

8/27

Public Hearing

PUBLIC ATTENDEES FOR MEETING ON

PLANNING BOARD

ZONING BOARD

NAME

REPRESENTING

PLEASE PRINT

Bob Edwards	Resident
Don McNeil	
Margaret Warner	self
Molly Moore Lazar	self
Bonnie DuBrino	Resident
Meagan Pierce	Union Leader
Anne Law	Self.
Bob Cleland	SELF
Shelley Wetters	"
Peter + Schtzo Moor	RESIDENTS
LES EMMAN	SELF
Janice Caywood	self
Jessie Aguirre	Ledger-Transcript
John Sojinen	SELF
BRIAN R. BEIHL	RESIDENT
ANDRAS LAZAR	"
Karen Bennett	"
Barbara Ford	"

PLEASE PRINT

**Thank You for Attending the
Town of Antrim
Large Scale Wind Ordinance Public Hearing**

The Town of Antrim Planning Board has been considering large-scale wind zoning for the past 18 months, and we are pleased to have you review and comment on the proposed new ordinance governing wind projects over 100 kilowatts in Antrim.

The planning board in December of 2010 brought forward an amendment to the Antrim Zoning Ordinance to permit wind facilities in the Rural Conservation and Highway Business District. This amendment was withdrawn in a series of posting errors and a vote of the planning board in March of 2011.

A compromise was reached with the Select Board agreeing to hold a Special Town Meeting in the fall and the planning board established an ad hoc committee to research, draft a ordinance and site plan regulations and report with recommendations for the Planning Board and Select Board.

The committee has met nearly every week since being established. In preparation for writing the ordinance, members researched large-scale wind ordinances and site plan regulations in New England. The group also collected and read resources in particular reports by the American Wind Energy Industry Association, the Conservation Law Foundation, and U.S. Fish and Wildlife wind siting report, among others. Many planning board and ad hoc committee members also attended the New England Wind Energy Education Program day-long wind energy conference in June, and members took field trips to Searsburg, VT and Lempster, NH for facility tours.

To assist in preparing the ordinance, the planning board hired three consultants to provide professional expertise that supplemented the efforts of the Planning Board and the Ad Hoc Committee.

- NH planning statute expert Carol Olgivie of Peterborough
- Jean Vissering, Landscape Architect of Montpelier, Vermont for visual impact methods and assessment techniques
- GL Garrad and Hassan, a global wind consulting firm based in Peterborough to provide sound and set back consultation.

The planning board meetings included reports from the ad hoc committee and work sessions on the wind ordinance since April. Three extra meetings of the planning board were held to work on the ordinance. In addition to public comments at Planning Board meetings, two public input sessions were hosted by the ad hoc committee.

Consulting fees for the project were taken from the planning staff line item in the planning board 2011 budget. This was voted by unanimously by the planning board, and the Antrim Board of Selectmen voted to accept the change in the line item expense. The work of these consultants is ongoing and reports can be accessed online.

It is important to underscore that today's meeting is a hearing to discuss the new Large Scale Wind Ordinance. This is NOT a discussion about the proposed 30 megawatt Antrim Wind Energy LLC facility. While the proposed new ordinance may be taken under advisement by the New Hampshire Site Evaluation Committee, the ordinance is designed to govern future applications for such facilities in all parts of Antrim. Please restrict your comments today to the ordinance. There will be opportunity for written public comment on the Antrim Wind Energy LLC proposal at the NHSEC hearings in spring 2012.

Thanks again for coming, and providing your valuable input.

Cover letter – The statement that it is AWE’s conclusion that no wind energy facility over 100kW could ever be permitted under this ordinance is way over the moon and utterly unfounded. And further, are they despairing as to whether THEY could finance a 23 MW, 10 turbine project under this ordinance, even if it were issued a conditional use permit by the PB? Or saying that no substantial, experienced owner/operator could? Without more evidence, I am skeptical -- see further below re 14.2 comments.

7.1.2 comment – Many general areas are “not a science”, but nonetheless respond to evidence submitted and reasonable judgments made. Here the general standard is “due consideration” to surrounding landscape. A Planning Board seems capable of making a reasonable judgment, should evidence be submitted in any instance that such due consideration has been given but a lower height is “not feasible” (an equally general concept). Doubtless, however, a developer would prefer a simple not-to-exceed height, and even prefer the striking of the word “due”. Aside: Note that in the SEC dissent, the commissioners seem to think that AWE has indicated a 475 foot height. Is this correct – I hadn’t thought so. AWE does not raise any objection to 450 feet here, but PB should double check, lest anyone falsely argue PB conspires to unreasonably exclude.

7.1.3 comment - PB should double check the scope of this language that “interconnect and collector lines” shall be buried. Jean V. first alluded to this issue in her original comments. And at Searsburg the lines are buried along the ridgeline and part of the way down the mountain – perhaps to a point where the post construction tree line obscures the “lower down” telephone poles from view (unless you are actually driving the access road). Is the language a bit too broad? Is AWE’s true objection cost? If we imagine a community wind facility of 2-3 turbines, perhaps at some lower elevation, would PB still take the same position for the same reasons? An AWE type facility would be unlike anything else in Antrim, so without more compelling evidence than that we do have poles elsewhere submitted now (, or later as part of an application), I don’t see why PB should eliminate (or waive) some form of this requirement.

