

For September 13, 2010 Planning Board Meeting

To: Planning Board
Mark Boyer, Chair

From: Jennifer Paquet
Town Planner

Re: Zoning for Wind Energy Systems/ Wind Turbines

Attached are draft proposed changes to the Zoning Ordinance, for your consideration, to address wind energy systems as both a small-scale accessory use to a permitted structure, and as a utility scale use.

Small-scale turbines for power supply as an accessory use to a permitted structure are proposed to be permitted by right, subject to additional requirements for a building permit. The utility-scale wind energy facilities are proposed to be permitted by Special Use Permit, subject to proposed criteria pertaining to visual and noise buffers, height, etc. .

For comparison, a wind turbine sufficient to generate power for a home should be 10 kW. The ordinances proposes to go up to 100 kW for 'small systems' as permitted by right, so that commercial uses can install a wind turbine for supplemental power to the facility, without having to go to any Town board for review, provided that requirements are met.

Need to discuss which zoning districts it should be allowed in. I recommend that wind farms be prohibited in Exit 7 SMD and the Corporate District, and they should also be prohibited in HB and NB, because you really want to save these zones for commercial development and convenient services- same with industrial- you want to save these for creating local jobs- these types of services need to be on the main road, or have quick access to a main road, whereas a wind farm can be in a more remote location.

We should also consider whether a municipal system would need to meet the requirements, or if exceptions either for the criteria or the review process would be warranted. I've reserved a section for this in the draft.

There are some decision / choices you will need to make to complete the proposed amendment.

After consideration, if the Board is ready to give an advisory opinion to the Town Council, the following draft motion is offered:

Motion to recommend to the Town Council the proposed changes to the Zoning Ordinance to address wind energy systems, based on the following findings of fact:

1. The proposed amendments are not inconsistent with the Comprehensive Plan, however the Comprehensive Plan does not address energy resources. Rather, the Planning Board finds that the proposed amendments to allow for this form of renewable energy is consistent with State Guide Plan Element 781: Rhode Island Energy Plan 2002, and the Rhode Island State Energy Plan
2. The proposed amendments recognize and consider each of the following applicable purposes of zoning:

- a. Protect the public health, safety, and general welfare of the Town of West Greenwich
- b. Provide for the control, protection, and/or abatement of air, water, groundwater, noise pollution, soil erosion and sedimentation.
- c. Providing for the protection of the natural, historic, cultural, and scenic character of the Town of West Greenwich.
- d. Provide for orderly growth and development which recognizes the availability and capacity of existing and planned public and/or private services and facilities.
- e. Promoting a high level of quality in design in the development of private and public facilities
- f. Promoting the ideals of the RI State Energy Plan

Proposed amendments to the Zoning Ordinance to provide for **Wind Energy Systems**

Definitions:

Meteorological Tower- a temporary tower equipped with devices to measure wind speeds and direction, used to determine how much wind power a site can be expected to generate.

Small Wind Energy System- A wind energy conversion system consisting of a wind turbine, a tower, and associated control or conversion electronics, which has a rated capacity of not more than 100 kilowatts (kW) and which is intended to primarily reduce on-site consumption of utility power, and which will consume more than 50% of the electricity generated by the system on-site.

Utility Scale Wind Energy System or Facility- A commercial wind facility where the primary use of the facility is electrical generation to be sold to the wholesale electricity markets; or a wind energy system that has a rated capacity exceeding 100 kilowatts (kW).

Wind Energy System- A wind energy conversion system consisting of a wind turbine, a tower, and associated control or conversion electronics.

Additional Special Use Performance Standards/ Supplemental Regulations

Article 1, Section 7 C 2. (3)

Criteria:

A. Small Wind Energy Systems

Small wind energy systems shall be allowed as an accessory use in all zoning districts where structures of any sort are allowed, subject to the following requirements:

1. Height: The height of a wind energy system shall be measured from natural grade to the tip of the rotor blade at its highest point of travel, or blade-tip height. There shall be no specific height limitation, except as imposed by Federal Aviation Administration regulations, provided that the total extended height meets sound and set-back requirements.
2. Setback: the base of the tower shall be set back from all property lines, public right-of-ways, and public utility lines a distance equal to the total extended height. Turbines shall be allowed closer to a property line than its total extended height if the abutting property owner(s) grants written permission and the installation poses no interference with public utility lines or public right-of-ways.
3. Wind Turbine Equipment Standards: Small wind turbines must have been approved by a small wind certification program recognized by the American Wind Energy Association or American National Standards Institute (A.N.S.I.).
4. Sound: Sound produced by the turbine under normal operating conditions, as measured at the property line, shall not exceed the West Greenwich Zoning Ordinance Industrial Operating Performance Standards of Article III, Sections 2A and 2B. Sound levels, however, may be exceeded during short-term events out of anyone's control such as utility outages and/or severe wind storms.

