

Town of Greenwood
Ordinance Review Committee Meeting Minutes
March 1, 2018

Item 1: Call the Meeting to Order/Determine quorum – Chair Merlino called the meeting to order at 5:30pm.

Larry Merlino, Chairman
Brad Payne, Secretary
Jim St. Germain
Dennis Doyon
Becky Secrest

Kim Sparks, Recording Secretary
John Maloney, AVCOG

Absent:
Jessie Frederickson
Rob Lally
Tyler Bennett

Chair Merlino asked for nominations for a Vice Chair. Brad nominated Becky for Vice Chair. Seconded by Chair Merlino. Vote 5-0. Becky is the Vice Chair.

Item 2: Comments from the Citizens/Public

Ed Rosenberg – property owner: Ed stated that he wanted to clarify a comment that was made at the last meeting about the State expedited process and that every Town was part of the expedited process unless the Town had an ordinance to ban commercial wind turbines. Ed asked if the Committee was going to mention in the ordinance the view/scenic areas that are not presently listed in the Comprehensive Plan. Ed explained that there have been new trails and new access to areas since the Comprehensive Plan was written and these should be areas that are protected and eventually added to an amended Comprehensive Plan. Ed stated that he would like to have Payne’s Ledge included in the listing as the views from there would be looking over the Greenwood Road towards Elwell and Tebbets Mountains. Ed stated that the Town of Sumner’s Wind Ordinance had a section on mitigation waivers and he thought that would be a good thing for the Committee to consider. Ed explained that when one of these waivers is completed the property owner must register the waiver with the Town within 30 days. Ed explained that this in turn would give the Town a heads up that there are plans for future development.

Item 3: Comments from Committee - None

Item 4: Review Minutes of February 15, 2018 – Minutes were read and accepted as presented. Vote 5-0. Minutes approved.

Item 5: Review and decide on changes submitted by John Maloney to date:

The Committee reviewed the highlighted areas of the draft with John Maloney. Changes and questions are noted in blue print below. John will make the discussed changes and Kim will check with Mike Bahtairian on Sound Pressure definitions.

**Town of Greenwood, Maine
Site Plan Review Ordinance
Proposed Amendments
Commercial Wind Energy Facilities
February 15, 2018 Draft**

March 1, 2018 Draft

[Changes from February 15, 2018, Committee review in yellow italic type]

**Prepared By
Town of Greenwood, Maine Ordinance Committee**

Amend Section 1-401.3.D.1, Additional Information for Commercial Wind Energy Facilities/Decommissioning plan, as follows:

1. Location map, **including lot and map numbers**, showing the boundaries and owners names of the proposed facility site, **and** all contiguous property under total or partial control of the applicant or participating landowner(s), **and** any scenic resource **to be impacted by CWEF**, or historic site within **one (1) mile 1,000 feet of any disturbed area the proposed development facility site associated with the CWEF.**

*Becky motioned and Brad seconded to accept this wording as presented. Vote 5-0.
Changes were approved.*

Amend Section 1-401.3.D.9, Additional Information for Commercial Wind Energy Facilities/Decommissioning plan, as follows:

1-401.3.D.9 **A preliminary** decommissioning plan **that includes the following.**

1. **Methods to remove all parts of the CWEF including foundations and how they will be disposed of.**
2. **Areas and the methods to restore disturbed land areas.**
3. **Estimated time period (months) to complete decommissioning.**
4. **Estimated cost for decommissioning in accordance with Section 1-7-701.3.S.4.**

Amend Section 1-401.3.D.12, Additional Information for Commercial Wind Energy Facilities/Decommissioning plan, as follows:

- 1-401.3.D.12. **Audible** sound **and** **Infrasound** level analysis, prepared by a qualified engineer**(s)**.

Amend Section 1-401.3.D, Additional Information for Commercial Wind Energy Facilities, by adding the following:

17. The name, telephone number, and E-mail address of the CWEF owner's/operator's contact person that is responsible to respond to public inquiries and/or complaints.

18. A copy of the owner's/operator's public inquiry/complaint response protocol.

Amend Section 1-701.3.K, Control of Noise, as follows:

K. Control of Noise

1. **Audible** Sound Level Limits

a. Sound from Routine Operation of Facility.

