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**STATE OF VERMONT
PUBLIC SERVICE BOARD**

Petition of Deerfield Wind, LLC, for a certificate of public good)
authorizing it to construct and operate a 17-turbine, 34-35.7 MW)
wind generation facility, and associated transmission and)
interconnection facilities, on approximately 80 acres in the Green) Docket 7250
Mountain National Forest, located in Searsburg and Readsboro,)
Vermont, with 7 turbines to be placed on the east side of Route 8)
On the same ridgeline as the existing GMP Searsburg wind facility)
(Eastern Project Area), and 8 turbines along the ridgeline to the)
West of Route 8 in a northwesterly orientation (Western Project))

**PUBLIC COMMENT AND REQUEST FOR HEARING
ON WIND TURBINE AND SUBSTATION NOISE OR
REQUEST FOR STAY UNTIL COMPLETION OF RULE-MAKING**

Vermonters for a Clean Environment, Inc. (VCE), on behalf of our members who have interests affected by the Deerfield Wind project, hereby request the Public Service Board (PSB) to hold a technical hearing on wind turbine and substation noise in the proposed Iberdrola Docket 7250 Deerfield Wind project that was approved in 2009 and is currently before the PSB in post-CPG compliance filings. In the alternative we request the PSB to stay the development of Deerfield Wind until the PSB completes the sound standard rule-making being required by the legislature.

Changed circumstances

The PSB issued the CPG and Final Order for the Deerfield Wind project more than seven years ago, on April 16, 2009.¹ The Board's decision was not unanimous, but split 2 – 1. Only one of the three Board members who heard the case currently sits on the PSB. Only one of the two Board members who approved issuance of the CPG currently sits on the PSB.

At the time of issuance of the Deerfield Wind CPG, no industrial wind turbines of the type planned for Searsburg and Readsboro had been erected or were operating in Vermont. Vermont now has three industrial wind projects. We are learning about the impacts from those wind projects. We are learning that wind turbines produce noise pollution. We are learning that the PSB's sound standard of 45 dBA Leq (averaged over an hour) that was applied to the Deerfield Wind project in 2009 has resulted in unresolved noise problems that have made living near the operating industrial wind turbines intolerable for many of the neighbors who have testified in front of the PSB and the legislature that the wind turbine noise results in sleep deprivation, health problems, and sacrifices the right to the quiet use of neighbors' properties. We are learning that homes do not attenuate 15 dBA from outside to inside. Vermont's Department of Public Service (DPS) has stated in a filing to the PSB that some wind turbine neighbors will experience "a significant impairment of quality of life."²

After the PSB issued the CPG for Iberdrola's Deerfield Wind project in 2009, Iberdrola in 2012 announced its decision to change the model, height, blade length and power output of some of

¹ <http://www.state.vt.us/psb/orders/2009/files/7250finalorder.pdf>

² <http://vce.org/2015.12.18%20-%20DPS%20Comments%20re%20McLane%20Relief%20Mot.pdf>

the turbines to be used in the project.³ The PSB has not evaluated the proposed change in wind turbine model or potential changes in noise produced by the larger industrial wind turbines as part of Docket 7250. The PSB now has reason to know that the noise standard approved for Deerfield Wind is likely to result in excessive noise pollution and negative public health impacts based on the experiences and credible complaints from neighbors to Vermont's three operating industrial wind turbine projects. VCE requests the PSB hold a technical hearing and update its noise standard for Deerfield Wind due to the changed circumstances resulting from Iberdrola's decision to change the turbine models to be used on the mountains in Readsboro and Searsburg. In the alternative we request that the PSB stay the approval of construction of Deerfield Wind until the noise standard rule-making being required by the legislature is completed.

The PSB's noise standard that was approved for Deerfield Wind has resulted in unresolved noise complaints at all three operating wind projects in Vermont. Iberdrola's Hoosac Wind project in Massachusetts is also the subject of noise complaints and compliance issues.