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5. Signage: Signs shall be prohibited on a wind generator, tower, building, or other structure associated with a small wind energy system, with the exception of appropriate warning signs, owner identification, or the manufacturer's or installer's identification.
6. Lighting: No illumination of the turbine or tower shall be permitted, nor shall any lighting be mounted on the tower or turbine, unless required by the FAA .
7. Access: To prevent unauthorized climbing, any climbing foot pegs or rungs below 12 feet of a freestanding tower shall be removed. 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.
8. Compliance with Federal Aviation Administration (FAA) Regulations: No 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.
9. Building Permit application materials:
 - a. In addition to the standard building permit application materials, building permit applications for small wind energy systems shall include standard drawings of the wind turbine structure and stamped engineered drawings of the tower, base, footings, and/or foundation as provided by the manufacturer. Wet stamps are not required.
 - b. 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 manner of installation conforms to the National Electrical Code.
 - c. Soil Study: for standard soil conditions (not including gravel, sand, or muck), foundations developed by the wind turbine manufacturer shall be acceptable for turbine installations of 20kW or less. For sub-standard soil conditions, or for wind energy systems of 21 kW and larger, a project-specific soils study and engineers design shall be required.
10. Utility Notification: 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. Off-grid systems shall be exempt from this requirement.
11. 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 their system to operating condition. If the owner(s) fails to restore their system to operating condition within the six-month time frame, then the owner shall be required, at his expense, to remove the wind turbine from the tower for safety reasons. The tower will be considered a public nuisance and shall be subject to zoning enforcement.

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B. Utility-scale Wind Energy Facilities/Systems:

This section shall apply to all utility-scale wind energy turbine systems. All other related structures for the facility, such as offices, equipment shelters, storage facilities, transformers, substations, and other structures shall meet the standard requirements of the West Greenwich Zoning Ordinance and the West Greenwich Land Development and Subdivision Regulations.

Utility-scale wind energy facilities and/or systems shall be allowed by Special Use Permit in the RFR-2, RFR-1, OSPL, NB, HB, IA and IB zoning districts, subject to the West Greenwich Zoning Ordinance Article III, Industrial Site and Performance Standards, and including the following criteria and requirements:

1. The construction and operation of all wind energy facilities shall be consistent with all applicable local, state, and federal requirements, including but not limited to all applicable safety, construction, environmental, electrical, communications, and aviation (FAA) requirements.
2. Review- Utility-scale wind energy facilities shall be reviewed by the Planning Board as a Major Land Development Project.
3. Height- Utility-scale wind energy turbine systems shall be no higher than 400 feet above the current grade of the land, provided that wind facilities may exceed 400 feet if:
 - a. The applicant demonstrates by substantial evidence that such height reflects industry standards for a similarly sited wind facility
 - b. Such excess height is necessary to prevent financial hardship to the applicant, and
 - c. The facility satisfies all other criteria for the granting of a special permit under the provisions of this section.
4. Setbacks- Wind turbines shall be set back a distance equal to 1.5 times the overall blade tip height of the wind turbine from the nearest property line and private or public way.
5. Sound- An analysis prepared by a qualified engineer shall be presented to demonstrate compliance with these noise standards. The wind facility and associated equipment shall conform with the following provisions, as measured at the property line for the facility, and at the nearest residence:
 - a. Increase in the broadband sound level shall not be more than 10 dB(A) above ambient. Ambient is defined as the background A-weighted sound level that is exceeded 90% of the time measured during equipment hours.
 - b. The facility shall not produce a 'pure tone' condition- when an octave band center frequency sound pressure level exceeds the two adjacent center frequency sound pressure levels by 3 decibels or more.
 - c. **(OR,** The sound pressure level generated by a wind facility shall not exceed 50 dB(A) measured at the property lines. This sound pressure level shall not be exceeded for more than 3 minutes in any hour of the day. If the ambient sound pressure level exceeds 50 dB, the standards shall be ambient dB plus 5dB.

