

Maryland's Public Forests: No Place for Wind Turbines

Statement in Opposition to Permitting Large-Scale Wind-Turbine Emplacements on Public Forest Land in Western Maryland

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EXECUTIVE SUMMARY

The Maryland Alliance for Greenway Improvement and Conservation (MAGIC), a non-profit organization dedicated to the protection and restoration of ecological richness and biodiversity in Maryland, opposes the building of any wind turbines by any entities on western Maryland ridge tops. In reaching our conclusion regarding the adverse affects of wind-turbine construction, MAGIC relied not only on our own experience and field work during the past decade, but also on conclusions in the report entitled *Environmental Impact of Wind-Energy Projects* released in May 2007 by the National Research Council of the National Academies, an organization of distinguished scholars created by Congress to advise the Nation on various scientific issues.

The scope of the current proposed development of wind turbines is not set forth in detail in any of the material available to the public from the Maryland Department of Natural Resources (DNR), nor is MAGIC aware of any filing that provides details of the proposed project. However, MAGIC has become aware that one developer, U.S. Wind Force, LLC, of Wexford, PA has proposed two industrial wind plant sites along the ridges of publicly owned forest land along Backbone Mountain and Meadow Mountain in Garrett County. To our understanding, the project involves at least 100 wind turbines of at least 400 feet in height along 15 continuous miles of forested ridge tops.

One hundred wind turbines requiring 5 acres each to site would be serviced by 50 roads, each 50 feet in width and running for a length of 15 miles. This would involve clearing of approximately 90 acres for roads and 500 acres for wind turbine siting. More than 15,000 acres of trees in Maryland's Savage River Forest have already been cleared due to logging, based upon DNR-supplied geographic data. Turbine construction would cause further deforestation, additional fragmentation of forests, and create more forest edge, fostering the growth of invasive species to further stress indigenous flora and fauna. Further, wind turbine areas on ridges would receive additional moisture due to water vapor cooling as it ascends the mountain to the ridge. Without trees to absorb the moisture, rainfall would flow faster across the ground surface and into streams, carrying sediment and increasing stream turbidity to the detriment of native fish, invertebrates and aquatic plants. Approximately 258 miles of streams on DNR lands are important components of two watersheds that flow into the Potomac River, and from there to the Chesapeake Bay. The largest of these areas has been heavily logged since 1967 and has a decreased ability to absorb the water that would be produced by the wind turbine areas.

Finally, the patch-work of forests that would result from turbine construction would create gaps in any migration routes for plants and animals, isolating organisms in populations whose numbers and genetic diversity would then be sufficiently limited to render them locally extirpated.

Table of Contents

INTRODUCTION	4
DETAILS AND BURDEN OF PROOF MISSING.....	4
SIGNIFICANT ENVIRONMENTAL HARM	5
Edge effects and invasive species	6
Changes in microclimate, increased erosion, and watershed effects..	7
Interrupted migration routes.....	8
Operational effects, bats and viewscape	8
MINIMAL BENEFITS	9
Fuzzy math	9
Peak demand does not correlate with peak production.....	10
Limiting environmental impact	10
CONCLUSION	11
Appendix A: Proposed Wind Turbines and Garrett County, Maryland Watersheds.....	13
Appendix B: Position Statement by Daniel Boone, noted Maryland biologist and naturalist, directed to National Audubon Society.....	14

INTRODUCTION

The Maryland Alliance for Greenway Improvement and Conservation (MAGIC) opposes building wind turbines on our western Maryland ridge tops.

MAGIC is a non-profit organization dedicated to the protection and restoration of ecological richness and biodiversity in Maryland. Our members include 34 affiliated environmental organizations and about 2400 registered supporters. We provide extensive educational material to the public regarding the natural resources in Maryland and have appeared numerous times in various DNR and legislative forums in Maryland to inform the government with respect to protecting the rich natural heritage of our State. ¹

In reaching our conclusion regarding the adverse affects of wind-turbine construction, MAGIC relied not only on our own experience and field work during the past decade, but also on conclusions in the report entitled *Environmental Impact of Wind-Energy Projects* released in May 2007 by the National Research Council of the National Academies, an organization of distinguished scholars created by Congress to advise the Nation on various scientific issues. The report dealt specifically with the Mid-Atlantic Highlands, the mountainous region in Pennsylvania, Virginia, Maryland, and West Virginia. ² Representatives of MAGIC's Board of Directors spoke at public hearings in McHenry and Annapolis in opposition to the proposal to permit large-scale wind turbines on the ridge top of public forest land in Western Maryland. MAGIC now files this written statement reiterating our opposition and spelling out our reasons in more detail.