7.2.1 comment – PB should do its best to confirm that it has made a judgment consistent with whatever science and best community practice exist on this “__ x the total turbine height” standard. I checked back to my notes on the morning NEWEEP commentary by Christopher Senie (Senie & Associates, PC) , an attorney representing neighborhood groups in towns generally in the Cape Cod region, which say: “new emerging setback tool – 10 times rotor diameter.... Rebuttable presumption – that is what the Cape Cod Commission is coming to...” Am I correct that that would be a setback of more than a half mile, but less than ¾ mile, under a 10 times rotor diameter standard applied to a 425 ft. total height turbine? I suppose, if the PB were interested, “rebuttable presumption” language could be dug up. That would provide a release valve, but possible difficulties of administration.

With a __x total turbine height setback, there is no accusation of “subjective and vague”. The standard is certain, but, to them, still “unscientific”. Personally, I am not inclined to think the PB should remove some form of this standard, because although the acoustic

standards included undoubtedly seem more scientific, I suspect (just a guess on my part) that they will prove more difficult to administer and enforce.

7.2.2 and 7.2.2.1 comments – The PB must be reasonable (and will no doubt be practical) in interpreting the language in these provisions, but what appear to be relevant “receptors” will vary with the specific project proposed. It is not a question of changing rules, but giving them application in practice. That said, maybe the language could be sharpened a bit to have a little less “catch-all” quality.

These provisions do not refer to noise emissions, and I suppose that would underscore for AWE the possibility they fear of other sounds being mistaken in the mix. PB could check whether the ANSI or other acoustic study protocols somehow address this – this must be a general problem in doing an acoustic study. I don’t know whether Antrim has any, even rudimentary, planning or zoning provisions pertaining to noise in other contexts. I don’t see that an absence of residential subdivision or light manufacturing noise standards is a persuasive legal argument against including noise standards as part of a conditional use permit for an LWEF. For me, the only test is that the particular acoustics standards adopted be appropriate and workable as applied to LWEF use. IF THERE IS ANY CHANCE OF G-H BEING HELPFUL TO THIS END, THE TIME IS NOW.

7.2.2.2 comments – Here, as it is written, I tend to think PB may appear to overreach reasonable (and practical). Perhaps the intent was “the nearest property line of each property within ...” ? And if the PB thinks a setback of 9 x total turbine height should be adequate, as a rule of thumb, for turbines with a max total height of 450 feet, why would a baseline acoustics study with a scope of much more than, say, a mile or so really be needed -- unless the specific nature of the surrounding landscape or other factors suggests otherwise to the PB noise consultant as to any project? [Jackson, ME specifies a baseline study radius of twice the setback distance, which at 13 times turbine height there was probably about two miles. Was this the origin of the two mile radius?].

7.3.2 comments – AWE overstates: there is no zero impact standard intended, rather a standard of care taken to avoid adverse impact. Nonetheless, PB should consult someone knowledgeable – about how to define watershed for this purpose. PB will be obligated to give a reasonable interpretation to such a provision, but I think it would be better, if possible, to give a practical definition or substitute a less broad term from the outset.

7.4.1 and 7.4.2 comments - The standards are necessarily general and “not a science”, but will respond to evidence submitted and reasonable judgments made. And because they are general and not a science, as a practical matter, in my personal view, only compelling evidence would likely support a PB decision to deny a permit on the basis of these standards. PB could water them down, but should they want to do so?

8.2 comments – I do wonder the full reason AWE focuses such attention on this particular provision. The PB is here requiring an impact statement, which is informational, and is not purporting to review and decide, as part of this conditional use permit process, whether or not an applicant’s proposed LWEF may be connected to the

grid (or exactly how or on exactly what terms). As such, I cannot see that this is beyond PB powers. I think it is entirely reasonable, for instance, for the PB to be assured about interconnection before it issues a project permit for a LWEF. Approving a LWEF without appropriate grid interconnection is a blind-sighted waste of PB resources. Unless the PB consults further and learns, however, that the P.U.C will in fact endorse impact statements that it finds to be generally accurate and appropriate (apparently, in Maine, the equivalent agency does so), I think we should modify the PUC approval language. As AWE says, a project of theirs will be subject to study review by the transmission owner and/or the regional grid operator. I don't know whether or not it may be the case that the Town of Antrim might offer comments during such separate study review process(es), but those are certainly other forums. Perhaps, unless we know more definitively from PUC, substitute something like "the PB may consult the New Hampshire Public Utility Commission, a transmission owner, and/or the regional grid operator concerning the impact statement submitted, and[continuing as before]"?

8.3 comments – this language probably needs a little rewording. I don't think the PB intends zero impact standard, but rather should intend a standard of care in design and siting. On a quick look, so far as I could see, the Phillips ordinance just specifies a Flicker Analysis Report and seems thin on flicker result standards. Maybe it is useful to refer back to the Jackson, ME ordinance (even though a compendium of excessive length): see p. 5 definitions of Shadow Flicker and Flicker Receptor, p. 12 result standards at 13.3 (the two sentences of 13.3.1 should be integrated), and p. 47, item 15 on flicker modeling.

8.10.2 comments – same reactions as to 7.3.2 comments.

14.2 comments – 5 years as a term for a permit to operate feels right to me, although I suppose the PB could live with 10 years. I keep hearing/reading that LWEF projects are fully depreciated in about five years, and then often flipped and depreciated all over again. The VERA manager/consultant at Searsburg said emphatically that costs for their early adopter project had been entirely recouped in 10 years as originally budgeted, and that it had been "gravy" afterwards, and that after 15 years the project is still profitable. This is no ordinary dwelling or office building. A LWEF is a potentially dangerous instrumentality. What is being required to issue and renew a permit to operate here is very narrow. The reasons not to renew would have to be compelling indeed to withstand challenge. I am skeptical that a substantial and experienced commercial owner/operator would be prevented from financing. Iberdrola had significant enough assets to assure financing in Groton, even without a power purchase agreement in place. I quickly scrolled through Ellen C's interlineations on the 6-27 draft, which at that stage talked of a license, rather than permit, to operate, and she takes nary an objection.

