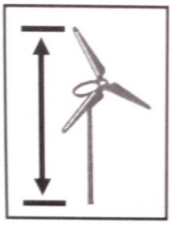
12-19-13 DRAFT ORDINANCE FOR LARGE WIND ENERGY SYSTEMS
Ashland, New Hampshire

LARGE WIND ENERGY SYSTEMS (LWES)

A. PURPOSE: The purpose of this Ordinance is to provide for the development and use of wind power as an alternative energy source, benefiting both the economy and the environment, while protecting public health, safety, property values, wildlife, and general welfare; preserving environmental, historic and scenic resources; controlling Sound Pressure Levels; and preventing electromagnetic interference. This ordinance provides a permitting process to ensure compliance with requirements and standards established therein.
This Ordinance is adopted pursuant to the enabling provisions of NH RSA 674:1,V, NH RSA 674:16, NH RSA 674:17(j), and NH RSA 162-H. In addition, pursuant to the provisions of NH RSA 674:21, the Ashland Board of Selectmen is hereby granted the authority to issue permits for the construction or operation of Large Wind Energy Systems, including Meteorological Towers, in the Town of Ashland, subject to these provisions.
If there is a conflict between provisions in this Ordinance, or between its provisions and those in any other ordinance or regulation, this Ordinance shall apply. Should any section or provision of this Ordinance be declared by the courts to be invalid, such a decision shall not invalidate any other section or provision of the Ordinance.

B. DEFINITIONS: The following terms shall have the meanings indicated:
"Adverse Noise Impacts" - Disturbances that interfere with: customary speech and communications both indoors and outdoors, telephone conversations, reading, tasks requiring concentration, listening to music or television, and sleep.
"Applicant" – The person, firm, corporation, company, or other entity who applies for approval under this Section, as well as the Applicant's successor(s), assign(s) and/or transferee(s) as to any approved LWES or testing facility. An applicant must have the legal authority to represent and bind the landowner or lessee who will construct, own, and operate the LWES or testing facility. The duties and obligations regarding approval for any approved LWES or testing facility shall be with the owner of the LWES or testing facility, and jointly and severally with the owner and operator or lessee of the LWES or testing facility.
"Application" –An application for a LWES under this Section.
"Automatic Obstruction Lighting System" - A lighting system that provides continuous 360-degree surveillance of the airspace around a wind farm from the ground level to above aircraft flight altitudes, automatically activating obstruction lighting when aircraft are detected at a defined outer perimeter and course of travel.
"Background Sound Pressure Level" – The Sound Pressure Level represented without the wind turbines operating and when man-made and natural intrusive sounds are at a minimum. The intent of this definition is to exclude Sound Pressure Level contributions from intermittent noises such as traffic and emergency vehicles, and from seasonal natural sounds such as tree frogs and crickets that are not present year round.
"Blade Glint" – The intermittent reflection of the sun off the surface of the blades of a single Wind Turbine or multiple Turbines.
"Debris Hazard" – Hazard owing to the possibility that the parts of a LWES, or material (ice or other debris) accumulated on its rotating elements, could be dislodged and fall or be thrown some distance onto surrounding property.
"FAA" – The Federal Aviation Administration.
"Health" – State of complete physical, mental and social well-being and not merely the absence of disease or infirmity.

"Impact(s)" – Includes any effect on the environment, including sound and visual impacts such as changes in sound pressure, noise and light in the environment.
"Large Wind Energy System (LWES)" - An electricity-generating facility with a generating capacity of over 100 kilowatts, consisting of one or more Wind Turbines, including any substations, Met Towers, cables/wires, and other buildings accessory to such facility.
"Leq" –The equivalent continuous Sound Pressure Level that has the same acoustic energy for a constant Sound Pressure Level as for a fluctuating or intermittent level in the same period of time.
"Met Tower" - A meteorological tower used for the measurement of wind speed.
"Natural Environment" – Includes navigable waters, waters of a contiguous zone, ocean waters and any other surface water, groundwater, drinking-water supply, land surface or subsurface strata, or ambient air within the United States or under the jurisdiction of the United States, including wildlife, ecosystems, and habitat, and historical, cultural, recreational and archeological resources.
"Noise" – Any unwanted sound or any sound that is not part of the natural environment.
"Non-Participating Landowner"- Any landowner who is not a Participating Landowner pursuant to definition below.
"Octave Band" – A band of sound covering a range of frequencies such that the highest is twice the lowest, as defined in ANSI Standard S1.11.
"One-Third Octave Band" –A band of sound covering a range of frequencies such that the highest frequency is the cube root of two times the lowest, as defined in ANSI Standard S1.11.
"Participating Landowner" – Any landowner on whose property all or a portion of a Large Wind Energy System is located pursuant to an agreement with the Applicant or any landowner who has waived his or her rights for protection under this Ordinance.
"Permit to Construct" – After the application has been accepted by the Planning Board, the Ashland Board of Selectmen shall issue a Permit to construct the project.
"Permit to Operate" – A written approval issued by the Ashland Board of Selectmen to operate a LWES once such project has been approved by the Planning Board.
"Project Boundary" – A continuous line that encompasses all Wind Turbines and related equipment to be used in association with a Large Wind Energy System.
"Public Infrastructure" – Roadways, culverts, and bridges maintained by the Town of Ashland or State of New Hampshire.
"Setback" – The distance a LWES tower base is set back from abutting property lines, structures, or other features.
"Shadow Flicker" – The effect when the blades of an operating Wind Turbine pass between the sun and an observer, casting a readily observable, moving shadow on the observer and his/her immediate environment.
"Sound Power Level" –Lw. Ten times the logarithm to the base ten of the ratio of the sound power radiated by the source to a reference sound power, expressed in decibels (dB). The reference sound power is 1 picowatt (pW).
"Sound Pressure Level" - Lp. Twenty times the logarithm to the base ten of the ratio of a given sound pressure to a reference sound pressure of 20 microPascals (uPa), expressed in decibels (dB).
"Total Height" - When referring to a Wind Turbine, the distance measured from ground level to the blade extended at its highest point.