DETAILS AND BURDEN OF PROOF MISSING

Proponents of wind turbine emplacements bear a heavy burden of proof to demonstrate that their proposal is in the public interest. The short statement by the Maryland Department of Natural Resources (DNR) announcing this public hearing included two important statements that require emphasis:

¹ More information about MAGIC is available at our web site: www.magicalliance.org.

² The report (hereafter cited as National Academies) is available at <http://www.eswr.com/latest/307/nrcwind.htm>

First: The ridges of our public forests are public lands—they belong to all the citizens of Maryland, and

Second: The decision to sanction the construction of wind turbines on these ridges “could forever change our rural landscape.”

Our public forests are intended to benefit all the people of our State. The forests are our sacred trust—we are their guardians for future generations. They are not intended to be used for the benefit of private entrepreneurs seeking financial gain and tax write-offs.

The scope of proposed development is not set forth in detail in any of the DNR material. Nor are we aware of any filing giving the details of the proposed project. However, we have become aware that one developer has proposed two industrial wind plant sites along the ridges of publicly owned forest land along Backbone Mountain and Meadow Mountain in Garrett County. It is our understanding that this project would involve at least 100 large wind turbines and would permanently impact 1,300 acres along 15 continuous miles of forested ridge tops. The 400-foot wind turbines would be visible from 44% of Garrett County.³ Consequently, DNR’s statement that the project “could forever change our rural landscape” is an understatement.

Accordingly, proponents of the proposal must bear a heavy burden to convince DNR and the public that the plan to erect large wind turbines on the ridge lines of our public forests is in the public interest. We are doubtful that this burden can be sustained. First, construction and operation of the turbines and associated infrastructure would cause significant environmental harm, including the destruction of forested acres for the turbines themselves and the roads and infrastructure necessary for constructing, servicing, and maintaining the turbines. Second, the reduction of our dependency on traditional sources of energy would be minimal. Forests do not comprise the total solution to global warming, species loss, and environmental quality but they remain as the most immediately and directly beneficial answer.

SIGNIFICANT ENVIRONMENTAL HARM

Emplacement of turbines and the infrastructure required to construct and maintain them would cause significant environmental harm.

³ See http://www.mdwind.org/wind_letter_to_garrett_county_landowners.pdf

Edge effects and invasive species

Turbine construction would cause deforestation and create more forest edge. The construction would foster the growth of invasive species and further stress indigenous flora and fauna.

Originally, forested lands in the United States were largely unbroken from the Atlantic Ocean to the Great Plains and from the Canadian border to Florida. Today, much of our land has been given over to development and farms. Settlers began clearing forests as soon as they arrived, but logging cleared the majority of the old-growth by the early 1900s. This has created a mosaic or patch-work of undeveloped land that has been fragmented into cities, forests, and fields. Invasive species thrive on the edges of the forests and in soil disturbed by farming and logging. Once they have taken hold, some of these invasives infiltrate the woods interior and crowd out or prey on their inhabitants. Wind turbines on private or state lands alike would create yet more edges – more breaks in the canopy of the forest. One hundred wind turbines would be serviced by 50 roads, each 50 feet in width and running for a ridge length of 15 miles. This would involve clearing of approximately 90 acres for roads and 500 acres for wind turbine siting.

Interior woods species are typically adapted to less sunlight, more moisture, and stands of large dead and live trees. There is evidence that continued deforestation results in less rain, more dried up land and vegetation, disappearing wildlife, and less diversity. Less leaf area results in reduced oxygen and decreased sequestering of anthropogenic carbon dioxide that contributes to global warming.

Numerous species require woods interiors of relatively large acreage. This includes many of our migrant birds, owls, many lichens, and many herbaceous plants. The reclusive nature of most carnivores necessitates seclusion at various points in the life cycle. Black bears need the large trees that are found in mature forests. These and the gray fox, the raccoon, and the weasel often make their maternal dens in the cavities of large, standing (live or dead) trees. Fragmentation-induced edge effects reduce the available habitat of native plants and animals.