14.5 comments – AWE greatly overstates: The Select Board cannot "arbitrarily" decide anything under the ordinance draft. The aspects of the ordinance draft AWE characterizes as subjective, namely in 7.1.2 and in 7.4.1 and 7.4.2, operate in the approval process and do not bear on a determination of default once a permit has been issued. Perhaps a more elaborate default provision could be developed, but surely AWE should not be arguing

that a default provision is inappropriate for significant permit violation. Presumably there will be default provisions contained in underlying leases, default provisions in power purchase agreements, etc., and projects are still financed.

15.2.1 – I think there is some appropriate scope of approval for the PB of private easements where otherwise applicable ordinance standards administered by the PB are being waived. Although I am not sure the PB has to spell that scope out further here (and it may be hard to anticipate every aspect), the PB does have to stick strictly to its proper role where it has said in the ordinance draft that such waivers are permissible. Typically, little more than legal review will be involved. See, for instance, p. 16 of the Phillips ordinance at 14.2.3 and pp. 12 and 50 of the Jackson ordinance at 13.4 and Appendix F.

Margaret Warner

Draft for Public Hearing August 27, 2011

**TOWN OF ANTRIM, NEW HAMPSHIRE
LARGE SCALE WIND ORDINANCE**

- 1.0 **Title.** This ordinance shall be known as the Town of Antrim, NH Large Scale Wind Ordinance.
- 2.0 **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 and general welfare, preserving environmental, historic and scenic resources, controlling noise levels and preventing electromagnetic interference. This ordinance provides a permitting process to insure compliance with requirements and standards established therein.
- 3.0 **Authority.** This Ordinance is adopted pursuant to the enabling provisions of NH RSA 674:16 and NH RSA 674:1, V. In addition, pursuant to the provisions of NH RSA 674:21, the Antrim Planning Board is hereby granted the authority to issue Conditional Use Permits for the construction or operation of Large Scale Wind Energy Facilities, including Meteorological Towers, in the Town of Antrim, subject to these provisions.
- 3.1 **Conflicts with Other Ordinances and Regulations.** If there is a conflict between provisions in this Ordinance or between a provision in this Ordinance and a provision of any other ordinance or regulation, this Ordinance shall apply.
- 3.2 **Validity and Severability.** 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.
- 4.0 **Effective Date.** This Ordinance shall become effective on the date of its passage.
- 5.0 **Applicability.** Wind Energy Facilities and Meteorological Towers as defined below are allowed to be constructed or operated in any district in the Town of Antrim after the effective date of this Ordinance, subject to all applicable federal, state, and local ordinances and regulations.
- 5.1 Meteorological (Met) towers are subject to the same process as Large Scale Wind Energy Facilities (LWEF) if the intent is to leave the towers in place permanently or for longer than three years. If the tower is intended to be temporary, the Planning Board may waive certain standards and requirements.
- 6.0 **Definitions. [Subject to change]**
- 6.1 **Ambient Noise** – Intermittent noise events present for at least 90% of the time.
- 6.2 **Blade Glint** – The intermittent reflection of the sun off the surface of the blades of a wind turbine.
- 6.3 **dB(A)** –
- 6.4 **dB(C)** –
- 6.5 **Large Scale Wind Energy Facility (LWEF)** – 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 structures accessory to the facility.
- 6.6 **Met Tower** – A meteorological tower used for the measurement of wind speed.
- 6.7 **Repowering** – To retrofit a LWEF to the latest technology in order to improve efficiency and capacity. Generally this involves the installation of a new generator or turbine.
- 6.8 **Setbacks** – The distance a LWEF is set back from abutting property lines.
- 6.9 **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 the immediate environment.
- 6.10 **Total Height** – When referring to a wind turbine or a LWEF, the height measured from the existing grade at its location to the top of the blade extended to its highest point.
- 6.11 **Tower Shadowing** – The outline created on the surrounding area by the sun shining on a wind turbine.
- 6.12 **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.

editing notations:
7.1.8
7.2.2.1
8.12

7.0 Standards.

7.1 Design, Manufacture, and Construction Standards

7.1.1 The design and manufacture of all meteorological towers, all wind turbines, and all other components of a LWEF shall conform to applicable national, state, and local standards for the wind industry, such as those established by the American National Standards Institute (ANSI), Underwriters Laboratories, and similar certifying organizations.

7.1.2 Height. Due consideration shall be given to the scale of the turbines in relation to the surrounding landscape, but in no case shall the height of a LWEF tower exceed 450 feet, as measured from the existing grade at the location to the highest tip of turbine blade.

why a distance shall exceed 450

7.1.2.1 Met towers must be less than 200 feet in height, and must be designed so as not to require lighting. Guy wires are allowed, but must be designed so as to limit environmental hazards to wildlife, especially birds and bats.

too restrictive underground lines may be preferred but not preferred

7.1.3 All collector lines and interconnect lines shall be buried. Underground power and transmission lines shall be buried at a depth consistent with state public utility engineering standards to prevent transient ground currents and stray voltage.

whenever feasible

7.1.4 A LWEF shall be equipped with a redundant braking system that includes both aerodynamic over-speed controls (including variable pitch, tip, and other similar systems) and mechanical brakes. Mechanical brakes shall operate in fail-safe mode. Stall regulation shall not be considered a sufficient braking system for over-speed protection.

