



State of Vermont

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Agency of Natural Resources

March 14, 2012

By email and U.S. Mail

Susan Hudson, Clerk
Vermont Public Service Board
Drawer 20, 112 State Street
Montpelier, VT 05620-2701

Docket No. 7508- Georgia Community Wind-Bat Protocol Plan

Dear Mrs. Hudson:

The Vermont Agency of Natural Resources has reviewed the post construction bat protocol filed by Georgia Mountain Community Wind, LLC (Georgia). In its filing letter, Georgia indicates that the protocol is being submitted "in accordance with Page 75 of the Order and Conditions 27 and 27 of the Certificate of Public Good." In order to assess the adequacy of the Georgia filing, it is necessary to review the relevant provisions of the Board Order and CPG conditions.

The Board Order provides in pertinent part:

We require the Petitioner to file, prior to construction, a plan to incorporate adjustments to the Project's operations to minimize bat fatalities. In addition, we require two years of post-construction bat mortality studies to ensure that the operational adjustments are functioning properly and to inform whether additional adjustments are appropriate. ANR has requested that three years of post-construction mortality studies, during the period June 1 through July 31, be conducted to monitor the effect of the Project on the small-footed bat, classified as a threatened species by the state. Given the limited duration of the study period and the status of the small-footed bat, we also require GMCW to conduct such studies.

Docket 7508, Order of 6/11/10, at 75.

Conditions 27 and 28 require the following:

27. GMCW shall file, for Board approval, a plan to incorporate adjustments to the Project's operations to minimize bat fatalities. Parties will have three weeks, from the date this plan is filed with the Board, to comment on the plan. GMCW cannot commence operations until the plan is approved.

28. GMCW shall file a plan, for Board approval, that studies the impact of the Project on bat mortality. The plan must include two years of bat fatality monitoring studies. GMCW shall also propose, for Board approval, a third-party with the necessary experience to conduct the

study. GMCW must also grant the Vermont Agency of Natural Resources ("ANR") permission to access the Project area during the post-construction monitoring, hand over all bat carcasses to ANR for species verification and research, and prepare and make the results of post-construction monitoring studies available to ANR within 90 days of the end of data collection. Parties will have three weeks, from the date this plan is filed with the Board, to comment on the plan.

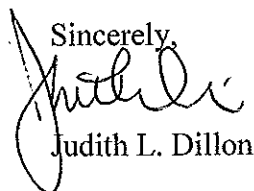
The document filed by Georgia appears limited to a Protocol for Operational Adjustments and does not include a plan for studies on the impact of the Project on bat mortality as required by the Board Order and Condition 28.

The Protocol for Operational Adjustments references the October 13, 2011, correspondence from Scott Darling to VERA. Unfortunately, the Protocol submitted does not address all of the comments raised in the letter. As an initial matter, Mr. Darling recommended that Georgia prepare "a proposed fatality monitoring and operational adjustment plan that is the result of dialogue between a selected consultant, the VFWD, and itself [Georgia]." The Proposed plan did not follow the recommended cooperative approach and does not include a monitoring protocol. Regarding a monitoring plan to assess the adequacy of the operational adjustments, it is "important to recognize that the utility of post-construction monitoring how, or to what degree, operational adjustments should be modified may require a different monitoring methodology than what might be proposed to determine simple fatality rates." (October 13, 2011, correspondence from Scott Darling to Martha Staskus, VERA-Attached).

ANR has the following additional comments and recommendations:

1. The adjustments proposed run from July 1 through September 30 should be modified to begin June 1. Because of the listing of the little brown and long-eared bat, in addition to the small footed bat as endangered, the operational adjustments should commence on June 1.
2. The time period of the adjustments is, in fact, longer than it need be. I recommend revising the timing to be 30 minutes before sunset to sunrise (not 30 minutes after sunrise).
3. The plan is not clear on what metrics would be used to determine wind speeds at hub height. Are there specific time intervals within which this wind speed is calculated? (i.e. average wind speed per hour, per night, in ten minute intervals?)
4. The plan is not clear on how temperatures at hub height are to be measured and, again, if there are any specific time intervals associated with calculating this temperature.
5. There should be an opportunity to incorporate new advances and strategies in avoiding fatalities. If new information on operational adjustment strategies becomes available during facility operations (i.e., changes in optimal timing of curtailment, changes in weather patterns related to high risk, etc.) then Georgia may implement these strategies after consultation and approval from ANR and the Board.

