



# Zoning Regulations for Large and Small Wind that are Working

Highlights of City and County Regulations

Nebraska Wind Power 2009 Conference  
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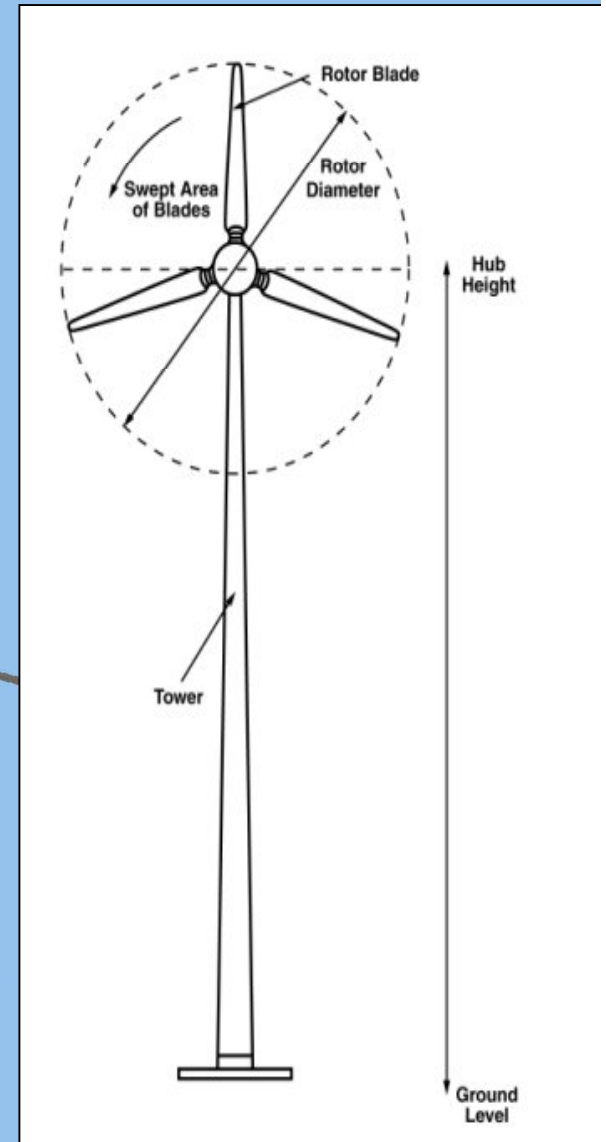


# Origination in Nebraska

- Boone County hosted Keith Marvin, a Representative from 3rd Planet Wind and myself.
- Model regulations were developed for Boone and Madison counties.
- These regs in some form are now in place in several counties.

# Small Wind

- An Accessory Use within any district where the use is listed and allowed.
- Property sizes between ½ acre & 1 acre, tower height limited to 80 feet.
- More than 1 acre there is no limitation on tower height, unless imposed by FAA.



# Small Wind

## Setbacks

No part of the wind system structure, including guy-wire anchors, may extend closer than accessory building setbacks of the appropriate zoning district to the property lines of the installation site.

# Small Wind

## Noise

- a. Small wind energy systems shall not exceed 60 dBA, as measured at the closet neighboring inhabited dwelling unit.
- b. The noise level may be exceeded during short term events such as utility outages and/or severe wind storms.

# Small Wind

## Approved Wind Turbines

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

# Small Wind

## Compliance with Building and Zoning Codes

- a. Applications shall include standard drawings of the wind turbine structure, including the tower base, and footings.
- b. An engineering analysis of the tower showing compliance with official building code of the governing body and/or the State of Nebraska certified by a professional engineer licensed in Nebraska.
- c. Wet stamps shall not be required.

# Small Wind

## Compliance with FAA Regulations

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

# Small Wind

Compliance with National Electrical Code

Permit applications for small wind energy systems include a line drawing of the electrical components in t detail to allow a determination the manner of installation conforms to the National Electrical Code.

# Small Wind

## Utility Notification

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

# Small Wind - Setbacks

## Property Lines

- Diameter plus applicable building setback

## Neighboring Dwelling Units (reciprocal)

- Diameter plus applicable building setback

## Road and other rights-of-way

- Diameter plus applicable building setback

## Public Conservation Lands

- Applicable building setback

# Commercial/Utility Grade Wind

## Requirements

1. The name(s) of project applicant.
2. The name of the project owner.
3. The legal description and address of the project.
4. A description of the project including; Number, type, name plate generating capacity, tower height, rotor diameter, and total height of all wind turbines and means of interconnecting with the feeder lines.

# Commercial/Utility Grade Wind

## Requirements Continued

5. Site layout, including property lines, wind turbines, electrical grid, & all related accessory structures. This site layout shall include distances and be drawn to scale.
6. Engineer's certification.
7. Documentation of land ownership or legal control of the property.
8. The latitude and longitude of individual wind turbines.