Logging has been responsible for the clearing or thinning of more than 15,000 acres of trees in Savage River Forest from 1967 to 2004 according to DNR- supplied geographic data. Figures for roads and logging areas used earlier by MAGIC to estimate Green Ridge Forest buffer zones are used here to approximate additional acreage, where wildlife will be detrimentally affected. This then affects 1,000 acres for

siting and 720 acres for roads. The newly created edges would be 290,000 feet in length for siting and 158,000 feet in length for roads. These areas and edges are in addition to those already in the forest due to existing roads and structures.

Changes in microclimate, increased erosion, and watershed effects

Wind turbine areas on ridges would receive additional moisture due to water vapor cooling as it ascends the mountain to the ridge. Without trees to absorb the moisture, rainfall would flow faster across the surface of the ground and into streams, carrying more sediment and increasing stream turbidity to the detriment of native fish, invertebrates and aquatic plants.

Approximately 258 miles of streams on DNR lands are part of two watersheds (the Savage River and the North Branch Potomac) that flow into the Potomac River, and from there to the Chesapeake Bay. The largest of these areas has been heavily logged since 1967 has a decreased ability to absorb the water that would be produced by the wind turbine areas (Appendix A).

The environmental harm occurs both during the construction and the operation phases. The National Academies report put it succinctly: "The construction and maintenance of wind-energy facilities also alter ecosystem structure through vegetation clearing, soil disruption and potential for erosion and noise. Alteration of vegetation, including forest clearing, represents the most significant potential change through fragmentation and loss of habitat for some species. *Such alteration is particularly important for forest-dependent species in the [Mid-Atlantic Highlands].* Changes in forest structure and the creation of openings alter microclimate and increase the amount of forest edge. Plants and animals throughout an ecosystem respond differently to these changes." ⁴

The clearing for the turbines, pads, and service roads would make the entire system more susceptible to erosion, stress on down-slope forest, and create open spaces dangerous for smaller creatures to navigate. In fact, this type of open space and forest fragmentation further degrades an already-stressed ecosystem and is a barrier to normal movement and migration.

⁴ National Academies at Summary pg 5 (emphasis added).

Interrupted migration routes

Finally, the patch-work of forests that would result from turbine construction would create gaps in any migration route for plants and animals. This would isolate plants and animals in a population whose numbers and gene pool would then be sufficiently limited to render the population locally extinct. In particular, this would impact large mammals such as the bear, bobcat, and the Eastern cougar that require large territories. Over time this would become true of plants as well.

When populations are connected by forest habitat, however, the population in one area that becomes locally extinct by natural causes such as predation, famine or fire can be re-established from an adjacent population that survives. Populations require connectivity. An increased edge-to-area ratio would lead to deterioration of the biotic community. Wind turbines and the roads connecting them would create barriers to wildlife migration and population interbreeding.

The remaining forests of the Appalachian Mountains in our Western Maryland area could be connected to those in Pennsylvania and West Virginia to form a wildlife corridor. Maryland should do its part in Garrett and Allegheny counties. Deforestation to accommodate wind turbines in the state forests would dim this vision.

Operational effects, bats and viewscape

While the construction and maintenance of turbines would have severe environmental consequences, the operation of the wind turbine is also problematic. The operation of the turbines causes significant deaths among bat populations—as migrating bats collide with the blades. The National Academies report concludes that turbines placed on ridges appear to kill more bats than turbines sited elsewhere. The report says that preliminary information indicates that in the mid-Atlantic region, more bats are killed than expected based on experience in other regions. The report cautioned that the possibility of population effects on bats is significant, especially if more turbines are added, given a general decline in several species of bats in the eastern United States.⁵

⁵ “Bats are the primary predators of vast number of insects that fly at night, including many that rank among North America’s most costly agricultural and forest pests” See S.L. Dicummon, “Ecological and Economic Importance of Bats” <http://www.mcrcc.osmre.gov/PDF/Forums/Bat%20Conservation/1a.pdf>

The National Academies report also addressed the affect of wind turbines on bird deaths. Songbirds are frequent fatalities at wind-energy facilities. It noted that more birds are killed at wind-energy facilities on forested ridge-tops than in other regions.

Clearly there are substantial quality of life effects of the proposals: the viewscape would be permanently altered and the operation of many wind turbines would create significant noise pollution. See National Academies, Chapter 4 and Annapolis hearing testimony that the operation of the turbines sounds like the “continuous thumping of tennis shoes going around in a clothes dryer.” However, we leave it to others to address that subject in detail.

Given the adverse environmental affects from the construction and operation of wind turbines, DNR must insist on being provided with evidence of significant offsetting benefits. Yet these are lacking.

