



February 3, 2017

Mrs. Judith Whitney, Clerk
Vermont Public Service Board
112 State Street, 4th Floor
Montpelier, VT 05620

Re: Draft Rule 5.700, Sound Levels from Wind Generation Facilities

Dear Mrs. Whitney,

Renewable Energy Vermont (REV) appreciates the Public Service Board's extensive review and consideration of public comments, peer-reviewed scientific reports, and expert testimony over the last several years regarding public health-based sound rules for wind electric generation facilities. REV offers the following comments in response to the Board's Draft Rule 5.700 issued on January 20, 2017.

REV supports the Draft Rule's overall framework in order to ensure a clear and reasonable process for wind facility neighbors, owners, and regulators. In particular, REV supports the Board's decision to require an exterior, A-weighted standard and the use of 10 minute interval data to determine compliance, and urges the Board to maintain this framework in the formal rule proposal. Robust preconstruction modeling will require potential projects to be designed and sited based on real-world conditions to avoid exceedances.

Please find enclosed a redlined version of the Draft Rule with suggested edits and comments focused on increasing certainty and enforceability of the Rule, to the benefit of all stakeholders. REV offers these edits out of concern that the procedure set forth under Draft Rule 5.704 for determining compliance with the sound limit contains several undefined terms, and as currently drafted would likely yield the same noise assessment issues and enforcement difficulties the Board faces today.

Several issues are of particular importance related to the sound level and modeling parameters. The 40 dBA sound limit specified in Draft Rule 5.703(C) is too low when considering what is necessary to protect public health and the shorter measurement interval specified in the Draft Rule. The Rule should specify that only sound attributable to a wind generation facility is considered for purposes of the limit, i.e., there is no provision for separating background sound from project-only sound. The modeling parameters set forth in Draft Rule 5.705(C) require multiple, cumulative layers of "uncertainty adjustments," which effectively lower the sound limit by some 10 dBA, rendering wind energy all but infeasible in Vermont. Those adjustments taken together are unreasonable and unnecessary to conduct modeling that is sufficiently, conservative and protective.

These issues are discussed in greater detail below and included in the enclosed redlined Draft Rule.

Sound Limit

The Draft Rule would lower the Board's sound limit from 45 dBA over 1 hour to 40 dBA over 10 minutes. As a result of both changes, the draft limit is significantly below levels required by the



majority of other jurisdictions, and well below levels needed to protect public health, as comments received previously by the Board from the Department of Health, Department of Public Service, and peer reviewed studies by public health experts state. The low dBA level, when combined with the Draft Rule’s required model parameters, make residential, commercial, and community scale wind projects infeasible. The Draft Rule does not specify that the proposed limit applies only to sound from wind generation facilities. Background levels alone routinely reach 40 dBA, even in quiet areas when there are low ground wind speeds. Compliance must be based on sound levels clearly attributable to the project, with background sound excluded.

To again put the proposed 40 dBA sound level in context, the chart below summarizes typical sound levels for other types of activities and environments.¹

Decibel Scale for Everyday Activities	
Activity	Decibel Level
Soft Whisper	30
Indoor Quiet Residence, Office, Library	40
Rainfall, Refrigerator	50
Normal Conversation	60
TV audio, Human Voice at 10 ft	70
Doorbell or Car at 10 ft	80
Lawn Mower, Tractor, Blender	90
Snow Mobile	100
Leaf Blower, Power Saw, Nightclub Band	110
Chain Saw, Rock Concert	120

Compliance Determinations

As currently drafted, the compliance determination procedure set forth in Draft Rule 5.704 would not resolve the issues associated with monitoring implementation and compliance determinations currently faced the Board and stakeholders for existing wind projects.

Draft Rule 5.704(B) currently requires that compliance be determined using 12, 10-minute intervals collected in one “compliance measurement period.” The term “compliance measurement period” is not defined, but it appears to refer to one 12-hour period from 7:00 p.m. to 7:00 a.m. It is highly unlikely that 12 intervals could be collected in one night that comply with all of the data filters set forth in Draft Rule 5.707. Monitoring could continue for an unreasonably long period of time with inconclusive results.

