

BY ELECTRONIC MAIL

August 26, 2015

Chairman Martin Honigberg
New Hampshire Site Evaluation Committee
21 South Fruit Street, Suite 10
Concord, NH 03301

Re: NH Site Evaluation Committee Rulemaking, Docket No. 2014-04

Dear Chairman Honigberg and Committee Members:

On behalf of New Hampshire Wind Watch (NHWW) and the Windaction Group, we thank you for the opportunity to participate in the above referenced matter.

This docket has clearly triggered high public interest. Those we represent recognize the arduous and complex task before you and the tight schedule under which you are operating. We were very supportive of the legislature's decision to grant an enlargement of time and generally we are pleased with the work of the Committee.

Despite the progress made, we are compelled to inform you of an ongoing issue we have with the rulemaking process that has hindered our ability to be heard by the Committee and may be at odds with the plain language of RSA 162-H:10-a.

As you are aware, RSA 162-H:10-a requires that "[w]hen establishing any criteria, standard, or rule for a wind energy system or when specifying the type of information that a wind energy applicant shall provide to the committee for its decision-making, the committee *shall rely upon the best available evidence.*" (*emphasis added*) There are at least two topics in the draft rules where we believe the Committee has failed to consider the best available evidence: safety setback requirements and shadow flicker limits.

A. Safety Setback Requirements

Contrary to popular perceptions, the issue of safe turbine siting cannot be overstated. Since fall 2008, there have been at least seven (7) *reported* catastrophic turbine failures in the Northeast alone. In three instances the turbines collapsed; in the other four the turbines caught fire. (see table including links)

LOCATION	DATE	FAILURE
Searsburg, VT	Aug-15	Fire
Fenner, NY	Oct-14	Fire
Kibby Mountain, ME	Apr-13	Fire
Altona, NY	Jan-12	Fire
Fenner, NY	Dec-09	Collapse
Altona, NY	Mar-09	Collapse
Searsburg, VT	Sep-08	Collapse

Table 1: Recent Turbine Failures in the Northeast

Not all turbine failures are reported.

During the recent Granite Reliable Power proceeding (SEC Docket 2014-03), John R. Cyr, Operations and Maintenance Supervisor for the project, testified that anticipated turbine failures could include lightning strikes and ice damage to the blades. Last summer, the turbines on Mount Kelsey had 16 lightning strikes. (*Transcript at 55-56 Nov 24, 2014*). In the last 2-3 years, an estimated 50-60 lightning strikes were logged for the entire project (33 turbines). (*Transcript at 57 Nov 24, 2014*) When asked the likelihood of a blade failure due to lightning, Mr. Cyr stated “Well, you know, we’re talking about Mother Nature here. This is weather. This is lightning. You can’t – you can’t predict lightning, or I can’t predict lightning. ...I don’t know anybody that can predict where lightning is going to hit, and what the extent of the damage will be.” (*Transcript at 58 Nov 24, 2014*).

The wind industry is well aware of the safety concerns. In our March 2015 joint comments, we included the following relevant industry and New Hampshire specific documents pertaining to turbine safety and setback distances. These same sources were discussed during the June 29, 2015 technical session and several were also cited in the SB-99 Health and Safety section of the OEP stakeholder document.

1) Vestas, *Mechanical operating and maintenance manual V90-3.0MW turbine,*

<http://www.windaction.org/posts/15632-vestas-mechanical-operating-and-maintenance-manual-v90-3-0mw-turbine#.VQ3KBxF98E>

Do not stay within a radius of 400m (1300 ft) from the turbine unless it is necessary. If you have to inspect an operating turbine from the ground, do not stay under the rotor plane but observe the rotor from the front. Make sure that children do not stay by or play nearby the turbine. If necessary, fence the foundation.

2) Nordex Energy GmbH, *Rules of Conduct on, in and around Wind Turbines Turbine Classes K06, K07, K08 All Types*

<http://s3.amazonaws.com/windaction/attachments/2351/NordexSafetyManual-c.pdf>

Falling Turbine Parts - In case of a fire in the nacelle or on the rotor, parts may fall off the wind turbine. In case of a fire, nobody is permitted within a radius of 500 m (1640 feet) from the turbine.

3) Volkswind GmbH, *Planning your Wind Farm,*

<http://www.volkswind.de/en/wind-farm-development/planning.html>

Volkswind would evaluate whether your land is appropriate for one or more wind turbines. For a fast & reliable evaluation you might refer to the following parameters:

- Setback at least 1000 meters (3281 feet) from occupied houses
- Outside the boundaries of protected or conservation areas

4) GE Energy, *Ice Shedding and Ice Throw – Risk and Mitigation,*

http://site.ge-energy.com/prod_serv/products/tech_docs/en/downloads/ger4262.pdf

Rotating turbine blades may propel ice fragments up to several hundred meters if conditions are right depending on turbine dimensions, rotational speed and many other potential factors.