7.1.5 LWEF towers shall be mounted on monopole towers with no guy wires.

7.1.6 The color of LWEF towers and Met towers shall be off-white or grey or some other unobtrusive color approved by the Planning Board.

7.1.7 LWEFs shall not be used to display signs or advertising except for signs at ground level identifying the turbine manufacturer, the LWEF Owner/Operator, emergency contact information, and appropriate warnings as required by national, state, and local laws.



7.1.8 **Blasting.** The Owner/Operator of an LWEF shall not undertake any blasting without notifying the Town of Antrim by telephone, followed by an email message for the record, and submitting a blasting plan at least one week prior to the next Planning Board meeting before when blasting is scheduled to begin. A pre-blasting inspection and documentation may be required. All blasting shall be in accordance with NH Chapter Saf-C 1600 standards. The blasting plan shall be reviewed and approved by the Antrim Planning Board before any blasting takes place. Notice shall be given to all residents within a two-mile radius of the blasting area (measured horizontally) by telephone and mail before blasting can begin.

the date

7.1.9 **Modification During Construction.** If at any time it appears necessary or desirable to modify the approved plans before or during construction of the LWEF, the Planning Board's designated agent is authorized to approve minor modifications due to unforeseen circumstances such as encountering hidden outcrops of bedrock or natural springs. The Board's agent shall issue any approval under this section in writing and shall transmit a copy of the approval to the Planning Board. Revised plans shall be filed with the Planning Board for the record. For major modifications such as relocation of rights-of-way or of LWEFs, changes in grade by more than 1%, the Applicant shall submit to the Planning Board an amended plan for review, approval, or ratification.

7.2 Public Health and Safety Standards

7.2.1 **Setbacks.** All LWEFs must be sited so as to satisfy the Setback Standards for the following: tower or turbine collapse, debris and ice throw, shadow flicker, and blade glint. Setbacks shall be no less than 1.5 times the maximum height of the wind turbine from the nearest property line. Wind Turbines shall be no less than nine (9) times the turbine height from occupied buildings. Additional setbacks may be required to meet noise standards.

This seems unreasonably restrictive -
And surely there should be some provision for abutters to waive
the distance, at the very least.
2 If this is included in waivers (15.2 ?) - then make a reference here

7.2.1.1 The applicant shall submit a graph of the required setback for each hazard as a circle for a single unit or as a series of connected arcs for multiple units 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.

7.2.2 **Acoustics.** Sound levels due to the operation of the LWEF shall not exceed levels set forth herein at property lines, structures, or other places/features in the Town of Antrim identified through the application process; additional consideration may be given to day, night, and summer levels, as well as impact on residences at abutting properties.

Acoustics for wind only? Are there national standards?

7.2.2.1 Emissions levels at property lines and/or structures shall not exceed 5 dBA above preconstruction ambient levels. DBC levels shall not be more than 25 dB above the measured dBA preconstruction ambient level.

only restrictive

is this appropriate?

7.2.2.2 Prior to permit application approval, a pre-construction ambient noise level study shall be conducted at each property line within 2 miles of any proposed wind turbine. Tests shall be conducted using both A weighted (dBA) and C weighted (dBC) scales. A 5 dBA penalty shall be applied for tonal noise. This is a single tone or limited frequency noise (vs. broadband noise) associated with mechanical noise artifacts (i.e. high pitched whining, screeching, buzzing).

7.2.2.3 All sound measurements shall be made by a professional acoustical engineer approved by the Planning Board who is a Full Member of the Institute of Noise Control Engineering (INCE) or who possesses some comparable qualification.

7.2.2.4 Except as specifically noted otherwise, sound measurements shall be conducted in compliance with the latest version of the American National Standards Institute (ANSI) Standard S12.18-1994 "Outdoor Measurements of Sound Pressure."

7.2.2.5 Sound level meters and calibration equipment shall comply with the latest version of ANSI Standard S1.4 "Specifications for General Purpose Sound Level Meters," and shall have been calibrated at a recognized laboratory within one year before the sound measurements are carried out.

7.3 **Environmental Standards**

7.3.1 **Environmentally Sensitive Areas.** The design, construction, and maintenance of a LWEF shall protect all environmentally sensitive areas that may be affected by its siting, or shall mitigate if protection is not practicable. Such areas shall include but not limited to wetlands, vernal pools, seeps or springs, steep slopes (equal to or greater than 15%), watersheds, flood plains, significant habitat for wildlife, fish, and plants. An application for a LWEF permit shall demonstrate appropriate measures for protecting and/or mitigating all such areas during both construction and operation of the LWEF.

Agree with Wes - if deemed should be accepted by the PB

7.3.2 **Water Quality Protection.** LWEFs shall be designed, constructed, and maintained so as to avoid adverse impacts to groundwater, including sand and gravel aquifers. The Planning Board may require that a pre-construction baseline study of all wells, springs, and public water sources within the watershed of the LWEF site be conducted by a water quality professional approved by the Planning Board.

this seems very extreme

7.4 **Visual Impacts.**

7.4.1 LWEFs shall be designed and located to minimize visual impacts from neighboring residential areas and public recreational and scenic areas.

7.4.2 All available mitigation techniques to reduce the visual impacts of the wind energy project to nearby residences and public use areas shall be considered.

