

**WIND ENERGY CONVERSION FACILITIES BYLAW
TOWN OF CHESTER**
*Adopted at November 13, 2006 Special Town Meeting
Approved by Attorney General on March 27, 2007*

5.6- LAND-BASED WIND ENERGY CONVERSION FACILITIES

5.6.1 Purpose and Intent

It is the express purpose of this bylaw to accommodate distributed generation, wind energy conversion facilities (not residentially scaled facilities) in appropriate locations, while minimizing any adverse visual, safety and environmental impacts of the facilities. The bylaw enables the review of wind energy conversion facilities by the town's Planning Board or Zoning Board of Appeals in keeping with the town's existing bylaws. This bylaw is intended to be used in conjunction with other regulations adopted by the town, including historic district regulations, site plan review and other local bylaws designed to encourage appropriate land use, environmental protection, and provision of adequate infrastructure development.

5.6.2 Definitions

Clear Area: Area surrounding a wind turbine to be kept free of habitable structures.

Distributed Generation: Energy generation that is located at or near the end-user.

Height: The height of a turbine measured to the tip of the blade at its highest point.

Nacelle: The frame and housing at the top of the tower that encloses the gearbox and generator and protects them from the weather.

Rotor: The blades and hub of the wind turbine that rotate during turbine operation.

Special Permit Granting Authority (SPGA): Board designated by zoning ordinance or bylaw with the authority to issue special permits.

Wind Energy Conversion Facility: All equipment, machinery and structures utilized in connection with the conversion of wind to electricity. This includes, but is not limited to, all transmission, storage, collection and supply equipment, substations, transformers, site access, service roads and machinery associated with the use. A wind energy conversion facility may consist of one or more wind turbines.

Wind Monitoring or Meteorological ("test" or "met") Towers: Tower used for supporting anemometer, wind vane and other equipment to assess the wind resource at a predetermined height above the ground.

Wind Turbine: A device that converts kinetic energy of the wind into rotational energy to turn an electrical generator shaft. A wind turbine typically consists of a rotor, nacelle and supporting tower.

5.6.3 District Regulations

- a) **Use Regulations** - All wind energy conversion facilities or wind monitoring towers shall require a building permit and may be permitted as follows and irrespective of whether the use is a principal or accessory use:
 1. **Wind Energy Conversion Facility** - The construction of any wind energy conversion facility shall be permitted in all business, industrial, and agricultural-residential zoning districts, subject to issuance of a Special Permit and provided the proposed use complies with all Dimensional and Special Permit Regulations set forth in Sections 5.7.3 and 5.7.4 of this bylaw (unless waived by the SPGA).
 2. **Wind Monitoring or Meteorological Towers** - Wind monitoring or meteorological towers shall be permitted in all business, industrial, and agricultural-residential zoning districts subject to issuance of a building permit for a temporary structure.
- b) **Site Control** - The applicant shall submit documentation of the legal right to install and use the proposed facility at the time of application for a Special Permit. Documentation should also include proof of control over the setback or clear areas, if required under Section 5.7.3(c2). Control shall mean legal authority to prevent the use of any structure within the setback or clear area for human habitation or other use permitting human occupancy.
- c) **Dimensional Requirements** - All wind energy conversion facilities shall comply with the requirements set forth in this section, unless waived by the SPGA as part of the Special Permit review process.
 1. **Height** - Wind energy conversion facilities shall be no higher than 420 feet above the natural grade. The height of all wind turbines shall be measured to the highest point reached by the rotor blades. The SPGA may allow this height to be exceeded as part of the special permit process if the project proponent can demonstrate that the additional height is needed and that the additional benefits of the higher tower outweigh any increased adverse impacts. Monopole towers are the preferred type of support for wind turbines.
 2. **Setback or Clear Area** - Each wind energy conversion facility and its associated equipment shall comply with the building setback provisions of the zoning district in which the facility is located. In addition, the following setbacks shall be observed:

- (i) In order to ensure public safety and to protect the interests of neighboring property owners, the minimum distance from the base of any wind turbine tower to any property line, dwelling, business or institutional use shall be equal to the total height of structure to the highest point. This setback is considered a "clear area";
- (ii) The setback or clear areas should be kept free of all habitable structures so long as the facility is in place; however, these areas need not be cleared of trees or other vegetation. Setbacks shall be measured from the outside surface at the base of the turbine tower. The SPGA may reduce the clear area as appropriate based on site specific considerations and if the project is consistent with the Special Permit granting criteria of the town.

