

Model Ordinance for Small Wind Energy Systems Ordinance Rockingham Planning Commission

Background and Purpose

Rising electricity rates, growing concerns of climate change and increase need for additional electricity capacity are fueling New Hampshire policies to permit renewable energy. The siting of wind turbines is one of the more contentious issues where benefits of green energy and property rights are pitted against visual and auditory impacts. The issue is compounded by the lack of a public review process for the siting of small scale wind turbines. These turbines are typically defined as units rated less than 60 kilowatts and are used to offset the electric consumption of a residence or small business.¹

The current procedure in many towns to review a small scale wind turbine is through a variance hearing by the Zoning Board of Adjustments for height restrictions, which is typically 35 feet in most towns. This process only addresses aspects of height and other impacts such as sound levels, appropriate setbacks, and turbine standards, among others, are not addressed in detail. The Small Wind Energy Systems Ordinance corrects this by permitting the turbines as a use, establishing set standards to protect the public's interests and to review the project through a conditional use permit process by the planning board.

The issue of siting small scale wind turbines is not a new issue. Several communities in Massachusetts, Wisconsin, Iowa, Minnesota and California have addressed the problem by adopting similar Small Wind Energy Systems Ordinances. The resources used to draft this ordinance included model ordinances from the Massachusetts Division of Energy Resources, American Wind Energy Association and Southwest Windpower along with ordinances passed in the Massachusetts communities of Barnstable, Scituate and Shutesbury.

The attached ordinance is a model ordinance and adjustments should be made to accommodate any specific desires of a community. Narrative changes describing the possible changes are highlighted with brackets and italics throughout the document. It is recommended the all ordinances should be reviewed by the municipality's legal counsel prior to its consideration by the legislative body.

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¹ It is important to note that the document herein is explicitly for small scale wind turbines. Larger utility scale wind turbines, such as the turbines in Hull MA or those proposed for the Lempster NH project, are not regulated underneath this ordinance. While these larger turbines are an integral aspect of developing renewable energy within the state, there are a host of other issues related to the siting of these turbines and subsequently require a separate regulatory procedure.

Article ?? Small Wind Energy Systems Ordinance

A. Purpose:

This small wind energy systems ordinance is enacted in accordance with RSA 674:21, Innovative Land Use Controls, and the purposes outlined in RSA 672:1-III-a and RSA 674:17-I(j). The purpose of this ordinance is to accommodate distributed generation/small wind energy systems in appropriate locations, while minimizing any adverse visual, safety and environmental impacts of the system. In addition, this ordinance provides a permitting process for small wind energy systems to ensure compliance with the provisions of the requirements and standards established herein.

B. Definitions:

Fall zone: The potential fall area for the small wind energy system. It is measure by using 110% of the total height as the radius around the center point of the base of the tower.

Flicker: The moving shadow created by the sun shining on the rotating blades of the wind turbine.

Meteorological tower (met tower): Includes the tower, base plate, anchors, guy wires and hardware, anemometers (wind speed indicators), wind direction vanes, booms to hold equipment for anemometers and vanes, data loggers, instrument wiring, and any telemetry devices that are used to monitor or transmit wind speed and wind flow characteristics over a period of time for either instantaneous wind information or to characterize the wind resource at a given location.

Net metering: The difference between the electricity supplied over the electric distribution system and the electricity generated by the small wind energy system which is fed back into the electric distribution system over a billing period.

Power grid: The transmission system, managed by ISO New England, created to balance the supply and demand of electricity for consumers in New England.

Shadow: The outline created on the surrounding area by the sun shining on the small wind energy system.

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 60 kilowatts or less and will be used primarily for onsite consumption.

[The rated capacity of a small wind energy system could be modified. HB310 permits turbine ratings up to the permissible level through net metering. This level is 100 kilowatts. To provide context to the rating system below are a list of typically sized turbines:

- 2-10 kilowatts: Residential
- 10-20 kilowatts: Agricultural Farm
- 50 kilowatts: Small Municipal Operation (ex. Kittery ME)
- 100 kilowatts: Largest Municipal turbine permitted through Net-Metering.

- *Over 100 kilowatts: Small Scale Wind Turbine Ordinances should not exceed 100 kilowatts.]*

Tower: The monopole or guyed monopole structure that supports a wind turbine.

Total height: The vertical distance from ground level to the tip of the wind turbine blade when it is at its highest point.

Tower height: The height above grade of the fixed portion of the tower, excluding the wind turbine.

Wind turbine: The blades and associated mechanical and electrical conversion components mounted on top of the tower whose purpose is to convert kinetic energy of the wind into rotational energy used to generate electricity.

C. Applicability:

1. **Small Wind Energy System:** Small wind energy systems shall be permitted under a conditional use permit as an innovative land use control pursuant to RSA 674:21 in all zoning districts where structures of any sort are allowed.
2. **Approval:** No small wind energy system shall be erected, constructed, installed or modified without first receiving a conditional use permit from the Planning Board, as outlined in section D. All small wind energy systems installed prior to the enactment of this ordinance are exempt from the conditions herein.