5) Iberdrola/Groton Wind LLC, *Environmental Health and Safety Plan*,
http://www.nhsec.nh.gov/projects/2010-01/documents/131011safety_plan.pdf

Ice that has formed on a wind turbine typically sheds as the air temperatures rises [sic]; however, cases have been documented when ice shedding occurred without a temperature rise. Shedding ice may be thrown a significant distance as a result of the rotor spinning or wind blowing the ice fragments. Icing of blades is a significant issue that during "shedding" poses a risk of injury or property damage. Everyone is reminded that at any time when "icing" may potentially occur there is no replacement for using constant vigilance in assessing your surroundings.

6) Will Staats, NHF&G, *Testimony before Vermont Committee*,
<http://www.windaction.org/posts/36424-testimony-of-will-staats#.VQ3I1BrF98E>

The danger of ice throw cannot be over emphasized. I have often worked near these turbines on our research projects in the winter and witnessed the large divots in the snow where ice has been flung from the turning blades. On one terrifying occasion, my truck was struck by flying ice that, had it hit me or anyone else close by, could have killed or caused serious injury. One operator of a wind installation told me these machines will throw a four hundred pound chunk of ice one thousand feet.

Wind turbine safety distances that extend onto non-participating properties may risk rendering those properties unsafe for further development. Local building departments could refuse to grant building permits in the setback zone and homeowner insurance companies may refuse to insure structures. The SB-99 Health and Safety Stakeholder group agreed that safety zones around the turbines should not encompass portions of non-participating properties, public roads or public gathering areas¹, but the current draft rules permit just that. Some may argue that the draft rule merely establishes a minimum distance but it does much more. It sets an expectation of acceptable turbine siting that, if relied upon by a developer, could prove impossible to claw back.

Chairman Honigberg was right when he opined at the April 15 deliberative session that this is an issue that people "are going to dig in on." (*Transcript at 91*) 'People digging in' is the reason why the SB-99 stakeholder group could not reach consensus. But we respectfully remind the Committee that consensus is not the standard defined under RSA 162-H:10-a. Rather, RSA 162-H:10-a tasks the Committee with examining the "best possible evidence" and making a decision. Clearly, there is evidence in this docket, that shows public safety will be at risk if Site 301.14(f)(2) is adopted as written.

¹ #7 in Table 3.a of the SB-99 Stakeholder Document

B. Shadow Flicker

In reading the April 15, 2015 transcript, it is evident the Committee did not fully grasp the industry jargon cited in the SB-99 stakeholder document for shadow flicker. These terms, including “astronomic worst case scenario²” are essential for understanding how shadow flicker modeling is conducted and the parameters for fully assessing the duration of impact prior to a project being constructed³.

The Committee appropriately acknowledged its limited experience with the topic and asked that shadow flicker be discussed at the June 29 technical session, which it was, in great detail, including a comprehensive explanation of how Mason County, Michigan dealt with significant shadow flicker issues at residences located more than a mile from the turbines. The County ultimately eliminated shadow flicker at the project site by retrofitting the turbines with shadow flicker sensors and selectively curtailing the offending turbines until the sun moved out of position. This summer Mason County adopted a 0-hours shadow flicker standard but none of this evidence⁴, to the best of our knowledge, was conveyed to the Committee.

While the Committee’s intention in convening the June 29 technical session may have been to further inform the rulemaking process on shadow flicker, safety setbacks, and noise, our efforts were severely constrained by an apparent bias in the process that favors consensus over the best available evidence. Reaching consensus is a laudable goal and something we should work toward, but not if it means ignoring credible evidence and lowering the bar on protecting health and safety.

C. Next Steps

We are obviously disappointed that the justifications accompanying our recommendations appear to have been filtered out in the Committee’s review process and possibly ignored altogether. While we had no expectation the Committee would embrace our recommendations without debate, we did not expect to see the core of our work dismissed and the weight of our recommendations reduced to mere opinion.

It is our sincere hope the Committee will revisit the health and safety issues for a more informed discussion. If that is not possible, we recommend you forego any standards for setbacks and shadow flicker until such time that the Committee is better equipped to explore these topics. Having no standards would be preferred over adopting standards that are not fully considered.

² The “worst case” is the theoretical maximum number of hours that shadow flicker will be produced at a location assuming: 1. the sun is shining all day from sunrise to sunset (no cloud cover), 2. the rotor-plane of the turbine is always perpendicular to the sun; and 3. the turbine is always operating. Upon determining the worst case scenario, average meteorological conditions for the project site, including the number of expected hours of cloud cover per year, are applied in order to model a more realistic estimate for the number of hours of flicker

³ Section C.2 of the SB-99 stakeholder document provides a good explanation of what the terms mean. We also encourage the Committee to review the Antrim Wind Docket 2012-01, Appendix 13b for an example of what a shadow flicker assessment. http://www.nhsec.nh.gov/projects/2012-01/documents/120131appendices13a_13b.pdf

⁴ The story of Mason County, Michigan is briefly documented in Section C.2 of the SB-99 stakeholder document.

Thank you again the opportunity to be part of this important process. If you have any questions or would like to discuss these issues further, we would welcome hearing back from you.

Respectfully,

Lori Lerner
New Hampshire Wind Watch
215 Lake Street Bristol, NH 03222
603-744-2300

Lisa Linowes
The Windaction Group
286 Parker Hill Road
Lyman, NH 03585
603-838-6588