5.6.4 Special Permit Regulations

The SPGA shall grant a Special Permit only if it finds that the proposal complies with the provisions of this bylaw (unless waived) and is consistent with the applicable criteria for granting Special Permits.

- a) **General** - Proposed wind energy conversion facilities shall be consistent with all applicable local, state and federal requirements, including but not limited to all applicable electrical, construction, noise, safety, environmental and communications requirements.
- b) **Design Standards**
 - 1. **Visual Impact** - The proponent shall demonstrate through project siting and proposed mitigation that the wind energy conversion facility minimizes any impact on the visual character of surrounding neighborhoods and the community. This may include, but not be limited to, information regarding site selection, turbine design, buffering, lighting and cable layout.
 - 2. **Color** - Wind energy conversion facilities shall be painted a non-reflective color that blends with the sky and clouds.
 - 3. **Equipment Shelters** - All equipment necessary for monitoring and operation of the wind energy conversion facilities should preferably be contained within the turbine tower. If this is infeasible, ancillary equipment may be located outside the tower, provided it is contained either within an underground vault, or enclosed within a separate structure or behind a year-round landscape or vegetated buffer.

4. **Lighting and Signage:**

- (i) Wind turbines shall be lighted only if required by the Federal Aviation Administration (FAA). The proponent shall provide a copy of the FAA's determination to establish the required markings and/or lights for the structure;
- (ii) Lighting of equipment structures and any other facilities on site (except lighting required by the FAA) shall be shielded from abutting properties;
- (iii) Signs on the facility shall be limited to: those needed to identify the property, and the owner and warn of any danger; and, educational signs providing information on the technology and renewable energy usage;
- (iv) All signs shall comply with the requirements of the Town's sign regulations.

c) **Environmental Standards**

- 1. **Wetlands** - Wind energy conversion facilities shall be located in a manner consistent with all applicable local and state wetlands regulations. Wetland buffer areas may be used for the purposes of providing a clear area.
- 2. **Land Clearing/Open Space/Rare Species** - Wind energy conversion facilities shall be designed to minimize land clearing and fragmentation of open space areas and shall avoid permanently protected open space when feasible. Wind turbines should be sited to make use of previously developed areas wherever possible. Wind energy conversion facilities shall also be located in a manner that does not have significant negative impacts on rare species in the vicinity (particularly avian species, bats, etc.).
- 3. **Stormwater** - Stormwater run-off and erosion control shall be managed in a manner consistent with all applicable state and local regulations.
- 4. **Noise** - The wind energy conversion facility and associated equipment shall conform to Massachusetts noise regulations (310 CMR 7.10). An analysis, prepared by a qualified engineer, shall be presented to demonstrate compliance with these noise standards and be consistent with Massachusetts Department of Environmental Protection guidance for noise measurement.
- 5. **Shadowing/Flicker** - Wind energy conversion facilities shall be sited in a manner that does not result in significant shadowing or flicker impacts. The proponent has the burden of proving that this effect does not have significant adverse impact on neighboring or adjacent uses either through siting or mitigation.

- d) **Safety Standards** - No hazardous materials or waste shall be discharged on the site of any wind energy conversion facility. If any hazardous materials or wastes are to be used on site, there shall be provisions for full containment of such materials or waste. An enclosed containment area, designed to contain at least 110 percent of the volume of the hazardous materials or waste stored or used on the site may be required to meet this requirement. The wind energy conversion towers shall also be designed to prevent unauthorized access (for example, by construction of a fenced enclosure or locked access).