The PSB currently has three open dockets resulting from noise complaints from Vermont's industrial wind projects, and Massachusetts has taken action against Iberdrola's Hoosac Wind project due to noise complaints from neighbors.

1. **Sheffield.** In UPC/FirstWind/SunEdison/Terraform Power's "Vermont Wind" Sheffield wind project, Docket 7156, the DPS submitted a report⁴ by its sound expert finding that the project has violated the interior noise standard of 30 dBA based on the failure of the

³http://a123.g.akamai.net/7/123/11558/abc123/forestservic.download.akamai.com/11558/www/nepa/9046_FSPLT2_290877.pdf

⁴<http://vce.org/7156%20-%202015.09.25%20-%20DPS%20Acentech%20Attenuation%20Report.pdf>

home to attenuate 15 dBA from outside to inside, which is the standard the PSB has relied on in all three industrial wind project approvals to assure public health is protected inside neighboring homes. The PSB responded by opening investigation Docket 8653 which is ongoing.

The DPS report and reports by experts submitted by Paul Brouha confirm that the PSB's assumption that homes will attenuate from exterior to interior by 15 dBA is, in fact, not occurring. *These test results call into question the interior sound standard established by the PSB in all three operating industrial wind cases, and also in the case of Deerfield Wind where the Final Order and CPG assumes a 15 dBA attenuation from outside to inside.* The Brouha home test results and the flawed assumption previously accepted by the PSB that homes attenuate 15 dBA from outside to inside is now known to the PSB, as confirmed by two different sound experts.

Neighbors of the Sheffield wind project who are members of VCE have had to abandon their home at great expense, initiate a nuisance lawsuit at great expense, experience health effects, and no longer experience the peaceful enjoyment of their properties, both indoors and outside.

2. **Lowell.** In GMP's Lowell Mountain Wind project, Docket 7628, the PSB found that GMP violated the noise standard established in the Final Order and CPG, and issued an order⁵ accepting the *successful* implementation of continuous sound monitoring and a civil penalty in response. The continuous sound monitoring equipment was put in place

⁵ <http://psb.vermont.gov/sites/psb/files/orders/2014/2014-10/7628%20Order%20Noise%20Violations.pdf>

in April, 2015. On April 23, 2016, a report on one month of data for May, 2015 was submitted by the DPS to the PSB.⁶

Neighbors of the Lowell wind project who are members of VCE who sought the alternative penalty in the form of continuous sound monitoring consider the year-long continuous sound monitoring as enacted by DPS to be a *total failure* and therefore *not successful*, as DPS has not released timely reports and has done nothing to address the excessive ongoing wind turbine noise pollution problems neighbors continue to experience.

Neighbors have abandoned homes, sold homes at a loss, experienced cardiac issues, tinnitus, headaches, panic attacks, nausea, and sleep deprivation. Neighbors of the Lowell wind project told the PSB in May, 2014 as part of the Docket 8167 Sound Standard Investigation that they “hate” their homes, have to sleep with fans running, have lost the enjoyment of their properties, have children who will not play outside and run around with hands over ears. Despite numerous complaints by neighbors who have followed all established guidelines, procedures and protocols, there has been no effective response to the noise pollution complaints resulting from GMP’s operation of the Lowell wind project. Neighbors have stopped complaining due to the failure of all responsible parties to provide a meaningful response to complaints.

3. **Georgia Mountain.** David Blittersdorf and James Harrison’s Georgia Mountain Wind project, Docket 7508, is currently the subject of an investigation in Docket 8613 opened by the PSB in October, 2015⁷ in response to ongoing noise complaints from neighbors.