MINIMAL BENEFITS

Fuzzy math

At the DNR public hearings, state officials pointed to two potential benefits of wind turbines. First, John Sherwell, a spokesman for DNR, claimed the wind turbines proposed for Meadow Mountain would reduce pollutants by displacing electricity generated from coal-fired plants. Sherwell projected reductions in NO_x (250 tons per year; tpy); SO₂ (900 tpy); and CO₂ (140,000 tpy) *based upon the PJM system mix*. Sherwell’s conclusions are contradicted by the scientifically-based research in the National Academies report, which states that the reduction in NO_x and SO₂ can be expected because of **emission caps and regulation programs**, not because of wind-energy development.⁶ The report concludes that “the development of wind-powered electricity generation using current technology probably will not result in a significant reduction in total [NO_x and SO₂] pollutants from the electricity sector in the mid-Atlantic region.”⁷

The methodology used by Sherwell to estimate a reduction in CO₂ is questionable. Sherwell based his projection on a PJM system wide mix. The National Academies report specifically cautions that using this methodology will produce overestimates of displacement in regions where baseload is dominated by coal fired plants.⁸ The preferred method is using the system dispatch model. Such a model answers the question: Which generator will the wind-turbine replace in the queue and what are the emission characteristics of that generator? To despoil our state forests based on the supposed benefit of reduced

⁶ National Academies, pg. 43.

⁷ National Academies, pg. 4.

⁸ National Academies, pg.42.

CO2 emission estimates based on inadequate data would be irresponsible.

Peak demand does not correlate with peak production

The director of the Maryland Energy Administration discussed a second supposed benefit: wind turbines would increase electric- generating capacity and reduce the risk of future brown outs during the hot summers when electricity demand is at its height. This is untrue. As the National Academies report notes, "The correlation between wind-capacity factors and monthly electricity demand in the four [Mid-Atlantic Highland States] is generally negative."⁹ The wind power capacity factor is **lowest in the summer** when **demand for electricity is at its peak**. The National Academies report concludes that because the wind blows intermittently, the usage rate for wind turbines is currently only 30 percent of their rated capacity in the mid-Atlantic area. (See also the Maryland Wind Resource map printed on page 1 of *The Republican* newspaper of January 24, 2008, in which wind power in Garrett County is rated "marginal" at best.) In short, if Maryland faces a shortage of electric power, western Maryland wind turbines are not the solution; they don't generate energy when we need it!

Limiting environmental impact

Finally, State officials have not addressed the issue of alternatives that would minimize the harm to the environment. There are two alternatives for generating as much or more "clean" electricity as compared with siting industrial wind turbines on State Forests.¹⁰ Offshore wind turbines have much greater potential, and there is currently a planned wind energy project off of Ocean City, which is seeking interconnection with the grid region for 600 MW of wind turbines.

The second option involves the 1600 MW nuclear reactor proposed for addition to the existing Calvert Cliffs Nuclear Power Plant in Calvert County.¹¹ The proposed addition would swamp the amount of power generated by the forest-defiling wind turbines. For example, if 200 2-MW wind turbines could be immediately built on suitably windy places within the public forests, they could generate enough electricity to

⁹ National Academies, pg 38.

¹⁰ Far greater reductions in Maryland electricity demand could be achieved by implementing better policies and incentives for conservation and energy efficiency than could possibly be generated by wind turbines on ridge tops.

¹¹ For comparison only; this does not represent endorsement of nuclear power by MAGIC.

equal about 1.5% of Maryland's annual demand (as of 2006). That percentage will likely decline in the future due to the growth in demand for electricity as population increases, and due to an anticipated greater demand for summer-time air conditioning as the climate continues to warm.

In comparison to the 1-million MWh/yr which 200 x 2-MW wind turbines sited on public forest could generate, the addition of the 1600 MW nuclear reactor to the existing Calvert Cliffs facility would be expected to produce nearly 13-million MWh/yr —12 times as much electricity in a year as could be produced by 200 huge wind turbines. Thus, only about 130 MW of the proposed 1600 MW addition to the Calvert Cliffs Nuclear Power Plant likely would generate as much electricity in a year as 400 MW of wind turbines sited on State Forests of western Maryland. Further, MAGIC fully supports the comments of Dan Boone covering these and related issues.¹²

