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# COMMONWEALTH of VIRGINIA

L. Preston Bryant, Jr.  
*Secretary of Natural Resources*

*Department of Game and Inland Fisheries*

Colonel W. Gerald Massengill  
*Interim Director*

September 20, 2006

Joel Peck, Clerk  
State Corporation Commission  
Commonwealth of Virginia  
Tyler Building  
1300 East Main St.  
Richmond, VA 23219

RE: Highland New Wind Development, LLC  
Case No. PUE-2005-00101  
ESSLOG 19301

Dear Mr. Peck,

This letter is provided as a supplement to the Department of Environmental Quality's (DEQ's) report of June 30, 2006, as a supplement to our February 24, 2006 and May 24, 2006 letters and May 3, 2006 email (Attachments C, D, and E respectively), and as a response to the August 4, 2006 legal memorandum from the Highland New Wind Development, LLC project applicant. The Department of Game and Inland Fisheries (DGIF), as the Commonwealth's wildlife and freshwater fish management agency, exercises management and regulatory jurisdiction over those resources, inclusive of state or federal Endangered or Threatened species, but excluding listed insects.

We support the use of alternative energy sources, including wind energy. However, based on our review of the information provided thus far by the Highland project applicant, in the absence of accountable mitigation conditions (discussed below and in Attachment A), we feel this project presents an unacceptable risk to wildlife. We are particularly concerned with potential significant adverse impacts upon bats and birds. This is due, in part, to the project's location relative to caves that support large numbers of bats (200,000+), including Endangered and Threatened species, the high passage rates of bats and birds identified by the onsite radar study conducted in the fall of 2005 (Plissner et al. 2006), the significant bat fatality rates at other Allegheny wind farms, and the documented use of ridge tops by eagles.

We have several key issues concerning this project, should it be licensed: 1) the precedent that will be established for future wind projects; 2) the high potential for significant mortality of bats (both local and migratory populations, including Endangered and Threatened species) and birds (particularly eagles); and 3) the importance of rigorous mitigation measures in conjunction with long-term monitoring. These issues are further explained below and in the attachments.

1) Precedent. This project, and the conditions imposed by the SCC, will set a precedent for all future wind energy projects in Virginia. Wind farms cannot be viewed as independent with regard to impacts upon wide-ranging migratory animals. We currently lack sufficient knowledge to absolutely determine the maximum fatality rates that can be tolerated at a given site without unacceptably impacting local or regional populations of sensitive species; but we are certain that high fatality rates at multiple sites across the landscape would pose an unacceptable risk, as do unmitigated fatalities of Endangered or Threatened species. If this project is permitted, then standard pre- and post-construction monitoring and mitigation conditions need to be implemented in accordance with our recommendations (presented below and in Attachment A). As the Commonwealth's wildlife agency, it is our responsibility to conserve those resources for the benefit of all citizens. In the case of this project, where wildlife losses potentially could be very substantial and significant, we must take a conservative approach to assessing risk and designing appropriate mitigation. The data needs for pre- and post-construction evaluation, monitoring, and mitigation should not be dictated by project applicants or consultants; but rather should be developed by the agencies that are responsible for managing Virginia's wildlife resources and wind energy development program. These agencies will bear the responsibility to apply these standards consistently from project to project, and to address concerns expressed by citizens of the Commonwealth regarding protection and management of Virginia's wildlife resources.

2) Fatality Rates. The applicant's data and data from existing wind farms in the Alleghenies provide evidence that there likely will be large fatality rates at this site. The radar study conducted by ABR, Inc. in the fall of 2005 (Plissner et al. 2006) documented passage rates that "were much higher than those at other locations in the eastern U.S. where we have conducted fall migration studies with similar equipment and methods" (Plissner et al. 2006). In addition, ABR, Inc. documented passage rates below the proposed turbine height that "were higher than those calculated at other sites in the eastern U.S." In the applicant's August 4 memorandum, he has presented tables showing passage rates even higher than those observed by ABR. These data substantiate our concerns regarding the Highland project, and reinforce our concern about the cumulative impacts of multiple projects.