"Tower Shadowing" – The shadow created on the surrounding area by the sun shining on a Wind Turbine.
"Useful Life" – The LWES or individual Wind Turbine(s) will be presumed to be at the end of its useful life if no electricity is generated for a continuous period of twelve (12) months.
"Visual Clutter" –The accumulation of diverse built elements on a site, especially elements that contrast with their surroundings in form, color, texture, or pattern.
"Welfare" – A state of well-being.

"Well-being" – A good or satisfactory condition of existence; a state characterized by health, happiness, and prosperity.
"Wind Shear" – The difference in atmospheric wind speed and direction occurring over relatively small increases in altitude (wind gradient).
"Wind Turbine" – A wind-energy conversion system that converts wind energy into electricity through the use of a wind-turbine generator, including the turbine, blade, tower, base, and pad transformer, if any.

C. LARGE WIND ENERGY SYSTEM REQUIREMENTS:

1. Design, Manufacture, Construction, and Maintenance Standards

a) In order to minimize Visual Clutter, Wind Turbines shall use tubular towers of similar design, size, operation, and appearance throughout the project, which shall be painted a non-reflective, non-obtrusive color. Blades shall be coated or otherwise designed with a material to minimize Blade Glint.
b) At LWES sites, the design of the buildings and related structures shall, to the extent reasonably possible, use materials, colors, textures, screening, and landscaping that will blend with the existing natural setting and environment.
c) Wind Turbines shall not be used for displaying any signs or advertising except for signs at ground level for reasonable identification of the manufacturer, owner, or operator of the LWES, the utility procuring the power, emergency contact information, and appropriate warnings as required by national, state, and local laws. Such identification shall not be illuminated. All signage shall meet Ashland's ordinance requirements. Any graffiti on LWES structures shall be removed as soon as practical.
d) Control wiring and power lines shall be wireless or below ground except where collector wiring is brought together for connection to the transmission or distribution network adjacent to that network. The Planning Board may permit above-ground wiring, if in the opinion of the Planning Board, its Impact, including but not limited to environmental and visual Impacts, is less than the Impact of below-ground wiring.
e) The Applicant of an LWES shall not undertake any blasting without specific approval of such blasting during Site Plan Review. Terms and conditions for the blasting, including any necessary notifications, shall be specified during Site Plan Review.
    i) The Applicant shall prepare an inventory of all structures, wells, bridges, and other seismically sensitive structures that could potentially be damaged by blasting.
    ii) Before each blasting event, the Applicant shall notify all Participating and Non-Participating Landowners whose property can be potentially damaged of the time and date of the event. The Applicant shall receive signature verification of such notice.
    iii) Flying rock traveling in the air or along the ground is not permitted to cross into the property of Non-Participating Landowner(s).
    iv) A blasting log for each blast shall be kept on site at the LWES office for not less than five (5) years, and copies of the required blasting log shall be promptly submitted to the Planning Board upon completion of construction of the LWES.
    v) Pre-blasting and post-blasting inspection and documentation may be required by the Planning Board.
f) If at any time during construction, operation, or maintenance of the LWES, the Applicant wishes to modify the approved Site Plan, the Applicant shall submit to the Planning Board an Amended Site Plan for review and approval.
g) Construction and maintenance activities shall be organized and timed to minimize Impacts on residents and wildlife from noise, disruption (including disruption of wildlife habitat), and the presence of vehicles and people. Construction and maintenance, unless there is an imminent threat to life or property, shall be performed only on weekdays between the hours of 7 AM and 6 PM. The Planning Board has the authority to waive this requirement if, in its opinion, there is good reason to do so.

h) Any construction equipment or parts (used or unused) kept on site shall be stored indoors except during periods of construction, maintenance, and repair.

2. Height

a) The Total Height of the Wind Turbines shall not exceed 450 feet.
b) Met Towers must be less than 200 feet in height, and must be designed so as not to require lighting in compliance with FAA regulations. Guy wires are allowed on Met Towers, but must be designed so as to limit environmental hazards to wildlife, especially birds and bats.

3. Setbacks

All LWES tower bases must be sited so as to be set back from adjacent property lines by at least two thousand (2,000) feet. An exception can be made to this requirement in the case of a Participating Landowner who waives his or her rights under this ordinance; such waiver shall exclude the ability of the owner of that property to have or build any structures within 2,000 feet of the closest LWES tower and shall be recorded in the Grafton County Registry of Deeds. In no case shall the Setback be less than 1.5 times the maximum height of the Wind Turbine from the nearest property line. Additional Setbacks may be required to meet noise standards.

The applicant shall submit a graph of the required Setback for each hazard as a circle for a single tower or as a series of connected arcs for multiple towers centered on each turbine and submitted with the required Setback graphically superimposed to scale on town maps identifying lot owners, structures, and lot property lines.

4. Communications Interference

Any LWES shall be sited and operated so that it does not interfere with television, telephone (including cellular and digital), microwave, satellite (dish), navigational, or radio reception to neighboring areas. The Applicant shall provide certification from a NH licensed Professional Engineer confirming that the proposed project will not interfere with television, telephone (including cellular and digital), microwave, satellite (dish), navigational, or radio reception to neighboring areas. The Applicant shall be responsible for the full cost of any remediation necessary to provide equivalent alternate service or to correct any problems. Remedies may include relocation or removal of the LWES. The Applicant of the LWES shall respond within five business days to any request for a communications interference investigation by a property owner within the Project Boundary and a three-mile radius beyond the Project Boundary. Testing shall commence within ten working days of the request. The Applicant is responsible for mitigating within ten working days from determination of interference cause attributed to the operation of the LWES.

