Oakfield Wind Project // Oakfield, Maine
Evergreen Wind Power II, LLC, applicant
Site Location and NRPA

- Applicant Evergreen Wind Power II's response to the appeals
  Submitted by Juliet Browne

234

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April 2, 2010

Hand Delivered

Board Chair Susan M. Lessard
c/o Terry Hanson
Board of Environmental Protection
#17 State House Station
Augusta, ME 04333-0017

Re: Department Orders L-24572-24-A-N and L 24572-TF-B-N
Evergreen Wind Power II, LLC - Oakfield Wind Project

Dear Chair Lessard:

Enclosed please find Evergreen Wind Power II's response to the appeals of the above-referenced Order. Thank you for consideration of these materials.

Sincerely,

Juliet T. Browne

JTB/prf
Enclosures
cc: Margaret Bensinger, Assistant Attorney General (w/enc.)
Rufus E. Brown, Esq. (w/enc.)
Brian Raynes (w/enc.)
Mr. Daniel Koerschner, USNR (w/enc.)
Alec Jarvis (w/enc.)
Brooke Barnes (w/enc.)
Mark Margerum (w/enc.)

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STATE OF MAINE
BOARD OF ENVIRONMENTAL PROTECTION

EVERGREEN WIND POWER II, LLC Oakfield Aroostook County OAKFIELD WIND PROJECT L-24572-24-A-N (approval) L-24572-TF-B-N (approval)	)))))	RESPONSE TO APPEAL BY EVERGREEN WIND POWER II, LLC

Evergreen Wind Power II, LLC ("Evergreen") hereby responds to the appeals of the above-captioned Order filed by the Martha A. Powers Trust (the "Trust"), Brian Raynes and Daniel Koerschner (collectively the "Appellants").

INTRODUCTION

The Appellants claim that the Department of Environmental Protection (the "Department") failed to conduct an adequate review of Evergreen's Application to construct a 34-turbine expedited wind energy facility in and around the Town of Oakfield (the "Project"). Specifically, the Appellants claim that the Department made erroneous conclusions regarding the Project's potential sound, health and scenic impacts, as well as purported errors related to financial capacity, decommissioning, and property values. On the contrary, the Department's determination that the Project complies with all applicable laws and regulations is based upon an exhaustive nine-month review process and is well supported by the record. As discussed below, the sound information that Evergreen submitted to the Department has been confirmed by two separate independent peer reviews as well as inter-agency consultation. All of the Appellants' claims were addressed by Evergreen, the Department, sister state agencies, and third-party experts during a comprehensive permitting process that included extensive public comment and input. As a result, the Board should uphold the Department's decision and deny the request for a public hearing on the appeal.

236

PROCEDURAL BACKGROUND

A. Project Overview

The Project is a proposed 34-turbine expedited wind energy facility located in the Town of Oakfield in Aroostook County. See Project Map attached as Exhibit A. The Project includes approximately 12 miles of 34.5-kilovolt (kV) collector line, access roads, permanent meteorological (met) towers, an electrical interconnection substation facility to tie to the existing Maine Public Service (MPS) transmission line, and an operations and maintenance (O&M) building. The total project area is approximately 600 acres inclusive of a 150-foot stormwater buffer measured from the edge of the Project roadways and turbine pad sites.

The turbine portion of the Project consists of 34 General Electric 1.5 megawatt (MW) turbines located in a northern and southern array along Sam Drew Mountain and other ridges in the Oakfield Hills, with the potential to produce up to 51 MW of electricity. Each turbine is 262 feet tall from the ground to the center of the hub, and a total of 389 feet to the tip of a fully extended blade. There will be four permanent 80-meter meteorological ("met") towers, as well as temporary 80-meter met towers at certain turbine locations during initial testing. The majority of the land utilized for turbine sites is presently used for commercial forestry operations and contains developed logging roads that will be upgraded and used, where appropriate, to minimize clearing and wetland impacts. There will be a total of approximately 15.3 miles of project roads, of which approximately 2.2 miles will be upgraded existing roads.

The Project will not result in any impacts to vernal pools, significant vernal pools, inland waterfowl and wading bird habitats, deer wintering areas, or other significant wildlife habitats.

B. Department Review Process

On April 7, 2009, Evergreen submitted an application to the Department for permits to construct the Project pursuant to the Natural Resources Protection Act and the Site Location of Development Act. The Department accepted the application as complete for processing on April 29, 2009. Neither the Appellants nor any other parties requested that the Department hold a public hearing on the application. Even so, on July 16, 2009, the Department held a public informational meeting on the Project pursuant to 38 M.R.S.A. § 345-A(5), at which interested parties submitted comments and asked questions of Department staff. Order at 3-4.

As a result of numerous submissions by Evergreen and the interested parties, as well as the Oakfield municipal review process discussed in detail below, the administrative record of the Department's review of the Oakfield Project is exceptionally well-developed. In particular, the record contains the detailed results of the sound compliance monitoring at the Stetson Wind Project, which allowed the Department, the Department's independent acoustical consultant, and the interested parties to compare computer-modeled sound level predictions to a project's actual operational sound emissions. The record also contains numerous studies on noise and putative health effects related to wind energy facilities, which were reviewed by the Department, public health officials and other relevant parties.[1]

Furthermore, the record contains extensive comments from the Trust and Brian Raynes, as well as other interested parties, regarding potential visual impacts, noise, health, decommissioning and property values. The Trust's comments, submitted by its legal counsel, were accompanied by hundreds of pages of exhibits, including technical comments from E-Coustic Solutions related to computer modeling and noise emissions. In response to the Trust's voluminous submissions, the Department, with the consent of the applicant, extended its

[1] A list of the principal submissions relating to sound issues is attached as Exhibit B.

application review period by an additional two months to allow sufficient time for the Department and its expert to evaluate fully the information submitted by the Trust. In particular, the Department's independent sound expert, Warren Brown of EnRad Consulting ("EnRad"), responded to the Trusts comments and submissions related to potential noise impacts. See Oakfield Wind Project Amendment Sound Level Assessment - - Peer Review, December 18, 2009 ("EnRad Report") and EnRad Response to Powers Trust Objection, December 31, 2009 (both attached as Exhibit C).

On January 12, 2010, the Department issued a draft order approving the Project. The Appellants and other interested parties commented on the draft order and made another voluminous submission of reports related to sound and health impacts. See Trust submission, January 12, 2010. The Trust's comments on the draft permit included commentary by Richard James of E-Coustic Solutions responding to Warren Brown's December 31, 2009 comments on the Trust's submissions in September and October of 2009. See Trust Exhibit 28.

All of the sources described above received multiple rounds of analysis and commentary by parties to this appeal, third-party experts and sister state agencies, and ultimately formed the basis of the Department's January 21, 2010 final order approving the Project.

C. Town of Oakfield Municipal Review Process

In addition to the comprehensive review of the Project undertaken by the Department, the Town of Oakfield undertook its own due diligence review of siting and environmental issues and specifically *evaluated and rejected each of the sound and health related claims being raised by Appellants in this appeal.*

In June, 2009, the Selectmen in the Town of Oakfield established a committee that included representatives from the Board of Selectmen and the Planning Board (the

"Committee"), and which was tasked with soliciting public input and evaluating concerns related to sound and other environmental issues. Town of Oakfield Wind Energy Review Committee Final Report, September 4, 2009 ("WERC Report") at 4. Consistent with this charge, the Town retained the services of Ken Kaliski, an acoustical engineer and the author of several articles relied on by Appellants in their appeal, Jonathan Edgerton, an engineer, and Andrew Hamilton, a lawyer, to provide technical and legal support for the Committee's work. The Committee held a series of meetings and workshops in which Evergreen and its consultants presented data and responded to questions from the public, the Committee and the Committee's experts. As part of that process, Evergreen provided Mr. Kaliski with the entire electronic file so he could independently evaluate the Project's sound model and all of its inputs and results. See November 3, 2009 RSE Response to Powers Trust Objections at 2. Mr. Kaliski conducted a sensitivity analysis of the sound model using a variety of assumptions from published reports on modeling and concluded that "[u]nder all circumstances, the Committee consultant's modeling scenarios showed predicted sound levels of 45 dBA or lower from the wind turbines at each non-participating residence." WERC Report at 23. Relying on Mr. Kaliski's work, the Committee concluded that "the applicant's sound predictions and modeling are appropriate *and may be conservative*." Id. (emphasis added).