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- d. (**OR**, Sound produced by the turbines collectively under normal operating conditions, as measured at the property line, shall not exceed the West Greenwich Zoning Ordinance Industrial Operating Performance Standards of Article III, Sections 2A and 2B. 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. Shadow/Flicker- Wind facilities shall be sited in a manner that minimizes shadowing or flicker effects. The applicant has the burden of proving that this effect does not have a significant adverse effect on neighboring or adjacent uses through either siting or mitigation.
7. Color and finish/ appearance- Wind turbine systems shall be a neutral, non-reflective exterior color designed to blend with the surrounding environment.
8. Signage- Wind turbines shall not be used for displaying any advertising. Signs on the wind facility shall comply with the requirements of the town's sign regulations, and shall be limited to:
 - a. those signs necessary to identify the owner, provide a 24-hour emergency contact phone number, and warn of any danger.
 - b. Educational signs providing information about the facility and the benefits of renewable energy.
9. Lighting- Wind turbines shall be lighted only if required by the Federal Aviation Administration. Lighting of other parts of the wind facility, such as appurtenant structures, shall be limited to that required for safety and operational purposes, and shall be reasonably shielded from abutting properties.
10. Access- Wind turbines, towers, and other structures that are part of a wind facility shall be designed to prevent unauthorized access.
11. Appurtenant Structures- (need to meet zoning requirements)
12. Buffers- Utility-scale wind energy systems shall be considered an industrial use and shall meet the buffer requirements for industrial uses and the Industrial A zoning district, regardless of the actual zoning district for the property.
13. Utility Connections- utility connections from the wind facility shall be installed underground. Electrical transformers for utility interconnections may be above ground if required by the utility company.
14. Review Procedures- proposed utility-scale wind energy facilities and systems shall be reviewed as a Major Land Development Project Review by Planning Board and for a Special Use Permit by Zoning Board
15. Removal of structures. (**do we really need any requirement for bond/surety for removal of structures like we do for cell phone towers? Is the town really going to go in there and remove an entire windfield? If so, consider:**) The owner of the facility shall post a bond adequate to cover the cost of dismantling and removing the structures when they are no longer in use. **OR** Any wind facility which reaches the

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end of its useful life or is abandoned shall be removed. The owner of the property where a wind facility is located shall be required to obtain a demolition permit to remove and properly dispose of the structure(s) within 180 days of its abandonment, which shall be defined as the ceasing of the continuous production of electricity for longer than 180 days (**or 2 years?**).

C. Meteorological Tower

Wind monitoring or meteorological towers shall be permitted in all zoning districts subject to issuance of a building permit for a temporary structure and subject to reasonable conditions imposed by the Building Official concerning the bulk, height, and setbacks to ensure the safe installation and operation of the temporary structure. A temporary meteorological tower shall remain in place for a duration of no longer than one year (**or two years?**).

D. Municipal Use—need to discuss, if this section is even needed. Here is language from the Charlestown ordinance:

“Wind Facilities Exempt from Special Use Permit Requirements”

‘Any proposed wind facility that has entered into an approved partnership agreement with the Town for the use of the facilities energy production may be exempted, by Town Council approval, from the process requirements for Site Plan Review and Special Use Permit. The applicant must still comply with the sections of this ordinance but the review and approval of such project will be handled by the Town Council. The Town Council may request advisory opinions from the Zoning Board and the Planning Commission, but the Town Council will act as the permitting authority. The Town Council will be required to hold a minimum of one (1) public hearing on the application prior to issuing a decision.’ [this actually sounds like it makes the process more difficult- we should just use the regular process]

Use Table

Use	RFR-2	FRF-1	NB	HB	I-A	I-B	OS/Public	Exit 7 SMD	Corporate District
489 Utility-scale Wind Energy System or Facility	S	S	S	S	S	S	?	X	X
4891 Small Wind Energy System (as an accessory use to a permitted structure)	P*	P*	P*	P*	P*	P*	P*	P*	P*
Outdoor Wood Boiler	P	P	P	P	P	P	X	X	X

* Small Wind Energy Systems must meet the required criteria and performance standards of Article 1, Section 7 C 2. (3)