⁶ [http://vce.org/7628%20-%202016.04.20%20-%20DPS~Acentech%20May%202015%20Monitoring%20Summary%20\(scanned\).pdf](http://vce.org/7628%20-%202016.04.20%20-%20DPS~Acentech%20May%202015%20Monitoring%20Summary%20(scanned).pdf)

⁷ <http://psb.vermont.gov/sites/psb/files/orders/2015/2015-11/8613%20OrderOpeningInvestPHC.pdf>

In addition, the PSB is currently reviewing filings regarding the operation of Georgia Mountain Wind turbines in icing conditions as part of Docket 7508, which has also resulted in unresolved noise complaints due to the failure of the developer to follow the approved winter operating protocol.

Neighbors of the Georgia Mountain wind project who are members of VCE cannot sleep at night, must sleep with fans running, sometimes sleep in their basements or living rooms, have had family members move out of the home, experience headaches and other health symptoms that have not been addressed, studied, or resolved. Neighbors have had their property assessments reduced, no longer enjoy gardening or outdoor activities, and legislators who have visited the area report the noise was terrible.

4. **Massachusetts.** Just beyond the VT/MA border, Iberdrola erected the Hoosac Wind project, which went online at the end of 2012. It has been operating for the same amount of time as Lowell wind and Georgia Mountain wind. The 19 GE 1.5 MW 340 foot tall wind turbines on ridgelines in Florida and Monroe, MA have similarly generated noise complaints from neighbors. As a result, RSG was hired to conduct sound monitoring and issued a report in June 2013.⁸ A noise expert identified numerous flaws in the report.⁹

Despite the flaws in the RSG report, the project was found to be out of compliance by Mass. DEP¹⁰, and Iberdrola was required to take remedial action. In 2015, Mass. DEP issued an administrative consent order (enforcement action)¹¹ after the

⁸ <https://windwisema.files.wordpress.com/2013/08/hoosac-sound-monitoring-report-6-27-20131.pdf>

⁹ <https://windwisema.org/hoosac-wind-sound-level-monitoring/>

¹⁰ <http://studylib.net/doc/7438484/study--monroe-turbines-too-noisy>

¹¹ <http://www.mass.gov/eea/agencies/massdep/service/enforcement/enforcement-actions-2015.html>

company failed to implement the required sound reducing measures.¹²

VCE's staff have visited with neighbors of the Hoosac Wind project, including the home of a Readsboro, Vermont resident who lives 1.9 miles from the nearest wind turbine. We can attest to the extreme pain and suffering occurring for the neighbors of Iberdrola's Hoosac Wind project, including the Vermonter, living near wind turbines that are smaller than those planned by Iberdrola for the Deerfield Wind project.

The record before the PSB is clear. Wind turbines operating according to the noise standard the PSB approved for Deerfield Wind in 2009 are virtually guaranteed to result in complaints from neighbors,¹³ harm to public health, and also in the unique circumstance of the specific site, will result in degradation of the wilderness characteristics of the George D. Aiken Wilderness.¹⁴ The PSB is responsible for assuring no undue adverse impact to aesthetics, which includes noise pollution, and for protecting public health. The PSB has the opportunity right now to review the evidence in the record and take updated testimony to learn from existing wind projects, as recommended in Vermont's Comprehensive Energy Plan.¹⁵

¹²<http://wamc.org/post/massachusetts-issues-consent-order-hoosac-wind-project#stream/0>

¹³<http://vce.org/deerfield1.pdf>

¹⁴http://vce.org/James_Decl_Deerfield.pdf

¹⁵https://outside.vermont.gov/sov/webservices/Shared%20Documents/2016CEP_Final.pdf,

pp. 322-323

Strategy 2: Learn from existing wind in-state wind projects to improve the siting and review requirements and processes for future wind development.

(1) The DPS, ANR, and Department of Health should continue to learn from the operation of existing wind projects to inform any future recommendations for sound, aesthetic, health, environmental, and public engagement guidelines or standards;

(2) The state should consider formulating requirements for health impact assessments and pre-development public engagement and mediation processes for projects that fail to meet recommended guidelines or standards.