In the absence of studies that compare pre- and post-construction data, we presume a significant positive correlation between passage rates and fatality rates. If this project is licensed including the mitigation and monitoring conditions we request, Virginia will be among the first states to conditionally relate pre- and post-construction surveys to predicted and documented fatalities. In addition, these data will facilitate design and implementation of measures to minimize fatalities, and enable preliminary risk assessment for future wind energy sites in Virginia.

High fatality rates at this site would particularly be devastating to bats because of their reproductive strategy, which is atypical of a small mammal. Most small mammals have developed a reproductive strategy of high productivity, large litters, and multiple litters per year. The tradeoff with this characteristic is that most small mammals are short lived (typically 1-2 years). Bats, though, are at the opposite end of the spectrum. They have small litters (typically

one or two young), only one litter per year, and life expectancy of 12-15 years. With this strategy, the impact of the loss of individuals is much greater, especially within small populations.

Considering the U.S. Department of Energy objective to generate 5 percent of the U.S. electricity needs via wind power by the year 2020, along with federal subsidies promoting wind power, we are assured a substantial increase in wind farm proposals for the Appalachians. The high fatality rates documented at existing wind farms in the Alleghenies are strong evidence foretelling high fatality rates in Highland County. The fall 2005 radar study conducted by the applicant confirms this. Therefore, if the SCC permits this project without appropriate mitigation and monitoring conditions (as outlined below and in Attachment A), then we anticipate significant resultant mortality of bat populations in Virginia and the Appalachians.

In addition to bats, we are concerned over potential eagle fatalities at this site. The high number of bald eagles and golden eagles observed in Highland County, compared to other parts of the Alleghenies, and their use of ridges warrants this concern. The applicant's consultants have opined that "if it isn't happening at other sites, then it won't happen here." To transpose that argument, however, if that premise were true, then the large bat fatality rates documented (by the applicant's consultants) in the Alleghenies should never have occurred, because they had not occurred at other wind energy sites across the nation. Unless we monitor pre-construction eagle activity, we will be unable to relate such raptor use to post-construction raptor use and mortality.

3) Monitoring and Mitigation. If this project is permitted, then appropriate mitigation and monitoring conditions are essential to assess and minimize fatalities. Proper scientifically based monitoring is needed to confidently assess and correlate targets passing through the project area with fatalities caused by the project. This monitoring also should attempt to correlate passage and fatality rates with site conditions. The mitigation plan should include a modified operation schedule (e.g., adjustments to cut-in speed and/or shut-down of turbines during peak migration periods), modified equipment, possible use of deterrents, and/or other measures that will avoid or minimize mortality; and should be implemented concurrently with project approval. In Attachment A, we describe the components of appropriate monitoring and mitigation conditions.

### **Comments on Threatened and Endangered species**

We have recommended that the applicant consult with the U.S. Fish and Wildlife Service (USFWS) concerning potential take of federal Endangered or Threatened species. We cannot authorize take of federally listed species. The applicant's consultants have downplayed the potential for such take but, in our opinion, the evidence suggests a strong likelihood of take. Proximity of the project to the largest Indiana bat and Virginia big-eared bat colonies in the region, and reported substantial occurrence of bald eagles in the area, suggest great likelihood of take of a federal listed species. While no mortality of Endangered or Threatened bat species has been observed at a wind facility, the applicant should not assume that such an event has not occurred: indeed, there are few data on bat mortality at wind facilities. The work conducted at the Mountaineer and Meyersdale projects covered a short timeframe and demonstrated that only

a small percentage of the dead bats were recovered; a larger percentage were missed by observers or removed by scavengers. Thus, if an Endangered or Threatened bat were killed, it is likely the carcass would not be recovered. At the Mountaineer site, all bat species known from the area, except the three rarest ones, were found dead at the site. There is no reason to assume that the rare species were less likely to be killed than the common species, and these same species are present in the vicinity of the Highland project. We again recommend that the applicant consult with the USFWS concerning potential take of federally listed Endangered or Threatened species at the project site.