As an added measure to ensure there was a process for identifying and responding to potential sound complaints, Evergreen proposed and will implement a sound complaint response and resolution protocol, which is the first of its kind at any wind facility in the State. The intent of the protocol is to provide (i) a transparent process for reporting complaints to Evergreen, (ii) a consistent approach to documenting complaints and subsequent monitoring efforts, and (iii) a process for informing the Town and DEP of complaints. The protocol includes maintaining a

24-hour complaint hot line, ensuring the public is informed of the complaint process, maintaining consistent information on complaints received, including relevant operating and weather conditions, identifying a range of potential responses to complaints, ensuring that complaints are reported to the Town and DEP, and utilizing information from complaints to inform the selection of post-construction monitoring locations. WERC Report at 23-28 and Appendix D. Evergreen specifically incorporated its complaint response and resolution protocol into its DEP application. September 15, 2009 Letter from J. Browne to M. Margerum; September 4, 2009 e-mail from J. Browne to A. Hamilton (and subsequently provided by Mr. Hamilton to the DEP). As concluded by the Committee, "the Oakfield Wind Project Sound Complaint Response and Resolution Protocol is designed to adequately identify and formulate a response to any future noise issues associated with the facility." WERC Report at 28.

The Committee and Mr. Kaliski also investigated potential health impacts from wind turbines and "did not find any peer-reviewed medical or public health reports or journal articles that concluded sound and noise from modern wind turbines in a well-designed, properly sited, operated and maintained wind energy facility can cause adverse health effects." WERC Report at 14. The Committee also evaluated concerns regarding low frequency sound. Specifically, at one of the workshops Evergreen presented post-construction monitoring data from the Stetson facility, including information on the component of low-frequency sound from the wind turbines and comparing it to a number of regulatory standards. See November 3, 2009 RSE Response to Powers Trust Objections at Appendix 6 ("Low Frequency Sound Data"). That information demonstrated and the WERC concluded that the low frequency component of wind turbine sound was below any regulatory thresholds and should not be an issue in a well-designed, properly sited, operated and maintained wind energy facility. WERC Report at 20. While DEP

noise regulations do not separately regulate low frequency sound, the Committee recommended and Evergreen has voluntarily agreed to collect and report the C-weighted sound (i.e., its low frequency component) from the post-construction monitoring results. WERC Report at 23-24; email from Juliet Browne to Andy Hamilton (and subsequently provided by Mr. Hamilton to the Department), September 4, 2009.

Upon completion of the Committee's work, Evergreen specifically amended its DEP application to incorporate a number of agreed upon conditions, including those related to sound. See Letter from Juliet Browne to Mark Margerum, September 15, 2009.

DISCUSSION

I. THE PROJECT COMPLIES WITH THE DEPARTMENT'S NOISE STANDARDS AND THE TRUST'S ARGUMENTS HAVE ALREADY BEEN HEARD AND REJECTED BY THE BOARD AND THE MAINE SUPREME COURT

The Appellants raise unsubstantiated theoretical concerns regarding the ability of the sound model to accurately predict sound emissions associated with the Project. The overwhelming evidence, however, demonstrates that the sound model is an accurate and even conservative predictor of actual sound levels. The sound model has been vetted and approved by two separate peer reviews conducted by independent acoustical engineers. Perhaps most importantly, the model has been empirically verified by sound measurements taken during compliance monitoring at the Stetson Wind Project. Furthermore, this Board has affirmed the Department's reliance on this model in two prior appeals, as did the Maine Supreme Court in the first of those two appeals.

The Project's sound modeling was conducted by Resource Systems Engineering ("RSE"), and was included in the Project application submitted to the Department. See Oakfield Wind Project Sound Level Assessment ("RSE Report" attached as Exhibit D). RSE has decades of experience in the use of computer models to predict sound emissions from a variety of

industrial sources, as well as in monitoring sound emissions from operational facilities. In particular, RSE has extensive experience and expertise in modeling sound emissions produced by wind energy facilities in Maine. In addition to the sound modeling for the Oakfield Project, RSE conducted the sound modeling for the Record Hill, Mars Hill, Rollins, Stetson and Stetson II wind energy projects. In addition to predictive modeling, RSE performs compliance monitoring to assure that actual sound emissions at operating wind energy facilities comply with regulatory limits and correspond to the levels predicted by the sound model. RSE has used the results of compliance monitoring to calibrate its computer modeling, thus ensuring the model's predictive accuracy.

In repeated reviews, the RSE model has been verified by Warren Brown of EnRad as accurate and appropriate for predicting wind turbine sound emissions. See EnRad Report. EnRad is the third-party acoustical engineer retained by the Department to review the Project's compliance with Department noise regulations and has peer-reviewed noise emissions from industrial facilities around the State. In particular, EnRad has evaluated both predictive modeling and/or compliance monitoring for several wind energy facilities in Maine, including the Record Hill, Mars Hill, Stetson and Rollins wind power projects. EnRad peer-reviewed four rounds of quarterly sound monitoring at Mars Hill and based on that experience has identified wind and weather conditions most favorable to wind turbine sound propagation. This led to the establishment of minimum post-construction monitoring requirements to ensure that a project complies with the applicable noise limits under such conditions, requirements first applied to the Rollins Wind Project (the "Rollins Compliance Protocol").

The RSE model was also independently peer reviewed and approved by the Town of Oakfield Wind Energy Review Committee that was formed and charged with assessing the

Project's potential impacts. See WERC Report. The WERC retained acoustical engineer Ken Kaliski of Resource Systems Group to review the RSE model and address Project noise emissions. Id. at 4. Mr. Kaliski is a Vermont-based consultant who has extensive experience modeling and measuring wind turbine noise and his findings on the subject have been published in peer-reviewed scientific literature. See WERC Report at Appendix C (Propagation Modeling Parameters for Wind Power Projects, Kaliski and Duncan, Sound & Vibration, December 2008). After reviewing the RSE model and conducting his own sound modeling, Mr. Kaliski concluded that under all circumstances predicted sound levels would be at or below the 45 dBA DEP quiet limit. WERC Report at 23. Accordingly, the WERC concluded that Evergreen's "sound predictions and modeling are appropriate and may be conservative." Id. at 23.

Most importantly, the Appellants' theoretical contentions regarding model accuracy are proven wrong by actual compliance monitoring data from the Stetson Wind Project, which used the same model as Oakfield. That data is real world verification that the Oakfield sound model is appropriate and conservative, and that attacks on the model are without merit.

The findings of the Stetson testing are contained in the Stetson Wind Project Operations Compliance Sound Level Study ("Stetson Report"), which was submitted to the Department in connection with the Oakfield Project on November 3, 2009 and excerpts of which are attached as Exhibit E. The Stetson Report, using the Rollins Compliance Protocol as a guide, contains sound monitoring data of turbine operations at the Stetson Wind Project under meteorological conditions when turbine noise will be most noticeable. Stetson Report at 13. The report compares the actual turbine sound emissions during operation to the sound levels predicted by the model, the same model used to predict sound emissions at the proposed Oakfield Project. The same conservative modeling assumptions used at the Stetson Wind Project were used to

predict sound emissions at the proposed Oakfield Project. The Stetson Report demonstrated that the sound model actually over-predicted sound levels by 3-8 dBA at protected locations. Stetson Report at 30.

The results of the Stetson Report were thoroughly evaluated and commented on by both the Department's and the Town of Oakfield's independent acoustical experts, Warren Brown and Ken Kaliski. See EnRad Report at 5-6; WERC Report at 22-23. As Warren Brown stated in his review, "[t]he data was rigorously evaluated using the Rollins Compliance Protocol methodology" to assess the accuracy of the predictive model. EnRad Report at 6. Warren Brown determined that the Stetson testing represented the "worst-case" scenario with respect to the shape of the turbine array, distance from turbines, topography, and meteorological conditions for sound propagation. Id. Even under these conditions, actual sound emissions at full power operation of the Stetson Wind Project were below predicted operating levels. Id. Warren Brown concluded that the Stetson Report demonstrates that the RSE sound model is a "calibrated prediction model" that accurately represents potential wind turbine sound emissions at protected locations. Id. Ken Kaliski concluded that the comparison between modeled and observed sound levels at the Stetson Wind Project showed that "the model adjustments used in Oakfield were validated, or found to be conservative." WERC Report at 22.