5. Sound Pressure Level Limits and Measurement

The intent of this section is to preserve the quiet rural environment of Ashland and to provide protection from Excessive Sound Pressure Levels that cause adverse Impacts to public Health, Welfare, and Well-being. The existing Background Sound Pressure Levels in Ashland are *less than 30* dBA (baseline needs to be tested). Annoyance due to Noise, as measured by community surveys, is the consequence of activity interference. Sound Pressure Level limits are based on the recommended guidelines found in the United States Environmental Protection Agency's document *Information On Levels Of Environmental Noise Requisite To Protect Public Health And Welfare With An Adequate Margin of Safety, 550/9-74-004, March 1974* and include levels requisite to protect against activity interference. These Sound Pressure Level limits are consistent with the World Health Organization (WHO) night-noise guidelines for exposure to noise during sleep, found in the following documents: *Night Noise Guidelines (NNLG) For Europe, 2007* and *ISBN 978 92 890 4173 7*, *2009.*

a) Sound Pressure Levels produced by the LWES shall not exceed 33 dBA (Leq 10 minute) anywhere at any time on a Non-Participating Landowner's property.
b) The Planning Board may impose greater noise constraints if it deems such constraints are necessary to protect the public health, safety, and welfare of the community.
c) Any model used to predict Wind Turbine Noise shall use the following parameters:
    i. Each Wind Turbine shall be considered as an individual and unique noise emitter.

ii. The prediction model shall use the Manufacturer's highest sound-power levels, as measured using standard IEC 61400-11 (edition 2.1, dated November 2006), which shall be submitted in
iii. 1/3 octave band for frequencies 31.5 to 8000 Hz. Test reports performed for the same model(s) proposed for the LWES shall be submitted in full.
iv. The prediction model shall use a Wind Shear (wind profile power law exponent, alpha) of no less than 0.50, where Wind Shear is defined as the difference in atmospheric wind speed and direction occurring over relatively small increases in altitude.
v. There shall be no attenuation (zero) for ground cover, since a Wind Turbine is an elevated noise emitter.
vi. There shall be no attenuation (zero) for foliage, since trees have no leaves from November to April.
vii. Add a plus-5-dB design margin to the predicted Sound Pressure Levels to account for variations in atmospheric propagation due to refraction (the bending of sound waves in the atmosphere due to changes in air temperature or wind gradient).
viii. Ground absorption values used in the modeling software shall be set to 0 for water and hard concrete or asphalt surfaces and 0.5 for all other surfaces.

d) Noise measurements shall be taken with the Wind Turbines turned on and turned off to determine any Background Noise to be accounted for. The Applicant shall cooperate by shutting Wind Turbines off and turning them on during acoustic testing at times required by the acoustic monitoring personnel.
e) The wind velocity at the sound measurement microphone shall not exceed 2 m/s (4.5 mph) during measurements of Background Sound Pressure Level, and the maximum wind speed at the microphone for noise measurements during Wind Turbine operation shall not exceed 4 m/s (9 mph).

6. Shadow Flicker, Tower Shadowing, and Blade Glint

a) The facility shall be designed such that Shadow Flicker or Tower.
b) Shadowing falling on or in any Non-Participating Landowner's property or a public road shall be limited as follows:
    i. The Shadow Flicker or Tower Shadowing shall not exceed twenty (20) hours per year in total.
    ii. The traffic volumes shall be fewer than 500 vehicles per day on the roadway.
    iii. The Shadow Flicker or Tower Shadowing shall not fall onto an intersection.
c) Blades shall be coated or otherwise designed with a material to minimize Blade Glint.
d) Within twelve months of the date when the project becomes fully operational, or at any time upon receipt of a verified complaint of Shadow Flicker, Tower Shadowing, and/or Blade Glint, the Applicant shall submit to the Planning Board a Shadow Flicker, Tower Shadowing, and Blade Glint study certifying that Shadow Flicker, Tower Shadowing, or Blade Glint present no deleterious effects for any occupied structure located within a one-mile radius of any Wind Turbine. If Shadow Flicker and/or Blade Glint exceeds any of the conditions listed above, the source Wind Turbine(s) shall be shut down until the Shadow Flicker, Tower Shadowing, or Blade Glint problem is remedied.

7. Public Infrastructure

The Applicant shall avoid, mitigate, or repair any and all adverse impacts to any Public Infrastructure occasioned by or in any manner related to the installation, operation, maintenance, and repair or decommissioning of the LWES. This includes reimbursement to the Town or State for any repairs or reconstruction reasonably deemed necessary by the Town or State.

8. Erosion and Storm Water Control

During the Useful Life of the LWES, the Applicant shall maintain any erosion and storm-water control practices described in the Erosion and Storm-Water Control Plans and Life Cycle and Decommissioning Plans submitted with the Application for Site Plan Review.

9. Safety

a) Each Wind Turbine shall be equipped with both manual and automatic controls to limit the rotational speed of the blade within the design limits of the rotor. All Wind Turbines shall be equipped with redundant braking systems. This includes both aerodynamic (including variable pitch) over-speed controls and mechanical brakes. Mechanical brakes shall be operated in a fail-safe mode, whereby they are engaged in the case of loss of load on the generator. Stall regulation shall not be considered a sufficient braking system for over-speed protection. A manual electrical and/or over-speed shutdown disconnect switch shall be provided and clearly labeled on/in the Wind Turbine structure.

b) The blade tip of any Wind Turbine shall, at its lowest point, have ground clearance of not less than 75 feet.

c) Any Wind Turbine and/or accessory structure shall not be climbable up to above 15 feet above ground level.

d) The LWES shall be designed to prevent unauthorized access to electrical and mechanical components and shall have access doors that are kept securely locked at all times when service personnel are not present.

e) Appropriate warning and safety signage shall be placed on any Wind Turbine, accessory structure, and/or electrical equipment, and posted at all LWES entrances.

f) All structures shall be self-supporting. No guy-wire-supported structures shall be permitted, with the exception of Met Towers.

g) A sign bearing emergency contact information shall be posted near the tower(s) or operations and maintenance office building.

h) Signage shall be placed at the road access to warn visitors about the potential danger of falling and thrown ice and the Debris Hazards.

i) The property shall be posted to limit general access for recreational purposes.

j) Any Wind Turbine that is found to present an imminent physical threat of danger to human life, wildlife, or property, or that is found to exceed the noise standards of this Ordinance, shall be immediately shut down. Following repair or redesign to comply with the noise standards of this Ordinance, the Wind Turbine shall be certified to be safe and to comply with this Ordinance by a NH licensed Professional Engineer(s) prior to resumption of operation.