Notwithstanding Section 1-601.2.R the hourly sound levels resulting from routine operation of the CWEF and measured in accordance with the measurement procedures described in subsection 4 (Measurement Procedures) shall not exceed the following limits:

i When a proposed facility is to be located in an area where the daytime pre-development ambient hourly sound level at a protected location is equal to or less than ~~45~~35 dBA and/or the nighttime pre-development ambient hourly sound level at a protected location, is equal to or less than ~~35~~25 dBA, The hourly sound levels resulting from routine operation of the facility and measured in accordance with the measurement procedures described in section 4 shall not exceed the following limits at ~~that protected location~~ **non-participating landowner's property lines**:

~~55-35~~ dBA between 7:00 a.m. and ~~7:00 11:00~~ 10:00 p.m. (the "daytime hourly limit"), and

~~42~~ 25 dBA between ~~7:00 11:00~~ 10:00 p.m. and 7:00 a.m. (the "nighttime hourly limit").

All were in favor of this change.

For the purpose of determining whether a protected location has a daytime or nighttime pre-development ambient hourly sound level equal to or less than ~~45~~ 35 dBA or ~~35~~ 25 dBA, respectively, the Applicant shall make sound level measurements in accordance with the procedures in section 4.

~~(b)(iii) For short duration repetitive sounds which the Planning Board finds that due to their character and/or duration, are particularly annoying or pose a threat to the health and welfare of nearby neighbors, 5 dBA shall be added to the observed levels of the short duration repetitive sounds that result from routine operation of the facility for the purposes of determining compliance with the above sound level limits, and the maximum sound level of the short duration repetitive sounds shall not exceed the following limits:~~

~~At any protected location in an area for which land use is not predominantly commercial, transportation, or industrial: ???????~~

~~65 dBA between 7:00 a.m. and 7:00 11:00 p.m., and 55 dBA between 7:00 11:00p.m. and 7:00 a.m.????~~

All were in favor of removing this (b)(ii).

b. Sound from Construction of a Facility

This section, John Maloney will work on the wording. Changing 10:pm to 7pm – and outside of those hours 7pm to 7am sound levels would be back to the 25/35 levels.

- i. The sound from construction activities between **7:00 11:00 p.m. and 7:00 a.m. and 10:p.m.** is subject to the following limits:
- ii **Notwithstanding Section 1-601.2.R** Sound from construction activities between **7:00 a.m. and 7:00 11:00 10:00 p.m.** shall not exceed the following limits at any protected location:

Duration of Activity Hourly Sound Level Limit

Questions

12 hours	87 dBA?????
8 hours	90 dBA?????
6 hours	92 dBA?????
4 hours	95 dBA?????
3 hours	97 dBA?????
2 hours	100 dBA?????
1 hour or less	105 dBA???????

Questions

Section 1-601.2.R For Information

Sound Pressure Level Limits Using the Sound Equivalent Level of One Hour (leq 60) (measured in dB(a) scale)

7a.m. - 10p.m. 10p.m. - 7a.m.

Residential	55	45
Commercial	65	55
Industrial	70	70

Note: Residential, commercial and industrial above refers to the predominate nature of land use in the vicinity of the proposed project.

2. Noise shall be measured by a meter set on the A-weighted response scale, fast response. The meter shall meet the American National Standards Institutes (ANSA SI 4-1961) "American Standard Specification for General Purpose Sound Meters."

3. The following uses and activities shall be exempt from the sound pressure level regulations.

a. Noise created by construction and temporary maintenance activities between 6:30 a.m. and 8:00 p.m.

Change 6:30am to 7am and 8pm to 7pm

4. Measurement Procedures

b. Measurement Criteria

ii Measurement Instrumentation

(a) A sound level meter or alternative sound level measurement system used shall meet all of the Type 1 or 2 performance requirements of American National Standard Specifications for Sound Level Meters, ANSI S1.4-1983 **and as revised**.

(b) An integrating sound level meter (or measurement system) shall also meet the Type 1 or 2 performance requirements for integrating/averaging in the International Electrotechnical Commission Standard on Integrating-Averaging Sound Level Meters, IEC Publication 804 (1985) **and as revised**.

