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October 31, 2007

The Honorable Jeff Herholdt, Director
West Virginia Division of Energy
Capitol Complex, Building 6, Room 553
1900 Kanawha Boulevard E.
Charleston, WV 25305-0311

Re: Provisions of the Proposed State Energy Plan on Industrial Wind-Energy Development

Dear Mr. Herholdt:

I am submitting the following comments on the provisions of the proposed state energy plan that address the construction of industrial wind-energy projects in West Virginia.

The proposed plan sets out a number of important proposals, but my comments focus on these provisions because like many other West Virginians, I have long been concerned about the construction of industrial wind-energy projects in our state. In addition, it appears that thus far these provisions have received relatively little public attention.

As detailed below, these provisions are badly flawed, in that they entirely disregard the serious environmental concerns that are raised by industrial wind-energy development in the mid-Atlantic region. Those concerns have been articulated by, among others, an expert study committee of the National Academy of Sciences, the U.S. Fish and Wildlife Service, and the U.S. Government Accountability Office, as well as numerous citizens of this state in proceedings before the West Virginia Public Service Commission.

With regard to industrial wind-energy development, we need to adopt a thoughtful, comprehensive, and common-sense

approach. What this means is that **before** our state goes down the path of widespread construction of wind turbines on our mountain ridges, we should carefully weigh both the costs and the benefits of that development to West Virginians, both now and in the future. I also submit that in making decisions on whether the construction of industrial wind-energy projects will be allowed in our state - and if so, when, where, and under what terms and conditions - the citizens of this state should be involved to the fullest extent possible.

Elaboration on these points follows.

Plan Provisions Relating to Industrial Wind-Energy Projects. The provisions of the plan relating to industrial wind-energy development are terse, covering slightly more than one page (pp. 18-19) in a 24-page document. A fair reading of those provisions suggests that they are based on the entirely erroneous assumption that such development would have only positive impacts on West Virginia.

Thus, the "short term goal" stated in the plan is to "Advance wind energy as an additional state resource," and the "methods" stated are, "Work with developers and local interests to advance wind development opportunities, including recovered surface mine areas." In the same vein, the first "action item" is, "Identify areas in the state where wind farming is technologically feasible and economically prudent."

The proposed plan appears to contemplate construction of industrial wind-energy projects on public as well as private lands. The plan notes a recent study that found nearly twice as much potential for wind energy on public lands in the state than on private lands. Suffice it to say that the environmental concerns raised by industrial wind-energy development in this region would be greatly magnified in any proposal to build on public lands. Moreover, federal environmental laws and rules would in all likelihood preclude such construction on lands in federal jurisdiction.

There is only one provision of the plan that possibly constitutes a caveat to the promotion of wind-energy development. That is the second "action item," which is, "Consider impact of wind farms on economic development."

If that provision is intended to address the impact of the construction of industrial wind-energy projects on West Virginia's tourism and recreation industries and on home values, then that provision is well taken. I note, for example, that one of the opening lines of West Virginia's Official Visitor's Guide is,

> West Virginia's spectacular mountains, swirling rivers, and scenic countryside offer a welcome change of pace from the rush of everyday life.

How do rows of 400-feet high industrial wind turbines, spread out over thousands of acres of ridgelines, fit into that picture? It is not at all surprising that when projects have come before the Public Service Commission for consideration, they have been met with a storm of opposition from local residents, who value the natural beauty our mountains at least as much as visitors do.

Developers' Planned Projects in West Virginia, and the Claimed Benefits of those Projects. The plan refers to four wind-energy projects in West Virginia - the one that is operational (the 44-turbine Mountaineer project in Tucker County, which is owned by Florida Power & Light), and the three additional projects that the Public Service Commission has approved:

- the 200-turbine Shell/NedPower Mount Storm project in Grant County, which is now under construction,
- the 166-turbine Mt. Storm Wind Force project in Grant County, and
- Invenergy's 124-turbine Beech Ridge project in Greenbrier County.