10. Rescue, Fire, and Hazard Protection

The Applicant shall assure that the LWES complies with the following fire control and prevention measures.

a) A plan acceptable to the Ashland Fire Chief for fire-fighting and rescue services, including water accessibility, any necessary equipment, and/or training for local fire protection and rescue personnel, shall be prepared and updated annually. The full cost of implementing and maintaining the plan, including equipment, equipment maintenance, and staffing, shall be the responsibility of the Applicant.

b) The Applicant shall comply with all laws applicable to the generation, storage, clean-up, transportation, and disposal of hazardous wastes generated during any phase of the project's life.

11. Environmental Impact

The Applicant shall take appropriate measures to minimize, eliminate, or mitigate adverse impacts on the natural environment during the entire life cycle of the LWES and shall comply with all Federal, State and local laws regulating environmental impacts. In making its determination under this section, the Planning Board shall consider the U.S. Fish and Wildlife Service *"Wind Turbine Guidelines Advisory Committee Recommendations," dated March 4, 2010,* or subsequent updates, the "Proposed Wind Power Siting Guidelines–May 29, 2007" (which was developed by the Wind Energy Facility Siting Guidelines Working Group and forwarded to the NH Energy Policy Committee Wind Siting Subcommittee), and any recommendations of the New Hampshire Fish and Game Department and the Ashland Conservation Commission.

a) Environmentally Sensitive Areas. The plan for the LWES shall reflect the natural capabilities of the site to support development. Environmentally sensitive areas–including but not limited to wetlands, vernal pools, seeps or springs, steep slopes (greater than 15%), watersheds, floodplains, significant wildlife habitats, fisheries, habitat for rare or endangered plants and animals, unique natural communities and natural areas, and sand and gravel aquifers–will be maintained and preserved to the maximum extent possible. The Applicant shall demonstrate appropriate measures for protecting these resources during the entire life cycle of the project.
b) Wildlife. The Applicant shall demonstrate that the LWES will have no significant adverse Impact on area wildlife and wildlife habitat. Such analysis shall include but not be limited to adverse Impacts on birds, bats, raptors, animals, and habitat fragmentation. In addition, the Applicant must demonstrate that the LWES will have no undue adverse Impact on rare, threatened, or endangered wildlife. The wildlife and habitat analysis must include pre-construction field studies conducted by a qualified wildlife biologist selected by the Planning Board and paid for by the Applicant. Such studies shall span at least two coincident migration cycles.
c) Avian and Bat Species. Development and operation of a LWES shall have no adverse impact on bird or bat species.
    i. All above-ground lines, transformers, or conductors should comply with the Avian Power Line Interaction Committee (APLIC, http://www.aplic.org/) published standards to prevent avian mortality.
    ii. The design and installation of the LWES shall avoid, to the extent practicable, the creation of artificial habitat for raptors or raptor prey; e.g., electrical equipment boxes on or near the ground that can provide shelter and warmth and horizontal perching opportunities on the towers or related structures.
    iii. In order to minimize the detrimental Impacts on bat and bird populations, all Wind Turbines shall be configured and or controlled so that the blades will not turn when wind velocity at hub height is less than 10 mph. In addition, there may be periods of time when the Wind Turbine operations must be curtailed to protect bats and raptors and other migratory birds.
d) Ground and Surface Water. The LWES will not adversely affect the quality or quantity of ground and surface waters. The Applicant shall demonstrate to the Planning Board's satisfaction that there are no unusual risks caused by the LWES. The Board may require that spill prevention and control measures be installed, and that all activities involving potentially permeable pollutants, including at delivery and transfer points, be conducted under cover and over an impervious surface surrounded by dikes. Whenever sedimentation is caused by stripping vegetation or grading, it shall be the responsibility of the Applicant to remove it from all adjoining surfaces, drainage systems, and watercourses and to repair any damage as quickly as possible at the Applicant's expense.
e) Historical, Cultural, Archeological. Because the preservation of historic resources is very important to the Town of Ashland, the Applicant shall be required to:
    i. Inventory and map all historically significant sites located within two thousand (2000) feet of the proposed LWES project area, including stone walls, structures, roadways, and cellar holes.
    ii. Provide a plan outlining how the Applicant proposes to minimize the impact of construction and ongoing operation of the LWES on those sites. As a condition of approving the Applicant's Historical, Cultural, Archeological protection plan, the Planning Board may require specific setbacks of LWES structures or roadways from significant sites and/or other actions that protect or restore items of historic significance.

12. Visual Impact

a) An LWES shall be designed and located so as not to cause adverse visual Impacts, including Visual Clutter and Impacts caused by any lighting, and so as not to dominate views from

residential areas, cultural resource areas, public recreational and scenic areas, trails used by the public open space within the Town, or any public road right-of-way.

b) Dominance is determined by how an LWES will be seen within its visual context and occurs when the project would cause a change in the balance or feel of the character of the surrounding area or create a very dominant focal point that detracts from other important natural or cultural focal points. (The Planning Board may use as a reference document *A Visual Impact Assessment Process for Wind Energy Projects*, Vissering, Sinclair, and Margolis, May 2011.) Some of the factors to be considered in evaluating the degree of dominance are:
    i. appearance of proximity,
    ii. duration of view,
    iii. expectation for natural or intact landscape setting,
    iv. uniqueness of a scenic resource,
    v. whether the view is directly ahead over extended distances, and
    vi. whether large numbers of turbines are visible in many views.