7.4.3 In determining the visual impact of an LWEF the Planning Board shall take into consideration the following:

7.4.3.1 Whether the project violates a clear written standard intended to protect scenic values or aesthetics of a particular scenic resource.

Vague language

- 7.4.3.2 Whether the project dominates views from highly sensitive viewing areas or within the project area as a whole.
- 7.4.3.3 Whether the applicant took reasonable measures to mitigate significant or avoidable impacts of the project.

8.0 Requirements

- 8.1 **Hazardous Materials.** The Owner/Operator of any LWEF shall be responsible for compliance with all ordinances, regulations, and laws applicable to the generation, storage, cleanup, and disposal of hazardous materials resulting from the LWEF.
- 8.2 **Public Utility Impact Statement.** An application for a permit for a LWEF that will be connected to the Public Utility Grid shall include a Public Utility Grid Impact Statement documenting all anticipated changes to the public utility grid within the Town of Antrim due to the LWEF. The Statement shall be signed and approved by the New Hampshire Public Utilities Commission and shall include proof of leases or rights of way for transmission lines, and an analysis of the residual capacity in the grid that will be available to other local generating projects after the construction of the LWEF.
- 8.3 **Shadow Flicker.** A LWEF shall be designed and sited in a manner that does not result in 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 and in all cases shall not exceed 20 hours per year.
- 8.4 **Fire Prevention Plan.** An Application for an LWEF shall include a Fire Prevention and Fire Fighting Plan prepared by a licensed Fire Protection Engineer approved by the Planning Board.
 - 8.4.1 The plan shall include the incorporation of self-contained fire protection system in the turbine nacelle.
 - 8.4.2 The plan shall include a response plan to address all potential LWEF fire scenarios and include a list of hazardous materials that may be encountered, and provisions for any additional fire fighting or rescue personnel, services, training, materials, and vehicles as may be required to deal with any emergency related to the LWEF that is beyond the current capabilities of the Antrim Fire Department. Any associated costs to meet identified needs shall be fully borne by the Owner or Operator.
- 8.5 **Road and Property Risk Assessment.** An application for a permit to construct a LWEF shall include a Road and Property Risk Assessment prepared by a licensed engineer approved by the Planning Board. The assessment shall document road conditions prior to the construction of the LWEF, and again within thirty days after construction is complete. Any road damage determined by the engineer to have been caused by the applicant or his contractors shall be promptly repaired at the applicant's expense. The Town of Antrim may bond the roads in compliance with state regulations, and the bond is to be paid by the applicant prior to the transport of LWEF components.
- 8.6 **Wildlife Protection.** The application for a LWEF shall include a Wildlife Protection Plan based on pre-construction field studies designed and carried out by a qualified wildlife biologist approved by the Planning Board. Such studies shall describe the possible adverse effects of the LWEF on birds, bats, animals and their habitats, and shall propose remedies for these effects, all consistent with the studies recommended in the US Fish and Wildlife Service's "Wind Turbine Guidelines Advisory Committee Recommendations," dated March 4, 2010. *Provision for other recommendations as technology changes?*
- 8.7 **Hazardous Wastes.** The Owner/ Operator shall be responsible for compliance with all state and federal regulations applicable to the use and disposal of hazardous wastes involved in or generated by the LWEF's construction and operation. This responsibility shall extend to safe and lawful disposal of the by-products of any Acid Rock Testing and Mitigation Plan.
- 8.8 **Hazard Lighting Mitigation.** All LWEFs shall be designed and sited to minimize nighttime light pollution and shall not exceed the minimum requirements by the Federal Aviation Administration. Red lights shall be used in place of white whenever possible and shall be shielded to the greatest extent possible from viewers on the ground. An applicant for a LWEF shall provide a lighting plan showing all exterior building and ground lighting pertaining to the LWEF project.

Vague - what is adverse?

8.9 **Visual Impact Assessment.** Whenever a LWEF is proposed for a site that is visible from any of Antrim's scenic or special resources as identified in the Town's Master Plan and Open Space Plan, the applicant shall provide a Visual Impact Assessment that shall include at least the following:

- 8.9.1 A detailed project map.
- 8.9.2 A viewshed analysis map showing potential project visibility within the Town of Antrim based on the highest point of all project turbines at blade tip. The viewshed analysis should distinguish between potential visibility within open areas (e.g. meadows, marshes, water bodies) and forested areas. More detailed studies for individual turbines may be requested. Software specifically designed for viewshed analysis based on GIS should be used.
- 8.9.3 Photographic simulations shall be provided for potentially sensitive public viewpoints. The Planning Board may request that particular viewpoints be illustrated. Simulation photographs should 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 panorama view. The photograph shall be taken in optimal viewing conditions and be free of unnecessary distractions such as power lines or wires. Any visible roads, site clearing or other project infrastructure shall be depicted on the simulations.
- 8.9.4 The report shall identify all possible public viewing locations with a description of how the project would appear, how many turbines would be visible, and a photograph of the project ridge from each location. These locations could include the center of Town, public recreation areas, historic sites, and scenic sections of Town or State roads. Visibility of all project components, including roads, clearings resulting from regarding, and transmission lines shall be addressed.
- 8.9.5 *define "natural setting"* The report shall employ a standard visual impact assessment methodology for explaining what the visual impacts of the project would be and why these may be acceptable or unacceptable. Of particular concern are public recreation areas where there is an expectation of a natural setting. An indication of impacts to private residences shall also be discussed.
- 8.9.6 The report will identify all mitigation methods proposed by the applicant, if any, to address the potential visual impacts of the LWEF. These methods may include turbine relocation, reductions in turbine height or numbers, hazard lighting mitigation by employing audio-visual warning systems, underground placement of collector lines, or other methods.
- 8.9.7 The Planning Board may require additional mitigation measures to ensure that the project will not unduly impact the scenic resources of the town. *vague - subjective*
- 8.10 **Post Construction Studies.** Following completion of construction of a LWEF, studies to ascertain its actual effect on environmental resources shall be conducted by qualified professionals approved by the Planning Board, including but not limited to those described below.
 - 8.10.1 **Wildlife Protection Field Study.** Within three years of completion of a LWEF, a field study to ascertain any actual effects on wildlife shall be conducted by a qualified wildlife biologist, consistent with the US Fish and Wildlife Service's "Wind Turbine Guidelines Advisory Committee Recommendations," dated March 4, 2010. If these studies demonstrate adverse effects on wildlife caused by the LWEF, the Owner/Operator shall design and implement an appropriate mitigation plan to be approved by the Planning Board.
 - 8.10.2 **Groundwater Quality Study.** Within two years after completion of construction of a LWEF, a Water Quality study of all wells, springs, and public water sources within the watershed of the LWEF site shall be designed and carried out by a water quality professional. If degradation or contamination is found to have occurred, the Owner/Operator shall design and implement an appropriate mitigation plan to be approved by the Planning Board.
- 8.11 **Communication Interference.** LWEF's shall be designed and sited to prevent the disruption or loss of emergency or private radio, telephone, television, microwave, or similar signals. Any property owner in Antrim who believes that they are experiencing interference from the LWEF shall present their concerns

to the Planning Board, who will meet with all parties in an effort to resolve the issues, based on the Resolution Plan submitted with the application.

→ 8.12 **Notification of Extraordinary Event.** The Owner/Operator of ~~the~~ any LWEF shall notify the Select Board and Planning Board of any "extraordinary event" immediately or at the latest within 24 hours after that event. Extraordinary events shall include but not be limited to tower collapse, catastrophic turbine failure, fires, leakage of hazardous materials, unauthorized entry into a tower base, thrown blade or hub, injury caused by the LWEF, and any other event that affects public health and safety.

8.13 Inoperable or non-functioning wind turbines or met towers are to be repaired as soon as is reasonably feasible, with time being of the essence. The replacement turbine shall have the same or nearly identical visual characteristics as that being replaced or repaired.

8.14 **Financial Assurance**

8.14.1 The Owner/Operator of a proposed LWEF shall provide evidence satisfactory to the Planning Board that the project is financially viable and that adequate financial resources are in place or will be in place prior to the Planning Board's issuance of an approval and permit. Evidence of financial viability shall include but not be limited to the following submissions:

- A detailed budget for the construction of the LWEF.
- Acceptable written evidence of adequate financing to complete all aspects of the construction.
- Acceptable written evidence of long-term power purchase contracts.
- Acceptable written evidence of adequate funding to support the cost of decommissioning as specified in Section 11 of this Ordinance.

8.14.2 The Owner/Operator of a LWEF or the property owner, as applicable, shall maintain insurance at all times and in a form and amount acceptable to the Planning Board and Select Board. Acceptable evidence of adequate insurance coverage shall be provided prior to the issuance of an approval and permit to operate. A copy of the policy describing coverage, effective and expiration date, and the policy's deductible, shall be provided. No construction of any kind may begin without evidence of acceptable insurance as described above. Thirty (30) days prior to the expiration date of the policy's scheduled expiration date, a current Certificate of Insurance will be provided to the Select Board. All material changes or modifications to insurance coverage, including increases to the deductible allowance, will require Select Board approval.

9.0 **Tax Impact Statement.** Prior to the issuance of a Permit to Operate, the Owner or Operator shall submit to the Planning Board a tax impact statement that provides an estimate of the annual tax impact to the taxpayers of Antrim over the expected life of the LWEF.

9.1 The Tax Impact Statement shall include an assessment of projected property valuations based on the likely value of the LWEF.

9.2 Any beneficial representations made to the Town by the applicant will be considered a condition of approval.

10.0 **Property Valuation.** After approval to construct, if requested by a property owner in Antrim, the Owner or Operator shall meet with the property owner for the purpose of discussing the property owner's concerns relative to the property valuation effects of the LWEF on the property owner's property.

11.0 **Decommissioning.** The Owner/Operator of a LWEF shall be fully responsible for the complete decommissioning of the LWEF within 12 months after it ceases to generate electricity or its permit to operate has been revoked, subject to the following.

11.1 Decommissioning shall include removal and disposal off-site of all parts of the LWEF (including foundations) in accordance with local, state and federal laws and regulations, and the re-vegetation with native vegetation of the area according to a Site Restoration Plan.