Further, Draft Rule 5.704(C) states that if 12 valid intervals are not found in a night, 6 or more contiguous intervals may be combined with 6 or more contiguous intervals from an adjacent night (i.e., the night after). But 6 contiguous 10-minute periods simply amounts to a 1-hour period—the same unit currently used by the Board. Finding two 1-hour periods on consecutive nights that satisfy the data filters specified in the Draft Rule will be enormously difficult, presenting the same if

¹ See <http://chcheating.org/noise/common-environmental-noise-levels/>.



not a greater degree of difficulty as the Board's current approach. The Board should adopt a method for determining compliance that can be implemented under real-world constraints.

REV suggests revisions to Draft Rule 5.704 to make it easier to understand and enforce. Ultimately, however, REV continues to believe that a statistical approach to compliance determinations strikes the best balance between enforceability and accuracy. The approach put forward by Aercoustics on behalf of the Department of Public Service is a good example that has been implemented in numerous settings. Further assessment of that approach should be made by the Board and parties in this rulemaking proceeding.

Modeling Parameters

The modeling parameters currently specified in Draft Rule 5.705 effectively impose a sound limit well under 40 dBA, an unreasonable and unnecessarily low limit that would make most wind projects infeasible.

Subsection (C) currently requires pre-construction modeling to use "the most conservative" inputs available for all parameters. Modeling already typically uses appropriately conservative assumptions, but that is not synonymous with dialing every input to its most conservative setting. For example, the Draft Rule would currently require models to assume that the ground reflects all sound, irrespective of terrain or vegetation. That is a condition that simply does not exist in the real world, and requiring it to be built into models effectively imposes an unnecessary "penalty" of several decibels.

Similarly, subsections (C)(8) and (9) both require an "uncertainty adjustment" to be made to the output of a sound model. Subsection (C)(8) requires an adjustment for uncertainty recommended by the turbine manufacturer, and subsection (C)(9) requires an adjustment for "uncertainties in the modeling." These adjustments are cumulative, and taken together, impose another several-decibel penalty. Moreover, the amount of the adjustment made under subsection (C)(9) is unspecified. That will inevitably lead to contentious litigation with competing experts recommending different adjustments.

When the effects of the "most conservative" modeling rule and the uncertainty adjustments are summed up, sound models prepared under the Draft Rule could overstate sound levels by 5–10 decibels or more. Because siting decisions and CPG approvals are based on the sound modeling, the Draft Rule effectively requires wind developers to demonstrate compliance with a sound limit as low as 30 dBA—a prohibitively low standard that is not justified to meet applicable section 248 requirements and must thus be rejected as arbitrary.

Small Wind

REV's markup of the Draft Rule proposes the creation of a residential and small commercial scale category (25 kW and less), with an exterior dBA level that can be reasonably achieved by the small scale wind turbines that are presently available in the marketplace. See <http://smallwindcertification.org/certified-small-turbines/>. The Board has previously issued CPGs for at least 155 small wind turbines that are 33 kW or less, with few, if any, sound complaints occurring.



REV is also concerned about the Draft Rule requiring excessive setbacks for small wind turbines in lieu of meeting a numeric sound limit. Looking to other jurisdictions, Ontario's setback does not apply to wind turbines with a capacity of less than 50 kW.²

REV again thanks the Board for the opportunity to participate in the rulemaking proceeding. Please do not hesitate to contact us with any questions.

Respectfully submitted,

A handwritten signature in green ink, appearing to read "Olivia Andersen", is positioned above the typed name.

Olivia Campbell Andersen
Executive Director
Renewable Energy Vermont

Renewable Energy Vermont's members include businesses, non-profits, utilities, and individuals committed to reducing our reliance on dirty fossil fuels by increasing clean renewable energy and energy efficiency in Vermont. Vermont's clean energy economy supports at least 17,715 jobs, representing approximately 6% of Vermont's workforce. Together, we will achieve 90% total renewable energy (electric, thermal, transportation) in order to reduce climate pollution and grow our local economy.

² ONTARIO REG. 359/09 § 54(1)(1).