c) All available mitigation techniques to reduce the visual impacts of the LWES shall be considered, including methods prescribed by the American Landscape Institute. The use of Automatic Obstruction Lighting Systems, such as those manufactured by DeTect and OCAS, is mandatory for Wind Turbines with FAA lighting.

d) Photographic simulations shall be provided from potentially sensitive public and private viewpoints. The Planning Board may request that particular viewpoints be illustrated. Such locations could include the center of Town, public recreation areas, historic sites, and scenic sections of Town or State roads. Simulation photographs shall be taken at 50mm (or digital equivalent) and illustrated on 11 x 17" printed copies for each simulation. If several photographic frames are required to illustrate the breadth of the project from a particular viewpoint, illustrations shall be provided of each 50mm frame, plus a combined panoramic view. Any visible roads, site clearing, and all project infrastructure shall be depicted on the simulations. The report shall employ a standard visual-impact-assessment methodology for detailing what the visual impacts of the project would be and explaining why these may be acceptable or unacceptable. The report shall identify all mitigation methods proposed by the applicant, if any, to address the potential visual impacts of the LWES. These methods may include turbine siting and distance between towers; reductions in turbine height or numbers; design and size; hazard lighting mitigation by employing Automatic Obstruction Lighting Systems; underground placement of collector lines; and other methods. The Planning Board may require additional mitigation measures to minimize the impact on scenic resources of the Town.

13. Financial, Technical, and Managerial Capability

Applicant shall demonstrate to the Planning Board that it has adequate financial, technical, and managerial capability to assure construction and operation of the facility in continuing compliance with the terms and conditions of this ordinance.

D. APPLICATION PROCEDURE

1. Applications for new and replacement LWESs shall be filed and processed in accordance with the Town of Ashland Planning Board's Site Plan Review regulations.

2. The Planning Board will determine in accordance with RSA 36:56, I whether an LWES application could be construed as having the potential for regional impact.

3. Submission Requirements: In addition to standard Planning Board requirements, applicants for a LWES shall submit the following:

3.1 A demonstration satisfactory to the Planning Board that the Applicant has adequate financial, technical, and managerial capability to assure construction and operation of the facility in continuing compliance with the terms and conditions of this ordinance.

3.2 Plans prepared and stamped by a NH licensed Professional Engineer that show the location, shape, size, color, materials, textures, landscaping, design, and total height of all proposed components of

Met Towers and LWES, including the proposed access to the project site (including Town and State roads) and associated transmission lines.
3.3 A location map to scale of current and planned land uses within the project boundary and a one-mile radius beyond the project boundary, showing the location of all proposed Wind Turbines and required setbacks for each, and that identifies Participating Landowners. These maps must be prepared by a NH licensed land surveyor.
3.4 A site grading and clearing plan that shows all areas to be cleared and all grade changes. The plan shall include details on the collector lines, locations and heights of poles, clearing limits for above-ground lines, substations, transmission line details, and upgrades or changes to existing power lines. This plan should delineate environmentally sensitive areas.
3.5 Historical, Cultural, Archeological Inventory and Resource Map prepared by NH licensed land surveyor, and Applicant's plan to minimize impact of LWES construction and operation on these sites.
3.6 Environmental Resource Map prepared by a qualified NH licensed land surveyor.
3.7 Intended period of data collection for the Met Tower.
3.8 Certification of the non-reflecting properties of the external surfaces of the LWES.
3.9 Calculations and supporting data for all setbacks for each turbine.
3.10 List of property owners whose property wholly or in part falls within the standard setback areas.
3.11 Studies and Reports as required by the Planning Board, including but not limited to those listed below. The cost of any required study, report, plan, mitigation effort, or any other work required to be done by the Planning Board, is the full responsibility of the applicant.

3.11.1 Sound Pressure Level Study
3.11.2 Rescue, Fire, and Hazard Protection Plan
3.11.3 Road and Property Risk Assessment
3.11.4 Wildlife and Bird Impact Study and Protection Plan
3.11.5 Groundwater and Surface Water Quality studies
3.11.6 Visual Impact Assessment, including photographic simulations
3.11.7 Communication Interference Certificate
3.11.8 Shadow Flicker, Tower Shadowing, and Blade Glint study
3.11.9 Safety Plan

3.12 A Complaint Resolution Plan to address any complaints from affected parties during construction and over the life of the operation. The Plan shall identify a contact person and a process for mediation.
3.13 A Decommissioning and Site Restoration Plan as outlined in Section J (Decommissioning).
3.14 Storm Water Management Plan – pre- and post-decommissioning.
3.15 Erosion Control Plan.
3.16 Landscape Plan showing restoration of disturbed areas after completion of construction.
3.17 Estimate of decommissioning costs prepared by a NH licensed Professional Engineer.
3.18 Blasting plan, including inventory of all potentially affected structures.
3.19 Any other information deemed necessary by the Board in order to make an informed decision.
4.0 Repowering. When an LWES is planned for a retrofit, the Applicant must apply to the Planning Board for approval before any portion of the LWES may be repowered.
5.0 Permit to Operate.
5.1 Following construction of an LWES, before commencing operation, the Applicant shall apply to the Board of Selectmen for a Permit to Operate. The application shall include the following:

5.1.1 An Inspection Report prepared and signed by a NH licensed Professional Engineer certifying the structural and operational integrity of the LWES, and completion of construction in accordance with all submitted and approved building, road, and lighting plans, and any other plans submitted to the Planning Board as required.
5.1.2 A decommissioning fund.
5.1.3 A signed statement that the Applicant and project site landowner(s) have read this Ordinance, understand all its provisions, and agree to abide by them.

