COMMONWEALTH of VIRGINIA

L. Preston Bryant, Jr.
Secretary of Natural Resources

Department of Game and Inland Fisheries

Colonel W. Gerald Massengill
Interim Director

May 24, 2006

Mr. Ernst F. Aschenbach
Department of Environmental Quality
Office of Environmental Impact Review
629 East Main St., Sixth Floor
Richmond, VA 23219

RE: Highland New Wind, LLC
State Corporation Commission application
Case no. PUE-2005-00101
April 27, 2006 submittal from J. W. Flora
ESSLOG 19301

Dear Mr. Aschenbach:

We have reviewed your request of May 4, 2006 in reference to the April 27, 2006 submittal from Mr. John Flora (Flora 2006), counsel for Highland New Wind Development, and we offer the following comments and recommendations. The Department of Game and Inland Fisheries (DGIF), as the Commonwealth's wildlife and freshwater fish management agency, exercises enforcement and regulatory jurisdiction over those resources, inclusive of state or federally endangered or threatened species, but excluding listed insects. We are a consulting agency under the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.), and we provide environmental analysis of projects or permit applications coordinated through the Virginia Department of Environmental Quality (DEQ), the Virginia Marine Resources Commission, the Virginia Department of Transportation, the U. S. Army Corps of Engineers, the Federal Energy Regulatory Commission, and other state or federal agencies. Our role in these procedures is to determine likely impacts upon fish and wildlife resources and habitats, and to recommend appropriate measures to avoid, reduce, or compensate for those impacts.

The Highland New Wind, LLC project (hereafter, Highland Project) involves the construction and operation of nineteen industrial wind turbines situated atop tubular towers. Each structure will have a total height of about 393 feet. The location is on Tamarack Ridge and Red Oak Knob, northwestern Highland County. The project will include utility crossings of Laurel Fork and two unnamed tributaries to Laurel Fork.

In comments we provided to DEQ on February 24, 2006 (Fernald 2006), we expressed concern for potential significant adverse impacts upon wildlife resources due to the Highland Project. These wildlife resources include State and Federally-listed Threatened and Endangered Species. We

recommended that additional pre-construction studies, post-construction monitoring, and mitigation for impacts be incorporated into the State Corporation Commission's (SCC's) regulatory decision on this project. In response to our comments and the comments of other state advisory agencies, including the Virginia Department of Conservation and Recreation (DCR) and Virginia Department of Historic Resources (DHR), DEQ suspended their environmental review of this project, pending receipt of additional information to address the various concerns. The April 27, 2006 submittal from John Flora, on behalf of the applicant, requests an end to this suspension, and is meant as a response to the comments from us, DCR, and DNH (Flora 2006). The current request from DEQ is for us to review Flora (2006) and report whether the information that has been provided thus far is sufficient for us to complete our review of environmental impacts of this project. Based on our review of this information, we continue to have concerns for potential significant impacts upon wildlife. The information provided has been insufficient to address these concerns. We reiterate our earlier comments and provide additional comments below.

In his submittal (Flora 2006, Page 6) and an April 28, 2006 email, Flora refers to two documents from the American Wind Energy Association (AWEA). One of these documents highlights the "Three C's" of the wind industry: Clean, Compatible, and Committed. We assume the applicant provided this document because they adhere to the "Three C's." The other document summarizes how impacts upon wildlife have been addressed at other projects. We are encouraged to read of the commitment the wind industry has to conduct extensive wildlife surveys at project sites and implement innovative measures to mitigate impacts. We hope the Highland Project will serve as an example of this commitment during the risk assessment (pre-construction) period and, if constructed, the operational (post-construction) period.

Viewshed Issues

Flora (2006, Page 2) states that, due to the remoteness of the Highland Project site, which is "marred by only" two highways and one transmission line, the project site is "as good as it gets" in regard to potential impacts upon the viewshed. Furthermore, it is stated that, because the viewshed was "thoroughly" addressed by the Highland County Board of Supervisors, it should not be addressed again. We feel this response is insufficient to address our concerns for potential impacts upon the Virginia Birding and Wildlife Trail and other wildlife-related recreation opportunities. As we stated in our earlier comments (Fernald 2006), a primary reason people travel to Highland County for wildlife-related recreation is the very remoteness of the area. Another reason is the high diversity of species relatively uncommon to Virginia, such as a known winter population of golden eagles.