In addition, nuclear power plants are "head-on" competitors with coal-fired power plants in terms of supplying "base load" electricity. Therefore, the proposed Calvert Cliffs nuclear power plant addition probably would directly offset the need to burn coal to generate future amounts of electricity (i.e., each 10 MWh produced by nuclear means 10 MWh not produced by coal). But only about 60% of the generation produced by wind turbines would be expected to offset the burning of coal (i.e., for every 10 MWh produced by wind, only 6 MWh generated by coal is offset). Consequently, the benefit of nuclear power in terms of reducing CO₂ emissions is likely significantly greater than that of wind turbines on a MWh basis, so it is likely that only 100 MW of power generated by nuclear reactor would reduce as much CO₂ as 400 MW of wind turbines. Coal is twice as carbon intensive as natural gas - the next most relied upon fossil fuel to generate electricity in our grid region, so displacing coal with natural gas provides far more CO₂ "benefit" than a minimal offset by wind energy. In determining whether to permit wind turbines on state land, officials must consider this alternative for meeting the State's energy needs.

CONCLUSION

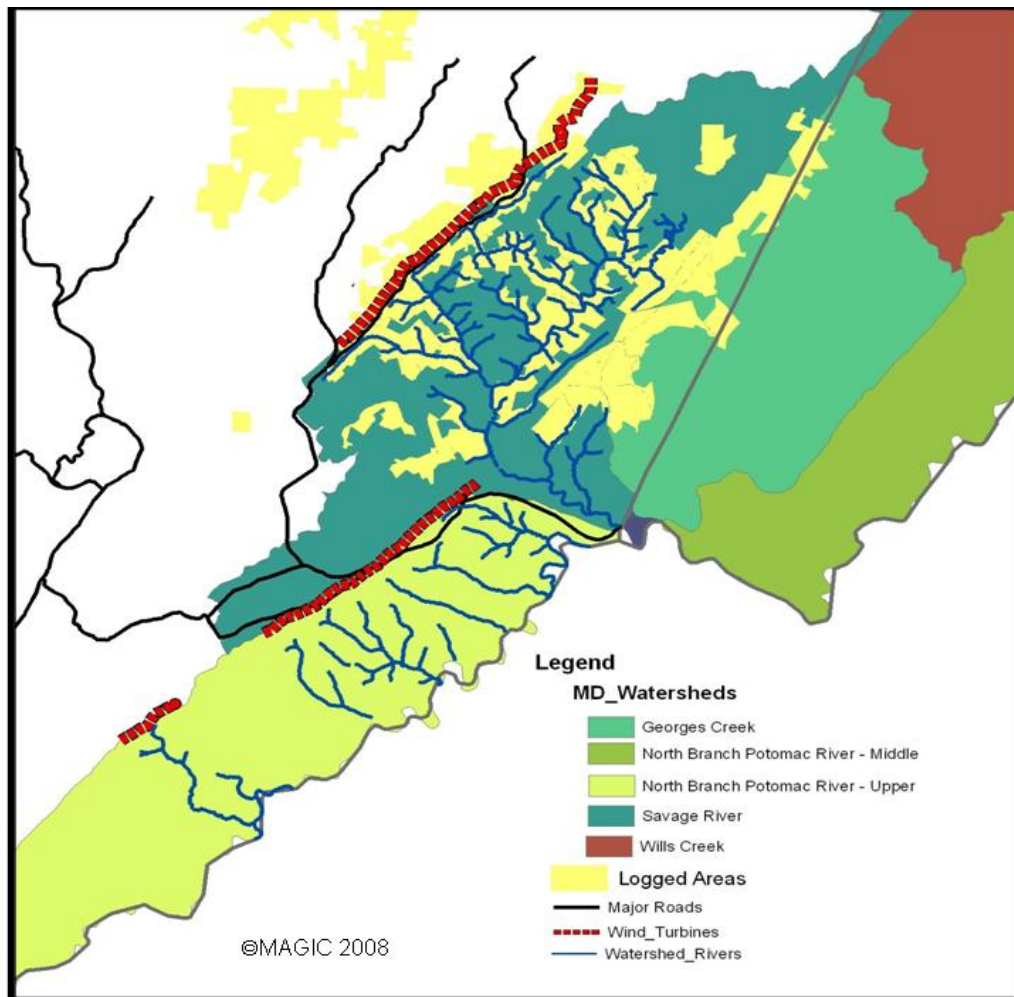
In summary, the suggested benefits of the emplacement of wind turbines on Maryland State forest lands are *speculative* and, at best,

¹² See Appendix B.

minimal. However, we are confronted with *certain* degradation of the environment from the construction, maintenance and operation of wind turbines. This includes a dramatic alternation of the ecosystem from forest clearing, soil disruption, erosion and noise. It also involves significant depopulation of birds and bats as they meet their death from collisions with wind blades during migration. Further, there is a direct effect on humans. Because of degradation of the viewscape, western Maryland would no longer provide an escape that we all desperately seek from the everyday bombardment of our modern civilization. Finally, there are less harmful alternatives that must be considered before despoiling our public forests.