D. Procedure for Review:

1. **Conditional Use Permit:** In accordance with RSA 674:21, a small wind energy system shall be subject to receiving a conditional use permit prior to installation or modification thereof. The issuance of a conditional use permit shall abide with the following requirements:
 - a. **Building Permit:** A building permit shall be required for the installation or modification of a small wind energy system.
 - b. *[Include this paragraph if the Planning Board has adopted Site Plan Review regulations under 674:44.]* **Site Plan Review:** Prior to issuance of a building permit, a site plan shall be submitted to the Planning Board for review. The applicant shall follow the procedural requirements of the site plan review regulations, RSA 674:62- Regional Notification for Small Wind Energy Systems and RSA 676:4- Board's Procedures on Plats. The site plan shall include the following:

[Include this paragraph if the Planning Board has not adopted Site Plan Review regulations under 674:44.] **Site Plan Review:** Prior to issuance of a building permit, a site plan shall be submitted to the Planning Board for review.

The applicant shall follow the procedural and notice requirements of RSA 674:62- Regional Notification for Small Wind Energy Systems and RSA 676:4- Board's Procedures on Plats. The following items shall be the minimum requirements for a completed application. The site plan shall include the following:

- i) Property lines and physical dimensions of the applicant's property.
- ii) Location, dimensions, and types of existing major structures on the property.
- iii) Location of the proposed small wind energy system, foundations, guy anchors and associated equipment
- iv) Setback requirements as outlined in this ordinance.
- v) The right-of-way of any public road that is contiguous with the property.
- vi) Any overhead utility lines.
- vii) Small wind energy system specifications, including manufacturer, model, rotor diameter, tower height, tower type (freestanding or guyed).
- viii) If the small wind energy system will be connected to the power grid, documentation shall be provided regarding the notification of the intent with the utility regarding the applicant's installation of a small wind energy system.
- ix) Tower foundation blueprints or drawings.
- x) Tower blueprint or drawings.
- xi) Sound level analysis prepared by the wind turbine manufacturer or qualified engineer.
- xii) Electrical components in sufficient detail to allow for a determination that the manner of installation conforms to the National Electrical Code (usually provided by the manufacturer).
- xiii) Estimated costs of physically removing the small wind energy system to comply with surety standards.
- xiv) Evidence of compliance or non-applicability with Federal Aviation Administration requirements.

- xv) The site plan must be stamped by a professional engineer licensed to practice in the state of New Hampshire.
2. Meteorological (Met) Towers: The construction of a met tower for the purpose of collecting data to develop a small wind energy system, shall abide with the following requirements;
- a. The construction, installation or modification of a met tower shall require a building permit and shall conform to all applicable sections of the state building code.
 - b. Met towers shall be permitted on a temporary basis not to exceed 3 years.
 - c. Met towers shall adhere to the small wind energy system standards.
 - d. A conditional use permit is not required to construct, install or modify a met tower. Prior to the issuance of a building permit, the building inspector shall ensure the met tower complies with the small wind energy system standards.

E. Conditional Use Permit Standards:

1. Through the conditional use permit review process, the small wind energy system shall be evaluated for compliance to the following standards;
- a. Setbacks:
 - i) Small wind energy system shall be set back a distance equal to 110% of the total height from:
 - A) Any public road right-of-way, unless written permission is granted by the governmental entity with jurisdiction over the road.
 - B) Any overhead utility lines.
 - C) All property lines, unless the affected land owner provides written permission through a recorded easement allowing the small wind energy system's fall zone to overlap with the abutting property.
 - D) Any travel ways to include but not be limited to driveways, parking lots, nature trails or sidewalks.
 - ii) If an abutting landowner disapproves of the proposed small wind energy system, the said system shall be set back a distance equal to 220% of the total height from all property lines.

- iii) Small wind energy systems must meet all setbacks for principal structures for the zoning district in which the system is located.
 - iv) The setback shall be measured to the center of the tower's base.
 - v) Guy wires used to support the tower are exempt from the small wind energy system setback requirements.
- b. Tower:
- i) Wind turbines may only be attached to freestanding or guy wired monopole towers. Lattice towers are explicitly prohibited.
[Municipalities may choose to permit lattice towers]
 - ii) The tower height shall not exceed 150 feet.
 - iii) The applicant shall provide evidence that the proposed tower height does not exceed the height recommended by the manufacturer of the wind turbine.
- c. Sound Level: The small wind energy system shall not exceed 60 decibels using the A scale (dBA), as measured at the property line, except during short-term events such as severe wind storms and utility outages.
- [If a municipality has sound level requirements for its zones, the sound level requirements for the small wind energy systems ordinance should coincide with town requirements. However municipalities shall not overly restrict turbines by requiring sound levels below 55 dBA. Additionally, it is pertinent that the final clause related to short term events is included into any small wind energy system ordinance.]*
- d. Shadowing/Flicker: Small wind energy systems shall be sited in a manner that does not result in significant 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 either through siting or mitigation.
- e. Signs:
- i) All signs, both temporary and permanent, are prohibited on the small wind energy system, except as follows:
 - A) Manufacturer's or installer's identification on the wind turbine.
 - B) Appropriate warning signs and placards.
- f. Code Compliance: The small wind energy system shall comply with all applicable sections of the New Hampshire State Building Code.

