

HC 4, Box 15
Monterey, Virginia
24465

August 9, 2006

The Honorable Mark C. Christie, Chairman
The Honorable Judith W. Jagdmann
The Honorable Theodore V. Morrison, Jr.
State Corporation Commission
c/o Clerk of the State Corporation Commission
Document Control Center, P.O. Box 2118
Richmond, VA 23218-2118

RE: Highland New Wind Development LLC – Case No. PUE-2005-0010.

Dear Chairman Christie and Commissioners Jagdmann and Morrison:

On July 5, 2006 Alden Hathaway and Deborah Jacobsen submitted comments to the SCC purporting to:

- Provide factual information on the benefits of wind energy in reducing emissions of air pollutants,
- Rebut comments that we submitted to the SCC on March 29, 2006 on behalf of Virginia Wind.

Mr. Hathaway and Ms. Jacobsen made their arguments in part by reference to an appended document, “Avoided Air Emissions from Electric Power Generation at Three Potential Wind Energy Projects in Virginia,” prepared by Colin High and Kevin Hathaway of Resource Systems Group (RSG). This document and the comments of Mr. Hathaway and Ms. Jacobsen were resubmitted to the SCC on August 4, 2006 by Highland New Wind Development (HNWD) in response to a June 30, 2006 report to the SCC by the Virginia Department of Environmental Quality (DEQ). HNWD presented this material in response to a recommendation in the DEQ report calling for a “backdown study” to quantify avoidance of air pollution that would result due to the wind project.

Although we agree with many of the points made by Mr. Hathaway and Ms. Jacobsen concerning the negative effects of air pollution on human health and the environment, we do not agree that onshore wind development in Virginia represents a meaningful response to these problems. As we described in our March 29, 2006 comments, the potential benefits of onshore wind development and the HNWD project in particular, are extremely small and the potential environmental costs are large.

Mr. Hathaway and Ms. Jacobsen have sought in their comments to the SCC, as well as in other venues, to make the case that substantial air pollution benefits can be obtained through wind

power development in the central Appalachian region. Their arguments are flawed in multiple respects.

Specifically concerning the proposed HNWD project:

1. Mr. Hathaway and Ms. Jacobsen present an unusual and extreme argument that the emissions displaced by the proposed HNWD project would be entirely from coal-fueled electrical generating units rather than from a mix of generator types, including the cleaner quick-start units that are generally higher on the economic dispatch order. They base this argument on analysis provided in the above cited RSG document, which relies extensively on confidential and summary data that are not available or provided for independent review. These data include wind power data for other wind project sites, as well as data that support the designation of the specific displaceable electrical generating units (EGUs) used in their analysis. This lack of transparency is well outside the norm for either scientific assessment or public policy deliberation, and it is especially unacceptable in a contested case such as this. In addition, no data are provided that would allow analysis of wind power potential and temporal patterns at the proposed project site. Without these data, it is impossible for other parties, including the SCC, the DEQ, and the concerned public, to evaluate the merits of the analysis presented.¹
2. Mr. Hathaway and Ms. Jacobsen assert that our March 29, 2006 submission to the SCC included incorrect estimates of Virginia's projected NO_x and SO₂ emissions under existing regulatory programs. They failed to recognize, however, that the estimates we presented were for emissions from all sources rather than from EGUs only. This was indicated in our comments and documented in the data sources we cited. In the interest of further improvement in air quality it should be acknowledged that substantial reductions in emissions of NO_x and SO₂ from EGUs have been achieved in recent years, that substantial additional reductions are projected, and that most of the remaining emissions are associated with non-EGU sources. For example, wind power development can contribute very little to reducing ozone, which is mostly related to emissions from the transportation and other non-EGU sectors.²
3. Mr. Hathaway and Ms. Jacobsen claim, based on the RSG analysis, that the HNWD project will reduce annual emissions of NO_x by approximately 3.85 lbs/MWh. This is more than twice the 1.5 lbs/MWh rate adopted by five of the six eastern states that have adopted a

¹ Mr. Hathaway and Ms. Jacobsen state that much of their emissions displacement analysis has been conducted with support from the U.S. Department of Energy (DOE). Although this implies DOE endorsement of their analysis, it is not clear that any such endorsement has been made. For example, in support of their argument that wind power will mostly displace emissions from coal-fueled power plants, Mr. Hathaway and Ms. Jacobsen cite their report, "Model State Implementation Plan Documentation for Wind Energy Purchase in States with Renewable Energy Set-Aside," May 2005, Subcontract Report NREL/SR-500-38075. Although this report was published by DOE's National Renewable Energy Laboratory (NREL), it carries a disclaimer advising that the report received minimal editorial review at NREL.