For these reasons, MAGIC opposes building wind turbines on our western Maryland ridge tops.

Appendix A: Proposed Wind Turbines and Garrett County, Maryland Watersheds



Tree removal for wind turbines will cause additional run-off into already heavily burdened streams that flow into Maryland's watersheds.

Appendix B: Position Statement by Dan Boone, noted Maryland biologist and naturalist, directed to National Audubon Society

February 27, 2008

Dear Mr. Daulton,

I am writing to echo and supplement the comments which Dr. McNair recently sent you (pasted below) about the disappointing position statement which National Audubon has recently adopted for the "wind power" issue – see:

<http://www.audubon.org/campaign/windPowerQA.html> .

Audubon's position amounts to boosterism for an industry that doesn't deserve or need it.

I was particularly struck by the false claim which is perpetuated in Audubon's new position statement - that "expanding wind power" will avoid the adverse impacts associated with "oil drilling". This appears to represent a regurgitation of the wind industry's ridiculous but oft-repeated myth that wind turbines reduce our nation's dependence on oil. A cursory check into how our country's electricity is produced would reveal that less than 3% annually comes from burning oil. Further digging would reveal that 5/6 of that quantity is comprised of the tarry residues left over from refining petroleum, and that this "sludge" has few other practical uses. Only 0.4% of U.S. oil is distilled products made into electricity. You can verify what I've just indicated by checking with Amory Lovins - see p. 3, the 5th bullet point under "Background" in:

http://www.rmi.org/images/other/EnergySecurity/S03-04_USESFtext.pdf .

Given that the US exports more oil each year than it uses to generate electricity, how can wind turbines be expected to protect wildlife or improve human health from impacts associated with oil drilling or its use?

Dr. McNair's point that Audubon's position statement appears to ignore the USFWS's Interim Guidance on Avoiding and Minimizing Wildlife Impacts from Wind Turbines seems particularly salient, and I hope you will explain why Audubon is calling for federal Guidelines despite the availability of a national guidance document since 2003 – and why no

acknowledgement was provided that the wind industry has consistently dismissed and belittled the USFWS guidelines even though compliance was purely voluntary. The wind industry likely put pressure on the Secretary of the Interior in hopes USFWS would be forced to withdraw its voluntary guidance – see: <http://www.johnrsweet.com/Personal/Wind/PDF/Pombo-FWS-WindPac.pdf> .

I realize that you have been selected to represent National Audubon in the Wind Turbine Guidelines Advisory Committee, which was formed to help the USFWS re-draft its existing "voluntary" Guidelines. Unfortunately, this Committee's membership composition is significantly biased in favor of wind industry interests, and very few members have substantial experience or expertise related to the impacts of wind energy projects upon wildlife and/or forest habitat within the eastern half of the US (e.g., no forest or landscape ecologists, hawk migration experts or nocturnal migration researchers were selected as members of this Advisory Committee despite the fact that qualified individuals did apply for membership); see: <http://www.windaction.org/documents/13651>. It seems very unlikely that a "stacked" Federal Advisory Committee will produce tangible improvements to the existing wildlife guidance recommendations for wind energy projects. I fear that Audubon's participation may be used to provide "cover" for the wind industry's push to gut some of the more nettlesome recommendations (to them) in the existing Interim Guidance – such as multi-year pre-construction studies.

Many of us who have been fighting inadequately evaluated and inappropriately sited wind energy projects for several years question why National Audubon via its recent position statement did not advocate for federal and state regulations – and instead only called for what may amount to nothing more than toothless "guidelines". National Audubon's position statement also causes me to wonder if its staff and/or Board of Directors were aware of many facts whose consideration may have influenced their thinking and perhaps yielded a position and strategy which more likely would reduce the wind industry's impacts on wildlife and habitat.

Following are a few of the points which I believe are germane and should have been included in the decision to adopt this position statement:

- A Regional Director of USFWS has publicly acknowledged that the lack of cooperation from the wind industry has prevented his agency from "perform[ing] our regulatory and advisory roles in

licensing domestic wind energy projects on land in the Northeast." (see attached letter from Regional Director Moriarty to Congressman Mollohan of WV - July 20, 2004).