(3) In Public Service Board proceedings related to the siting of proposed wind generation projects, the Department should advocate for adoption of sound standards that are clear, readily enforceable, and protective of public health. These standards should be based on solid science, good public policy, and best practices, and would benefit from clear companion guidance regarding monitoring and compliance protocols.

Deerfield Wind Final Order identifies noise as a major concern

In its Final Order from 2009, the PSB noted, “The potential for adverse noise impacts from the turbines is one of the principal concerns raised by the parties in this case.” [Final Order, p. 66]

At the time the project was approved, the PSB relied on testimony by RSG to support the following noise standard:

Deerfield shall construct and operate the Project so that the turbines emit no prominent discrete tones pursuant to ANSI standards at the receptor locations; and Project-related sound levels at any existing surrounding residences do not exceed 45 dBA(exterior)(Leq)(1 hr) or 30 dBA (interior bedrooms)(Leq)(1 hr). [Final Order, p. 67]

The noise standard approved by the PSB for Deerfield Wind has now been found to be inadequate in numerous ways.

- Testing at the Brouha home in Sutton 1.25 miles from the Sheffield wind turbines, which was replicated, found that the neighboring home does not attenuate 15 dBA from outside to inside. Therefore the interior bedroom standard for Deerfield Wind is insufficient to assure compliance and protect public health. DPS is now claiming that the noise protocol for interior sound levels is not enforceable¹⁶ and Vermont Wind is attempting to reopen and change the Noise Monitoring Plan.¹⁷
- RSG’s Ken Kaliski was the sound expert for GMP’s Lowell wind and David Blittersdorf’s Georgia Mountain wind, both of which have resulted in numerous and continuing noise complaints with investigation dockets currently open at the PSB. RSG’s models and recommended standards on which the PSB has relied have failed

¹⁶ [http://vce.org/2016-02-10%20VW%20Initial%20Memorandum%20\(complete%20filing\).pdf](http://vce.org/2016-02-10%20VW%20Initial%20Memorandum%20(complete%20filing).pdf)

¹⁷ <http://psb.vermont.gov/sites/psb/files/Sheffield%20Sound%20Monitoring%20Plan.pdf>

to protect neighbors from unhealthy levels of noise pollution and have required neighbors to sacrifice their rights to the peaceful enjoyment of their properties.

- Numerous neighbors from all three Vermont wind project areas report that the 45 dBA standard is too high. They say they are frequently agitated by noise from the wind turbines at much lower levels.¹⁸ With ambient nighttime noise levels around 20 dBA, wind turbine neighbors are often exposed to noise more than 25 dBA higher than background. It has been well established by noise control experts that increases of noise more than 10 dBA above background will result in complaints. Noise standards adopted by wind-intensive countries like Denmark (37 dBA LMax in quiet areas) and Germany (35 dBA nighttime) provide evidence that Vermont's standard is too high.
- The standard as averaged over an hour allows for extremely high noise levels to occur within that hour, resulting in sleep disruption.
- The standard neglects low frequency noise¹⁹ and infrasound²⁰ which have been well studied since 2009 and must be considered as part of the acoustic profile of wind turbines. In a collaborative test at a wind project in Shirley, Wisconsin in 2012, the sound experts reached the following conclusion:

The four investigating firms are of the opinion that enough evidence and hypotheses have been given herein to classify LFN and infrasound as a serious issue, possibly affecting the future of the industry. It should be addressed beyond

¹⁸<http://psb.vermont.gov/sites/psb/files/docketsandprojects/electric/majorpendingproceedings/Scott%20Melodie%20McClane.pdf>

¹⁹http://www.windturbinesyndrome.com/wp-content/uploads/2011/06/JASMAN12963727_1.pdf

²⁰<http://vce.org/Infrasound-wind-turbines-4-August-2015.pdf>

the present practice of showing that wind turbine levels are magnitudes below the threshold of hearing at low frequencies.²¹