5.6.5 Use by Telecommunications Carriers

Wind energy conversion facilities may be used to locate telecommunications antennas, subject to applicable regulations governing such uses, and subject to the following requirements:

- a) All ground-mounted telecommunications equipment shall be located in either a shelter, within the wind turbine tower or otherwise screened from view year-round (either through effective landscaping or existing natural vegetated buffers).
- b) Antennas shall be flush-mounted to be in keeping with the design of the wind turbine tower.
- c) All cabling associated with the personal wireless facility shall be contained within the tower structure or enclosed within a conduit painted to match the turbine mount.

5.6.6 Modifications

All modifications to a wind energy conversion facility made after issuance of the Special Permit shall require approval by the SPGA in accordance with the town's existing process for modifications to Special Permit approvals.

5.6.7 Monitoring and Maintenance

- a) After the wind energy conversion facility is operational, the applicant shall submit to the town at annual intervals from the date of issuance of the Special Permit, a report detailing operating data for the facility (including but not limited to days of operation, energy production, etc.).
- b) The applicant shall maintain the wind energy conversion facility in good condition. Such maintenance shall include, but not be limited to, painting, structural integrity of the foundation and support structure and security barrier (if applicable), and maintenance of the buffer areas and landscaping if present.

- c) Notice shall be provided to the town of any change in owner of the facility.

5.6.8 Abandonment or Discontinuation of Use

- a) At such time that a wind energy conversion facility is scheduled to be abandoned or discontinued, the applicant will notify the town by certified U.S. mail of the proposed date of abandonment or discontinuation of operations. In the event that an applicant fails to give such notice, the facility shall be considered abandoned or discontinued if the facility is inoperable for 180 days. In the case of a multi-turbine facility, the SPGA shall determine in its decision what proportion of the facility would be inoperable for the facility to be considered abandoned.
- b) Upon abandonment or discontinuation of use, the owner shall physically remove the wind energy conversion facility within 90 days from the date of abandonment or discontinuation of use. This period may be extended at the request of the operator and at the discretion of the SPGA. "Physically remove" shall include, but not be limited to:
 - 1. Removal of the wind turbine and tower, all machinery, equipment, equipment shelters, security barriers and all appurtenant structures from the subject property.
 - 2. Proper disposal of all solid or hazardous materials and wastes from the site in accordance with local and state solid waste disposal regulations.
 - 3. Restoration of the location of the wind energy conversion facility to its natural condition, except that any landscaping, grading or below-grade foundation may remain in the after-condition.
- c) If an applicant fails to remove a wind energy conversion facility in accordance with this section of this bylaw, the town shall have the authority to enter the subject property and physically remove the facility. The SPGA may require the applicant to provide a form of surety (i.e. post a bond, letter of credit or establish an escrow account or other) at the SPGA's election at the time of construction to cover costs of the removal in the event the town must remove the facility. The amount of such surety shall be equal to 150 percent of the cost of compliance with this section. The applicant shall submit a fully inclusive estimate of the costs associated with removal, prepared by a qualified engineer. The amount shall include a mechanism for a Cost of Living Adjustment after 10 and 15 years.

5.6.9 Term of Special Permit

A Special Permit issued for any wind energy conversion facility shall be valid for 25 years, unless extended or renewed. The time period may be extended or the Special Permit may be renewed upon satisfactory operation of the facility. At the end of that time period, the wind energy conversion facility shall be removed by the applicant.