- (c) A filter for determining the existence of tonal sounds shall meet all the requirements of American National Standard Specification for Octave-Band and Fractional Octave-Band Analog and Digital Filters, ANSIS 1.11-1986 for Order 3, Type 3-D performance **and as revised**.
- (d) An acoustical calibrator shall be used of a type recommended by the manufacturer of the sound level meter and that meets the requirements of American National Standard Specification for Acoustical Calibrators, ANSI S1.40-1984 **and as revised**.

iv Measurement Location, Configuration and Environment

- (b) For determining compliance with the ~~75 dBA~~ property line hourly sound level limits described in subsection 1.a.i, measurement locations shall be selected at the property lines of the proposed facility or contiguous property owned by the Applicant, as appropriate.
- (c) The microphone shall be positioned at a height of approximately 4 to 5 feet above the ground, and oriented in accordance with the manufacturer's recommendations. ***[Question: 50', sensors, talk to Bahtiana about 4 to 5 feet.]***
Leave at 4 to 5 feet.
- (f) Measurement periods shall be avoided when the local wind speed exceeds 12 mph and/or precipitation would affect the measurement results. ***[Question on 12 mph]***
Add language: wind speeds are the ones at which the Wind Turbine is shown to produce the highest sound level based on vendor testing.

c. Measurement of Ambient Sound

i. Pre-development Ambient Sound

- (a) Measurements shall be made at representative Protected Locations for periods of time sufficient to adequately characterize the ambient sound. At a minimum, measurements shall be made on three different weekdays (Monday through Friday) during all hours that the facility will operate. If the proposed facility will operate on Saturdays and/or Sundays, measurements shall also be made during all hours that the facility will operate. **[Question made at representative Protected Locations.]**

All ok with this.

5. Infrasonic

a. Infrasonic Level Limits

No wind turbine(s) shall produce an infrasonic pressure level, which is 6 dB higher than the background infrasonic pressure level at the primary blade pass frequency and blade-pass frequency harmonics. All measurements are taken on any protected adjacent residentially used property, or on adjacent protected land. where residential use is feasible based on suitability.????? Measurements inside a building or residence may be performed assuming the building owner allows access.

[Question: On adjacent protected land?] add a period after land and delete where residential use is feasible based on suitability.

b. Measurement Personal Qualifications

i All persons conducting sound pressure measurements to assess compliance with this standard shall be trained in the current techniques and principles of sound measurement equipment and instrumentation, and shall take such measurements under the supervision of a qualified acoustical engineer as described herein.

ii A qualified acoustical engineer shall be either a degreed engineer practicing acoustical engineering for 10 years or more as long as the engineer works for a firm that is a member of the National Council of Acoustical Consultants (NCAC), a board-certified member of the Institute of Noise Control Engineering (INCE Bd. Cert.) or a licensed professional engineer (PE) with an acoustical focus.

Instrumentation

- i **Infrasound pressure level measurements shall be performed with appropriate equipment that is properly calibrated to industry standards, as described below. The microphone shall have a frequency response that is less than or equal to 0.5 hertz (i.e. an infrasonic microphone). The measurement system shall be able to collect electrical signals from the microphone and perform a Fast Fourier Transform (FFT) of the signal with a frequency range of 0 to 20 hertz with a resolution of 0.1 hertz or less (\geq 200 lines).**
- ii **The instrumentation shall also be compatible to a Type 1 sound level meter. All test instrumentation shall be field calibrated with acoustic calibrator or pistonphone in the audible frequency range (typically 1,000 hertz). All instrumentation and the acoustic calibrator shall be laboratory calibrated to NIST traceable standards within the previous 12 months. All such instruments shall conform, as a minimum, to the specifications of American National Standard ANSI S1.4—1983 (R2006 and as revised) for Type 1 precision sound-level meters.**

