



Appalachian Mountain Club

November 4, 2010

New Hampshire Department of Environmental Services
Site Evaluation Committee
29 Hazen Drive
PO Box 95
Concord, NH 03302-0095

Re: Application of Groton Wind, LLC; SEC Docket No. 2010-01

Chairman Getz and members of the Subcommittee:

The Appalachian Mountain Club submits the following comments on the above-referenced application.

The AMC, headquartered in Boston, MA, is a private, non-profit organization whose mission is to “promote the protection, enjoyment, and understanding of the mountains, forests, waters, and trails of the Appalachian region”. We encourage public respect for the natural environment, provide leadership in its protection, and provide recreational and educational programs and facilities for the enjoyment and wise stewardship of the outdoors. Our 100,000 members, advocates, and supporters reside largely in the Northeast and include over 10,000 members in our New Hampshire chapter, as well as many others who visit the state on a regular basis to participate in outdoor recreational activities. Of particular relevance to these proceedings, the AMC owns the 1,200-acre Cardigan Reservation adjacent to the Cardigan Mountain State Forest (shown on Figure 6 of Appendix 24 - Visual Impact Assessment in the application). The Reservation is a popular recreational destination for both AMC members and the general public, and includes the full-service Cardigan Lodge, a self-service cabin on the upper slope of Mount Cardigan, and an extensive network of hiking and skiing trails extending to the mountain’s summit (which lies within the state forest).

The AMC has been actively involved in wind power siting issues for many years. In 2007, with the encouragement of the Wind Siting Subcommittee of the legislatively-established Energy Policy Commission, we convened and led a working group of interested stakeholders (representing environmental organizations, developers, state and federal agencies, and municipal interests) that developed proposed wind power siting guidelines for the state. These guidelines were included in the final report of the Commission to the legislature. More recently, the AMC was an intervenor in the application for the Granite Reliable Windpark (SEC Docket No. 2008-04).

The AMC has taken no position on this application either in support or opposition. However, we would like to take the opportunity to present information that we believe has not been adequately addressed in the application, but which is necessary for the Committee to make a fully informed decision the project. Specifically, we believe that the Applicant has not adequately represented the importance of Mount Cardigan as a significant scenic resource, and has not provided sufficient information for the Committee to adequately assess the impacts of the project on this resource.

Mount Cardigan is a 3,155-foot mountain lying about eight miles south of the project area. With the exception of Monadnock it is the southernmost “3000-footer” in the state. Similar to Monadnock (which is of almost the same elevation), it has an extensive bald summit (extending over half a mile to the northerly peak named Firescrew Mountain) that provides a spectacular 360° panorama providing views from Mount Monadnock to the White Mountains, and from the Green Mountains of Vermont to western Maine. An extensive network of trails in both the AMC Reservation and the state forest provide access to the summit from all four directions. AMC’s *Southern New Hampshire Trail Guide* describes it as “the outstanding peak of west central New Hampshire”. The website Trails.com describes it as “one of the best views in New Hampshire”. It is often described as having the feel of a much higher mountain.

The combination of spectacular views, the relatively short trail distance to the summit, easy access, and closer proximity to population centers than the White Mountains make the peak a very popular four-season destination for hikers, snowshoers and backcountry skiers. (The most recent edition of AMC’s magazine *AMC Outdoors* notes that “The ski trails on Mount Cardigan and neighboring Firescrew are among the best and most historic runs in New Hampshire.”) While figures on the actual level of use are not available, the summit is accessed by thousands of visitors each year. AMC’s Cardigan Lodge, in operation since 1934, serves 4,000 to 5,000 overnight guests each year and a significant proportion of these hike to the summit.

The application gives no indication that such a significant viewpoint lies within the viewshed analysis area. While the application’s Visual Impact Assessment does list Cardigan Mountain State Park as among the “Public resources of potential state significance”, and notes that the open summit will provide views of the project, nowhere is the significance of this viewpoint described. The only discussion is the dismissive statement on page 14 that “A few open/bald mountaintops (e.g., Rattlesnake Mountain, Mt. Cardigan) offer long distance views...” (We note in passing that the Assessment indicates that Rattlesnake Mountain is less than two miles from the project, and thus can hardly be considered a “long distance” view.)