Thank you for the opportunity to comment on the Georgia "Protocol for Operational Adjustments to Minimize Bat Fatalities." Please contact me if you have any questions.

Sincerely,

 Judith L. Dillon

Enclosure
 Cc: Service List



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Agency Of Natural Resources

October 13, 2011

Martha Staskus
VERA
1209 Harvey Farm Road
Waterbury Center, VT 05677

Subject: Georgia Mountain Community Wind Bird and Bat Post-construction Monitoring Plan

Martha
Dear Ms. Staskus:

Thank you for the opportunity to review your initial Post-Construction Bat and Board Monitoring Plan. I appreciate your effort to initiate dialogue between the Vermont Fish and Wildlife Department (VFWD) and the Georgia Mountain Community Wind Project (GMCW) regarding this critical element of wind energy facility operations. I think it is important to recognize that the document you provided is both a monitoring plan and a proposal to adjust operations to minimize bat fatalities. I will offer my initial thoughts on each separately. I have also discussed the draft with John Austin regarding bird fatality monitoring and can offer his initial thoughts as well.

Avian and Bat Monitoring Plan

Regarding the monitoring plan, I think the most important suggestion I can make is to encourage us to work more closely together in developing a monitoring plan, perhaps alongside the consultant expected to conduct the work. I encourage GMCW to identify their consultant at this time so that this dialogue can begin. It is noteworthy that either of the consultants you identified would be considered adequately experienced and capable of conducting this work. The most efficient process may be for VFWD to work with GMCW and their consultant to work out a monitoring plan together, instead of before the Public Service Board.

As you will read below, the current draft lacks clear objectives and the details needed to determine the adequacy of the monitoring efforts. As an example for your consideration, I have attached two documents for your use, the first of which is the *Comprehensive Guide to Studying Wind Energy/Wildlife Interactions*, a document the consultants you have or will work with would be familiar with. The second is a draft proposal to study the efficacy of operational adjustments at the First Wind site in Sheffield. This second document, *Evaluating Avian and Bat Post-Construction Impacts at the Sheffield Wind Farm, Vermont*, is not intended to provide a recommended set of methods because the

study objectives are different, but the document does provide guidance on the level of detail needed in the various elements of a monitoring plan.

First, the document you provided is very vague in providing the central objectives of this monitoring plan. I suggest you consider more specific objectives such as:

- to estimate fatality rates among bats and birds of all species, including species of special concern, and threatened and endangered status
- to determine if the operational adjustments yield acceptable levels of bat fatality
- to determine if there are specific conditions (e.g., significant weather events, turbine locations) causing higher proportions of the fatalities
- *Optional*: to determine if, and how, operational adjustments are to be modified and still yield acceptable levels of bat fatality

Second, to assure that such objectives are met, a monitoring plan will need to provide the details of the search methods (including searcher efficiency and scavenger removal) and the analysis applied in calculating fatality rates. The current document is little more than an overview of those methods. Some of the questions I need addressed from a bat perspective that should be included in a monitoring plan are:

- Which model for estimating fatality rates is proposed?
- What is the target level of precision of the fatality rate estimates?
- What types of carcasses will be used for searcher and scavenger trials?
- How many carcasses will be used in these trials and how many trials will be performed?
- How will carcasses used in trials be marked?
- What is the rationale, basis for 7-day search interval for April 15-June 1 and August 1 through September 30? This is a very important element of monitoring and can drive confidence intervals, interpretation of data, and ability to draw conclusions about the operational adjustments.
- What is the rationale, basis for daily search interval for the period June 1 – July 30?
- What are the protocols for determining time of death?
- What are the visibility classes and their descriptions?

