

## Section 4.11, Utility-Scale Wind Energy Facilities

**4.11.1 Purpose:** The purpose of this by-law is to provide by special permit for the construction and operation of wind energy facilities (WEF) and to provide standards for the placement, design, construction, monitoring, modification and removal of wind energy facilities that address public safety, minimize impacts on scenic, natural and historic resources of the town and provide adequate financial assurance for decommissioning. The Zoning Board of Appeals (ZBA) is hereby designated as the special permit granting authority for wind energy facilities as provided for in this bylaw.

**4.11.1.1 Applicability:** This section applies to all wind energy facilities with a rated nameplate capacity of 60 kilowatts or greater. Any physical modifications to existing wind facilities that materially alters the type or increases the size of such facilities or other equipment shall require a special permit.

### 4.11.2 Definitions

**Utility-Scale Wind Energy Facility:** A commercial wind energy facility, where the primary use of the facility is electrical generation to be sold to the wholesale electricity markets.

**On-Site Wind Energy Facility:** A wind project, which is located at a commercial, industrial, agricultural, institutional, or public facility that will consume more than 50% of the electricity generated by the project on-site.

**Height:** The height of a wind turbine measured from natural grade to the tip of the rotor blade at its highest point, or blade-tip height.

**Rated Nameplate Capacity:** The maximum rated output of electric power production equipment. This output is typically specified by the manufacturer with a “nameplate” on the equipment.

**Substantial Evidence:** Such evidence as a reasonable mind might accept as adequate to support a conclusion.

**Wind Energy Facility:** All equipment, machinery and structures utilized in connection with the conversion of wind to electricity. This includes, but is not limited to, transmission, storage, collection and supply equipment, substations, transformers, service and access roads, and one or more wind turbines.

**Wind Monitoring or 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.

**Wind Turbine:** A device that converts kinetic wind energy into rotational energy that drives an electrical generator. A wind turbine typically consists of a tower, nacelle body, and a rotor with two or more blades.

### 4.11.3. General Requirements

**4.11.3.1 Special Permit Granting Authority:** No wind facility 60 kilowatts or greater of rated nameplate capacity shall be erected, constructed, installed or modified as provided in this section without first obtaining a permit from the ZBA. The construction of a WEF shall be permitted in the Wind Energy Facility Zoning Overlay District subject to the issuance of a Special Permit, and provided that the use complies with all requirements set forth in sections 4.11.3, 4, 5 and 6. All such WEF shall be constructed and operated in a manner that minimizes any adverse visual, safety, and environmental impacts. No special permit shall be granted unless the ZBA finds in writing that:

- (1) the specific site is an appropriate location for such use;
- (2) the use is not expected to adversely affect the neighborhood;
- (3) there is not expected to be any serious hazard to pedestrians or vehicles from the use;
- (4) no nuisance is expected to be created by the use; and
- (5) adequate and appropriate facilities will be provided for the proper operation of the use.

Such permits may also impose reasonable conditions, safeguards and limitations on time and use and may require the applicant to implement all reasonable measures to mitigate unforeseen adverse impacts of the WEF, should they occur.

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 regulations concerning the bulk and height of structures and determining yard-size, lot area, setbacks, open space, parking, and building coverage requirements

4.11.3.2 Compliance with Laws, Bylaws and Regulations: The construction and operation of all such proposed WEF 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 requirements.

4.11.3.3 Proof of Liability Insurance: The applicant shall be required to provide evidence of liability insurance in an amount and a duration sufficient to cover loss or damage to persons and structures caused by the failure of the WEF.

4.11.3.4 Site Control: At the time of its application for a special permit, the applicant shall submit documentation of actual or prospective control of the project site sufficient to allow for installation and use of the proposed WEF. Documentation shall also include proof of control over setback areas and access roads, if required. Control shall mean the legal authority to prevent the use or construction of any structure for human habitation within the setback areas.

#### 4.11.4 General Siting Standards

4.11.4.1 Height: Wind energy facilities shall be no higher than 400 feet above the current grade of the land.

4.11.4.2 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 existing residential, agricultural or commercial building and 100 feet from the nearest property line and private or public way.

4.11.4.3 Setback Waiver: The ZBA may reduce the minimum setback distance as appropriate based on site-specific considerations, if the project satisfies all other criteria for the granting of a special permit under the provisions of this section.

#### 4.11.5 Design Standards

4.11.5.1 Color and Finish: The ZBA shall have discretion to select the turbine color, although a neutral, non-reflective exterior color designed to blend with the surrounding environment is encouraged.

4.11.5.2 Lighting and Signage: WEFs shall be lighted only if required by the Federal Aviation Administration. Lighting of other parts of the WEF, such as appurtenant structures, shall be limited to that

required for safety and operational purposes, and shall be reasonably shielded from abutting properties. Signs on the WEF shall comply with the requirements of the town's sign regulations, and shall be limited to those necessary to identify the owner, provide a 24-hour emergency contact phone number, and warn of any danger.

4.11.5.3 Utility Connections: Reasonable efforts shall be made to locate utility connections from the wind facility underground, depending on appropriate soil conditions, shape, and topography of the site and any requirements of the utility provider. Electrical transformers for utility interconnections may be above ground if required by the utility provider.