However, in fashioning a state energy plan, it is critically important to take into account not only the approved projects, but also the plans of developers to build additional projects in our state. The available information indicates that out-of-state developers have targeted West Virginia, and if they are allowed to have their way, they will build their huge industrial projects on mountain ridges throughout our state. The available information includes the following -

- earlier this year AES Corporation announced plans to build a 60-turbine project on Laurel Mountain on the Randolph-Barbour County line,

- while the Public Service Commission recently denied an application of US Windforce to build its 50-turbine "Liberty Gap" project on Jack Mountain in Pendleton County, the denial was mainly for shortcomings in its application and case presentation, rather than deficiencies in the project itself, and thus the company may well try again.

- moreover, the U.S. Fish and Wildlife Service Field Office in West Virginia has been reviewing plans for **six** additional projects in the state. This information came to light in a filing that the Service made in the PSC case on the Liberty Gap application[1] on December 7, 2006, and recently the Service confirmed to me that this is the number of additional projects that the agency is now reviewing.

The environmental concerns raised by this multitude of projects are addressed below, but those concerns can certainly be anticipated from the massive size and industrial appearance of these projects. The wind turbines proposed for construction in West Virginia range from 300 to better than 400-feet tall - far taller than the tip of the dome of the U.S. Capitol - and are topped with a huge propeller. Projects consisting of 50 to 200 turbines such as those I've mentioned would be spread over thousands of acres of ridgelines that have been cleared of trees.

One would expect that facilities this large would produce a significant amount of electricity, but that is not so. It appears that the proposed energy plan recognizes this point. Specifically, the estimate used in the plan for the output of wind-energy projects in West Virginia seems to recognize that on an annual basis, those facilities would operate at only about 30 percent of their "nameplate" capacity.

This matter of the actual output of wind-energy facilities is among those explored in a report issued earlier this year by an expert study committee of the National Academy of Sciences. One of the points made in

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[1] Case No. 05-1740-E-CS.

that report, which is entitled Environmental Impacts of Wind-Energy Projects, is that in the mid-Atlantic region, the availability of wind energy is **lowest** in the afternoon hours of summer months, when the demand for electricity is the **highest.**[2]

Indeed, one of the members of the study committee - James R. (Rick) Webb, who is a scientist at the University of Virginia - reviewed the performance of the Mountaineer wind-energy project in a report that he issued, and he found that during the month of August, Mountaineer has operated at only **9 percent** of capacity.[3] He also calculated that in order to match the average annual output of **one** conventional power plant would require nearly **3,000 wind turbines**, and because of the lower output of turbines in August, it would take nearly **9,000 turbines** to match that one plant's output during that hot summer month.[4]

Furthermore, according to the findings of the National Academy of Sciences study committee, the performance of wind-energy projects in reducing harmful atmospheric emissions will be as disappointing as their output of electricity. The study committee made projections of the amount of electricity that will be generated by the wind industry in the United States by 2020, and on the basis of those projections, the committee concluded the following on emissions:

- With regard to emissions of sulfur and nitrogen oxides, "development of wind-powered electricity generation using current technology probably will not result in a significant reduction in total emission of these pollutants from EGUs [electricity-generating units] in the mid-Atlantic region." (Report, p. 46).

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[2] Report released May 3, 2007, pp. 37, 38 (the text of the report is available on the Web site of the National Academies Press, www.nap.edu.)

[3] "Evaluating the Costs and Benefits of Wind Energy Development in the Mountains of Virginia," presentation at the Virginia Energy and Sustainability Conference, Oct. 16-18, 2006 (the presentation is available at www.energyvacon.org/Program/2006/Agenda2006_with_PPT.htm).

[4] *Id.* Another striking example of this point is found in a *Wall St. Journal* article from earlier this year. That article notes the plan of the Royal Dutch Shell Group to build one of the largest wind-energy projects in the world in Briscoe County, Texas, and the article observes that the project "would cover an area about five times the size of Manhattan, yet it would crank out, on average, only about as much electricity as a single coal-fired power plant." "The Texas Wind Powers a Big Energy Gamble," by Jeffrey Ball, March 13, 2007.