The Trust claims that the Stetson Report is flawed and "provides no support for the claim that it validates the noise modeling of RSE," but provides absolutely no analysis or data to support its conclusory objections. Trust Appeal at 8; Proposed Testimony of Richard James at 2. Instead, the Trust raises specious objections or otherwise misstates or mischaracterizes the relevant information.[2] For example:

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[2] The Trust's criticism of the Stetson Report rests on "a letter from E-Coustic Solutions" that was submitted to the Department as Trust Exhibit 27. Trust Appeal at 8. However, as demonstrated by the e-

- The Trust states that the results cannot be relied on because they were collected by RSE, the same entity that did the modeling. Trust Appeal at 8; Proposed Testimony of Richard James at 2. This is not a criticism or evaluation of the data, but simply an unwarranted attack on RSE's professional integrity.

- The Trust claims that the results cannot validate the model because the model did not use line source propagation to predict sound impacts. Trust Appeal at 8; Proposed Testimony of Richard James at 2. This argument is nonsensical. The Stetson results demonstrate that this particular model, which treats the turbines as point sources, is conservative and over-predicted wind turbine sound levels. As a result, it is reasonable for the Department to rely on the model for purposes of concluding that sound limits will be met.

- The Trust states that "[t]here was no testing protocol established in advance of the field work to guide the field work or to measure the legitimacy of the findings of the field work." Trust Appeal at 8; Proposed Testimony of Richard James at 2. This is simply an incorrect statement. The Stetson sound monitoring was conducted in accordance with the Rollins Compliance Protocol, which was established in consultation with and approved by the Department and Warren Brown. See EnRad Report at 6.

- The Trust states that "[t]he field testing took place at different sites that do not correspond to the pre-construction modeling sites." Trust Appeal at 8. It is not clear what the Appellants mean by "pre-construction modeling sites." The RSE model for the Stetson project predicts sound levels at every point surrounding the turbines where sound levels are predicted to be at or above 35 dBA. See Stetson Report at Figure 3-3. The compliance monitoring compares predicted sound levels at a given location to actual sound levels at that same location.

- The Trust states that "[i]n contrast to the Mars Hill four quarter post-construction noise study, the testing for Stetson took place over a period of less than 24 hours." Trust Appeal at 9; Proposed Testimony of Richard James at 2. The Trust also states that "[t]he Stetson Report did not field test under the same conditions assumed in the pre-construction modeling." Id. Both of these assertions are true but do not say anything about the validity of the Stetson data. The rigorousness of the Rollins Compliance Protocol was informed by more than 300 hours of compliance testing conducted by RSE at Mars Hill. In accordance with the Rollins Compliance Protocol, the measurements for the Stetson Report took place under worst-case meteorological conditions when turbine noise would be most apparent. See Stetson Report at 1; EnRad Report at 6. If the RSE model had under-predicted sound levels, testing under worst-case conditions would reveal that flaw.

- The Trust states that "[t]here are numerous anomalies in the field testing, casting serious doubt about the Report, including results showing an increase in sound levels at a time

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mail included with the exhibit, the "letter from E-Coustic Solutions" is merely advocacy by the Trust's attorney, Rufus Brown, placed on E-Coustic Solutions letterhead. See Trust Exhibit 27 at 2 ("Rick: Can you send me by e-mail a letter with the following text:").

when wind turbines were declining in power output and results showing variations in sound levels where constant sound power was presumed." Trust Appeal at 8; Proposed Testimony of Richard James at 2. Once again, the Trust makes a conclusory statement but does not otherwise evaluate or critique the data in any meaningful way, and demonstrates a fundamental misunderstanding of sound generation and propagation from wind turbines. The effects described by the Trust represent accurate measurements of normal operating phenomena. Monitored sound levels can increase during declining power output at times when ridge top winds (powering the turbines) decrease but surface winds (where sound is monitored) increase. Under these conditions, wind noise is more prominent than turbine noise. As for variations in sound levels (the observed sound at receiver points) despite constant presumed sound power (the sound emitted at the source, in this case the turbine), that is due to fluctuations in wind speed, wind direction, barometric pressure, atmospheric turbulence and other factors that impact sound. The key to evaluating worst case sound impacts is to identify meteorological and operating conditions when wind turbine sound is most prominent, and measure sound levels in those conditions. Both the Department's expert and the Town of Oakfield's expert agreed that the Stetson data represents those conditions.

- The Trust states that there was no test data reported or filed addressing concerns about low frequency sound. Trust Appeal at 8; Proposed Testimony of Richard James at 2. In fact, RSE filed a detailed response to objections of the Trust on November 3, 2009, which included a comprehensive section dedicated to low frequency sound. November 3, 2009 RSE Response to Powers Trust Objection, Appendix VI. Appendix VI specifically analyzed the low frequency component of sound measured at the Stetson facility and compared it to regulatory standards. A summary of that same information was also included in the Stetson Report.

In short, the Trust's objections to the Stetson Report are unsubstantiated and do not provide any basis for questioning the report's conclusions or the validity of the sound model.

Finally, the Appellants' claims regarding the RSE model have be heard twice by the Board and rejected. See Board Order in the matter of Evergreen Wind Power III, LLC, August 6, 2009 ("Rollins Board Order); Board Order in the matter of Record Hill Wind LLC, March 18, 2010 ("Record Hill Board Order"). In affirming the permit issued by the Department for the construction of the Record Hill Wind project, the Board found that "[t]he applicant submitted a detailed sound level assessment model which uses the Department's most restrictive sound level limits and which meets standard industrial sound modeling protocols." Record Hill Board Order

at 10. The Board further found that "the applicant has made adequate provisions to ensure that noise standards pursuant to the Site Law Rules, Chapter 375 (10) were met." Id. at 10-11.

The Board's conclusion that the RSE model is a sufficient demonstration of regulatory compliance has been affirmed by the Maine Supreme Court. See Friends of Lincoln Lakes v. Board of Environmental Protection, 2010 ME 18, ¶¶ 18-19. The Court's ruling stated that there was substantial evidence in the record to support the Board's findings that the RSE model was appropriate, including the Board's findings with respect to short duration repetitive sounds and point source calculations. Id.

Even though the RSE model has been confirmed as accurate and appropriate through field measurements, multiple independent peer-reviews, and the Board's prior reviews, the Appellants persist in raising claims about theoretical limitations or inaccuracies in RSE's methodology. As discussed above, these claims are without merit and the RSE model demonstrates that the Project complies with Department noise limits at all protected locations.[3] A detailed response to the Appellants' claims with respect to the use of ISO 9613-2, point source calculations, and potential short duration repetitive sounds is attached as Appendix A.

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[3] As noted in the Department's Order, Evergreen obtained easements from ten property owners for locations where the Project is not expected to comply with the nighttime sound limit of 45dBA. See Order at 11-12. The Department's regulations expressly exempt compliance with the sound standards for any protected location where Evergreen has obtained such an easement. See Ch. 375, Section 10(C)(5)(s). The Trust nevertheless claims that these easements are not legally "valid" because Evergreen allegedly did not make an "adequate health disclosure" of what the Trust contends are adverse sound impacts. Trust Appeal at 20-21. This argument is entirely without merit. Evergreen provided the Department with copies of the easements, all of which were validly executed and are enforceable. Moreover, the Trust's suggestion that the grantors did not understand what they were doing is, frankly, insulting. Nor does the Trust – whose compound on Pleasant Lake is more than a mile and half from the nearest turbine – even have standing to object to the terms or conditions of execution of these easements as the Trust is not a party to any of them. Finally, the Trust's conspiracy theories regarding harmful health impacts are frivolous, as discussed herein.

II. THERE IS NO BASIS FOR THE BOARD TO APPLY A NEW SOUND STANDARD IN THIS APPEAL

A substantial portion of the Trust's appeal is devoted to the issue of whether the existing Chapter 375 noise regulations are appropriate for wind power. Trust Appeal at 10-22 (addressing the adequacy of existing noise limits) and 26 (request for a public hearing to address health effects of wind turbine sound). For example, the Trust argues that the Board "should declare that Rule 375, Section 10 is no longer considered adequate for permitting purposes and should [determine] that this project should be reviewed without regard to these regulations." Id. at 22. The Board's authority to adopt regulations and its authority to hear appeals derive from independent statutory bases and are subject to separate and distinct procedural requirements. Compare 38 M.R.S.A. § 341-D(1-B) (rulemaking) with 38 M.R.S.A. § 341-D(4) (appeals). As the Board recognized in its deliberations in the appeal of Record Hill Wind Project, an appeal of a Department permitting decision is not the appropriate forum to engage in rulemaking, nor can the Board disregard existing Department regulations.