4.11.5.4 Appurtenant Structures: Structures and buildings shall only be used for housing of equipment for this particular site. Whenever reasonable, structures should be shaded from view by vegetation and/or located in an underground vault and joined or clustered to avoid adverse visual impacts. All such appurtenant structures, including but not limited to, equipment shelters, storage facilities, transformers, and substations, shall be architecturally compatible with each other and shall be contained within the turbine tower whenever technically and economically feasible.

4.11.5.5 Support Towers: Monopole towers are required for WEFs.

#### 4.11.6 Safety, Aesthetic and Environmental Standards

4.11.6.1 Emergency Services: The applicant shall provide a copy of the project summary and site plan to the local emergency services entity, as designated by the ZBA. Upon request, of the ZBA, the applicant shall cooperate with local emergency services in developing an emergency response plan.

4.11.6.2 Unauthorized Access: Wind turbines or other structures part of a WEF shall be designed to prevent unauthorized access.

4.11.6.3 Shadow/Flicker: WEF's shall be sited in a manner that minimizes shadowing or flicker impacts. The applicant has the burden of proving that this effect does not have significant adverse impact on neighboring or adjacent uses through either siting or mitigation.

4.11.6.4 Noise: The WEF and associated equipment shall conform with the provisions of the Department of Environmental Protection's, (DEP) Division of Air Quality Noise Regulations (310 CMR 7.10), unless the Department and the ZBA agree that those provisions shall not be applicable. A source of sound will be considered to be violating these regulations if the source:

- (a) increases the broadband sound level by more than 10 dB(A) above ambient, or
- (b) Produces 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. These criteria are measured both at the property line and at the nearest inhabited residence. Ambient is defined as the background A-weighted sound level that is exceeded 90% of the time measured during equipment hours. The ambient may also be established by other means with consent from DEP. An analysis prepared by a qualified engineer shall be presented to demonstrate compliance with these noise standards.

The ZBA, in consultation with the DEP, shall determine whether such violations shall be measured at the property line or at the nearest inhabited residence.

4.11.6.5 Land Clearing, Soil Erosion and Habitat Impacts: Clearing of natural vegetation shall be limited to that which is necessary for the construction, operation and maintenance of the WEF and is otherwise prescribed by applicable laws, regulations, and bylaws.

#### 4.11.7 Monitoring and Maintenance

4.11.7(A) Facility Conditions: The applicant shall maintain the WEF in good condition. Maintenance shall include, but not be limited to, painting, structural repairs, and integrity of security measures. Site access shall be maintained to a level acceptable to the local Fire Chief and Emergency Medical Services. The project owner shall be responsible for the cost of maintaining the wind facility and any access road, unless accepted as a public way, and the cost of repairing any damage occurring as a result of operation and construction of the WEF.

4.11.7(B) Modifications: All material modifications to a WEF made after issuance of the special permit shall require prior approval by the ZBA as provided in this section.

4.11.7(C) Change in Ownership: Notice shall be provided to the ZBA of any change in the ownership of the WEF and the lot on which it is located.

#### 4.11.8 Abandonment or Decommissioning

4.11.8.1 Removal Requirements: Any WEF which has reached the end of its useful life or has been abandoned shall be removed. When the WEF is scheduled to be decommissioned, the owner shall notify the Board of Selectmen and the ZBA by certified mail of the proposed date of discontinued operations and plans for removal. The owner/operator shall physically remove the WEF no more than 90 days after the date of discontinued operations. This period may be extended at the request of the operator and at the discretion of the ZBA. "Physically Remove" shall include, but not be limited to:

(1) Removal of all wind turbines, structures, shelters, machinery, equipment, security barriers and transmission lines from the site;

(2) Disposal of all solid and hazardous waste in accordance with local and state waste disposal regulations; and

(3) Restoration of the location of the WEF to its natural condition, except the ZBA may allow the owner to leave landscaping or designated below-grade foundations in order to minimize erosion and disruption to vegetation.

4.11.8.2 Abandonment: Absent notice of a proposed date of decommissioning, the WEF shall be considered abandoned when the facility fails to operate for more than 180 days without the written consent of the ZBA. The ZBA shall determine in its Special Permit decision what proportion of the facility operations would have to be suspended for the facility to be considered abandoned.

4.11.8.3 Financial Surety: The ZBA may require the applicant for WEF to provide a form of surety, either through escrow account, bond or other form of security satisfactory to the ZBA, prior to the commencement of construction of the facility, to cover the cost of removal in the event the ZBA must order removal of the facility. The amount of such surety shall be equal to one hundred twenty five (125) percent of the cost of removal and compliance with Section 4.11.8.1. Such surety will not be required for municipally or state-owned facilities. The applicant shall submit a fully inclusive estimate of the costs associated with removal, prepared by a qualified engineer calculated to include Cost of Living Adjustments after ten (10) and fifteen (15) years.

#### 4.11.9 Term of Special Permit:

A special permit issued for any WEF shall be valid for 25 years, unless the Special Permit is extended or renewed upon a finding of satisfactory operation of the facility. Request for renewal must be submitted at least 180 days prior to expiration of the Special Permit. Upon the expiration of the Special Permit or any renewal thereof, the WEF shall be removed by the operator in accordance with Section 4.11.8.1.

The applicant or facility owner shall maintain a phone number and identify a responsible person for the public to contact with inquiries and complaints throughout the life of the project.

#### 4.11.10. Application Process

The ZBA shall adopt rules and regulations relative to application procedures and requirements for WEF Special Permits.