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- 11.2 A NH Licensed Professional Engineer approved by the Planning Board and paid by the Applicant shall estimate the total cost to decommission the LWEF without consideration of the salvage value of the parts, materials, or equipment. The amount of this estimate shall be the dollar amount of the bonding required at or prior to the date of issuance of formal approval by the Planning Board.
 - 11.3 No approval will be granted nor permit issued for a LWEF until such time as a Decommissioning Fund, in form and amount acceptable to the Planning Board and Select Board, has been established. Decommissioning Funds may take the form of cash, a Reclamation Bond issued by an insurance company with a Best Rating acceptable to the above stated municipal boards or an Irrevocable Letter of Credit issued by a bank authorized to conduct business in the State of New Hampshire and acceptable to the above stated municipal boards.
 - 11.4 Estimates of decommissioning expense shall be updated annually prior to the anniversary date of the granting of a LWEF Permit, and the Owner/Operator of the LWEF shall be required to maintain Decommissioning Funds that are at least equal to the most recent estimate. Failure to update the cost of decommissioning annually shall constitute a default under the terms of approval.
 - 11.5 Decommissioning funds may be in the form of a performance bond, surety bond, letter of credit or other form of financial assurance acceptable to the Planning Board.
 - 11.6 If the Owner/Operator of the LWEF does not complete Decommissioning within the timeframe prescribed, the Town of Antrim may institute such legal action as may be allowed (including court action) to gain control of the Decommissioning Fund and to ensure to the extent that the Fund balance may allow, to complete or substantially complete, the Decommissioning requirement.
 - 11.7 The Select Board and Planning Board, as joint Escrow Agents, may not release or reduce the amount of an established Decommissioning Fund where the Town is listed beneficiary of said Fund, without an affirmative vote, properly conducted and noticed, by both Boards. A detailed written request with a well-defined justification must be submitted by the Owner/Operator prior to the vote. The decision on the request will be provided to the Owner/Operator in writing within sixty (60) days of receipt of said request.
- 12.0 **Application Procedure.**
- 12.1 Applications for new and replacement LWEFs shall be filed and processed in accordance with the Town of Antrim Subdivision and Site Plan Review Regulations. The application for a Conditional Use Permit may be filed and processed concurrently with the Site Plan.
 - 12.2 A LWEF is deemed to have regional impacts, therefore the procedure shall include notification as per NH RSA 36: 54-57.
 - 12.3 **Submission Requirements.** In addition to the submission requirements for a Site Plan Review, applicants for a LWEF shall submit the following:
 - 12.3.1 Plans prepared and stamped by a professional engineer licensed in New Hampshire that show the location, shape, size, design and height of all proposed components of Met Towers and LWEF, including the proposed access to the project site and associated transmission lines.
 - 12.3.2 A location map to scale of current and planned land uses within the project boundary and a one-mile radius beyond the project boundary prepared by a NH licensed land surveyor.
 - 12.3.3 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.
 - 12.3.4 Historical, Cultural, Archeological Resource Map prepared by NH licensed land surveyor.
 - 12.3.5 Environmental Resource Map prepared by a qualified NH licensed land surveyor.
 - 12.3.6 Intended period of data collection for the Met Tower.
 - 12.3.7 Certification of the non-reflecting properties of the external surfaces of the LWEF.

- 12.3.8 Calculations and supporting data for all setbacks for each turbine.
 - 12.3.9 List of property owners whose property wholly or in part falls within the setback areas.
 - 12.3.10 Studies and Reports as required by the Planning Board, including but not limited to the following. The cost of any required study, report, plan, mitigation effort, or other work required to be done by the Planning Board is the full responsibility of the applicant.
 - 12.3.10.1 Public Utility Impact Statement
 - 12.3.10.2 Fire Protection Plan
 - 12.3.10.3 Road and Property Risk Assessment
 - 12.3.10.4 Wildlife Protection Plan
 - 12.3.10.5 Visual Impact Assessment
 - 12.3.10.6 Financial Assurance Documentation
 - 12.3.10.7 Tax Impact Statement
 - 12.3.11 A 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.
 - 12.3.12 A Site Restoration Plan including the elimination of all roads constructed to gain access to the site.
 - 12.3.13 Any other information deemed necessary by the Board in order to make an informed decision.
- 13.0 **Repowering.** When a LWEF is planned for a retrofit, the Owner/Applicant must apply to the Planning Board for approval before the LWEF may be repowered.
- 14.0 **Permit to Operate.**
- 14.1 Following construction of a LWEF, before commencing operation, the Owner/Operator shall apply to and receive approval from the Planning Board for a Permit to Operate. The application shall include the following:
 - 14.1.1 An Inspection Report prepared and signed by a NH licensed structural engineer certifying the structural and operational integrity of the LWEF, 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.
 - 14.1.2 Decommissioning Bond.
 - 14.1.3 Financial Assurances.
 - 14.1.4 A signed statement that the Applicant has read this Ordinance, understands all its provisions, and agrees to abide by them.
 - 14.2 A Permit to Operate shall be valid for five (5) years. Application for renewal requires Planning Board review and approval at a public hearing. All documentation submitted for the original Permit must be submitted for each renewal, including any readjustments necessary to ensure that the Decommissioning Bond is sufficient for current estimated costs.
 - 14.3 Applications for a Permit to Operate or a Renewal Permit will be heard at the next regularly-scheduled Planning Board meeting for which adequate legal notice has been posted.
 - 14.4 A Permit to Operate is not transferable to a new owner or operator. Upon transfer of the property/LWEF, the new Owner or Operator shall apply to the Planning Board for a new Permit to Operate.
 - 14.5 A Permit to Operate shall be revoked and the LWEF required to cease operations if the Select Board determines that there is a violation of any provision of this ordinance or other applicable regulations.

The Permit shall not be reinstated until the Select Board is assured at a duly-noticed public hearing that all violations have been corrected.