The Highland County Chamber of Commerce (Chamber) has made a conscious effort to target ecotourism as an important contributor to the region's economy (Carolyn Pohowsky, Highland County Chamber of Commerce, personal communication, May 2006). Over the past several years, the Chamber has seen a steady increase in the number of birders traveling to the County, even in January and February. Neither the applicant nor County Board of Supervisors has consulted with the Chamber regarding the impacts this project may have upon ecotourism (Carolyn Pohowsky,

Highland County Chamber of Commerce, personal communication, May 2006). The Chamber has some concerns about this project and generally feels that more answers are needed regarding the potential for impacts. We concur.

The Bear Mountain Farm and Wilderness Retreat is one of the most popular destinations for birders and other ecotourists visiting Highland County. The owners of this facility feel the impact to their business due to the Highland Project will be significant (Thomas Brody, Bear Mountain Farm and Wilderness Retreat, personal communication, May 2006). They have received numerous comments from their guests expressing concern over this project. Many of their guests have even stated that they will not return to the County if this project is constructed.

Part of our mission as an agency is to provide opportunity for all to enjoy wildlife-related outdoor recreation. The Highland Project may affect our ability to accomplish this mission. Therefore, we reiterate our recommendation that ecotourism impacts be considered as part of an overall socioeconomic analysis of this project. This analysis should be conducted through consultations with the Highland County Chamber of Commerce (phone: 540-468-2550), Virginia Tourism Corporation (804-545-5500), and operators of ecotourism companies/facilities, such as Bear Mountain Farm and Wilderness Retreat (540-468-2700).

VDGIF Issues

Flora (2006, Page 5) describes the March 24 and April 6, 2006 meetings to discuss issues and additional proposed studies related to bats and birds, respectively. We appreciated the opportunity to meet with the applicant's representatives and consultants to discuss these issues. However, we were disappointed in the overall purpose and results of these meetings. We have recommended that any studies proposed to be conducted for the Highland Project be coordinated with us and our partner agencies. This would provide an opportunity to clearly identify the issues of concern, review the proposed study objectives and methods, discuss any necessary revisions to the study design, discuss how the results will be used, prioritize funding expenditures to ensure wise use of limited funds, develop an implementation schedule, and generally reach consensus between the agencies and the applicant. Until this consensus is reached, any studies conducted cannot be guaranteed to adequately address our concerns. This type of coordination meeting is common with other projects and is vital to ensuring a project will be implemented in the most environmentally responsible way. This type of coordination also appears to be consistent with the statements made by the AWEA (Flora 2006, Attachment 8). Unfortunately, the two meetings that were held for this project did not accomplish these objectives. While the meetings provided an opportunity for some issues to be discussed and proposed study methods explained, consensus certainly was not reached. In fact, the proposed bat acoustic study had already begun prior to the meeting and the proposed breeding bird study was not even among our earlier recommendations (Fernald 2006). This general lack of coordination continues to make it difficult to complete an environmental assessment of this project. Time and again, it seems that we and our partner agencies are consulted only after conclusions have been made by the applicant.

Birds and Bats:

One project discussed in the AWEA documents, Foote Creek Rim, WY, was redesigned based on site-specific data on golden eagle behavior. We feel this example adds justification to our recommendation for a fall-winter-spring survey of raptors at the Highland Project site (Fernald 2006). In his response to DEQ's letter of March 1, 2006, the applicant's primary bird consultant, Paul Kerlinger, states that eagles may fly over the site on rare occasions, but their "use of the site will be minimal" (Flora 2006, Attachment 4). Without site-specific data, this statement is inadequate to address our concerns. Recent birding forays conducted from January 13, 2006 to April 15, 2006 documented over 100 bald and golden eagle sightings in Highland County, including the first confirmed bald eagle nests (Bratton et al. 2006). This information supports the common belief that Highland County may provide important habitat for a population of golden eagles during the winter, and possibly year-round. This reemphasizes our concerns for potential impacts upon eagles and other raptors. Therefore, we reiterate our recommendation for a fall-winter-spring survey of raptors at the project site. Such a survey would document raptor use of the project area, assess potential risk to raptors, and help identify opportunities to mitigate that risk.