The Assessment actually misrepresents the significance of Mount Cardigan in at least one place. The description of Cardigan Mountain State Park on page 33 of the Assessment is quoted directly from the New Hampshire Division of Parks and Recreation’s web site, and states in part “Mount Cardigan's 3,121-foot treeless granite summit affords views of west central New Hampshire...” However, the actual NHDPR web site actually says that the summit “affords *outstanding* views”.

Mount Cardigan is conspicuously absent from the 180 representative viewpoints from which photos were taken (Appendix B). As stated on page 42 of the Assessment, the purpose of this exercise was to “verify potential turbine visibility as indicated by viewshed analysis” and to “document locations from which the turbines would likely be visible”. The viewshed analysis maps (Figure 8) indicate that the project will be at least partially visible from the summit of Mount Cardigan, and failure to include a representative photograph from this very significant viewpoint is a serious oversight.

At this time we do not claim that the project will create an undue adverse impact on the scenic quality of the view from Cardigan Mountain – there is simply not enough information in the application to make a determination one way or the other. It is possible that the distance of the project from the summit and the presence of intervening topography will reduce the dominance of the project in the view. However, our experience with projects in Maine has shown that projects can be highly visible from distances greater than eight miles. The National Academy of Science recommends: “Generally, an area of 10 miles surrounding the project site is adequate for viewshed mapping and field assessment for turbines of a size currently used in the United States. In some landscapes, a 15- to 20-mile radius may be preferred, especially if highly sensitive viewpoints occur at these distances.”¹

In addition, visibility is enhanced when the side of the project facing the viewer is directly lit by the sun. In this case with the project almost due north of Mount Cardigan, and being located at over 43° N latitude, the sun will reflect off the towers from the Cardigan viewpoint throughout most of the day’s sunlight hours.

The visibility of the project will also be enhanced since the white turbines will be seen against a backdrop of dark vegetation rather than light sky². The bright white color used on most turbine towers constructed today, because of its reflective sunlight properties, can enhance the visual distance and impact to well over 20 miles. This may increase the towers’ daytime visibility to low flying aircraft, but also makes them stand out considerably more on the landscape. As noted in an FAA study on turbine visibility³:

- “Since the wind turbines themselves were relatively large structures and painted bright white, there was no trouble identifying them as ground obstructions from a considerable distance. The wind turbines are quite visible against any background during the daytime...”
- “In general, it was noted that all types of L-865 daylight strobe beacons were less effective than the bright white painted wind turbines themselves. Wind turbines,

¹ National Academy of Sciences. 2007. *Environmental Impacts of Wind-Energy Projects*. Committee on Environmental Impacts of Wind Energy Projects, National Research Council. Page 104.

² For example, see Visual Impact Assessment Figure 14. This greater visibility of turbines viewed against background vegetation is obvious. We also believe that this simulation underestimates the extent of visible impact from a higher-elevation viewpoint since it does not show the roads, cut-and-fill slopes and turbine pads where vegetation would be absent. Though ridgeline roads may be minimally visible from lower elevations, when viewed from above they may have greater visual impact than the turbines themselves.

³ See <http://www.airporttech.tc.faa.gov/safety/downloads/TN05-50.pdf>.

being solid structures of considerable bulk, stand out very well against virtually all background features, with the rotating blades providing significant visual activity or motion to attract attention. Some wind turbines were painted either a light blue or gray and were considerably less apparent against the prevalent earth color background.”

- “The wind turbines should be painted in bright white whenever possible, as the color itself acts as an effective daytime early warning device. Other colors that were encountered, such as light gray or blue, appeared to be significantly less effective in providing daytime warning.”

We believe that the SEC must give serious attention and research to turbine tower coloration and sunlight reflectivity to minimize and mitigate their visual impact where major scenic resources are at risk (though we recognize that this must be considered in the context of applicable FAA guidelines and recommendations).

To summarize, we believe that the Applicant has failed to recognize the significance of the summit of Mount Cardigan as a scenic resource, and has failed to provide adequate information to make a determination as to the visual impact this project will have on this highly significant viewpoint. Without this information there is no way for the Commission to render an informed decision or determine appropriate mitigation for the impact. We urge the Commission to request photographic documentation of the project area from the summit of Mount Cardigan, as well as a visual simulation of the project from this viewpoint, prior to making a final decision on the project.

We thank you for the opportunity to comment on this application.

Sincerely,

A handwritten signature in black ink, appearing to read "David Publicover". The signature is fluid and cursive, with the first name being the most prominent.

David Publicover
Senior Staff Scientist