5.2 A Permit to Operate shall be valid for thirty (30) years. Application for renewal requires a new Application to the Planning Board, governed by then-current ordinances.
5.3 Applications for a Permit to Operate or a Renewal Permit will be heard at the next regularly scheduled Planning Board or Board of Selectmen meeting for which adequate legal notice has been posted.
5.4 Before a permit to operate is transferred to a new owner or operator, the holder of the permit must satisfactorily demonstrate to the Planning Board that the new owner or operator has adequate financial, technical, and managerial capability to assure construction and operation of the facility in continuing compliance with the terms and conditions of this Ordinance.
5.5 If a Permit to Operate is transferred to a new Owner or Operator, the new Owner or Operator is bound by all conditions, requirements, and financial obligations of the original permit.
5.6 All conditions of approval shall be reviewed annually by the Planning Board or Board of Selectmen.
5.7 A Permit to Operate may be revoked and the LWES required to cease operations if the Board of Selectmen determines that there is a violation of any provision of this ordinance or other applicable regulations. The Permit shall not be reinstated until the Board of Selectmen determines at a duly noticed public meeting that all violations have been corrected.

E. EASEMENTS AND LEASES

1. Any landowner may grant an easement to the Applicant for any Impacts of the LWES on their property and shall advise all subsequent owners of the property that the standards permitted by this Section may be exceeded on the property. The terms of the easement must be consistent with the current application for an LWES. Easement periods shall be limited to thirty (30) years.
2. The full terms of any leases or easements shall be recorded with the Registry of Deeds.
3. The option period for any land agreement shall be limited to five (5) years.
4. Nothing in this Ordinance shall be construed to restrict the rights of Non-Participating Landowners.

F. ACCESSIBILITY TO PURCHASE POWER

1. Unless the Applicant has previously sold the rights to purchase all of the power that it anticipates producing, the Ashland Electric Department shall be afforded the opportunity to negotiate power purchasing contracts with the Applicant.

G. ONGOING REQUIREMENTS

1. Monitoring: Upon reasonable notice, Town of Ashland officials or their designated representatives may enter a lot on which an LWES has been approved for the purpose of monitoring noise, Impacts on the Natural Environment, and other impacts that may arise. In such a case, the Town will provide the Applicant with 24-hour advance telephone notice, followed by e-mail notification for the record.
2. Post-construction Water-Quality Study:
   a) Within six (6) months of the first Wind Turbine becoming operational, and every twelve (12) months thereafter for a period of three (3) years, a water-quality study of all wells, springs, and water resources specifically identified during the Site Plan Review shall be designed and carried out by a water-quality professional approved by the Board of Selectmen.
   b) Upon receipt of a substantiated complaint that the integrity or water quality of any well has been damaged by the LWES construction, the Planning Board may require prompt investigation of the complaint by a water-quality professional approved by the Board of Selectmen, at the expense of the Applicant.
   c) If degradation or contamination of any well, spring, or water resource is found to have occurred, the Applicant shall be considered in violation of this Section and subject to the provisions of the Enforcement Subsection of this Section.
   d) The Applicant is responsible for all costs associated with water-quality testing and corrective action if necessary.

3. Annual Power Production Report: The Applicant shall submit an annual power production report to the Board of Selectmen [and Planning Board]. The power-production report shall cover the preceding calendar year, and shall be submitted by February 15 of the following year. The report shall be in a form agreed to by the Board of Selectmen and shall include actual power production in kilowatt-hours for each Wind Turbine.

4. Environmental Impact Studies: Recognizing the importance of wildlife as described in C. 11, continuing environmental impact studies shall be required.

a) At least every 3 years, and more frequently if deemed appropriate by the Board of Selectmen, an environmental study shall be conducted by a qualified wildlife biologist selected by the Board of Selectmen and paid for by the Applicant.
b) If the post-construction field studies demonstrate substantive harm to the Natural Environment, the Applicant shall develop an appropriate mitigation plan acceptable to the Board of Selectmen and Conservation Commission. The Applicant shall be responsible for the full cost of implementing the mitigation plan.
c) In addition, the Applicant shall submit a quarterly report to the Board of Selectmen and Conservation Commission identifying all dead birds and bats found within 500 feet of the LWES. Reporting shall continue for at least three (3) years after the first Wind Turbine becomes operational, or longer if required by the Board of Selectmen. In the event of an avian or bat mortality kill of threatened or endangered species, or discovery of more than six (6) dead birds or bats of any variety on site, the Applicant shall notify the Board of Selectmen, Conservation Commission and the New Hampshire Department of Fish and Game within 24 hours. Within thirty (30) days of the occurrence, the Applicant shall submit a report to the Board of Selectmen describing the cause of the occurrence and the steps taken to avoid future occurrences. During migration seasons, the Board of Selectmen reserves the right to request video surveillance as part of environmental-impact studies.

5. Decommissioning Costs. Estimated total costs of decommissioning, prepared at the Applicant's expense by independent NH licensed Professional Engineer(s) approved by the Board of Selectmen, shall be submitted to the Board of Selectmen every fifth year of operation. Funds required under Section J of this ordinance shall be updated within 90 days of acceptance by the Board of Selectmen.

6. Noise Compliance Report. Within four (4) months of the first Wind Turbine becoming operational and again within two (2) months after all Wind Turbines have become operational, and at any time the Board of Selectmen deems it necessary due to the number of complaints received, the Applicant shall submit to the Board of Selectmen a noise-compliance report certifying compliance with the noise regulations set forth herein. The report shall be prepared under the direction of a Professional Engineer or a Board Certified member of the Institute of Noise Control Engineering (INCE). The report shall be signed or stamped by this person. This person shall be selected by the Board of Selectmen, and the report paid for by the Applicant. The report shall comply with the following:

a) Except as specifically noted otherwise, sound measurements shall be conducted in compliance with the most recent version of the American National Standards Institute (ANSI) Standard S12.18-1994 "Outdoor Measurements of Sound Pressure." Sound data shall be recorded with both dBA filtering and unfiltered down to 0.5Hz. Wind speeds shall be logged simultaneously with Sound Pressure Level data.
b) Sound Pressure Level meters and calibration equipment shall comply with the most recent version of ANSI Standard S1.4 "Specifications for General Purpose Sound Pressure Level Meters," and shall have a calibration traceable to the National Institute of Standards and Testing (NIST) performed within the preceding 24 months.
c) Noise measurements shall be taken at locations and times when the Wind Turbine is clearly audible and dominating the acoustical environment. All unattended measurements shall consider the Wind Turbine as dominating the acoustical environment.
d) Noise measurements shall be taken with the Wind Turbines on and off to determine any background noise to be accounted for. The Applicant shall cooperate by shutting Wind Turbines

off and turning them on during acoustic testing at times required by the acoustic-monitoring personnel.