c. Measurement Procedure

- i **The instrument manufacturer's specific instructions for the configuration and use shall be followed. The microphone or sound-level meter shall be calibrated before and after each survey period.**
- ii **With the wind turbines operating and producing at least 85% of full power, a series of three sequential measurements shall be taken at each location. Each measurement shall be for a period no less than three-minutes consisting of no less than ten “FFT” averages. If there are multiple locations to survey, each locations shall be measured three times. If there is only one location, it shall be measured nine times by series of three measurements with ten-minute break between each series of three measurements for a total of nine measurements.**
- iii **Background infrasound pressure levels shall be measured with the wind turbine shut down at all locations for at least one series of three measurements. If the wind turbine cannot be shut down, a reference location shall be measured for at least one series of three measurements. [Question: Why can't a wind turbine not be shut down?]**
Remove If the wind turbine cannot be shut down, a reference location shall be measured for at least one series of three measurements.
- iv **The actual measurement location(s), date and time of survey(s) and specific wind/weather conditions shall be defined by the Town of Greenwood.**

Amend Section 1-701.3.M, Safety Setbacks, as follows:

- M. **Safety Height and** Setbacks

~~Wind turbines shall be set back, at a minimum, a horizontal distance equivalent to 150% of the turbine height from property boundaries, public and private rights-of-way and overhead utility lines that are not part of the proposed generating facility, regardless of the municipality in which located, except that the Planning Board may allow a reduced setback if the Applicant submits, in writing a legally binding waiver of the property boundary setback signed by the pertinent abutting landowner.~~

1. Height

The maximum turbine height shall not exceed 250 feet as measured from the surface (top) of the tower base to the highest point of any turbine rotor blade measured at the highest arc of the blade.

2. Setbacks

The minimum setback from any tower to a non-participating landowner's property line shall be a minimum of one (1) mile, measured horizontally per 100 feet of tower height, or portion thereof.

Amend Section 7-701.3.R, Public Inquiries and Complaints, as follows:

R. Public Inquiries and Complaints

~~1. The Applicant or its designee shall maintain a phone number and identify a responsible person for the public to contact with inquiries and complaints throughout the life of the CWF.~~

~~2. The Applicant or its designee shall provide the Code Enforcement Officer with a written notice that a complaint has been received within 10 days of its receipt.~~

~~3. Then within 20 days of the date that the applicant or its designee received the complaint the applicant or its designee shall provide the Code Enforcement Officer with written notice of how the complaint was responded to.~~

1. CWF public inquiries and/or complaints shall be made as follows.

a. **By completing a public inquiry and complaint form found on the Town of Greenwood, Maine web site (www.greenwoodmaine.org), or**

b. **By completing a public inquiry and complaint form at the Town of Greenwood, Maine town office (593 Gore Road) during normal office hours.**

2. Receipt of CWF public inquiries and/or complaint

Upon a receipt of a public inquiry and/or complaint the Town shall.

a. **Notify the inquiry and/or complainant that a public inquiry and/or complaint have been received.**

- b. Forward by E-mail and US Mail or other acceptable means to the CWEF owner/operator's contact person that is responsible to respond to public inquiries and/or complaints, the public inquiry and/or complaint form.
 - c. Place in the appropriate file for public inspection the public inquiry and complaint form.
3. Responsibility of the CWEF owner/operator
- a. Within seventy-two (72) hours the owner/operator's contact person, that is responsible to respond to public inquiries and/or complaints, shall provide a response to the Town and the person filing public inquiry and/or complaint in accordance with the approved public inquiry/complaint response protocol.
4. Responsibility of the Town
- a. The Town shall attach to the appropriate public inquiry and complaint form the response of the owner/operator.
 - b. Within one (1) week of the receipt by the Town of the response from the owner/operator, the Town shall contact the person that made the inquiry and/or complaint to assess if he/she is satisfied with the response based on the approved public inquiry/complaint response protocol, Town Ordinances and conditions of and CWEF approval.
 - c. The Town within one (1) week shall forward to the owner/operator's contact person, that is responsible to respond to public inquiries and/or complaints, the results of the assessment as identified in b above.
 - d. If the Town, within fourteen (14) days, of the actions provided in Sections 3.a and 4.b determines that the complaint is without merit, it will be dismissed, and the Town will inform the complainant and the Owner/Operator.
 - e. The Town may convene a meeting with the Town, the owner/operator, and person filing the inquiry and/or complaint to attempt to reach a resolution if such actions as identified in 3.a and 4.a-c above have not resolved the complaint. If such a meeting is convened it shall be held within forty-five (45) days of the receipt of the original public inquiry or complaint by the Town.