### **Comments on other wildlife resources**

On July 25, 2006, we conducted a field visit to assess suitability of the site to provide habitat for Federal Endangered/State Endangered northern flying squirrels, State Endangered rock voles, and State Endangered water shrews. Based on this visit, as long as construction impacts remain within the existing cleared ridges and access roads, we agree that construction of this project should not impact northern flying squirrels. However, suitable northern flying squirrel habitat does exist along the margins of the impact area as described above. Similarly, while suitable habitat for water shrews and rock voles does exist onsite, as long as the proposed utility line and stream crossings occur within the existing cleared powerline easement, and as long as the crossings are directionally drilled (see below) with adequate setbacks, we do not anticipate a significant adverse impact upon those species due to this project.

We remain concerned about potential adverse impacts upon native trout resources within Laurel Fork. According to the applicant's Joint Permit Application, submitted to the Virginia Marine Resources Commission (VMRC), this project will include three utility line crossings of Laurel Fork and two unnamed tributaries to Laurel Fork. These crossings are proposed to be directionally drilled. However, the application states that the crossings will include equipment pits excavated approximately 6 feet from both banks of the streams. These pits will be approximately 9 ft wide, 15 ft long, and at least 4 ft below the streambed. Our concern is that this construction activity has a high potential to result in sedimentation of the streams and adverse impacts upon trout. Therefore, in our comments to the VMRC (Attachment E), we recommended increasing the setback of these equipment pits to at least 50 ft and implementation of strict erosion and sediment control measures. These measures should include installation of silt fences and hay bales, timber mats in all travel lanes, and use of frac tanks and filter bags to manage any water that enters the pits. During the site visit, the applicant stated that the pits would be excavated further from the stream, possibly at least 20-30 ft. We request an updated construction plan that reflects our concerns and the changes described by the applicant.

In Attachment B, we provide additional comments specifically in response to the legal memorandum dated August 4, 2006 from the Highland New Wind Development, LLC project applicant.

To reiterate, if the SCC chooses to license this project, we request adherence to the monitoring and mitigation recommendations described in this letter and attachments. In the absence of such

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conditions, we feel this project would pose an unacceptable risk to the Commonwealth's wildlife resources.

Thank you for the opportunity to provide additional comments on this project. Please contact Andrew Zadnik at (804) 367-2733 if we can be of further assistance.

Sincerely,

A handwritten signature in black ink, appearing to read "Raymond T. Fernald". The signature is fluid and cursive, with a large loop at the end.

Raymond T. Fernald, Manager  
Nongame and Environmental Programs

Cc w/encl. Michael Murphy, VDEQ  
Kim Marbain, USFWS  
Rene Hypes, VDCR-DNH

### Literature cited

- Arnett, E. B. and J. P. Hayes. 2006. An evaluation of the use of acoustic monitoring to predict bat fatality at a proposed wind facility in south-central Pennsylvania. Unpublished report to the Bats and Wind Energy Cooperative.
- North East Ecological Services. 2006. Study proposal for bat migratory and summer foraging survey Highland New Wind Power Project. Submitted to Highland New Wind Development, L.L.C., Harrisonburg, VA.
- Plissner, J. H., T. J. Mabee, and B. A. Cooper. 2006. A radar and visual study of nocturnal bird and bat migration at the proposed Highland New Wind Development project, Virginia, Fall 2005. Report to Highland New Wind Development, LLC., Harrisonburg, VA.
- Reynolds, D. S. In press. Monitoring the potential impact of a wind development site on bats in the northeast. *Journal of Wildlife Management*.