The radar study that was conducted for the Highland Project in the fall of 2005 documented the highest passage rates of nocturnal migrants compared with other sites in the eastern U. S. that have been studied using similar methods (Plissner et al. 2006). The percent of targets observed flying below the rotor height (125 m) was among the highest recorded in the east. While this study provided only a "snapshot" view of relative bird and bat use during that period, it was sufficient to identify the concern for potential significant impacts to bats and possibly birds. Documented bird mortality at industrial wind facilities in the east has, so far, been tolerable to the scientific community. Conversely, bat mortality has been significant. Moreover, we are aware of no projects that have conducted multiple years of pre- and post-construction monitoring in order to adequately assess risk, document mortality, and implement appropriate mitigation. The authors of the radar study state that, "Understanding the timing of migration at multiple temporal scales (e.g., within nights, within seasons, and seasons within years) allows the determination of patterns...that can be used with other information, especially weather... (This) may be useful...for the consideration of operational strategies to reduce fatalities..." (Plissner et al. 2006). We concur with this statement. Collection of site-specific pre-construction data across various temporal scales is the only way we will document with any level of confidence how species are currently using a site. We need to know what resources are currently out there in order to determine what we might lose and how we might mitigate for those losses. In response to comments by Kerlinger (2006), we acknowledge the question of whether birds migrate along ridges or along a broad front. Regardless as to which hypothesis is correct, the questions for us are: how do birds and bats currently use the Highland Project site, what correlations are there between bird and bat use and site characteristics, and what might the cumulative effects of this project be upon those resources, both temporal and additive? These questions have yet to be answered to our satisfaction. Therefore, we reiterate our recommendation for an additional pre-construction radar survey during

the spring, multiple years of post-construction monitoring, and implementation of appropriate mitigation (Fernald 2006, also see below).

Instead of conducting a spring radar survey to assess potential impacts to birds and bats during this time period, the applicant has decided to conduct a breeding bird survey and a bat acoustic monitoring project. We again note that the breeding bird study was not among our February 24, 2006 recommendations (Fernald 2006). We feel that such a study may provide helpful information regarding use of the Highland Project site by early- to mid-successional breeding birds, such as the State Threatened loggerhead shrike. However, we are unsure of the overall value of a breeding bird survey because it is unclear how the data will be used. The study proposal states that the data could be used as a tool for determining turbine deployment location, to avoid sensitive nesting habitat. We support such a goal. However, the same information regarding habitat quality could be obtained through a habitat assessment. Regardless, we have yet to see a mitigation plan stating that the results of all the wildlife studies will be used to determine turbine placement. In fact, Flora (2006, Page 2), states that the project location is "as good as it gets." While our responsibility is to conserve all wildlife, at this point in time for this project, we are more concerned about potential adverse impacts upon migrating wildlife and wintering raptors than breeding birds.

We feel the bat acoustic study is insufficient to address the question of bat use of the Highland Project area. One reason is because of the limited area that is proposed to be sampled. The use of acoustical monitoring to predict bat fatalities at wind facilities is a new approach that is currently being tested by the scientific community. Ed Arnett (Bat Conservation International) and John Hayes (Oregon State University) are currently studying this technique at a proposed wind facility in Pennsylvania (Arnett and Hayes 2006). That facility will have 23 wind turbines in two strings. Arnett and Hayes are deploying acoustic detectors at 5 meteorological towers and 7 mobile towers for a total of 12 sample sites. The preliminary findings indicate that the number of bat calls varies considerably both within and among sampling locations and sample nights. This finding was corroborated at the March 24, 2006 meeting by the applicant's primary bat consultant, Scott Reynolds, for a study at a different site. The high variance in the number of calls between sites suggests that multiple towers will be needed to capture the complete picture of bat activity at a wind project. Unlike the Pennsylvania study, the acoustic project at the Highland Project site is currently deploying acoustic detectors at only two meteorological towers. When questioned about the small sample size during the March 24 meeting, Mr. Reynolds stated that their study might only sample about 1% of the project area. Another aspect of Highland Project study is to attach four microphones to each acoustic detector. This will allow the recording of overlapping calls from the same bat or several bats simultaneously. In a review of the study proposal, Gannon (2006) stated that data collected by this system may be of limited value. Gannon also questions the proposed method of evaluating the sonograms produced by the acoustic detectors. The proposed method is to evaluate the sonograms qualitatively in order to identify species, i.e. through an observer looking at the figure. According to Gannon (2006) and our own experience (Rick Reynolds, DGIF, personal communication), this technique has many shortcomings. A more