Amend Section 1-701.3.S, Decommissioning, as follows:

S. Decommissioning and Abandonment

- 1. The CWEF shall be decommissioned within twelve months after it ceases to generate electricity, is abandoned, or ~~after any permit has been revoked as the result of legal action as provided for in Section 1-110.2.~~

2. Final Decommissioning Plan

At least six (6) months from the anticipated start date of decommissioning the owner of the CWEF shall submit to the planning board a final decommissioning plan for review and approval. The final decommissioning plan shall include but not limited to the following.

- a. Anticipated start date of decommissioning.
- b. Anticipated completion date of decommissioning.
- c. Methods to remove all parts of the CWEF including foundations and how they will be disposed of.
- d. Areas and the methods to restore disturbed land areas.
- e. Time period (months) to complete decommissioning.
- f. Cost for decommissioning based on Section 1-701.3.S.4.

Copies of all permits from local, state, and/or federal agencies needed for decommissioning.

3. Decommissioning shall include removal and disposal off-site of all parts of the CWEF (including foundations) in accordance with local, state and federal laws and regulations. Areas of disturbed earth shall be graded, reseeded, or otherwise re-vegetated, unless the landowner of the affected land requests otherwise in writing.

24. A Maine Licensed Professional Engineer shall be retained by the Planning Board and paid for by the Applicant to estimate the total cost of decommissioning ~~less salvage value of the equipment~~ and itemization of the estimated major expenses, including the projected costs of measures taken to minimize or prevent adverse effects on the environment during implementation of the decommissioning plan. The itemization of major costs may include, but is not limited to, the cost of the following activities: turbine removal, turbine foundation removal and permanent stabilization, building removal and permanent stabilization, transmission corridor removal and permanent stabilization and road infrastructure removal and permanent stabilization

35. No permit for a CWEF shall be issued until decommissioning funds have been posted by the Applicant with a bonding company or a Federal or State-chartered lending institution (the Escrow Agent) authorized to conduct such business in the State of Maine and approved by the Selectmen. Permit shall be valid for ~~two (2)~~ five (5) years subject to renewal as described in item ~~d-5~~ following below.

45. Estimates as described in section ~~2-4~~ above shall be redone every ~~two~~ five years on the anniversary of the granting of a CWEF Permit and shall be submitted to the Town. Upon acceptance of the revised estimates, the ~~Town~~ Planning Board will issue a ~~two (2)~~ five (5) year permit extension. The owner/operator of the CWEF shall be required to maintain decommissioning funds that are at least equal to the most recent estimate

- 56.** Decommissioning funds may be in the form of a performance bond, surety bond or other form of financial assurance acceptable to the Selectmen.
- 67.** If the owner/operator of the CWEF does not complete decommissioning within the prescribed time period the Town may take such action as necessary (including court action, with all legal costs to be paid by applicant) to secure the posted decommissioning funds and to ensure completion of the decommissioning.
- 78.** The Escrow Agent shall not release the decommissioning funds except upon written approval of Selectmen.

9. In the case of abandonment the Town shall utilize the decommissioning funds to decommission the CWEF and take such action as necessary, including court action, to secure funds and to ensure completion of the decommissioning should the posted decommissioning fund not be sufficient to complete decommissioning.

Amend Section 1-112, Definitions, as follows:

1-112 DEFINITIONS

Abandonment-Commercial Wind Energy Facility: no power has been generated and sold for a continuous twelve (12) month period.

Background Infrasound Pressure Level: The infrasound pressure level with the subject wind turbine(s) not operating.

Blade-Pass Frequency: operational speed of the wind turbine in revolutions per minute (rpm) divided by sixty, times the number of blades. For example, a wind turbine that operates at 14 rpm with three blades will have a blade pass frequency of 0.7 hertz.

Harmonics: Integer multiples of a primary frequency. For example, the primary blade pass frequency of 0.7 hertz would have harmonics at 1.4, 2.1, 2.8 and $N \times 0.7$ hertz where N is 2 through infinity. The practical limit of harmonics can be $N = 10$.

Infrasound: Sound in the portion of the frequency spectrum less than 20 hertz.