- Wind power will not reduce total U.S. carbon emissions, but merely slow the increase by a small amount - "less than 2.25%." (Report, p. 45).

Environmental Concerns Raised by Wind-Energy Projects in West Virginia. While the benefits of wind-energy development are limited, the environmental concerns raised by the construction and operation of wind turbines in our region are extensive. Those concerns include impacts on wildlife, particularly birds and bats, and impacts on scenic mountain views. Information on these concerns is set out in the report of the National Academy of Sciences study committee and, insofar as impact on wildlife is concerned, in documents of the U.S. Fish and Wildlife Service.

Impacts on bats. An excellent statement of the threat that wind turbines in our region pose to bats is set out in a letter of the Fish and Wildlife Service's West Virginia Field Office that is in the file of the PSC case on the Beech Ridge project[5]. That letter is dated March 7, 2006 and is addressed to Beech Ridge's environmental consultant. Among the points made in that letter are the following:

- The estimates of bat mortality made in studies conducted at the Mountaineer facility and a facility at Meyersdale, PA "are among the highest ever reported in the world, and support the contention that forested ridges are locations of especially high risk for bat fatality at wind energy facilities."

- "The findings [of these studies] reflect an emerging pattern of bat fatality associated with wind turbines located on forested ridges and suggest that similar fatality rates could be expected at sites with comparable forest composition and topography, especially in the eastern U.S."

- The Service concurred with the conclusion reached by Beech Ridge's consultant that "the Beech Ridge project is likely to result in the same, or greater, mortality as the two existing . . . wind power projects."

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[5] Case No. 05-1590-E-CS.

The National Academy of Sciences study committee reviewed the evidence on impact on bats in the mid-Atlantic and concluded (on p. 94),

> Proceeding with large-scale development of wind-energy facilities before identifying risks likely threatens both bats and the public acceptance of wind energy as an environmentally friendly form of energy. Thus, the initial developments should be used as an opportunity to understand the risks before the full wind-energy potential of the Mid-Atlantic Highlands is developed.

Impacts on birds. The Fish and Wildlife Service letter to Beech Ridge that is cited above makes the following points regarding impacts on birds:

- "We continue to be concerned about potential impacts of wind power facilities on migratory birds, a Federal trust resource the Service is mandated to protect. Birds have been killed by rotating turbines blades and/or by striking turbine structures at the Mountaineer Wind Energy Center and other projects. Wind energy generation facilities may also affect bird movements, breeding, and habitat use." [Citations omitted.]

- "[W]e are concerned about the potential risk that construction and operation of the Beech Ridge wind power facility may pose to bat and bird species residing and migrating through the area, and the resultant cumulative impacts of wind power facilities on ridge tops throughout the eastern United States."

In addition, earlier this year the Fish and Wildlife Service advised the House Interior Appropriations Subcommittee, of which I am a member, that,

> Wind energy development along the Appalachian Front poses an increasing risk to bald eagles as well as the eastern population of golden eagles and peregrine falcons which migrate along the Appalachian Front.[6]

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[6] *Interior, Environment, and Related Agencies Appropriations for 2008: Hearings Before a Subcommittee of the House Committee on Appropriations*, 110th Cong., 1st Sess., Part 5, at 607 (2007).

The National Academy of Sciences study committee reviewed the available information on impact on birds and concluded (on p. 5) that additional research on this subject is necessary:

> There is insufficient information available at present to form a reliable judgment on the likely effect of all the proposed or planned wind-energy installations in the mid-Atlantic region on bird populations.

Impacts on scenic mountain views. Some of the key facts regarding the massive size and industrial appearance of wind-turbine projects are set out above. These projects, which would be built on high mountain ridges, would be visible from many miles away. It is evident that these projects would have a huge impact on scenic mountain views in West Virginia, which are of critical importance to our tourism and recreation industries, as well as to home values.

One of the key points made in the report of the National Academy of Sciences study committee (on pp. 98-105) is that there are established methods for evaluating the visual impacts of facilities like industrial wind turbines, and making judgments on whether or not the impacts that a particular project would have are acceptable.