desirable technique to evaluate sonograms involves the use of quantitative analyses (Gannon 2006, Britzke et al. 1999, Robbins and Britzke 1999).

It must be noted that the applicant has identified the monetary expense they have incurred to date conducting wildlife surveys. However, the applicant never brought the state and federal agencies together to ask for their data needs and how to accomplish those needs prior to implementing their studies. We believe that, had the applicant worked with the agencies from the beginning, the overall cost for wildlife surveys would be very similar to the cost figures presented, with the final product meeting the needs of the agencies. With this in mind, we continue to recommend an additional spring radar study in order to assess the wildlife resources utilizing the project area during that time period.

Northern Flying Squirrels:

As referenced by Flora (2006, Page 9), the Federal Endangered and State Endangered northern flying squirrel has been documented in proximity of the Highland Project site. Flora states that the survey conducted in 2005 for this species did not encounter the species, nor find appropriate habitat on the 217-acre project site. However, in reviewing the survey report (Michael 2005), it is not clear whether or not the survey adequately sampled all 217 acres. Therefore, we continue to recommend that, if any areas considered suitable for northern flying squirrels are to be disturbed for any aspect of this project, including road improvement and utility line installation, the applicant should coordinate with us and the USFWS (Fernald 2006). We also continue to recommend that this coordination occur prior to any other land disturbance, including timbering operations, within or adjacent to appropriate habitat. Areas of appropriate habitat should be determined by a qualified biologist.

Rock Voles and Water Shrews:

The State Endangered rock vole and State Endangered water shrew have been documented less than 1 mile from the Highland Project. Rock voles are typically associated with areas of cool, moist talus, mossy boulders, and logs close to a stream, spring, or seep. Water shrews are typically associated with small rocky streams surrounded by forest. To address potential adverse impacts upon these species, we continue to recommend that a qualified biologist conduct formal habitat assessments for these species on all 217 acres of the project site. The results of these assessments should be coordinated with DGIF Wildlife Diversity Biologist Rick Reynolds (540-248-9360). Based upon our review of these assessments, if there is appropriate habitat for rock voles and/or water shrews, we will offer additional comments and recommendations to mitigate impacts. Pursuant to earlier discussions, Rick has agreed to conduct a site visit to address these species. Based on this visit, he may decide that formal habitat assessments are not necessary. Scheduling this site visit should be coordinated directly with Rick.

We remind the applicant that it remains unlawful at any time to "take" a species listed under Virginia's endangered species law. It is important to note that, unlike the Federal Endangered Species Act, there is no incidental take provision under Virginia's law.

Laurel Fork:

Laurel Fork is a Class II wild trout stream containing brook and brown trout. We understand the utility lines associated with the Highland Project are proposed to be drilled under Laurel Fork and two unnamed tributaries to Laurel Fork. We support directional drilling of these crossings as opposed to open-cutting the streams. However, we are concerned for potential adverse impacts upon trout and other aquatic resources due to the close proximity of the proposed equipment/access ditches to the stream. In the permit application for these crossings, it states that the equipment pits will be dug approximately 6 feet from both banks of the streams. These pits will be approximately 9 ft. wide x 15 ft. long and to a depth of at least 4 feet below the streambed. This amount of land disturbance in such close proximity to the streams may result in a significant amount of excess sedimentation, thereby adversely impacting trout and other aquatic resources. For example, trout spawning success is known to be reduced as the amount of fine sediment increases. To mitigate these impacts, we recommend increasing the setback of all work spaces to at least 50 feet from each side of the streams. A 50-ft setback for a staging area associated with a waterbody crossing is consistent with mitigation procedures outlined by the Federal Energy Regulatory Commission (FERC; 2003). These mitigation procedures represent the minimum level of resource protection that the FERC deems acceptable. In addition to the increased setbacks, all equipment refueling should be at least 100 ft from the streams. Erosion control devices, including silt fence and hay bales should completely surround the construction sites. Timber mats or wooden board pads should be installed along the travel lanes and work areas to minimize soil disturbance. Top soil and subsoil should be segregated when excavated from the bore pit area. This will facilitate site restoration. The spoil storage areas should be surrounded with hay bales and silt fence, and all spoil should be covered with visqueen to prevent run-off in the event of rainfall. A frac-tank should be staged near the work areas. In the event a bore pit fills with groundwater, water should be pumped into the frac-tank for settling. The pumped water should be inspected for any sign of contaminants (e.g., oil, grease, etc.). After settling, the water should be discharged from top to bottom through a filter bag in a well vegetated area, beyond the work areas.

Conclusion

The current request from DEQ is for us to report whether the information submitted by the applicant is sufficient for us to complete our review of the environmental impacts of the Highland Project. In our earlier comments (Fernald 2006), we expressed concern that this project may result in significant adverse impacts upon wildlife. We remain concerned and feel that the information submitted by the applicant is insufficient to determine what the level of impact may be or to develop a plan to mitigate those impacts. Also, while the cumulative impacts to birds were briefly discussed by Kerlinger (Flora 2006, Attachment 4), the cumulative impacts to bats have not been addressed. We also do not know what the impacts upon ecotourism may be. The only quantitative

site-specific study, the fall 2005 radar study (Plissner et al. 2006), leads us to believe that the impacts to birds and/or bats may be greater than other projects in the east. This level of impact would be unacceptable.

To adequately address what the impacts upon wildlife and wildlife-related recreation may be, we recommend the additional analyses discussed above, including an assessment of cumulative impacts upon bats, and the series of studies and mitigation described in our earlier letter under the section titled, "Additional studies, monitoring, and mitigation", numbers 1 - 3 (Fernald 2006). We encourage the SCC to incorporate our concerns and recommendations into their regulatory decision on this project. Our recommended studies would provide information critical to assess baseline habitat conditions for certain species, the relative abundance of birds and bats at the project site, and potential correlations between site conditions (e.g., topography, season, wind speed, and weather) and bird and bat activity. For general birds and bats, the study methods should include using a combination of radar (horizontal and vertical) and acoustic monitoring techniques. Acoustic monitoring can help differentiate the relative proportion of birds to bats using the project area. We recommend that raw radar data be recorded and submitted with annual reports to enable further review of the information provided. Also, agency representatives should be allowed to accompany consultants as they conduct their studies. The information from the pre-construction studies should be used to help determine the final project design, including placement of turbines, and develop a preliminary mitigation plan. The mitigation plan should incorporate a modified operation schedule, modification of equipment, possible use of deterrents, and/or other measures anticipated to avoid or minimize mortality. If the project is constructed, we continue to recommend a minimum of 3 years of monitoring to examine correlations between actual mortality of wildlife, continued wildlife use of the site (e.g., passage rates), and site conditions. This post-construction monitoring will test the preliminary mitigation plan to determine if it is adequately avoiding or minimizing impacts. All wildlife fatalities associated with the project should be properly preserved and provided to DGIF on a bi-weekly basis. If we consider the impacts to be unacceptable, the mitigation plan should be modified. Again, we reiterate that these studies, assessments, and mitigation measures should be coordinated with us and our partner natural resource agencies.

Thank you for the continued opportunity to comment on this Project. Please contact Andrew Zadnik at (804) 367-2733 if we can be of further assistance.

Sincerely,

Raymond T. Fernald, Manager
Nongame and Environmental Programs

cc: Kim Marbain, USFWS
Rene Hypes, VDCR-DNH

Literature cited

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