



Appalachian Mountain Club

March 7, 2011

Email filing

Attn.: Mr. Bob Bayer
Project Coordinator
USDA Forest Service
Green Mountain National Forest
2538 Depot Street
Manchester Center, VT 05255

Re: Appalachian Mountain Club Comments on the Supplemental Draft Environmental Impact Statement for the Deerfield Wind Project

Dear Mr. Bayer:

The Appalachian Mountain Club (AMC) offers the following comments on the Supplemental Draft Environmental Impact Statement for the Deerfield Wind Project.

Background

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 about 1,750 citizens of the state of Vermont, as well as many others who visit the state on a regular basis to participate in outdoor recreational activities.

The AMC is an affiliated trail maintaining partner of the Appalachian Trail Conservancy (ATC) and manages over 279 miles of the Appalachian Trail (AT) in five states - more trail miles than any other organization under the umbrella of the ATC. The Appalachian Trail is a 2,181 mile footpath extending from Maine to Georgia through 14 states generally along the ridgelines and major valleys of the Appalachian Mountain range. The AT received Federal recognition in 1968 under the National Trails System Act as the nation’s first national scenic trail and Congress mandated through that act that the Appalachian National Scenic Trail would be administered by the Secretary of Interior in consultation with the Secretary of Agriculture. It is now identified as a unit of the National Park System known as the Appalachian National Scenic Trail (ANST) administered by the U.S. National Park Service and the non-profit Appalachian Trail

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Conservancy in separate offices in Harpers Ferry, West Virginia. The AT is being visually challenged by a proliferation of built and proposed wind power projects along a considerable portion of its corridor. Though the AMC had not directly commented earlier in this EIS process due to time constraints, it was familiar with and had supported ATC's earlier filings.

The AMC has a long history of involvement with efforts to find the appropriate balance between commercial wind power development in the Northeast and the conservation of significant ecological, recreational and scenic resources, and to develop public policies that properly recognize and address the unique issues associated with this technology. At the project level AMC has to date directly intervened in five New England wind projects and commented on several other projects in Maine, New Hampshire and Massachusetts. AMC has taken positions both in support and opposition to these wind projects depending upon the resources values impacted and the degree of appropriate mitigation. Of note is the fact that we have not opposed several projects in proximity to and visible from the AT, including the Hoosac and Brodie projects in Massachusetts and the Record Hill project in Maine. At the policy level AMC has served on the Governor's Task Force on Wind Power Development in Maine and the Renewable Energy Siting Task Force in Massachusetts, and convened and led a multi-stakeholder group that developed draft wind power siting guidelines for New Hampshire for the NH General Court. We have conducted extensive research on the potential conflicts between wind power development and natural resource values, and have been an invited speaker on wind power siting issues at numerous conferences and public policy forums. AMC's policy on wind power development can be found at <http://www.outdoors.org/pdf/upload/amc-energy-policy.pdf>.

Position Statement

The AMC opposes the Preferred Alternative. We would support Alternative 3 (East Side Only) if and only if 1) significant deficiencies in the visual impact analysis presented in the SDEIS are addresses and an amended SDEIS issued before a decision is rendered, and 2) additional mitigation (specifically, the use of the Obstacle Collision Avoidance System to reduce visual impacts) is included.

Our comments focus on three areas. First, we believe that the visual impact analysis contained in the SDEIS, specifically the analysis of the potential impact on the Appalachian Trail, is seriously deficient and greatly underestimates the impact the project would have on this nationally significant resource. Second, we offer a recommendation on additional mitigation that we believe is necessary to minimize this potential impact. Third, we describe why Alternative 3 with additional mitigation is the most reasonable alternative.