Moreover, the claim that the Department "fail[ed] to consider the health effects of nighttime noise," Trust Appeal at 10, is unfounded. As the Trust acknowledges in its appeal, the Department consulted with the Maine Centers for Disease Control ("MCDC") regarding potential health-related impacts associated with wind turbines. Trust Appeal at 14-18; Order at 10. The Trust further acknowledges that the Department order "relies on the comments of [Dr.] Dora Mills, Director of the Maine Center for Disease Control, that wind power noise does not produce adverse health effects." Trust Appeal at 14. Dr. Mills determined that there is "no evidence in peer-reviewed medical and public health literature of adverse health effects from the kinds of noise and vibrations heard by wind turbines other than occasional reports of annoyance, and these are mitigated or disappear with proper placement of the turbines from nearby

residences." Order at 10.; see also Wind Turbine Neuro-Acoustical Issues, Dora Anne Mills, MD, MPH, Maine CDC/DHHS, June, 2009, at 3 (hereinafter "MCDC Report").

The Trust argues that the Department's reliance on Dr. Mills – the State's chief medical officer – is not valid because "MCDC's views are the product of a political agenda that has never acknowledged or objectively examined the noise issue from wind turbines." Trust Appeal at 14. The Trust's purported support for this accusation is a series of emails between Dr. Mills and various department staff. The Trust claims that this correspondence demonstrates that the MCDC and the Department have been engaged in a campaign to suppress evidence of adverse health effects associated with wind energy facilities. To the contrary, the Trust's proposed material demonstrates only that the Department and the MCDC were doing their job through inter-agency consultation in their respective areas of expertise. These are the same conspiracy arguments the Board heard and dismissed in the recent appeal of the Record Hill Wind project.

Focusing on the substance of the claims, the Trust has not identified evidence that calls into question the conclusions of the Department and the MCDC. In particular, The Trust has not provided any evidence whatsoever indicating that the *Oakfield Project* will result in adverse health impacts. Instead of providing facts, the Trust alludes to "the potential health effects of the Project," Trust Appeal at 10, "preliminary but significant findings from Mars Hill," id. at 11, and "a potential landmark book" by Dr. Nina Pierpont that has been "well received" by unnamed "foremost experts." Id.

The Trust's reliance on a resolution of the Maine Medical Association (MMA) to support their claim of adverse health effects is similarly is unfounded. Trust Appeal at 12. For example, the MMA resolution states that "assessing the potential health impact of wind turbines has been difficult to measure but if present would be of significant concern." Trust Exhibit 14(D)

(emphasis added). In fact, nowhere in the resolution does the MMA state that it is aware of any credible medical evidence that wind turbines have a negative effect on public health. The resolution does not cite any facts or studies. On the contrary, it states only that there is a need for "appropriate evidence-based scientific research." Id. In sum, the resolution amounts to a general statement by the MMA that it is concerned with public health and that if wind turbines were a threat to public health, then that would be a cause for concern.

In short, the Trust's "evidence" on health impacts consists of a series of speculations that does not provide any concrete technical information relevant to this Project's compliance with permitting standards.

On the contrary, there is a considerable body of evidence published in peer-reviewed scientific journals that the Department and Dr. Mills considered, and which demonstrates that sound from appropriately sited wind turbines does not pose a measurable health risk. See MCDC Report (citing references). The record clearly shows that the MCDC and the Department reviewed the medical literature on wind turbine noise, specifically considered the potential health effects of low-frequency vibrations and infrasound, and concluded that the sound levels associated with the Project do not pose any health risk. MCDC Report at 4. The Department applied the most stringent noise limit of 45 dBA, which the Department has determined is protective of human health and the environment.

During it review of the Project, the Town of Oakfield Wind Energy Review Committee also investigated the issue of potential health impacts from wind turbine noise and independently arrived at the same conclusion as the MCDC:

> After a literature review, the Committee did not find any peer-reviewed medical or public health reports or journal articles that concluded sound and noise from modern wind turbines in a well-

> designed, properly sited, operated and maintained wind energy facility can cause adverse health effects.

WERC Report at 14. The WERC found that while wind turbine noise does have the potential to cause sleep disturbance, such impacts occur "at a statistically significant level above 45 dBA at and outside the home." Id. at 13. The WERC also concluded that credible public health studies of wind turbine noise supported a finding that "there are no statistically significant adverse health effects at or below an exposure level of 45 dBA." Id. at 15. Accordingly, the WERC determined that the Department's 45 dBA noise limit is consistent with World Health Organization guidelines and is adequate to prevent adverse health effects.[4] Id. at 15, 21.

In particular, the WERC and its expert acoustical consultant investigated concerns regarding low frequency sound. Mr. Kaliski requested and RSE provided specific information on wind turbine low frequency sound. See November 3, 2009 RSE Response to Powers Trust Objections, Appendix 6 ("Low Frequency Sound Data"). In addition to literature references, RSE provided data on the low frequency component of sound measured at the Stetson project, and compared measured levels with health and structural vibration criteria. The data collected by RSE during the Stetson sound monitoring documents that low frequency sound from the 1.5 MW GE turbines (the same model proposed for Oakfield) is below any regulatory threshold or other level of potential concern. See id. (comparing measured levels to criteria for infrasound in Denmark and American National Standards Institute guidelines). In fact, the data indicate that

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[4] The 2009 World Health Organization Night Noise Guidelines recommend a limit of 40 dB $L_{night, outside}$, which is defined as the exposure to noise over an eight hour nighttime period averaged out over all nights in one year, measured at a height of four meters at the most exposed façade of a residence. See 2009 WHO Night Noise Guidelines for Europe at 8-9. By contrast, the DEP limit of 45 dBA is calculated as an hourly average that applies each and every hour of the night within 500 feet of a residence. Because the DEP's 45 dBA standard is calculated so much more stringently than the WHO guideline of 40 dB $L_{night, outside}$, there is no way to meaningfully compare the two. In the words of Warren Brown, "These metrics (WHO & MDEP) are vastly different allowing no direct comparison." See EnRad Response to Powers Trust Objection, Dec. 31, 2009, at 6.

ambient sound from wind was a greater contributor to the low frequency sound than sound associated with the turbines. Id. These findings are consistent with the conclusions of scientific studies that were brought to the Department's attention, including:

- Low Frequency and Infrasound Noise Immissions from Wind Farms and the Potential for Vibroacoustic Diseases, M. Hayes, 2006.
- Infrasound from Wind Turbines – Fact, Fiction or Deception, G. Leventhall, 2006.
- Low Frequency Noise from Large Wind Turbines, DELTA, 2008.
- The Sounds of High Winds, G.P. van den Berg, 2006.
- Noise Annoyance from Wind Turbines, E. Pedersen, Swedish EPA, 2003.
- Wind Turbine Sound and Health Effects, AWEA/CWEA, 2009.
- Evaluation of the Scientific Literature on the Health Effects Associated with Wind Turbines and Low Frequency Sound, Wisconsin Public Service Commission, October 20, 2009.

Thus, the WERC concluded that "low frequency sound/vibration issues are uncommon with wind energy facilities, and should not be an issue in a well-designed, properly sited, operated and maintained wind energy facility." WERC Report at 20.

Finally, as with the Trust's claims regarding model accuracy, the Board has already heard and denied the Trust's contentions regarding purported health effects in the appeals of the Department permits for both the Rollins Wind Project and the Record Hill Wind Project. See Rollins Board Order at 9; Record Hill Board Order at 10-11. Likewise, the Board's findings with respect to public health have been affirmed by the Maine Supreme Court. See Friends of Lincoln Lakes v. Board of Environmental Protection, 2010 ME 18, ¶ 20 ("The Board's inferred determination concerning the impact of wind energy sound and vibrations on public health is supported by the opinion of the MCDC included in the record, upon which the Board could reasonably rely.").

Accordingly, the Appellants' claims regarding health effects are without merit and there is no basis in the context of this appeal for the Board to evaluate and apply a different standard than the one set forth in existing law.

III. THE PROJECT WILL NOT RESULT IN UNREASONABLE ADVERSE VISUAL IMPACTS

The Trust objects to the issuance of the Permit due to what it claims are unreasonable visual impacts to Pleasant Lake.[5] Trust Appeal at 22-23. Evergreen has shown, however, and the Department properly concluded, that due to the character of the surrounding area, the nature and extent of the public's use of the lake, and the limited views of the turbines from substantial portions of the lake, the Project would not have an unreasonable adverse effect on the scenic character and existing uses related to scenic character of the lake.