The report also makes it clear that evaluation of visual impacts using one of these methods should be an integral part of the review of every proposed industrial wind-energy project. Unfortunately, however, projects are being approved in West Virginia even though there are no standards in place for deciding whether the impacts that a project would have scenic views - or, for that matter, on wildlife, or any of its other environmental impacts - are acceptable or unacceptable.

One other point on the environmental impacts that needs to be highlighted is that it is necessary to evaluate not only the impacts of each particular project, but also the **cumulative** impacts of building all the projects that developers are planning. That point is made regarding wildlife impacts in the materials quoted above, and it was made as well by the U.S. Government Accountability Office

in its 2005 report on wind energy.[7] The need to consider cumulative impacts is equally applicable with regard to impacts on scenic views, as it is clear that the developers' plans, if allowed to be fully implemented, would result in a major, permanent alteration in the face of our state.

What the State Energy Plan Should Provide Regarding Industrial Wind-Energy Projects. Briefly stated, the plan should indicate support for only those industrial wind-energy projects that are properly sited under established standards that protect the environment, including standards that protect wildlife and scenic mountain views.

How should those standards be developed? In view of the pertinent facts, as set out above, the following would be a reasonable approach:

- Assemble information on the current plans of developers to build industrial wind-energy projects in West Virginia, including information on the location, the number and type of turbines proposed to be built, and the amount of land that the project would require,

- With appropriate assistance from experts on the relevant subjects, assemble an objective, comprehensive analysis of the costs and the benefits of industrial wind-energy development to West Virginians, both now and in the future,

- Guided by that analysis, make determinations on whether the building of additional wind-energy projects should be allowed in the state, and if so, when, where, and under what terms and conditions,

- Because these decisions will directly impact the citizens of this state, ensure that the public will have a full opportunity to participate in the consideration and the resolution of these questions.

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[7] "Scientists . . . are concerned about the potential cumulative impacts of wind power on species populations if the industry expands as expected. Such concerns may be well-founded because significant development is proposed in areas that contain large numbers of species or are believed to be migratory flyways." Wind Power: Impacts on Wildlife and Government Responsibilities for Regulating Development and Protecting Wildlife, GAO-05-906 (Sept. 2005), p. 43.

In addition, the provisions of the proposed plan on wind energy include an item designated "Lead Agency/Institution," and the offices identified in that item are the Division of Energy, the Public Service Commission, and the WVU College of Business and Economics. In view of the environmental concerns raised by wind energy, that list should be expanded to include at least the West Virginia Division of Natural Resources and, because of its responsibilities in enforcing the federal wildlife protection laws, the U.S. Fish and Wildlife Service.

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The environmental concerns that have been raised regarding wind energy in our region are extremely serious. A critical point here is that - as the materials I have cited in my comments demonstrate - those concerns have been raised by independent experts who, quite clearly, have no financial stake in wind energy and no bias on these issues. We ignore their warnings at our own peril, and the peril of future generations of West Virginians.

In addition, to make no change in the laws and rules governing wind energy is not a genuine option. Under current law, the critical decisions on construction of wind-energy projects in our state are being made on a piecemeal basis by the three members of the Public Service Commission. According to the record to date, the likely result of continuing with the present system will be the construction of wind turbines on virtually all mountain ridges of West Virginia just as sure as if that result had been mandated by a state plan.

The formulation of a state energy plan offers an excellent opportunity to fashion a thoughtful, informed and comprehensive state policy on wind-energy development. Of course, it can be anticipated that the out-of-state developers will vigorously oppose the taking of such steps, but sound state policy clearly cannot be based on the wishes of those who want to come here to exploit our state's resources for their own financial gain, or their self-serving claims. Instead, state policy must be based squarely on the needs, the desires and the long-term best interests of the people of West Virginia.

Thank you for the opportunity to submit these comments. Please do not hesitate to contact me if you would like any additional information on the subjects I have covered.

Most sincerely,

Alan B. Mollohan