5.6.10 Application Procedures

- a) **Special Permit Granting Authority (SPGA)** - The SPGA for wind energy conversion facilities shall be the Board of Selectmen.
- b) **Pre-Application Conference** - Prior to the submission of an application for a Special Permit under this regulation, the applicant is strongly encouraged to meet with the SPGA at a public meeting to discuss the proposed wind energy conversion facility in general terms and to clarify the filing requirements. The SPGA shall meet with an applicant under this regulation within 21 days following a written request submitted to the SPGA and the Town Clerk. If the SPGA fails to meet with an applicant who has requested such a meeting within 21 days of said request and said meeting has not been postponed due to mutual agreement, the applicant may proceed with a Special Permit application under this regulation without need for a pre-application conference.
- c) **Pre-Application Filing Requirements** - The purpose of the conference is to inform the SPGA as to the preliminary nature of the proposed wind energy conversion facility. As such, no formal filings are required for the pre-application conference. However, the applicant is encouraged to prepare sufficient preliminary architectural and/or engineering drawings to inform the SPGA of the location of the proposed facility, as well as its scale and overall design.
- d) **Professional Fees** - The town may retain a technical expert/consultant to verify information presented by the applicant. The cost for such a technical expert/consultant will be at the expense of the applicant.
- e) **Additional Requirements** - Within 30 days of the pre-application conference, or within 21 days of filing an application for a Special Permit, the applicant shall arrange for a balloon or crane test at the proposed site to illustrate the height of the proposed facility. The date, time and location of such test shall be advertised in a newspaper of general circulation in the town at least 14 days, but not more than 21 days prior to the test. In addition, notice shall be provided to the town, abutters and abutting Historic Commissions and an identical courtesy notice shall be sent to the Town Clerk of all adjacent towns.

f) **Application Filing Requirements** - The following shall be included with an application for a Special Permit for each wind energy conversion facility:

1. General Filing Requirements:

- (i) Name, address, telephone number and original signature (photo-reproductions of signatures will not be accepted) of applicant and any co-applicants. Co applicants may include the landowner of the subject property or the operator of the wind energy conversion facility. If telecommunications antennas are proposed, a telecommunications carrier should be a co-applicant;
- (ii) If the applicant or co-applicant will be represented by an agent, the name, address and telephone number shall be provided as well as original signature authorizing the agent to represent the applicant and/or co-applicant shall be provided. Photo-reproductions of signatures will not be accepted;
- (iii) Documentation of the legal right to install and use the proposed facility and proof of control over the clear area, per Section 5.7.3(b) of these regulations.

2. Location Filing Requirements:

- (i) Identify the subject property by including the town as well as the name of the locality, name of the nearest road or roads, and street address, if any;
- (ii) Tax map and parcel number of subject property;
- (iii) Zoning district designation for the subject parcel (submit copy of town zoning map with parcel identified);
- (iv) A line map to scale showing the lot lines of the subject property and all properties within 300 feet of the property lines, as well as the location of all buildings, including accessory structures, on all properties shown.

3. Siting and Design Filing Requirements:

- (i) VICINITY/SITE MAP - A one-inch-equals-40 feet vicinity plan, signed and sealed by a Registered Professional Engineer or Licensed Surveyor showing the following:
 - Property lines for the subject property and all properties adjacent to the subject property within 300 feet.
 - Outline of all existing buildings, including purpose (e.g., residential buildings, garages, accessory structures, etc.) on subject property and all adjacent properties within 300 feet. Distances, at grade, from the proposed wind energy conversion facility to each building on the vicinity plan shall be shown.
 - Proposed location of wind energy conversion facility, including all turbines, fencing, associated ground equipment, transmission infrastructure and access roads.