A. The Character of Pleasant Lake and Surrounding Environs

Pleasant Lake is an approximately four mile long lake located in Island Falls and T4 R3 WELS. The lake is surrounded by low hills and undifferentiated ridges, and the shoreline is wooded and has a landscape character "typical of many similar lakes in this region of Maine." June 30, 2009 Visual Assessment at 3 (attached as Exhibit F).[6] The western half of the Lake, in Island Falls, is characterized by camps lining the north and south shores, a public boat launch, a golf course and extensive recreational activity including motor boating, jet skiing, and snowmobiling. Id. at 3-4. The portion of the lake located in Island Falls has not been rated as having outstanding or significant scenic quality – presumably due to the extensive development around the western shoreline, and therefore is not a resource of state or national significance. See 35-A M.R.S.A. § 3451(9)(D).

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[5] Brian Raynes and Daniel Koerschner do not identify any resources of state or national significance that will be adversely impacted by the Project. In addition, the Trust has only objected to findings regarding visual impacts on Pleasant Lake. Accordingly, Evergreen's response is limited to the objections regarding Pleasant Lake.

[6] The impact of the Project on Pleasant Lake is discussed in the June 30, 2009 Addendum to the Visual Assessment, which must be read with the underlying March 2009 Visual Assessment, referred to collectively as the "Visual Assessment." Pleasant Lake was not included in the initial report because the version of the Maine Wildlands Lake Assessment posted on the State's website omitted several pages, including the page listing Pleasant Lake.

254

The eastern side of the lake, approximately 10,000 acres, is privately owned by the Trust and, except for the family compound, is generally undeveloped. Thus, this portion of the lake is not easily accessible to the public, either by vehicle or by boat due to the long distance from the boat launch. The Trust land includes the entirety of the shore of the portion of the lake located in the unorganized territory and two-thirds of the overall shoreline of the lake. See September 10, 2009 Comments of Philip Powers at 1. The portion of the lake located in the unorganized territory is rated as scenic (but not outstanding), in the Maine Wildlands Lake Assessment and is therefore considered a scenic resource of state or national significance pursuant to 35-A M.R.S.A. § 3451(9)(D).

The contrast between the portion of the lake located in Island Falls – which is lined with development along the shore – and T4R3 WELS – which is owned in its entirety by a single landowner – is reflected on Diagram 1 in the June 2009 Visual Assessment.

B. Views of the Project from Pleasant Lake

The visibility of the Project by members of the public using Pleasant Lake will be limited. From the public boat launch at the northwestern end of the lake, only portions of four turbines will be visible, with the closest turbine more than three miles away. See November 2, 2009 Response to Comments on Visual Assessment ("November 2009 Report") at 6 and Tab 1; June 30, 2009 Visual Assessment at 3. Along the northern shoreline, there would be no visibility of turbines, except for those areas that might have been substantially cleared or are open. At these locations, only limited views of portions of 2-3 turbines may be visible. November 2009 Report at 7. Along the southern shoreline of the lake turbine visibility increases as you move from the northwestern tip of the lake to the southeastern bottom of the lake. The greatest visibility would be from the eastern end of the shoreline, from the property owned by the Trust.

Similarly, from the center of the lake itself, views of the turbines increase as you move from the northwestern shoreline with associated development to the southeastern portion of the lake. Id. From all areas on the lake the visual impact of the turbines will be minimized by the following factors:

- The horizontal or undifferentiated ridgelines of the Oakfield hills do not stand out from the lake and therefore are better able to absorb development of wind turbines.
- The turbines will not be visible from all areas on the lake. Specifically, visibility will be limited from the northern portions of the lake and the long views on the lake run east-west, with the turbines located to the north, shielded by the shoreline.
- Most of the camps, including the camp owned by the Trust, are oriented away from the Project.
- In the areas where the great majority of the public congregates, only a few turbines will be visible and the lake in that area is already heavily developed and does not have a remote character.
- For individuals who travel from the boat launch and camp area to the less densely developed eastern end, there will be many areas where boaters will be able to avoid seeing the turbines, if that is of interest.
- The visibility of the turbines is based on atmospheric conditions. On cloudy or gray sky days, the color of the turbines will blend in to the background.
- As the viewer distance from the turbines increases, the relative size and scale of the turbines is diminished, reducing their presence in the landscape and consequent potential for visual impact.

June 30, 2009 Visual Assessment at 5-9; see also November 2009 Report.

C. Significance of the Visual Impact

In evaluating the visual impacts of wind turbines on scenic resources the Legislature has specifically recognized that wind turbines will necessarily be a highly visible feature on the landscape, *but that factor alone is not a sufficient basis for determining that the impact is unreasonable*. 35-A M.R.S.A. § 3452(3) (emphasis added). Instead, in evaluating whether the impact is unreasonable, the Department is directed to consider the significance of the resource, the existing character of the surrounding area, the expectations of the typical viewer, the extent,

256

nature and duration of views of the turbines, and the impact of those views on the public's continued use and enjoyment of the resource. Id. Consideration of these factors demonstrates that although the Project will be visible to users of Pleasant Lake, it will not have an unreasonable adverse impact on their use and enjoyment of that resource. Specifically:

A. Significance of the Resource. Pleasant Lake is listed by LURC as a "scenic," but not "outstanding," resource. The wooded shoreline and lack of distinguishing background features result in a character similar to many lakes in this region of Maine. Additionally, the horizontal or undifferentiated ridgelines of the Oakfield hills do not stand out from the lake.

B. Character of Surrounding Area. Only a portion of Pleasant Lake has been designated as scenic, likely due to the extensive development in the western half of the lake. The lake is not remote or undeveloped, and timber harvesting and other land management activities take place in the vicinity. The portion of the lake within Island Falls is developed and includes a public boat launch and lakefront development. Overall, the character of the lake is not unique compared to other lakes in the area.

C. Viewer Expectations. Primary users are camp owners, boaters, and fisherman. Most of the public use activity is in the heavily developed western end of the lake, where users do not have expectations of pristine views or a remote experience. In the eastern end of the lake public use is more limited and for fishing parties, the primary expectation is access to the fishery resource, not necessarily a remote experience. In addition, the power boat traffic associated with this use already alters the experience. For paddle boaters, access to the eastern end of the lake is much more restricted, as there is no public access except the boat launch in the far western end of the lake. As a result, paddle boat access to the eastern end is more limited, and there are areas in the eastern end where the turbines are not visible, if that is an important criteria for these users.

D. Scope and Extent of Impacts, Use and Enjoyment of Resource. Only portions of the Project will be visible from the lake, and in the areas of greatest public use, only four to seven of the turbines will be visible. Although more turbines will be visible from a portion of the southern shore of the eastern end of the lake, public use in this area is more limited. In addition, use and enjoyment of the resource will not be significantly impacted, given the public's expectations for this resource.

See June 30, 2009 Visual Assessment.

Thus, LandWorks demonstrated and the Department correctly concluded that the Project would not have an unreasonable adverse impact on the scenic character or existing uses related to scenic character of Pleasant Lake.

D. The Trust's Objections

The Trust hired a landscape architect, Jean Vissering, to comment on the visual impacts of the Project. By her own admission, Ms. Vissering has not visited the site and does not offer any opinion on whether the Project would result in unreasonable adverse impacts.[7] Importantly, although Ms. Vissering offers criticism of the LandWorks report, she does not offer any facts to contradict their conclusions or an opinion on the significance of the Project on the scenic character or existing uses related to scenic character.[8] Her silence speaks volumes.

Similarly, although the Trust has appealed the Department's decision, it is important to put their comments in perspective. Mr. Powers is voicing the concerns of a single land owner. As noted above, there can be no dispute that in the area of Pleasant Lake where there is significant public use, the visual impacts are minimal, due to the distance from the Project, the limited number of turbines visible from the western end of the lake, and the extensive camp development and boating traffic. Although Mr. Powers suggests that he is speaking for the public, in fact he is objecting based on the perceived impact on a large swath of undeveloped land owned by the Powers family. The Powers' perspective does not represent the views of the *public users of the lake*[9] and the Department is required to evaluate the extent of impacts on

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[7] In her comments Ms. Vissering admitted that "a site visit is critical to making an informed decision about the case . . . ." September 21, 2009 Letter from Ms. Vissering to DEP at 1.

[8] Evergreen provided specific responses to each of Ms. Vissering's comments, see November 2009 Report at Exhibit A, and therefore they are not repeated here.

[9] Although members of the Island Falls Lake Association submitted comments to the Department by way of identical form letters, none have appealed the Department's decision.

"public uses" of the resource and impact on the "public's continued use and enjoyment" of scenic resources. 35-A M.R.S.A. § 3452(3)(E).