Infrasound Pressure Level: Sound pressure level in the portion of the frequency spectrum less than 20 hertz.

Reference Location: A location that is similar in acoustical environment with respect to other sources of noise such as highway or other transit, industry environmental sounds, but is not influenced by sound from the subject wind turbine(s).

Sound Level: Ten times the common logarithm of the square of the ratio of the frequency-weighted and time-exponentially averaged sound pressure to the reference sound of 20 micropascals. For the purpose of this ordinance, sound level measurements are obtained using the A-weighted frequency response and fast dynamic response of the measuring system, unless otherwise noted. **[Current Ordinance]**

Sound Pressure Level: Ten times the common logarithm of the square of the ratio of the sound pressure to the reference sound pressure of 20 micropascals. **[Current Ordinance]**

Question: Different Definitions of Sound Pressure Level

Sound Pressure Level: 20 times the logarithm (to the base 10) of the given root mean square (rms) sound pressure divided by the reference sound pressure of 20 micropascals (μPa). Reported in units of decibels (dB). [from Michael Bahtiarian]

Kim will send this along to Michael Bahtiarian.

Turbine Height: The distance measured from the surface **(top)** of the tower foundation to the highest point of any turbine rotor blade measured at the highest arc of the blade.

Item 6: Update on Chairman's discussion with Board of Selectmen on Moratorium Extension and Scenic View and Historic Site in the Comprehensive Plan

Chair Merlino explained that he had met with the Selectmen and the Board had agreed to schedule a hearing to extend the Moratorium on March 20, 2018 at 5:00pm. Chair Merlino also stated that he discussed the need to update the Scenic View and Historic Site sections of the Comprehensive Plan. Chair Merlino explained that the Selectmen understood but recognized that the Committee had spent many hours working on the Site Plan Ordinance and asked that they remained focused on that work.

Item 7: Re-visit View with consideration of the proposed DEP changes to the Maine Wind Energy Act.

Chair Merlino stated that he was in favor of them to require that sensors be installed after construction and to also have the radar lighting installed on top of the towers so the red lights were only on when an aircraft approaches. Dennis explained that during his research he found this company named Laufer Wind that had radar-activated obstruction lighting system for turbines meets FAA performance standards. (See attached). John explained that they could make these items be conditions of approval. Chair Merlino asked the Committee if they wanted to request that a visual impact analysis be part of the application. Becky stated that she felt it should be.

Item 8: Decide what actions remain for Committee to review

Chair Merlino asked that they decide what remaining items were needed. Chair Merlino stated that John had a few more items to work on. Chair Merlino stated that the subcommittee still had work to do on the justifications.

Item 9: Comments from the Citizens/Public

Betsey Foster, resident of Greenwood: Betsey stated that any and every historical site or scenic view should be protected as these locations are extremely valuable to our Town and would be greatly impacted if commercial wind was allowed.

Ed Rosenberg, property owner: Ed asked the Board to consider adding the scenic view from Paynes Ledge and to also consider the wording from the Sumner Wind Ordinance in regards to waivers being registered within 30 days at the Town Office. John Maloney stated that he had never heard of such a thing and asked what the Town would be doing with them. Ed explained that it would give the Town notice that there was a project being planned instead of the Town not being notified for years that this is in the works. Ed gave John Maloney a copy of the Sumner Ordinance for him to review. (see attached)

Dwayne Bennett, area business owner: Dwayne stated that it was an excellent idea for the Town to require a visual impact analysis to be done but to make sure to have the town hire the person to do it but to have the applicant pay for it. Dwayne also stated that Calpine has not applied for any FAA permits.

Jill Powers, resident: Jill asked if the Committee had been able to answer the list of questions that she had submitted. Chair Merlino stated that they had answered some of her questions at the previous meeting and would be willing to get this on the next agenda. Dennis asked if Jill would be able to send the list to Kim and she could then forward it to the Committee. Jill said she would be glad to do that.

Item 10: Set next meeting date – March 15, 2018, 5:30pm at the Greenwood Town Office

Item 11: Adjourn – Having no further business, Becky motioned and Dennis seconded to adjourn the meeting at 7:25pm. Vote 5-0. Motion passes. Meeting adjourned.