be certified by a licensed engineer as meeting the requirements of the City of West Burlington building codes.
8. Certification from a licensed engineer or qualified person that the rotor and over speed controls have been designed for the proposed use on the proposed site.
9. Evidence that the proposed wind energy conversion system model has an operational history of at least one year.
10. Evidence that the applicant has notified the utility that the customer intends to install an interconnected customer owned generator, and that the generator meets the minimum requirements established by the utility and the Iowa utilities board. Off grid systems shall be exempt from this requirement.
11. Evidence that the wind energy conversion system does not violate any covenants of record.
12. Evidence from a qualified individual that the site is feasible for a wind energy conversion system, or that covenants, easements and other assurances to document sufficient wind to operate the wind energy conversion system have been obtained.
13. Evidence that the proposed wind energy conversion system will comply with applicable federal aviation regulations, including any necessary approvals from the federal aviation administration.
14. Evidence that the applicant can obtain and maintain adequate liability insurance for the facility.
15. A noise study, if applicable.
16. A shadow flicker model, if applicable.
17. Any other evidence or information as required by the zoning administrator or zoning board of adjustment.

115.10 ABANDONMENT. Any wind energy system that is not operated for a continuous period of 180 days shall be considered abandoned and shall constitute a nuisance. Within the next 180 days, after notice from the City, the owner shall reactivate the tower or it shall be dismantled and removed at the owner's expense. Removal of the system includes the entire structure including foundations, transmission equipment and fencing from the property. If the abandoned wind energy system is not removed in the specified amount of time, the City may remove it and recover its costs from the wind energy system owner or owner of the ground upon which it is located.

115.11 NEW TECHNOLOGIES. Should new technology present itself within the term of any permit or lease that is more effective, efficient, and economical, the permit holder may petition the City to allow the upgrade, provided the upgrade does not alter the conditions set forth in this chapter.

115.12 LIABILITY AND DAMAGES. The owner/operator of a wind energy conversion system must demonstrate adequate liability insurance. Upon the granting of a permit, applicant shall assume full responsibility for any and all damages, claims, expenses, liabilities, judgments and costs of any kind, including reasonable attorney's fees related to or caused by the erection, location, use, or removal of a facility, whether on public or private property, and shall agree to hold the City harmless, indemnify and defend it from all such liabilities incurred or judgments entered against it as a result of the erection, location, use or removal of the facility.