- g. Aviation: The small wind energy system shall be built to comply with all applicable Federal Aviation Administration including but not limited to 14 C.F.R. part 77, subpart B regarding installations close to airports, and the New Hampshire Aviation regulations, including but not limited to RSA 422-b and RSA 424. Evidence of compliance or non-applicability shall be submitted with the application.
- h. Visual Impacts: It is inherent that small wind energy systems may pose some visual impacts due to the tower height needed to access the wind resources. The purpose of this section is to reduce the visual impacts, without restricting the owner's access to the wind resources.
 - i) The applicant shall demonstrate through project site planning and proposed mitigation that the small wind energy system's visual impacts will be minimized for surrounding neighbors and the community. This may include, but not be limited to information regarding site selection, turbine design or appearance, buffering, and screening of ground mounted electrical and control equipment. All electrical conduits shall be underground.
 - ii) The color of the small wind energy system shall either be the stock color from the manufacturer or painted with a non-reflective, unobtrusive color that blends in with the surrounding environment.
 - iii) A small wind energy system shall not be artificially lit unless such lighting is required by the Federal Aviation Administration (FAA). If lighting is required, the applicant shall provide a copy of the FAA determination to establish the required markings and/or lights for the small wind energy system.
- i) Utility Connection: If the proposed small wind energy system is to be connected to the power grid through net metering, it shall adhere to RSA 362-A:9.
- j) Access:
 - i) All ground mounted electrical and control equipment shall be labeled and secured to prevent unauthorized access.
 - ii) The tower shall be designed and installed so as to not provide step bolts or a ladder readily accessible to the public for a minimum height of 8 feet above the ground.

- k) **Approved Wind Turbines:** The manufacturer and model of the wind turbine to be used in the proposed small wind energy system must have been approved by the California Energy Commission or the New York State Energy Research and Development Authority, or a similar list approved by the state of New Hampshire, if available.
- l) **Clearing:** Clearing of natural vegetation shall be limited to that which is necessary for the construction, operation and maintenance of the small wind energy system and as otherwise prescribed by applicable laws, regulations, and ordinances.

F. Abandonment:

1. At such time that a small wind energy system is scheduled to be abandoned or discontinued, the applicant will notify the Building Inspector by certified U.S. mail of the proposed date of abandonment or discontinuation of operations.
2. Upon abandonment or discontinuation of use, the owner shall physically remove the small wind energy system within 90 days from the date of abandonment or discontinuation of use. This period may be extended at the request of the owner and at the discretion of the Building Inspector. "Physically remove" shall include, but not be limited to:
 - a. Removal of the wind turbine and tower and related above grade structures.
 - b. Restoration of the location of the small wind energy system to its natural condition, except that any landscaping, grading or below-grade foundation may remain in the after-conditions.
3. In the event that an applicant fails to give such notice, the system shall be considered abandoned or discontinued if the system is out-of-service for a continuous 12-month period. After the 12 months of inoperability, the Building Inspector may issue a Notice of Abandonment to the owner of the small wind energy system. The owner shall have the right to respond to the Notice of Abandonment within 30 days from Notice receipt date. The Building Inspector shall withdraw the Notice of Abandonment and notify the owner that the Notice has been withdrawn if the owner provides information that demonstrates the small wind energy system has not been abandoned.
4. If the owner fails to respond to the Notice of Abandonment or if after review by the Building Inspector it is determined that the small wind energy system has been abandoned or discontinued, the owner of the small wind energy system shall remove the wind turbine and tower at the owner's sole expense within 3 months of receipt of the Notice of Abandonment. If the owner fails to physically remove the small wind energy system after the Notice of Abandonment procedure, the

town shall have the authority to enter the subject property and physically remove the small wind energy system.

5. The Planning Board 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 time of construction to cover costs of the removal in the event the town must remove the facility. 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 to accommodate the rate of inflation over 15 years.

G. Violation:

It is unlawful for any person to construct, install, or operate a small wind energy system that is not in compliance with this ordinance or with any condition contained in the site plan review issued pursuant to this ordinance. Small wind energy systems installed prior to the adoption of this ordinance are exempt.

H. Penalties:

Any person who fails to comply with any provision of this ordinance or a building permit issued pursuant to this ordinance shall be subject to enforcement and penalties as allowed by NH Revised Statutes Annotated Chapter 676.

I. Waiver Provisions:

The Planning Board may waive any portion of this ordinance in such cases where, in the opinion of the Planning Board, strict conformity would pose an unnecessary hardship to the applicant and waiver would not be contrary to the spirit and intent of this ordinance.