# Commercial/Utility Grade Wind

## Requirements Continued

9. A USGS topographical map, or map with similar data, of the property and surrounding area, including any other Wind Energy Conversion System not owned by the applicant, within 10 rotor distances of the proposed Wind Energy Conversion System.
10. Location of wetlands, scenic, and natural areas (including bluffs) within 1,320 feet of the proposed Wind Energy Conversion System.
11. An Acoustical Analysis
12. FAA permit

# Commercial/Utility Grade Wind

## Requirements Continued

13. Location of all known Communication Towers within two miles of the proposed Wind Energy Conversion System.
14. Decommissioning Plan
15. Description of potential impacts on nearby Wind Energy Conversion Systems and wind resources on adjacent properties not owned by the applicant.

# Commercial/Utility Grade Wind

## - Setbacks

Property Lines

- Diameter plus applicable building setback

Neighboring Dwelling Units (reciprocal)

- 1,000'

Road and other rights-of-way

- Generator blades shall not encroach on the right-of-way.

Public Conservation Lands

- Diameter plus applicable building setback

Wetlands

- 600'

Other structures off site and River Bluffs

- Diameter



# **Commercial/Utility Grade Wind Special Safety and Design Standards**

1. Clearance of rotor blades or airfoils must maintain a minimum of 12 feet of clearance between their lowest point and the ground.
2. AH Commercial/Utility WECS shall have a sign or signs posted on the tower, transformer and substation, warning of high voltage. Other signs shall be posted on the turbine with emergency contact information.
3. All wind turbines, which are a part of a commercial/utility WECS, shall be installed with a tubular, monopole type tower.

# **Commercial/Utility Grade Wind Special Safety and Design Standards**

4. Consideration shall be given to painted aviation warnings on all towers less than 200 feet.
5. All wind turbines and towers that are part of a commercial/utility WECS shall be white, grey, or another non-obtrusive color. Blades may be black in order to facilitate decking; Finishes shall be matte or non-reflective.
6. All signage shall comply with the sign regulations found in these regulations.

# Commercial/Utility Grade Wind Special Safety and Design Standards

7. Lighting, including lighting intensity & frequency of strobe, shall adhere to FAA requirements. Red strobe lights shall be used during nighttime illumination. Red pulsating incandescent lights should be avoided.
8. All communications & feeder lines installed as part of a WECS shall be buried, when feasible. Feeder lines installed shall not be considered an essential service.
9. Solid & Hazardous wastes, including but not limited to crates, packaging materials, damaged or worn parts, as well as used oils and lubricants, shall be removed from the site promptly & disposed of in accordance with all applicable rules and regulations.

# Commercial/Utility Grade Wind Special Safety and Design Standards

## 10. Discontinuation and Decommissioning:

A WECS shall be considered a discontinued use after one year without energy production, unless a plan is developed & submitted to the Z. A. outlining the steps & schedule for returning the WECS to service. All WECS & accessory facilities shall be removed to 4' below ground level within 180 days. This period may be extended by the Z. A.

Each Commercial/Utility WECS shall have a Decommissioning plan outlining the anticipated means & cost of removing the WECS at the end of its serviceable life or upon being discontinued use. The plan shall also identify the financial resources that will be available to pay for decommissioning and removal of the WECS & accessory facilities.

# **Commercial/Utility Grade Wind Special Safety and Design Standards**

11. No Commercial/Utility WECS shall exceed 50 dBA at the nearest structure occupied by humans. Exception: a Commercial/Utility WECS may exceed 50 dBA during periods of severe weather.
12. The applicant shall minimize or mitigate interference with electromagnetic communications, such as radio, telephone, microwaves, or television signals caused by any WECS. The applicant shall notify all communication tower operators within five miles of the proposed WECS location upon application to the county for permits.
13. The applicant shall be responsible for immediate repair of damage to public drainage systems stemming from construction, operation or maintenance of the WECS.

# Commercial/Utility Grade Wind Special Safety and Design Standards

14. In Regards to Roads the Applicants shall:
  - a. Identify all county, municipal or township roads to be used for the purpose of transporting WECS, substation parts, cement, and/or equipment for construction, operation or maintenance of the WECS & obtain applicable weight & size permits from the impacted jurisdictions prior to construction.
  - b. Conduct a pre-construction survey, in coordination with the appropriate jurisdictions to determine existing road conditions. The survey shall include photographs & a written agreement to document the condition of the public facility.
  - c. Be responsible for restoring the road(s) & bridges to preconstruction conditions.

# Zoning Regulations for Large and Small Wind that are Working

Known counties with these or similar regulations

1. Boone
2. Cedar
3. Pierce
4. Knox
5. Antelope
6. Stanton
7. Custer
8. Madison



# Zoning Regulations for Large and Small Wind that are Working

The Ball's Flat and the Game's Over  
Sports Fans

?Questions?