e) The acoustic-monitoring personnel shall determine if extraneous sounds such as those made by insects, frogs, or other wildlife are contributing to the measured Leq Sound Pressure Level and remove their contributions either by relocating the measurement microphone to a spot not affected by such sounds or conducting testing at dates and times when such sounds are not present. The acoustic-monitoring personnel may correct the Leq Sound Pressure Level using full or 1/3 octave band analysis to subtract Wind Turbine "off" levels from Wind Turbine "on" levels, and by removing data in 1/3 octave bands from the Leq computation that are contaminated by extraneous sounds.

f) The wind velocity at the sound-measurement microphone shall not exceed 2 m/s (4.5 mph) during measurements of Background Sound Pressure Level, and the maximum wind speed at the microphone for noise measurements during turbine operation should not exceed 4 m/s (9 mph).

g) During Wind Turbine testing the atmospheric profile shall be Pasquill Stability Class E or F preferred, Class D as alternate. Wind Turbine acoustic testing shall be conducted with hub-height wind speeds varying between cut-in and cut-out speeds.

h) The Wind Turbine shall be fully engaged blades-to-generator and running the standard power output program and producing the maximum power output for the incoming hub-height wind speed. Feathering or other blade angle manipulations that are not part of the normal Wind Turbine program to obtain maximum power output shall be prohibited during acoustic testing. If the wind turbine must be feathered due to a high wind condition for safety purposes, the testing shall be rescheduled.

i) Wind Turbine power output and hub-height wind speed data at 10- minute or shorter intervals shall be provided to the acoustic-monitoring personnel by the Applicant for the entire sound-measurement period.

j) Noise measurements shall be taken at locations specified by the Planning Board, which shall also set the direction of noise monitoring. The Planning Board may employ a NH licensed Professional Engineer, whose fees shall be paid by the Applicant, for advice regarding these measurements.

7. If the Applicant intends to assign or transfer the ownership, control, or authority of the LWES, the Applicant must give the Board of Selectmen 30 days' advance notice. Applicant shall also provide notice of any change in name or contact information.

H. PUBLIC INQUIRIES AND COMPLAINTS

Throughout the life of the project, including the decommissioning phase, the LWES Applicant shall maintain a phone number and identify a responsible person for the public to contact with inquiries and complaints. The Complaint Resolution Plan submitted with the initial application shall be used to resolve complaints. However, this process shall not preclude the local government from acting on a complaint, and local provisions for complaint resolution shall prevail and supersede all Applicant complaint resolution processes.

a) Any individual, group of individuals, or reasonably identifiable entity may file a signed-and-dated written complaint with the Applicant of the LWES. If any complaints are received by phone, the Applicant shall inform the complainant that complaints must be submitted in writing. Any complaints received directly by the Board of Selectmen shall be referred to the Applicant.

b) The Applicant of the LWES shall report to the Board of Selectmen all complaints received concerning any aspect of the LWES construction, operation, or decommissioning as follows

    i. Complaints received by the Applicant shall be reported to the Board of Selectmen or its designee within five business days; except that complaints regarding unsafe and serious violations of this Section shall be reported to public-safety personnel immediately, and the Board of Selectmen or its designee by the following business day.

ii. The Applicant shall document each complaint by maintaining a record including at least the following information:
    a. Name of the LWES and the Applicant
    b. Name of complainant, address, phone number
    c. A copy of the written complaint
    d. Specific property description (if applicable) affected by complaint
    e. Nature of complaint (including weather conditions if germane)
    f. Name of person receiving complaint, date received
    g. Date reported to the Board of Selectmen or its designee
    h. Initial response, final resolution, and date of resolution

c) The Applicant shall maintain a chronological log of complaints received, summarizing the above information. A copy of this log, and a summary of the log by type of complaint, shall be sent on or before January 15, March 15, July 15, and October 15 to the Board of Selectmen, covering the previous calendar quarter. An annual summary shall accompany the January 15 submission.
d) The Board of Selectmen shall forward copies of any health-related complaints to the Ashland Health Officer and the State Board of Health.
e) The Board of Selectmen may designate a person to seek a complaint resolution that is acceptable to the complainant, the Board of Selectmen, and the Applicant. If such a resolution cannot be obtained, the Board of Selectmen may take action as authorized by Section H: Enforcement and Penalties.
f) The Board of Selectmen may at any time determine that a complaint shall be subject to enforcement and penalties as defined in Section H: Enforcement and Penalties.

I. ENFORCEMENT AND PENALTIES

1. The enforcement of this Section shall be the responsibility of the Ashland Board of Selectmen or its agent, who is hereby authorized to cause any LWES, building, place, premises, or use to be inspected, and to order in writing the remedying of any condition found to exist in violation of this Section.
2. An Applicant not responding to the following conditions in the manner specified shall be considered to be in violation of this Section.

a) Unsafe. If a Wind Turbine or the LWES presents an imminent physical threat of danger to life or significant threat to property, as determined by the Planning Board, the Board of Selectmen, or one of their designated agents, it shall be deemed unsafe and immediately shut down. It shall then be repaired or otherwise made safe and certified so by a NH licensed Professional Engineer selected by the Planning Board prior to resumption of operation. Costs for the NH licensed Professional Engineer shall be the responsibility of the Applicant. The Board of Selectmen, or its designee, shall have the right to access the LWES site to verify conditions and/or repair progress.
b) Serious Violations. The Applicant of the LWES is responsible for mitigating any serious violations of standards within ten business days upon receipt of written notification of determination of any cause attributed to the operation of the LWES. A serious violation is defined as any of the following:
    i. Sound Pressure Level exceeding the levels specified in Subsection C. 5 of this ordinance, for anything other than a freak occurrence.
    ii. The occurrence of Shadow Flicker, Tower Shadowing, or Blade Glint exceeding the standards specified in Subsection C. 6 of this Ordinance.
    iii. Degradation or contamination exceeding US Environmental Protection Agency standards of any surface or subsurface water resource. (In the case of degradation or contamination of a well, the obligation for mitigation shall be deemed satisfied if the Applicant provides the affected well owner with a reasonable emergency water supply and within thirty (30) days commences implementation of

corrective measures to the satisfaction of the well owner and subject to the approval of the Planning Board.)