- The nation's largest wind developer (FPL Energy) has barred Bat Conservation International and other independent wildlife scientists from conducting research at ANY of its wind energy facilities throughout the country (see box on bottom of page 3 in this weblinked article in Bats magazine <http://www.vawind.org/Assets/Docs/Battered.pdf>).

- The artificial demand created for renewable energy via the Renewable Portfolio Standards (RPS) laws enacted in many states likely will be supplied predominantly by wind energy projects. For example, in the Mid-Atlantic region the demand created by the various RPS laws likely will spur the installation of over 18,000 MW of huge wind turbines by 2030 (see attached chart I created based on electricity demand projections and existing or proposed RPS laws of Mid-Atlantic states).

- Over 110,000 bats are likely to be killed ANNUALLY if only 4,000 MW of wind turbines are installed within the Mid-Atlantic Highlands region (see: http://www.vawind.org/Assets/Docs/Wind_and_Bats_07.pdf). Presently, over 6,000 MW of wind turbines are under study for interconnection within this same portion of the PJM grid region.

- The Pennsylvania legislature last year amended the Commonwealth's RPS-style legislation to remove as a qualifying source any wind or other renewable energy projects that are built in the wind-rich and predominantly agricultural Mid-West grid region of the US (i.e., the MISO grid region, which has more than twice as much currently pending wind projects as any other grid region in the US). Consequently, renewable energy projects built within this entire grid region are no longer allowed to supply the Renewable Energy Credits needed to satisfy the demand created by Pennsylvania's RPS law. This law change was designed to encourage and foster wind energy development within the Appalachian region.

- About 3-5 acres of forest are cleared per wind turbine on average for wind projects that have been sited along Appalachian ridges, and the huge road system and clearings for turbines within these wind projects typically results in extensive fragmentation of contiguous forest patches – with an average loss ranging between 15 and 20 acres of forest-interior per turbine. For example, the

Mountaineer windplant's 44 turbines in WV resulted in the bulldozing of roads and turbine clearings and removed nearly 200 acres of forest. However, the ensuing forest fragmentation resulted in the loss of over 700 acres – about 1.2 square miles – of ecologically vital "forest-interior" habitat. (see: http://www.kutztown.edu/acad/geography/wildlife&windconf/Speaker_Presentations/Boone_GIS.pdf).

- There is much more wind turbine generating capacity now under study for interconnection to our nation's electric grid that is located within the onshore portions of the Mid-Atlantic and NY region of the US (i.e., within NY, PA, MD, WV and VA) as compared to the amount of wind energy development that is presently being studied by grid managers covering the entire western 1/3 of our nation (i.e., the WECC region – including all or parts of CA, OR, WA, ID, MT, SD, WY, NV, UT, CO, AZ and NM)[see: <http://www.windaction.org/faqs#12412>]

- At the behest of the wind industry, the Maryland Legislature in 2007 approved an exemption for wind energy projects which allows proposed onshore facilities of 70 MW or less to bypass the long-established public participation and environmental review process for siting of electric generators. Now, even approved wind projects are re-filing applications in order to become exempt from permit conditions which they previously were required to comply with because of concerns for wildlife impacts (see: <http://www.businessweek.com/ap/financialnews/D8UM89U80.htm>). This action is part of a clear pattern of behavior by the wind industry – see: <http://www.vawind.org/#McBride> .

- In 2004 the Maryland RPS law was enacted, and section 3 of that legislation required our state's Public Service Commission (PSC) to convene a Technical Advisory Group (TAG) for the purpose of developing Wildlife Guidelines and also required the PSC to promulgate the Guidelines as regulations by July 2006. Sadly, the 2 independent members of this Advisory Group – Drs. Chandler S. Robbins and Donald Meritt - resigned in protest because of the wind industry's undue influence over the Group's final recommendations. They submitted a joint letter in which they stated:

"The wind turbine advocates dominated the meetings, and refused to consider any wording that would restrict their activities or hold them responsible for bird or bat casualties resulting from erecting turbines in areas known to have large concentrations. The resulting document essentially protects the industry rather than the wildlife. This is scandalous."

These scientists' joint letter of protest and my critique of the Wind Energy Technical Advisory Group's recommended windpower siting guidelines are available for downloading via:
<http://www.windaction.org/documents/4358> .