Deficiencies in the Supplemental DEIS

AMC recognizes the positive aspects of this site, including its proximity to an existing project, roads, and transmission lines. We also appreciate the efforts the Forest Service has taken to analyze the full range of potentially suitable sites on the GMNF in an attempt to identify where this type of project may be located with the least impact. However there are major deficiencies in the Supplemental DEIS that need to be corrected. They are as follows:

Visual Impact Analysis - Impact: The visual impact analysis contained in the SDEIS, specifically the analysis of the potential impact on Glastenbury Mountain, is seriously deficient and greatly underestimates the impact the project would have on this significant viewpoint. Glastenbury Mountain is the most significant viewpoint along the Appalachian Trail in Vermont, encompassing a 360° vista encompassing parts of four states. It is particularly notable because expansive high-elevation vistas are rare on this stretch of the trail. For northbound through-hikers, it is the first unencumbered 360° view on National Forest land since leaving the 4043-foot Priest Mountain on the George Washington National Forest in Virginia, a distance of nearly 800 miles. Because of this, it is a place where hikers will linger – a destination purposefully chosen because of the view. The Appalachian Trail Conservancy’s *Appalachian Trail Guide to New Hampshire and Vermont* states, “The view from the tower has been described as ‘more wilderness than is to be seen from any other point on the Long Trail’”. AMC’s *Best Backpacking in New England* states, “...be prepared to linger – the view encompasses one of the largest contiguous swaths of wildland in Vermont”. In fact the Green Mountain National Forest’s current Land and Resource Management Plan (at section 2.3.13 - *forest-wide standards and guidelines for visual resources*) is illustrated by a photo of the view from the summit of Glastenbury Mountain. It is clearly the most significant backcountry viewpoint in the southern portion of the GMNF.

While the SDEIS does in one instance describe the view as “dramatic”, and notes that it has value as “a remote and wild place”, nowhere does it recognize the uniqueness of this view along the AT in Vermont. The SDEIS also significantly underestimates the potential impact of the project on this view. Among the statements in the SDEIS are:

- (page 47) “...the Project would be located at a considerable distance from viewpoints along the Appalachian Trail.”
- (page 130) “Views from the summit of Glastenbury Peak are the most extensive, and include mountains and largely undeveloped land for many miles in all directions...There are human elements visible in the landscape as well, though none dominate the view. The existing Searsburg facility turbines and transmission line ROW can be seen to the south. The communications tower on top of Prospect Mountain is also faintly visible, as are a few ski trails along the west side of Mount Snow. West of Glastenbury Mountain there is a privately owned in-holding where considerable timber harvesting has occurred in foreground views.”
- (page 147) “The Searsburg facility turbines are readily visible from the fire tower on Glastenbury Mountain (VP#14), but appear as tiny pinpricks from this distance (about 9.25 miles away). The turbines proposed along the Eastern Project site would be located just behind the Searsburg turbines, while the turbines proposed along the Western Project site would be slightly closer, ranging from 7.25 miles to about 9 miles away. They would appear to be a related cluster of tiny white lines, and would occupy a very small part of the panoramic views available from this location.”
- (page 147) “The cluster of new turbines along these ridges would be slightly more prominent than the existing Searsburg facility turbines now appear, primarily on the east

ridge where they would be viewed against the sky, but would continue to occupy a minor part of the views. Turbines on the west ridge would be viewed against landform making them less noticeable. They would appear as a cluster of tiny vertical white lines that repeat the form, line and color of the existing turbines. The turbines would not interfere with any views of prominent mountains or regional focal points. Views along this section of trail would not be extended views along open alpine summits.”

- (page 147) “At the distances from which the turbines would be seen, they would be subordinate to the surrounding naturally occurring landscape during the daytime, and therefore meet the Partial Retention Standard.”

We disagree with the characterization of the landscape and the conclusion about level of impact. First, when it comes to viewing multiple large structures within an undeveloped landscape, seven to nine miles is not “a considerable distance”. As stated in a report from the National Academy of Sciences:

“Modern wind turbines of 1.5-3 MW can be seen in the landscape from 20 miles away or more (barring topographic or vegetative screening), but as one moves away from the project itself, the turbines appear smaller and smaller, and occupy an increasingly small part of the overall view. The most significant impacts are likely to occur within 3 miles of the project, with impacts possible from sensitive viewing areas up to 8 miles of the project. At 10 miles away the project is less likely to result in significant impacts unless it is located in or can be seen from a particularly sensitive site or the project is in an area that might be considered a regional focal point. Thus, a 10-mile radius provides a good basis for analysis including viewshed mapping and field assessment for current turbines. In some landscapes a 15-mile radius may be preferred if highly sensitive viewpoints occur at these distances, the overall scale of the project warrants a broader assessment, or if more than one project is proposed in an area.”¹

For example, on clear days the Kibby Mountain project in western Maine can be clearly seen from the summit of Bigelow Mountain at a distance of eighteen or more miles. The SDEIS notes that the existing Searsburg turbines are “readily visible”, even though they are much smaller than the proposed project’s turbines. We also disagree that the western turbine string would be less noticeable. White turbines against a backdrop of dark vegetation will be more visible than the same turbines against a light-colored sky.