15.0 Administration and Enforcement

- 15.1 This ordinance shall be administered by the Planning Board and enforced by the Select Board or its designated agent(s).
- 15.2 In the issuance of the Conditional Use Permit, the Planning Board may attach reasonable conditions to an approval that it deems necessary to minimize any burden on any person affected by the proposed LWEF. The Planning Board also may waive or modify the standards or requirements of this Ordinance only if the Board finds by majority vote following the public hearing that specific circumstances relative to the proposal or peculiar conditions pertaining to the land in question indicate that the waiver will not be contrary to the public interest and will properly carry out the spirit and intent of this Ordinance.
- 15.2.1 Any landowner may grant a permanent easement or waiver to the Owner/Operator for any impacts of the LWEF on their property (for example, setbacks, shadow flicker, etc.). The terms of the easement or waiver shall be part of the public hearing process, and shall be recorded in the Registry of Deeds. Upon receipt of the permanent easement or waiver, the Planning Board shall review such instrument and no construction shall begin until the Planning Board approves the easement or waiver.
- 15.3 Third Party Review. Pursuant to NH RSA 676:4-b, the Planning Board is authorized to require an applicant to reimburse the Board for expenses reasonably incurred by obtaining third party review for review and consultation during the review process, or for inspections during the construction phase, or for any post-construction inspections.
- 15.4 Inspections and Monitoring. The Planning Board and/or its designee may enter the site of a completed LWEF for the purpose of assuring compliance, investigating complaints, or assessing potential future occurrences or hazards that could arise. In such a case, the Board will provide the Owner/Operator with 48-hour telephone notice, followed by email notification for the record.
- 15.5 Violations and Penalties. Upon receipt of any convincing information, either written or verbal, the Select Board or its designated agent may institute appropriate corrective action. The Board or its designated agent will notify the Owner/Applicant in writing of the violation, the action needed to correct it and the timeframe for correction. If the violation is not corrected, the Select Board or its designated agent is authorized to take any action it deems appropriate by the authority provided under NH RSA 676:17.
- 15.6 Grievances. In the event an Antrim citizen has a grievance resulting from the operation of a permitted LWEF, the citizen may bring the issue before the Select Board for redress.
- 16.0 **Appeals.** Any person aggrieved by any decision made by the Planning Board in administering this Ordinance may appeal to the New Hampshire superior court, as provided in RSA 677:15.

Town of Antrim, NH Large Scale Wind Ordinance - Public Hearing August 27, 2011

Requested changes/alterations/additions identified by page number and ordinance sections as outlined in *Draft for Public Hearing August 27, 2011. Submitted by Peter Moore - Resident*

Page 1 – Section 5.0 *Applicability*

Change: “...constructed or operated in any district in Town of Antrim...” and replace with “...constructed or operated in all zoning districts in Town of Antrim except the Residential, village Residential and Lakeside Residential districts where construction and operation of LWEF will not be allowed.”

Page 2 – Section 7 *Standards - 7.1 Design, Manufacture, and Construction Standards*

Subsection 7.1.3

Add to: “All collector lines and interconnect lines shall be buried, except where ledge and bedrock are present within 1-3 feet of surface, in which case proper on-surface conduit shall be used.”

Subsection 7.1.8

Add to: (at end of subsection paragraph) “The cost of all mail, telephone, and published public notices to be borne by the applicant/operator/owner.”

Page 3 – Section 7 *Standards - 7.3 Environmental Standards*

Subsection 7.3.1 *Environmentally Sensitive Areas*

Add to: (at end of subsection paragraph) “Special consideration, identification, mitigation, and/or terrain alteration avoidance plans shall be made for unique geological areas to include talus slope, narrow rocky ridge, and large glacial erratic formations/features.”

Page 4 – Section 7 *Standards - Subsection 7.4 Visual Impacts*

Subsection 7.4.3 Sub-paragraph 7.4.3.3

Add to: (at end of subsection paragraph) “...avoidable impacts of the project, to include but not limited to unnecessary alteration of terrain at LWEF site.”

Page 4 – Section 8 *Requirements*

Subsection 8.8 Hazard Lighting Mitigation

Add to: (at end of subsection paragraph) *“At such time that better, less intrusive hazard lighting technology becomes available, Planning Board may require owner operator to upgrade to LWEF to such standards.”*

Page 5 – Section 8 *Requirements*

Subsection 8.10 *Post Construction Studies* – Sub-paragraph 8.10.1 *Wildlife Protection Field Study*

Add to: *“...a qualified wildlife biologist, approved by the Planning Board...”*

Page 6 – Section 8 *Requirements*

Add subsection 8.15 *Managerial and Operational Expertise Assurance Plan*

To include who the operator will be, what is their companies managerial and operational expertise, what procedures will be used to inspect, maintain and mitigate ongoing degradation and security of LWEF site, identification of contractors and sub-contractors for this work, etc.

Page 6 – Section 11.0 *Decommissioning* Subsection 11.1

Add to: *“...removal and disposal of all parts of the LWEF (including foundation to 1 foot below ground surface only) in accordance with local, state and federal laws and requirements...”*

Page 8 Section 12 *Application Procedure* Subsection 12.3.10 *Studies and Reports*

Add Studies and Reports to include as listed:

12.3.10.8 Terrain Alteration Plan

12.3.10.9 Managerial and Operational Plan

12.3.10.10 Decommissioning Plan

Page 9 Section 15.0 *Administration and Enforcement*

Add Subsection 15.7 to state:

“All principals, owners, contractors, subcontractors, and employees of the owner/operator of any LWEF located in the Town of Antrim shall be provided by name and position as part of the public record, prior to, during and throughout the duration of the operation of such facility.” (if allowable by law)

Peter Moore
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