² See Figure 2, Sources of NO_x and VOC Annual Emissions in the Eastern United States, 2004, in "Evaluating Ozone Control Programs in the Eastern United States: Focus on the NO_x Budget Trading Program, 2004," U.S. EPA, <http://www.epa.gov/airtrends/2005/ozonenbp>.

renewables or energy efficiency set-aside program to retire NO_x allowances.³ Although Mr. Hathaway and Ms. Jacobsen make no specific claims in their submission to the SCC about reduced emissions of sulfur dioxide (SO₂), the RSG report which they cite and which HNWD has also submitted to the SCC, does claim that wind projects in Virginia will reduce SO₂ emissions at an average rate of 5.32 lbs/MWh. The RSG report, however, fails to acknowledge that wind projects will not affect regional SO₂ emission levels, which are established by an emissions cap, and that no provisions are in place for retirement of SO₂ allowances.⁴

4. Mr. Hathaway and Ms. Jacobsen dramatically overstate the potential CO₂ emissions displacement that might be attributable to the HNWD project. Even if it were correct that all of the electricity generated annually by the proposed wind project would displace coal-fueled electricity generation, a point we do not accept, their calculation (top of page 4 in their comments) that 212,674 tons of CO₂ would be displaced annually is off by more than 100%. Using both the 2037 lbs/MWh emissions rate that they indicate for coal generators and the capacity factor of 29.51% that they indicate for this wind project, the actual displacement of CO₂ would amount to 102,683 tons – not 212,674 tons.⁵
5. Even if we accept the arguments presented by Mr. Hathaway and Ms. Jacobsen, we still reach the same conclusion that we presented in our comments to the SCC. That is, the potential contribution of onshore wind energy development in Virginia to electricity supply and emissions displacement is very small. For example, our calculation of CO₂ emissions offsets attributable to prospective wind development was based on the system average CO₂ emissions rate for all EGUs in Virginia. Mr. Hathaway and Ms. Jacobsen argue for use of the CO₂ emissions rate for coal-fueled generating units, or 1.65 times the system average rate. This difference is immaterial given the small amount of electricity that would be supplied by HNWD. Based on the system average emissions rate, the offset for the proposed project would be equivalent to only 0.037% of Virginia's projected 2015 CO₂ emissions. Based on the coal-fueled unit emissions rate, the offset for the proposed project would still be equivalent to only 0.061% of Virginia's projected 2015 CO₂ emissions. To put these offsets in context, consider that CO₂ emissions rates in Virginia are increasing 2.1% per year (based on 1990-2001).⁶

³ See Table 2, Summary of SIP Call Set-Aside Parameters, in "Incorporating Wind Generation in Cap and Trade Programs," July 2006, Technical Report NREL/TP-500-40006.

⁴ U.S. EPA guidance for crediting emissions reductions for renewables and energy efficiency indicates that creditable emissions reductions for pollutants regulated through cap and trade programs are difficult to claim absent mechanisms to retire allowances or create set asides (see: "Guidance on State Implementation Plan (SIP) Credits for Emission Reduction Measures from Electric-Sector Energy Efficiency and Renewable Energy Measures," August 2004, U.S. EPA, http://www.epa.gov/ttn/naaqs/ozone/eac/gm040805_eac_energy-efficiency.pdf). Although the Virginia General Assembly has established a set aside for NO_x, this set aside is only 5% of total NO_x emission allowances (decreasing to 2% after five years) and may be obtained from either renewables or energy efficiency. Virginia has no set aside program for SO₂ emission allowances. (See VA Code, tit. 10.1 sec. 10.1-1328.)

⁵ This appears to be a mathematical error on the part of Mr. Hathaway and Ms. Jacobsen. The corrected calculation of CO₂ displacement, using their proposed coal-based emissions rate and windplant capacity factor, is:

$$39 \text{ MW} \times 8760 \text{ hours/yr} \times 0.2951 \text{ (capacity factor)} \times 2037 \text{ lbs/MWh} \times 0.0005 \text{ tons/lb} = 102,683 \text{ tons/yr}$$

⁶ The sources for data and statistics we cite here are provided in our March 29, 2006 submission to the SCC.

Mr. Hathaway and Ms. Jacobsen also observe that Virginia has adopted a policy to foster renewable energy development, and they state that the SCC should consider this policy, including its emphasis on clean energy sources and air emission reductions in ruling on the HNWD project proposal. We agree, but we further observe that normal standards of scientific and public policy debate are still in effect. **There is nothing in the Commonwealth's Energy Policy that argues for uncritical acceptance of unverifiable analysis and benefit claims.** Moreover, the policy also calls for ensuring that energy development is located to minimize impacts to pristine natural areas and to be as near to compatible development as possible. By any reasonable measure, the HNWD project fails in this respect.

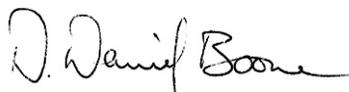
Despite the arguments of Mr. Hathaway and Ms. Jacobsen, we reaffirm the comments that we submitted to the SCC on March 29, 2006. As is common for the usual case in which the data required for detailed dispatch modeling are unavailable, we have used system average emissions rates to calculate emissions displacement attributable to wind power development. Our analysis based on this approach indicates that any air quality benefits that might be obtained from the proposed HNWD project will be insignificant. Although we have serious doubts about the coal-unit displacement rates proposed by Mr. Hathaway and Ms. Jacobsen, we note that the air quality benefits they would attribute to the proposed project are still insignificant.

Finally, we request that the DEQ and the SCC defer consideration of the emissions displacement or "backdown" analysis presented by Mr. Hathaway, Ms. Jacobsen, RSG, and HNWD until all the data that underlie the analysis, including detailed wind data for the proposed project site, are provided and made available for unrestricted public review and verification. We further request an opportunity to provide additional comments concerning any such analysis once the data necessary for informed review are made available.

Respectfully submitted,



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