Visual Impact Analysis – Deficient Analysis: The visual analyses in the Supplemental Draft Environmental Impact Statement is seriously deficient on several accounts:

Failure to include roads and turbine pads in the visual simulations: The analysis is absent any simulation or assessment of the western turbine string’s road system, including cut and fill and turbine pads, that likely would be clearly visible from Glastenbury Mountain. The SDEIS lacks sufficient data to even understand the magnitude of required cut and fill for the road layout and the resulting visual impact. We note that nearly one third of the Preferred Alternative would

¹ National Academy of Sciences. 2007. *Environmental Impacts of Wind-Energy Projects*. Committee on Environmental Impacts of Wind Energy Projects, National Research Council. Page 101.

disturb steep slopes (25.8 out of 81 acres; SDEIS page 44), but no information is available to determine where this disturbance would take place. Figure 3.2.3 is totally inadequate for such purposes, and no engineering plans are provided. Roads constructed on hilly steep slopes, such as these, require considerable cut and fill and typically are visible from miles away as obvious light-colored scars. They would contrast against the dark vegetation and be highly visible when viewed from a higher elevation such as Glastenbury Mountain.

Failure to consider variable sun angle, reflectance and atmospheric conditions: The visual simulation from the summit of Glastenbury Mountain (SDEIS Appendix C, Viewpoint 14) is grossly inadequate. Visibility of wind power projects varies greatly based on such factors as atmospheric conditions and sun angle. The photosimulation from Viewpoint 14 fails to provide any information on the time of day and sun angle, factors that can dramatically change the visibility of the towers during the course of a day. The turbine towers are purposefully painted a bright reflective color to make them readily visible to aircraft following FAA recommendations (see below). From sunrise to midday the proposed project turbine towers would be backlit by the sun in the east when seen from Glastenbury Mountain, but from midday until sunset (when most day hikers would reach the summit) the sun would be in the west and the side of the turbines facing Glastenbury Mountain would be directly lit. These conditions would make the turbines considerably more visible against the more natural forest background.

Inadequate photosimulation: Visual simulations must present a range of conditions and must be specifically developed to show worst case conditions. In this case, the visual simulations should represent a very clear day in both morning and late afternoon (to represent when the turbines are most strongly backlit and forelit.) In contrast, this simulation represents the opposite – a picture that minimizes the potential visibility of the turbines. The chosen photosimulations are so unrealistic that the separate eastern and western ridge turbines of the project are barely distinguishable, and the existing Searsburg project (which is described elsewhere in the SDEIS as “readily visible”) is almost invisible. Photosimulations compared to actual onsite views of existing wind projects in the region (e.g., the Kibby project from the Bigelow Range in Maine) clearly show that photosimulations greatly underestimate the visual impact of the turbines (as many photographers experience when taking pictures of distant objects, only to be disappointed that once printed the distant object in the picture looks much smaller than what they had perceived in real life). The photosimulations available to the public are also of marginal resolution quality, further limiting the ability to assess the real impact. In actuality, with afternoon sun in the summer, conditions when most hikers will be on the summit of Glastenbury Mountain, the western string at seven to nine miles away will be visually prominent on all but very hazy days.

Nighttime Lighting: The SDEIS understates the impact of nighttime lighting on the visitor experience. There is a shelter and campsites in close proximity to the summit of Glastenbury Mountain. It is reasonable to expect that hikers staying at that shelter would climb to the summit on clear nights for an unobstructed 360° view of the nighttime sky. While some lighting will be visible, currently it likely is less intrusive on Glastenbury Mountain than almost anyplace else in the state. The nighttime summit thus represents a very significant recreational and visual resource. The presence of multiple red strobe lights less than 10 miles away will be significant

new intrusion on this experience, would most likely be the most dominant feature drawing the eye, and would clearly degrade this very uncommon visual opportunity.