Third, as may know, the little brown bat (*Myotis lucifugus*) is now listed as state endangered, thereby requiring that it, too, be addressed specifically in fatality monitoring. The Agency of Natural Resources is currently evaluating the procedures for obtaining a State Threatened and Endangered Species Permit for the likely take of this species by operating wind energy facilities in Vermont. It is very likely that the measures needed to monitor the potential take of small-footed bats will also satisfy those expected for the little brown bat. However, you should be made aware that data from New England wind energy facilities suggest the take of little brown bats is extremely likely and may warrant the need for a State Threatened and Endangered Species Permit.

Finally, John Austin offers the following comments focusing on monitoring of bird fatalities:

- Follow the procedures prescribed in the ANR draft wind energy guidelines – there are specific details in those guidelines that are important and relevant to these surveys for all wind projects in Vermont such as, how to collect, handle, store, transfer and ultimately dispose of bird and bat carcasses, among others.
- Collect data on bird mortality from April 1 through May 31 and September 1 through October 31 – this was not specified in the document.
- The number of days for bird mortality surveys during the sampling period must be established by a qualified wildlife scientist with experience in this work and should be based on searcher efficiency and scavenger rate tests by habitat types within the search area, but at a minimum we would expect them to search the survey plots 2 days per week during the survey period.
- Provide the specific statistical procedures that they will employ to analyze the mortality data.
- They will need a collectors permit from us to conduct these activities.
- Provide more detail on the dimensions of survey plots, how and why they are configured, how a searcher will conduct surveys within the plots, and an analysis of habitat conditions and their effect on searcher effectiveness within each survey plot.
- Provide more detail on the specific survey practices by searchers such as how, when, where they will mark locations of dead birds and bats that are located.
- Record age and sex of all birds found – when possible.
- Record feather spots as well as carcasses.
- Search the sites immediately following any significant weather events – as prescribed in the VANR guidelines.

Operational Adjustments to Minimize Bat Fatalities

The broad elements of an operational adjustment strategy are provided in the document. I support the initial application of the parameters of temperature at hub height > 49 degrees Fahrenheit and wind speeds at hub height < 5 meters/second for the period July 1 through September 30. In my opinion, these are significant measures to minimize bat fatalities at this project site. More details on how the specific parameters are measured and what start and end times are proposed for each night of adjustments are still required; however.

The plan also states that such parameters may be modified based on the results of the post-construction monitoring. While VFWD supports such flexibility when specific target fatality thresholds are available, both the Public Service Board Order and the current draft of the monitoring plan provide no guidance on what would be considered acceptable target fatality rates. As a result, on what basis would GMCW claim that less restrictive adjustments are warranted or, conversely, on what basis would VFWD claim that more restrictive adjustments are warranted? Some consensus in the plan would, in my opinion, greatly reduce the likelihood of extended deliberations on this matter before the Public Service Board. In addition, the plan offers no clarity on whether modifications to the initial operational adjustments are to be considered after year 1, 2, or thereafter. It should be noted now that modifications that are less restrictive should require additional post-construction monitoring to determine if the ensuing fatality rates remain acceptable.

It is also important to recognize that the utility of post-construction monitoring to inform how, or to what degree, operational adjustments should be modified may require different monitoring methodology than what might be proposed to determine simple fatality rates. This may have significant implications for the search interval, in particular, over either the first and/or second year of monitoring.

I close with, again, a request that GMCW consider preparing a proposed fatality monitoring and operational adjustment plan that is the result of dialogue between a selected consultant, the VFWD, and itself. At a minimum, the VFWD requests a plan that provides the details identified above so that it can determine whether the methodology is appropriate for the agreed-upon plan objectives.

Sincerely,



Scott R. Darling
Wildlife Management Program Director

C.c. John Austin, Habitat Program Director
David Englander, Legal Counsel, VFWD
Judith Dillon, VANR Staff Attorney