iv. Any hazardous-substance spill.

v. Communication/electromagnetic interference (other than emergency communication).

c) Emergency Communication. Interference with emergency communications must be mitigated within 24 hours.

d) Other Violations. If the Board of Selectmen determines that a violation of this Section has occurred, and the violation is determined to be neither unsafe nor a serious violation, or to interfere with emergency communications, the Board of Selectmen shall provide written notice to the Applicant, and the Applicant shall be responsible for mitigating the problem within 30 days. Mitigation involving significant construction or physical modification may take up to 90 days to be completed.

3. An Applicant failing to comply with any provision of this Section by failing to resolve a violation before the expiration of the mitigation periods defined in this Subsection may be subject to:

a) Revocation of Site Plan Approval, requiring shutdown and removal of any Wind Turbine(s) and restoration of the site as described under Subsection J;

b) Fines pursuant to RSA 676:17;

c) Any other remedies the Board of Selectmen deems necessary to assure the safe operation of the LWES and the protection of residents;

d) Reimbursement to the Town of Ashland for expenses incurred in obtaining relief, including but not limited to reasonable attorney fees.

J. DECOMMISSIONING

1. The Applicant shall, at his or her expense, complete decommissioning (including site restoration) of the LWES, or individual Wind Turbine(s), within twelve (12) months after it is deemed unsafe, abandoned, or at the end of its useful life.

2. Site Restoration shall include:

a) Removal of Wind Turbines, buildings, cabling, electrical components, foundations, and any other associated facilities to a depth of two feet below the ground surface. Conduits buried deeper than two feet may remain in place, but all cables must be removed, and any pull boxes, junction boxes, transformer vaults, and other structures within two feet of the surface must be removed and remaining conduit ends permanently sealed and capped.

b) Removal from the property of all items in outdoor storage.

c) On-site-road and open-work-area removal, if any, to preconstruction conditions, excepting portions of roads useful for the proposed use of the site. If any roads are retained, excess paving and gravel shall be removed back to an appropriate width approved by the Planning Board, and the remaining areas loamed and seeded.

d) Regrading and revegetation necessary to return the subject property to the condition existing prior to establishment of the LWES. The restoration shall reflect the site-specific character including topography, vegetation, drainage, and any unique environmental features. If, in the opinion of the Planning Board, grades and vegetation existing at the time of decommissioning are sufficiently stable and well established, they may be allowed to remain.

e) Implementation of the post-decommissioning storm-water runoff plan.

K. FINANCIAL ASSURANCE

1. As a condition precedent to Site Plan Approval for an LWES, the Applicant must submit an acceptable form of financial assurance such as cash, performance bond, certificate of deposit, or irrevocable letter of credit. The amount of the financial assurance shall be established by the Planning Board and be based on what it would cost for the repair of public infrastructure and for the decommissioning of the LWES and reclamation of the site in the event the Applicant fails to do so.

2. The amount of financial assurance shall be reviewed periodically by the Board of Selectmen to ensure that it equals outstanding decommissioning costs. Financial assurance may be adjusted, upwards or downwards, when required by the Board of Selectmen. For instance, the Board of Selectmen may adjust financial assurance based upon prevailing or projected inflation rates, or the latest cost estimates for decommissioning.
3. Such financial assurance shall be kept in full force and effect during the entire time a LWES facility exists or is in place. Such financial assurance shall be irrevocable and non-cancelable until such time as the Board of Selectmen certifies that decommissioning and reclamation are complete and releases the obligation. If the Applicant fails to remove the LWES and reclaim the site, the Town of Ashland may remove or cause the removal of the LWES and the reclamation of the site. The Town may recover the cost of decommissioning and reclamation from any financial assurance provided by the Applicant. Any decommissioning and reclamation cost incurred by the Town that is not recovered from the Applicant will become a lien on the property where the removal or reclamation takes place and may be collected from the landowner in the same manner as property taxes.
4. If the Applicant fails to complete decommissioning within the periods prescribed above, then the Town may take such measures as necessary to complete decommissioning. The entry into and submission of evidence of a Participating Landowner agreement to the Town shall constitute agreement and consent of the parties to the agreement, and of their respective heirs, successors, and assigns, that the Town may take such action as necessary to implement the decommissioning plan.
5. The escrow agent shall release the decommissioning funds when the Applicant has demonstrated and the Board of Selectmen concurs that decommissioning has been satisfactorily completed, or upon written approval of the Town in order to implement the decommissioning plan.
6. The entry into and submission of evidence of a Participating Landowner agreement to the Town shall constitute agreement and consent of the parties to the agreement, and of their respective heirs, successors and assigns, that the Town may take such action as necessary to implement the decommissioning Plan.

L. LAW
All references to the New Hampshire RSAs include the Statute in effect at the time of enactment of this Section or as subsequently amended or revised.

M. WARNING AND DISCLAIMER OF LIABILITY
This Section shall not create a duty or liability on the part of or a cause of action against the Town of Ashland, its officers, or employees thereof, for any damages that may result from administration of or reliance on this Section.

N. SEVERABILITY:
The invalidity of any provision of this Section shall not affect the validity of any other provision, nor any prior decisions made on the basis of the valid provisions of this Section.

O. EFFECTIVE DATE:
This Section shall take effect upon its passage, and as amended.