Contraction in Design Critical and Mitigation Measures (Section 3.5.2.1.4): There is an inherent contradiction in the design criteria/mitigation measure listed on page 154 of the SDEIS: “Utilize a white/off-white turbine color that blends well with the background sky and avoids the need for daytime FAA warning lights.” The white color used on almost all commercial turbines is designed to *enhance*, not minimize, their visibility. As noted in a Federal Aviation Administration study on turbine visibility²:

- “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, 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.”

Failure to include view from Porcupine Lookout in the analysis: Porcupine Lookout is a secondary viewpoint along the AT within the Glastenbury Wilderness that provides views to the south and east. AMC’s *Best Backpacking in New England* notes that the existing Searsburg project is visible from this viewpoint. It is slightly closer to the project than the Glastenbury lookout. Given the lack of open views in this heavily forested landscape, an open view from the Appalachian Trail within a Wilderness Area must be considered a significant visual resource. The failure to include it in the SDEIS and to present a visual simulation from it is a serious oversight.

Inadequate cumulative impact analysis: The cumulative impact analysis (Section 3.21.2) takes the position that “wind projects located beyond 10 miles from the Project site would generally have no direct or indirect impacts on the Deerfield Project site or the surrounding Project area” (SDEIS page 400) and that “visual impact diminishes considerably at distances over 3.5 miles” (page 404). These statements are contrary to the conclusion of the National Academy of Sciences study (see earlier quotation). It also falsely concludes that the cumulative impact of other wind projects to the AT and other visual resources would be insignificant. While we agree that the cumulative impact of the proposed project along with the existing Searsburg and Hoosac projects is not significant, this analysis only addresses part of the issue. Rather than just assessing the cumulative impact of *existing* projects viewed *concurrently*, it also needs to

² See <http://www.airporttech.tc.faa.gov/safety/downloads/TN05-50.pdf>.

consider the potential cumulative impact of *potential* projects viewed *sequentially*. Sequential rather than concurrent views may be far more of an issue for long-distance hikers of the AT and the Long Trail. The experience could be significantly compromised if most viewpoints have a view of a wind power project, even if only one project is seen at any one time.

The SDEIS looks at the 37 “zoned” wind power sites (Appendix I) on the GMNF, all which are 10.1 or less miles from the AT or Long Trail (only two are more than 8 miles away and the majority are 5 miles or less away). The Supplemental DEIS then appears to conclude that only one (Site 35) is sufficiently comparable to the proposed project (SDEIS page 33). This “comparable” criterion is fraught with issues. However, consideration should also have been given to sites that are comparable to the East Side Only alternative (7 turbines/14 MW). There are a number of projects of this scale proposed across New England³, including Minuteman (MA; 12.5 MW), Berkshire Wind (MA; 15 MW), Georgia Mountain (VT; 12 MW) and Equinox (VT; 9 MW). Clearly this is an economically viable scale for some developers. Using a lower limit of 7 turbines rather than 12 to 15, there are 11 potential sites on the GMNF (SDEIS Table I-2). The potential cumulative impact of other wind projects in the GMNF along the Appalachian Trail and Long Trail could be considerably greater than set forth in the SDEIS, particularly if government subsidies for wind power continue and wind turbine technology continues to improve as they have. While the distance to the AT/Long Trail is given, no information is provided about the distance of these sites to the nearest significant viewpoint along these trails. Furthermore the analysis is limited to modeled Class 4 wind resource sites, but several proposed projects to date in New England are located on modeled Class 3 sites (including most of the Applicant’s already developed Lempster, NH site⁴). The insufficient analysis contained in this SDEIS does not support the conclusion that potential cumulative impacts to the AT and Long Trail are insignificant.