- Location of all roads, public and private, on the subject property and on all adjacent properties within 300 feet including driveways proposed to serve the wind energy conversion facility.
 - All proposed changes to the existing property, including grading, vegetation removal and temporary or permanent roads and driveways.
 - Representations, dimensioned and to scale, of the proposed facility, including cable locations, parking areas and any other construction or development attendant to the wind energy conversion facility.
 - Tree cover and average height of trees on the subject property and adjacent properties within 300 feet.
 - Contours at each two feet Above Mean Sea Level (AMSL) for the subject property and adjacent properties within 300 feet.
 - Representation of location of viewpoint for the sight-line diagram referenced below.
- (ii) SIGHT LINES AND PHOTOGRAPHS - Sight lines and photographs as described below:
- Sight-line representation. A sight-line representation shall be drawn from representative locations that show the lowest point of the turbine tower visible from each location. Each sight line shall be depicted in profile, drawn at one inch equals 40 feet. The profiles shall show all intervening trees and buildings. There shall be at least two sight line representations illustrating the visibility of the facility from surrounding areas such as the closest habitable structures or nearby public roads or areas.
 - Existing (before condition) photographs. A color photograph of the current view shall be submitted from at least two locations to show the existing situation.
 - Proposed (after condition). Each of the existing-condition photographs shall have the proposed wind energy conversion facility superimposed on it to accurately simulate the proposed wind energy conversion facility when built and illustrate its total height, width and breadth.
- (iii) ELEVATIONS - Siting elevations, or views at-grade from the north, south, east and west for a 50-foot radius around the proposed wind energy conversion facility. Elevations shall be at either one-quarter inch equals one foot or one-eighth inch equals one foot scale and show the following:
- Wind energy conversion facility and if applicable the security barrier and associated equipment, with total elevation dimensions of all parts of the facility.
 - Security Barrier: If the security barrier will block views of the wind energy conversion facility, the barrier drawing shall be cut away to show the view behind the barrier.
 - Any and all structures on the subject property.

- Existing trees and shrubs at current height and proposed trees and shrubs at proposed height at time of installation, with approximate elevations dimensioned.
- Grade changes, or cuts and fills, to be shown as original grade and new grade line, with two-foot contours above mean sea level.

(iv) **MATERIALS**

- Specifications for the proposed wind energy conversion facility shall be provided for all equipment and attendant facilities.
- Materials of the proposed wind energy conversion facility specified by type and specific treatment. These shall be provided for the wind turbine tower and all other proposed equipment/facilities.
- Colors of the proposed wind energy conversion facility represented by a color board showing actual colors proposed.

(v) **LANDSCAPE PLAN** - A Landscape plan including existing trees and shrubs and those proposed to be added or removed, identified by size of specimen at installation and species.

(vi) **LIGHTING PLAN** - If lighting of the site or turbine is proposed (other than FAA lights), the applicant shall submit a manufacturer's computer-generated point-to-point printout, indicating the horizontal foot-candle levels at grade, within the property to be developed and 25 feet beyond the property lines. The printout shall indicate the locations and types of luminaries proposed.

1. Environmental Requirements:

- (i) **NOISE FILING REQUIREMENTS** - The applicant shall provide a statement listing the existing noise levels and the maximum future projected noise levels from the proposed wind energy conversion facility. Such statement shall be certified and signed by a qualified engineer, stating that noise projections are accurate and meet the noise standards of this bylaw and applicable state requirements.
- (ii) **OTHER** - The applicant shall submit information illustrating how the project is consistent with the environmental standards of this bylaw.

5.6.11 Conflict with Other Laws

The provisions of this bylaw shall be considered supplemental of existing zoning bylaws. To the extent that a conflict exists between this bylaw and others, the more restrictive bylaw, or provisions therein, shall apply.

5.6.12 Severability

If any provision of this bylaw is held invalid by a court of competent jurisdiction, the remainder of the bylaw shall not be affected thereby. The invalidity of any section or sections or parts of any section or sections of this bylaw shall not affect the validity of the remainder of the town's Zoning Bylaw.

OTHER REQUIRED ZONING AMENDMENTS

Amend the Chester Zoning Bylaw by amending the Table 1: Chester Schedule Of Use Regulations by adding the following under Section 3.0.8, Industrial Uses:

BY LAW NUMBER	LAND USE CLASSIFICATION	STANDARDS & CONDITIONS	R	AR	B	I
3.0.8	INDUSTRIAL					
	<i>Land-Based Wind Energy Conversion Facility</i>	<i>See Section 5.6 for additional standards</i>	<i>N</i>	<i>SP</i>	<i>SP</i>	<i>SP</i>