Thus, while the Trust objects to the sufficiency of Evergreen's analysis of visual impacts, they offer no substantive response or opinion by their expert, Ms. Vissering. Moreover, Mr. Powers' objections to the impact on "public use and enjoyment" of Pleasant Lake are, in fact, nothing more than the comments of a single large landowner who seeks to avoid visual impacts to their 10,000-acre private estate.

In summary, the Department correctly found that Evergreen's visual assessments had adequately identified scenic impacts on Pleasant Lake and that LandWorks had accurately characterized the existing conditions on Pleasant Lake and the general character of the resource, and on that basis concluded that the Project would not result in an unreasonable adverse effect on the scenic character and existing uses of Pleasant Lake. Order at 18-19.

IV. EVERGREEN HAS THE FINANCIAL CAPACITY TO CONSTRUCT, OPERATE AND, IF NECESSARY, DECOMMISSION THE PROJECT

A. Objections Related to Decommissioning

The Trust's objections to phased implementation of funding for decommissioning have already been considered and rejected by the Board. *Compare* arguments at pp. 23-25 of Trust Appeal *with* arguments pp. 31-33 of the appeal of the Record Hill Wind Project (identical issues raised in both appeals). Here, Evergreen proposes to fund decommissioning in an amount of $50,000 per year for the first seven years after the Project is placed into operation, ensuring that no less than $350,000 will be set aside by Year 7. On or prior to the end of Year 15, Evergreen is required to reassess the estimated decommissioning costs, including estimates as to salvage value, and ensure that an amount not less than the full amount of the revised estimate is set aside for decommissioning at that time. Application at Section 29; Order at 39. This is consistent with

what the Board just required in connection with the Record Hill Wind Project. See Findings of Fact and Order in Appeal of Record Hill Wind Project at 14, 23-24.[10]

B. Objections Related to Financial Capacity

The Trust also argues that Evergreen's current financial condition requires a different showing of financial capacity both for construction of the Project generally and for decommissioning. See Trust Appeal at 2, 25. Specifically, although the Order requires Evergreen to submit a final demonstration of financial capacity prior to commencement of construction, Order at 5 and 44, Condition 4, the Trust argues that is insufficient. The sole basis for their argument rests on cherry-picked pieces of information from a publication that by its very nature is intended to identify risks associated with a business. See Trust Exhibit 30 (Global Markets, Direct Strategic Analysis and Review). The Trust ignores the information in that same report which identifies the financial and market strengths of the company. Id. at 6. In any event, an analysis of First Wind's financial strength is academic because prior to commencement of construction, Evergreen must demonstrate that it has available to it the full amount of construction costs for the Project. This requirement is consistent with what the Department requires on other projects and fully addresses theoretical concerns regarding First Wind's financial condition.

C. Objections Related to Property Values

The Trust objects to the Order based on the allegation that the Project will "reduce the property value of the Trust property without compensation." See Trust Appeal at 25-26. Mr. Koerschner also claims that his property will be devalued due to the views of the Project. The

[10] The only difference is that in the Record Hill matter there was a requirement that the applicant reassess salvage value in Year 7 and make annual contributions in Years 8-15 to ensure full funding by Year 15. We do not believe there is a meaningful difference between what was required in that project from what is proposed here.

Department and Board previously concluded that they do not have jurisdiction under the Site Law to evaluate claims regarding impacts of a project on property values. See Record Hill Board Order at 22; see also Harding v. Comm'r of Marine Res., 510 A.2d 533, 536-37 (Me. 1986) (holding that administrative agency need not consider proposed activity's effect on private property values where statutory criteria prohibited unreasonable interference with "other uses"). Nonetheless, to the extent that the Site Law allows consideration of the issue, there is no basis for concluding that Project will have an unreasonable adverse impact on property values. Specifically, the study relied on by the Trust consists principally of surveys on opinion as opposed to analysis of actual sales data, and otherwise lacks the detail, rigor, and statistical analysis needed to correlate home transaction prices and the impact, if any, of a wind project on those prices.[11]

Moreover, the National Research Council for the National Academies undertook a study on the Environmental Impacts of Wind-Energy Projects and specifically addressed the claims regarding the impact of such projects on property values. See Environmental Impacts of Wind-Energy Projects, National Research Council of the National Academies 2007 ("National Research Council Report"), at pp. 163-65. As noted in the report, it is very difficult to generalize about the effects of wind-energy projects on property values, and "[f]orecasts of property values in prospective host areas that are based on comparisons with existing host areas are of questionable validity, especially if there are significant differences between the areas." Id. at 164. Thus, there is no basis for concluding that the results of the surveys reflected in the study relied on by the Trust have any relevance or are a predictor of the impact of this project on

[11] While the report also includes a section on sales data, it compares sales of parcels within the alleged influence of the turbines to sales of land outside the alleged influence of the turbines, but does not analyze data on sales of parcels before and after installation of the project and therefore does not provide any direct evidence of the impact of the project on property values.

surrounding land values. Indeed, there are a number of rigorous studies that conclude the presence of a wind farm did not have any measurable effect on property values. The following studies are included in the record considered by the Department: Ernest Orlando Lawrence Berkeley National Laboratory, *The Impact of Wind Power Projects on residential Property Values in the United States: A Multi-Site Hedonic Analysis* (December, 2009) (analyzing nearly 7,500 home sales within 10 miles of 24 wind projects and concluding "...neither the view of the wind facilities nor the distance of the home to those facilities is found to have any consistent, measurable, and statistically significant effect on home sales prices."); Ben Hoen, *Impacts of Windmill Visibility on Property Values in Madison County, New York* (April 30, 2006) (absence of measurable effects of wind farm visibility on property transaction values); see also National Research Council Report at 163-64 (discussing studies).

V. THE BOARD SHOULD DENY APPELLANTS' REQUEST FOR A PUBLIC HEARING

The Trust claims there is "credible conflicting technical information regarding a licensing criteria, namely noise" and therefore the Board *must* hold a public hearing. Trust Appeal at 26. This request is indistinguishable from the request made by the appellants in the appeal of the Record Hill Wind permit. Here, the Trust proposes testimony from the same two witnesses on the same two issues. In the appeal of the Record Hill Wind project, the Board questioned the appellants' sound expert, Richard James, on the substance of his proposed testimony. The Board properly denied the request for a public hearing in the Record Hill Wind proceeding and should do the same here.

The Trust seeks a public hearing because it disagrees with the Department's noise standards, not because a public hearing would assist the Board in determining whether the Oakfield Project complies with existing permitting criteria. See Trust Appeal at 10 (stating that

the Department has a duty "to protect the people of the State of Maine from the adverse effects of a wind power project, even if the applicant meets the specific quiet standards of the Regulations") and 19 (arguing that existing noise regulations are insufficiently protective of public health and the Board must hold a public hearing to examine health risks or wind power). As discussed above, this appeal is not the appropriate proceeding for the Board to conduct a rulemaking.

Furthermore, the Trust misstates the test for holding a public hearing. Not only must there be credible conflicting technical information, but it must also be "likely that a public hearing will assist the decision maker in understanding the evidence." 06-096 CMR Chapter 2, § 7(B). Credible conflicting technical information is arguably present in most permitting records. If that alone were sufficient to require a public hearing, the Board would hold a public hearing on nearly every appeal it heard. Something more is required. As the Board recognized in the Record Hill Wind appeal, a public hearing is warranted on appeal only when it would assist the Board in understanding evidence as it relates to a project's compliance with permitting standards. That is not the case here.[12]

In any case, the Trust has not produced credible conflicting technical information that warrants a public hearing. For example, the Trust has not provided a credible alternate sound

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[12] The Trust also misstates the relevance of Hannum v. Board of Environmental Protection, 2006 ME 51, 898 A.2d 392. The Trust cites Hannum for the proposition that because the Board held a public hearing on an application for a dock permit, it can't refuse to hold a public hearing on a wind energy facility. Trust Appeal at 27. However, in the Hannum proceeding, the Board held a public hearing in the context of its original jurisdiction to review a permit application pursuant to 38 M.R.S.A. § 341-D(2)(D)("the board shall decide each application for approval of permits and licenses that in its judgment . . . [h]as generated substantial public interest") not in its appellate capacity. The standard for the Board to hold a public hearing in an appellate proceeding such as this is higher than in a proceeding in which the Board has assumed original jurisdiction over a permit application. When the Board reviews an application in the first instance, a public hearing is intended to allow the Board to receive "information regarding a licensing criterion" that will assist it in determining a proposed project's compliance with regulatory standards. See 06-096 CMR Chapter 2, § 7(B). When the Board acts in its appellate capacity, its primary role is to review the administrative record that has already been developed and determine whether the Department arrived at the proper decision.

model indicating that the Project does not meet regulatory limits. Nor has the Trust submitted any credible information indicating that the Oakfield Project will result in adverse health effects. In short, the "evidence" proposed by the Trust is entirely theoretical and speculative.