To summarize, we thoroughly agree with the statement that, *“To the extent that this is the first utility scale wind energy project on National Forest lands, and that one of the main components of the Project Purpose and Need is the advancement of national energy policy encouraging the development of renewable energy projects on federal lands, the Deerfield Wind Project could set a precedent for future projects on the GMNF and other National Forest lands.”* (SDEIS page 405). As such we believe it is critical that the environmental impact analysis of this project be held to the highest standard. The current analysis of visual impacts falls well short of this. In particular, the SDEIS: 1) understates the significance of the summit of Glastenbury Mountain and the AT as a visual resource, 2) inaccurately represents the potential impact of the project on this resource, both in the descriptions in the text and in the visual simulation, and 3) understates the adverse impact that the project would create on this visual resource, and 4) does not adequately address the potential cumulative impact of wind power development on the GMNF on the scenic character of the Appalachian and Long trails. We believe that these deficiencies must be corrected and an amended SDEIS issued before a decision is made.

³ See <http://www.windpoweringamerica.gov/newengland/projects.asp>.

⁴ Based on the same wind resource data developed by TrueWind a cited in the GMNF Management Plan EIS.

Proposed additional mitigation to minimize adverse visual impact

Wind power technology continues to change, as evidenced by the original Searsburg Project using 0.55 MW turbines, to the original expansion proposal for this Project based on 1.5 MW turbines, to the current proposal using 2.0 MW turbines. Similarly, the technology to minimize the visual impact of turbines has also advanced considerably, in the form of the Obstacle Collision and Avoidance System (OCAS)⁵. However, the SDEIS gave no consideration to the potential of OCAS to mitigate the serious visual and light pollution impacts of this project. This FAA-approved system utilizes on-site radar to detect incoming aircraft. Warning lights (both daytime and nighttime) are turned on only when approaching aircraft are detected. An audio warning is also provided. This system both eliminates the need for constantly flashing warning lights and just as significantly allows turbines to be painted a gray or mottled color that would provide lower contrast with both the sky and the terrestrial background, since a highly contrasting bright white color would no longer provide the primary warning to aircraft.

As a steward of these important public resources, we believe the GMNF has an obligation to require the best available technology for this project if such technology will reduce the adverse impacts of project development. Since this project will set an important precedent for other projects on National Forest lands, it is critical that the project be held to the highest standards.

Preferred Alternative

The AMC believes that Alternative 3 (East Side Only) including use of the Obstacle Collision Avoidance System is the most reasonable alternative. This project will be setting the bar for the entire National Forest system as to how the impacts of wind power projects on federal lands will impact the National Park system's Appalachian National Scenic Trail (emphasis on designated 'Scenic'), and other significant scenic resources are analyzed and mitigated. Such a revised Alternative 3 provides a reasonable amount of wind power from National Forest Lands from this project while substantially reducing the impact of the project the Appalachian National Scenic Trail as well as bear habitat.

We question the conclusion that an East Side Only project is not economically viable. As noted above, the project is comparable in scale to other commercial projects proposed for Vermont and Massachusetts. It has a significant wind resource and has the added advantage of having much of the necessary infrastructure already in place. While it may not meet the financial expectations of the applicant, other developers might have different expectations.

The viability of the site becomes more apparent when it is considered in combination with the existing Searsburg facility. The existing project is nearly 15 years old, and it is likely that it will be upgraded in the not-too-distant future. Based on the turbine spacing proposed in this application, we estimate that four or five 2 MW turbines could replace the 11 existing 0.5 MW turbines. The ridge could thus support a project of 11 or 12 turbines providing 22 to 24 MW of capacity. It is thus comparable to the applicant's own Lempster, NH project (12 turbines, 24 MW). The East Side Only ridge has a considerably higher wind resource than Lempster (based on the TrueWind model) and has infrastructure already in place. This ridge would clearly

⁵ See <http://www.ocasinc.com/turbine-avoidance-solutions.cfm>.

support a viable project if proposed as a single development, and we note that the existing and proposed project are already sharing infrastructure (both roads and transmission lines). Questions about the economic viability of Alternative 3 are thus not due to site characteristics (which are quite favorable) but merely an artifact of the fragmented ownership structure. This is not a legitimate basis for rejecting Alternative 3, which best meets the Forest Plan goal of “provid[ing] opportunities for renewable energy use and development” while minimizing adverse environmental impacts.

We thank you for the opportunity to present these comments.

Sincerely,

A handwritten signature in black ink, appearing to read "David Publicover". The signature is fluid and cursive, with a large initial "D" and "P".

David Publicover, D.F.
Senior Staff Scientist