The PSB should also review RSG’s substation noise predictions

In addition to wind turbine noise, the Deerfield Wind project also includes noise from a substation transformer. The PSB’s Final Order states, “The substation transformer installed for the Project will be designed to limit its sound level to no more than 45 dBA at the nearest residence. Kaliski pf. at 11. [Final Order, p. 65]”

Ken Kaliski of RSG has a record at the PSB of underestimating noise from a substation at the VELCO NRP. He was questioned about it by PSB members at the August 8, 2013 GMP Show Cause Hearing.²²

The PSB would be negligent in its duties if it allows Deerfield Wind to proceed based on 2009 testimony from Ken Kaliski of RSG regarding substation transformer and wind turbine noise.

Request for hearing on noise issues associated with Deerfield wind turbines and substation transformer or request for stay of development until completion of noise standard rule-making

VCE hereby requests that the PSB hold a technical hearing on wind turbine and substation transformer noise before allowing Iberdrola to proceed with construction of the Deerfield Wind

²¹ Walker, B., Hessler, G., Hessler, D, Rand, R. & Schomer, P. “A Cooperative Measurement Survey and Analysis of Low Frequency and Infrasound at the Shirley Wind Farm in Brown County, Wisconsin”. Report Number 122412-1 Issued: December 24, 2012, p. 167

²² Vermont Public Service Board cross-examining Ken Kaliski of RSG, expert witness on noise for GMP August 8, 2013 <https://vimeo.com/72075702>

project. In the alternative, VCE requests that the PSB stay the development of Deerfield Wind until it completes rule-making required by the legislature.

With this filing, VCE is putting the PSB on notice that there is now a considerable record from existing wind projects of failure to protect public health and neighboring property owners' rights to the peaceful enjoyment of their properties. The sound standard the PSB established in 2009 for the operation of 15 2.0 MW Gamesa wind turbines on ridgelines in Readsboro and Searsburg, Vermont is now known to cause considerable harm to neighbors. The PSB must exercise its discretion and authority to act on this request rather than allow more harm to public health, property rights and the environment. It is also in Iberdrola's interests to address the noise standard now, before the company invests millions of dollars in development of the project. Iberdrola is aware of the economic costs of allowing projects to be built without proper noise controls, as 60 neighbors in Herkimer County, New York are suing the company over nuisance from wind turbine noise pollution.²³

If the PSB chooses to ignore this request and allows Iberdrola to proceed with construction, the members of the PSB will knowingly be exposing more Vermonters and the environment to unhealthy levels of noise pollution, loss of quality of life, and the potential for expensive nuisance litigation.

In light of what is now known about the harm caused by the noise produced by industrial wind turbines, it would be irresponsible and irrational for the PSB to allow Deerfield Wind to go

²³ <http://www.courthousenews.com/2012/10/30/51797.htm>

ahead with allowing the turbine noise levels that are known to cause harm. As an alternative to holding a technical hearing on noise in Docket 7250 now, since new legislation will require all wind projects to comply with the PSB's noise rules after they are promulgated in 2017, and since this project has not yet been built, it would be prudent for the PSB to wait until the Board finishes rule-making to set new standards for the Deerfield Wind project that would better protect the health and well being of nearby residents and that would be consistent with all projects going forward.

VCE plans to move to intervene on behalf of our members and, if granted, participate to the fullest extent possible to assist the PSB in developing the proper sound standard for Deerfield Wind, if the PSB grants this request to hold a technical hearing. Alternatively, VCE requests the PSB acknowledge the changed circumstances Iberdrola has presented in Deerfield Wind by choosing larger wind turbines than were evaluated in the hearings that led to the 2009 issuance of the CPG, and stay the development of Deerfield Wind until after the noise rule-making required by the legislature is complete.²⁴

Respectfully submitted this 27th day of April, 2016



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²⁴ The content of all footnotes in this document can be viewed here
http://vce.org/VCE_Docket7250_FootnoteDocuments_042716.pdf