The Trust acknowledges that the evidence it seeks to introduce at a public hearing has all been heard and reviewed by the Department, the Department's independent sound expert and the MCDC. Trust Appeal at 26. The Trust has not claimed that it was unable to participate in the Department's exhaustive nine-month process or that the Department did not consider their comments. Rather, as the record reflects, the Trust participated fully and submitted technical information to the Department, including comments from the same two experts that it now proposes would testify in a hearing before the Board. In essence, the Trust simply seeks to retry their case, this time before the Board, in the hopes that the Board will reach a different result. That is not, however, a sufficient basis for the Board to hold a public hearing on an appeal.

As the proposed testimony of Richard James and Michael Nissenbaum demonstrates, the Trust's request for a public hearing is based on a desire to re-present information that was already submitted to and considered by the Department, or to change the existing regulations. Neither constitutes an appropriate basis for holding a public hearing and therefore the Board should deny the request and decide the appeal on the basis of the administrative record before the Department.

Finally, the scope of any hearing held by the Board on an appeal of a permit for an expedited wind energy development is limited to evidence that meets the test for supplemental evidence and therefore the Trust's request for a public hearing should be denied on the independent basis that the evidence it seeks to introduce does not and cannot meet the test for

264

"supplemental evidence." 38 M.R.S.A. § 341-D(4).[13] Supplemental evidence is permitted only when (a) the person seeking to submit such evidence showed "due diligence" in attempting to bring the information to the attention of the Department; or (b) the evidence is newly discovered and could not have been provided to the Department. 38 M.R.S.A. § 341-D(4)(A) and D(5); 06-096 CMR Chapter 2, § 24(B)(5)(a), (b). The purpose of this provision is to ensure certainty and predictability of decisions by requiring that all relevant information be brought forward and considered by the Department during review of the application and that parties not wait to present evidence in the first instance during an appeal to the Board. The Trust has not made and cannot make any showing that the evidence it seeks to introduce in a public hearing was not or could not have been presented to the Department during the application review.

CONCLUSION

As demonstrated by the foregoing, the Appellants' claims are without merit and Evergreen respectfully requests that the Board DENY the request for a public hearing and AFFIRM the Department's Order.

Dated: April 2, 2010

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[13] A more complete discussion of the legal basis for this argument is set forth in Appendix B.

APPENDIX A

DETAILED RESPONSE TO APPELLANTS' CLAIMS REGARDING NOISE EMISSIONS

A. The RSE Sound Model Is Appropriate for Predicting Wind Turbine Noise

The Appellants claim that the RSE model is flawed because it is based on ISO 9613-2 (the "ISO standard"), the International Standards Organization protocol for calculating attenuation of sound during propagation outdoors. Trust Appeal at 3. On the contrary, the ISO standard is the internationally recognized method for predicting outdoor sound propagation and has been proven to be appropriate for modeling wind turbine sound emissions. Order at 6, 8, 10-11; RSE Report at 8.

As discussed above, the use of the ISO standard has also been validated by the Stetson compliance monitoring, which demonstrates that the model is a conservative predictor of actual sound emissions during operating conditions when wind turbine noise will be most apparent. Stetson Report at Table 7-3. The RSE model methodology, including the use of the ISO standard, has also been reviewed and approved by the two independent acoustical engineers retained by the Department and the Town of Oakfield. See EnRad Report at 6; WERC Report at 23.

The Appellants mischaracterize the conclusions of the acoustical literature in the record when they claim that their concerns regarding model accuracy "are reflected in credible scientific literature on the subject." Trust Appeal at 4. For example, the Appellants cite a study by Ken Kaliski for the proposition that the ISO standard is inappropriate for modeling wind turbine noise. On the contrary, the Kaliski report cited by the Appellants comes to the following conclusion: "Overall, the ISO 9613-2 methodology is appropriate for propagation modeling of wind turbines, but modeling parameters should be adjusted appropriately to account for this

source's unique characteristics." Kaliski and Duncan, Propagation Modeling Parameters for Wind Power Projects, Sound and Vibration at 14 (Dec. 2008) (Trust Exhibit 6). As noted above, on behalf of the Town of Oakfield, Mr. Kaliski himself validated the modeling parameters used in the application of the ISO standard to the Oakfield Wind Project. WERC Report at 23.

Appellants also state that their claims regarding the use of the ISO standard to model wind turbine noise is supported by a study of wind turbine sound emissions at the Maple Ridge wind power facility in Lowville, New York. Trust Appeal at 5. The study consists of measurements and analysis conducted by Clifford Schneider, a fishery biologist with no apparent training or background as an acoustical engineer. See Trust Exhibit 7 (Clifford P. Schneider, "Accuracy of Model Predictions and the Effects of Atmospheric Stability on Wind Turbine Noise at the Maple Ridge Wind Power Facility, Lowville, NY – 2007," April 10, 2008) at 27. Even putting aside Mr. Schneider's lack of expertise as a sound engineer, his study concerns a wind facility, acoustical experts and a predictive model that are completely unrelated to the sound model created by RSE for the Oakfield Project. As the Appellants acknowledge, a facility's turbine design and geometry, topography, and a host of modeling assumptions, to name just a few variables, have major effects on a model's sound level predictions. Accordingly, Mr. Clifford's study regarding sound predictions and measurements taken at a facility with no apparent relationship to the Oakfield Project does not provide any credible, factual basis to question RSE's sound level assessment.

In fact, the recommendations made by Mr. Schneider mimic the exact methods utilized by RSE. Mr. Schneider states that the ISO standard has an uncertainty factor of +/-3 dBA. Trust Exhibit 7 at 22. Consequently, the RSE model adds 3 dBA to predicted sound levels to account for that uncertainty factor. RSE Report at 9; EnRad Report at 6; Order at 7. In addition, the RSE

model incorporates another 2 dBA to account for uncertainty in the manufacturer's specifications for each turbine's sound power output. Id. Mr. Schneider states that modeling software should be validated "with actual measurement data." Trust Exhibit 7 at 22. Unlike the sound models discussed by Mr. Schneider, the RSE model has been calibrated and verified based on the Stetson Report discussed in detail above. EnRad Report at 5-6. Mr. Schneider also recommends that modeling and compliance measurements should account for worst-case atmospheric conditions where turbine noise is most noticeable. Trust Exhibit 7 at 22. The RSE model assumes full sound power production from all turbines operating simultaneously with moderate downwind conditions in all directions. Model calculations exclude potential sound attenuation due to foliage. The surfaces of nearby waterbodies were assigned no attenuation due to ground absorption. General ground absorption was calculated conservatively by assuming a mix of hard and soft ground. RSE Report at 8-9; EnRad Report at 6. Furthermore, the Oakfield noise compliance assessment plan requires monitoring under atmospheric conditions most favorable to sound propagation and therefore most likely to result in worst-case sound impacts. Order at 9; EnRad Report at 7-8 (describing meteorological conditions and other requirements for post-construction monitoring); see also Oakfield Sound Compliance Assessment Plan.

In other words, even the acoustical literature cited by the Appellants for the alleged proposition that the RSE model is inappropriate for predicting wind turbine sound emissions supports the methodology and accuracy of the Oakfield model.

Accordingly, based on all of the foregoing, the use of the ISO standard methodology in the RSE model has been proven to be an accurate and conservative predictor of wind turbine sound emissions, is consistent with international standards, and is appropriate for modeling noise emissions from the Oakfield Project.

B. Point Source Calculations Are Appropriate for Sound Modeling of Wind Turbines

The Appellants claim that Evergreen should have used line source rather than point source calculations in the sound modeling for the Project. Trust Appeal at 6. To the contrary, point source calculations actually yield more accurate predictive modeling than line source calculations when, as is the case here, individual sound emissions from each point source are known and the additive effects of the combined point sources are taken into account.

First, as discussed above, the accuracy of point source calculations in the RSE model is corroborated by the compliance measurements taken at the Stetson Mountain Project. Irrespective of the Appellants' theoretical contentions regarding the appropriateness of line source or point source calculations, the predictive accuracy of the RSE model is proven by the measurements taken at the Stetson Wind Project under conditions most favorable to sound propagation. See Stetson Report at Table 7-3. The results of the Stetson monitoring were independently evaluated and accepted by both Warren Brown and Ken Kaliski. See EnRad Report at 6; WERC Report at 23.

The use of point source methodology in modeling wind turbine noise has been standard industry practice for decades in both North America and Europe. The accepted international standard for determining sound power levels from wind turbines treats wind turbines as point sources. See IEC 61400-11, Wind Turbine Generator Systems – Part 11: Acoustic Noise Measurement Techniques (2002); see also Prediction and Assessment of Wind Turbine Noise, Bowdler et al., Acoustics Bulletin, March/April 2009 at 36-37 (stating that industrial wind turbines are most accurately modeled as point sources). Consistent with IEC 61400-11, RSE modeled wind turbines as point sources. RSE Report at 8.

At certain intermediate distances the sound emissions from a line of wind turbines can exhibit a "line source effect," meaning that sound will attenuate at a slower rate. As proven by actual measurements, that effect is accounted for in the RSE model. Although each turbine is modeled as an individual point source, the model reflects the additive effect of sound propagating toward a receiver point from multiple turbines. Accordingly, the RSE model demonstrates less sound attenuation in areas that are perpendicular to a turbine string than in areas that are on the same axis as a turbine string. See RSE Report at Figure 5 (estimated sound level contours). It should also be noted that the turbines in the Oakfield Project are sited in more of a "cluster" array rather than in a linear array found on some ridgeline projects, which, as a factual matter, undercuts the relevance of the Appellants' line source argument.

Furthermore, the Department's independent sound consultant, Warren Brown, reviewed the Appellants' claim that the turbines should have been modeled as line as opposed to point sources and concluded that "[p]oint source (spherical wave fronts) models appropriately represent sound pressure levels" from a wind turbine array such as the Oakfield Project. Warren Brown Comments, December 31, 2009, at 3. As the noted by Warren Brown in the Department's permit of the Record Hill Wind Project, "[i]n the case of known sound sources in a linear array, such as wind turbines along a ridge, calculations are the most accurate when based on each turbine as a point source." Record Hill Board Order at 10-11.

Accordingly, modeling turbines as point sources is consistent with accepted international standards and has been verified as accurate by the Stetson compliance monitoring. The Appellants' allegation that the use of point source analysis in the RSE sound model is insufficient to predict the Project's sound impacts is a disproved theory, not supported by the evidence, and is without merit.

270

C. The Appellants' Claims Regarding SDRS Are without Merit

The Appellants claim incorrectly that the Department did not properly account for potential Short Duration Repetitive Sounds ("SDRS") in its assessment of the Project's compliance with noise limits. Trust Appeal at 7.

SDRS are defined as a sequence of sound events, each clearly discernable, that cause an increase of 6 dBA or more in the sound level observed before and after the event. See 06-096 CMR Chapter 375, § 10(G)(19). Because they can be annoying, there is a 5 dBA "penalty" that applies when SDRS occur. Specifically, 5 dBA is added to the observed levels of the SDRS for purposes of determining compliance with the applicable standards. Id. § 10(C)(1)(e).

Once again, the Stetson compliance monitoring demonstrates that the Appellants' claims are without merit. As stated in the Department Order:

> EnRad commented that its experience with the review of the compliance monitoring data from the Stetson Wind Project, a project previously developed by an affiliate of the applicant which is now in operation, was that Short Duration Repetitive Sound was not observed using a rigorous protocol under vary favorable geometric and atmospheric conditions.

Order at 11. In other words, the measurements at the Stetson facility, which operates the same type of wind turbines that are proposed for the Oakfield Project, show that SDRS was not an issue even under worst-case conditions.

Nonetheless, in recognition of the potential for SDRS to occur and to ensure that applicable sound limits are met during all operating conditions, Evergreen developed a sound compliance assessment plan in consultation with the Department, EnRad and the Town of Oakfield. See Oakfield Sound Compliance Assessment Plan. The compliance protocol is designed to measure operating sound levels under meteorological conditions most favorable for sound propagation and when there is the greatest likelihood for SDRS to occur. Order at 13. In

the unlikely event that the Project exceeds applicable noise limits due to SDRS or any other reason, Evergreen is required to submit for Department review and approval a revised operation protocol to ensure that the Project will be in compliance at all protected locations. Order at 14.

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272

APPENDIX B

HEARINGS ON APPEALS OF EXPEDITED WIND ENERGY PROJECTS ARE LIMITED TO SUPPLEMENTAL EVIDENCE

When the Legislature enacted the Wind Power Act, it altered the scope of any Board appellate hearing regarding an expedited wind energy development by limiting such hearings to taking evidence that meets the "supplemental evidence" standard set forth in the Board's rules. Accordingly, Appellants' request for a public hearing on the appeal should be denied for the independent reason that the evidence Appellants seek to introduce at a public hearing does not and cannot meet the test for supplemental evidence.

A. Hearings on Board Appeals of Expedited Wind Energy Developments Are Limited to Introduction of "Supplemental Evidence"

38 M.R.S.A. § 341-D(4) establishes the Board's jurisdiction to hear appeals and sets forth the process and standard of review for such appeals. For all appeals except those involving expedited wind energy developments, Section 341-D(4) provides that in issuing a decision on an appeal, the Board may base its determination on (1) the Department's record; (2) any supplemental evidence admitted by the Board; and (3) any evidence submitting during any hearing held by the Board. See 38 M.R.S.A. § 341-D(4)(A) (appeals by aggrieved parties of Department decisions), (B) (appeals initiated by the Board) and (C) (appeals to the Board under other provisions of law); see also 06-096 CMR Chapter 2, § 24(B)(7). With regard to hearings, under the statute and the rules whether to hold a hearing is discretionary, and the Board may hold a hearing for any purpose it deems appropriate. See 38 M.R.S.A. § 341-D(4); 06-096 CMR Chapter 2, § 24(B)(1).

Appeals of expedited wind energy developments, such as the Oakfield Project, however, are governed by a separate provision under Section 341, which expressly limits the scope of a Board hearing on an appeal. Compare 38 M.R.S.A. § 341-D(4)(D) with D(4)(A-C). Section

341-D(4)(D) provides that in an appeal of an expedited wind energy development, the Board *shall* base its decision on (1) the Department's record; and (2) any supplemental evidence. See 38 M.R.S.A. § 341-D(4)(D). This does not mean, necessarily, that the Board may not hold a hearing in an appeal of an expedited wind energy development. Instead, this change in the statute merely limits such hearings to those necessary to allow introduction of "supplemental evidence."

B. The Board Employs an Appellate Standard of Review in Appeals of Expedited Wind Energy Developments

This reading of the statute is consistent with the standard of review governing appeals of expedited wind energy developments. Prior to the enactment of the Wind Power Act, the standard of review for all Board appeals was the same. Specifically, Subsection 4(A) of Section 341-D states that

> The board is not bound by the commissioner's findings of fact or conclusions of law but may adopt, modify or reverse findings of fact or conclusions of law established by the commissioner.

This language indicates a *de novo* standard of review, with the Board free to ignore the Department's factual or legal findings and to substitute its judgment for the Department. Subsections 4(B) and 4(C), which prior to the enactment of the Wind Power Act denoted the only other types of appeals heard by the Board, each cross-referenced the procedures or standard of review set forth in Subsection 4(A). Accordingly, the appellate standards were the same for all Board appeals.

When the Legislature enacted Subsection 4(D), however, it did not cross-reference the procedures or the standard of review in Subsection 4(A), nor did it include the language cited above. In omitting the language "[t]he board is not bound by the commissioner's findings...," the Legislature intended that the Board not be free to ignore the factual or legal conclusions of

the Department. Further, the Legislature added new language regarding the standard of review not previously utilized in Subsections 4(A), 4(B) or 4(C), specifically, that "[t]he board may remand the decision to the department for further proceedings if appropriate." 38 M.R.S.A. § 341-D(4)(D). The omission of the "not bound" language and the inclusion of the "remand" language demonstrates that the Board applies an appellate, not *de novo*, standard of review for expedited wind energy developments.[1]

In an appellate capacity, the Board should reverse a permitting decision by the Department only upon a showing that the Department's action was arbitrary and capricious, or was otherwise not supported by substantial evidence in the record. See, e.g., Nergaard, 2009 ME 56, ¶ 11. This standard of review reinforces the argument above that the primary factual record is the Department's agency record and any Board hearing should be limited in scope to evidence that was not and could not have been considered by the Department.

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[1] This interpretation, that the Legislature intended the Board to serve solely in an appellate capacity, is also evidenced by the fact that the Board may not assert primary jurisdiction over any expedited wind energy development, but may act only as an appellate body. See 38 M.R.S.A. § 341-D(2).