- Despite a July 2006 deadline set by the 2004 RPS law, the Maryland PSC has never finalized into regulations the required guidelines supposedly designed to ensure better monitoring and protection of wildlife (bats and birds) at wind energy projects. Incredibly, the PSC waited until April 13, 2007 – 13 days after the Maryland Legislature passed the bill exempting most wind projects from having to obtain a Certificate of Public Convenience and Necessity (CPCN), which excused future wind energy facilities from the public participation process and environmental review scrutiny they formerly had to undergo – before the PSC published in the Maryland Register a set of "proposed regulations" to implement the long-overdue Wildlife Guidelines. However, these "proposed regulations" have never been finalized, and – worse – they were written only to apply to wind energy projects which are required by the PSC to obtain a CPCN. Thus, even if the "proposed regulations" were officially enacted, they would not apply to most onshore wind energy projects that likely will be attempted in Maryland.

- The need for wildlife protection regulations covering wind energy projects in Maryland has been recognized and called for by the co-chair and co-founder of the Congressional Climate Change Caucus. In a letter sent by Congressman Wayne Gilchrest on May 9, 2007 to the Maryland Public Service Commission, he pointed out that – given the Maryland Legislature's exemption of onshore wind projects – "oversight is necessary for such projects [exempted wind energy facilities] to assess and avoid impacts that severely damage wildlife populations, such as those experienced in California and West Virginia." In concluding his letter, Congressman Gilchrest urged that "we must not repeat mistakes we have made with the production of fossil fuels by significantly threatening wildlife populations with wind generation."

(Congressman Gilchrest's letter [was] attached)

- The American Wind Energy Association formed the Wind Energy Works coalition in July 2005 "to actively and aggressively engage in the public conversation about the merits of wind energy and act as a counterbalance to the misinformation being spread by wind energy opponents."

[see: <http://www.ifnotwind.org/newsroom/newsroom-press-release.shtml#7-6-05>]. This booster organization is comprised of a cadre of regional and local organizations which "actively and aggressively" support industrial wind energy development – see: <http://www.windenergyworks.org/Members/CoalitionMembers/tabid/70/Default.aspx>.

AWEA is using this coalition's and other supposed independently operated websites to widely propagate their own "misinformation" about wind energy and its environmental impacts.

- I'm not sure if National Audubon has taken a position on nuclear power, but this alternative energy source would have vastly less wildlife and habitat impact and would be far more effective at reducing CO2 emissions as compared to wind power. In the Mid-Atlantic portion of the PJM grid region there are 3 nuclear power plants for which new reactors capable of generating over 4,800 MW are planned and are currently under study for interconnection by PJM's grid managers. These additional reactors would be built within the project boundaries of the 3 existing facilities – i.e., Susquehanna, Calvert Cliffs and North Anna, which are in PA, MD and VA, respectively. On a per MW basis it is well-documented that nuclear power plant reactors produce over 3 times as much electricity annually as onshore wind turbines in this region are capable of producing. Consequently, it would require nearly 15,000 MW of wind turbines to generate the equivalent amount of electricity per year as would be produced by the currently planned expansion of these 3 nuclear power plants.

- The need for electricity in the PJM grid region (as in most other grid regions of the US) is greatest in the summer when wind turbines typically produce very little power. However, the installation of about 30,000 MW of wind turbines would be needed to equal the likely electricity output during the 3 summer months from the 4,800 MW of planned additions to existing nuclear power plants in the Mid-Atlantic region. But the 30,000 MW of wind turbines would nearly saturate the potential sites where onshore wind energy development is commercially viable in this region, and the vast majority of these suitably windy sites are located atop forested ridges. Consequently, if 2 MW wind turbines are built, it would require the installation of 15,000 – covering over 2,000 miles of ridgecrest – to generate as much electricity during the summer months as the new reactors which are planned for addition to the 3 existing nuclear power plants.

- If 3 acres of forest is cleared on average to install one wind turbine and if 15,000 huge wind turbines are installed along forested

ridges within the Mid-Atlantic region, the loss of forest habitat may exceed 40,000 acres (more than 65 square miles). But if the ecologically harmful "edge effects" due to the resulting forest fragmentation include only 15 acres of "forest-interior" lost per turbine, the installation of 15,000 2-MW wind turbines could eliminate over 200,000 acres of this critically-important habitat in the Central Appalachians – more than 325 square miles!

- Despite the considerable amount of CO₂ which could be offset by installing 30,000 MW of wind turbines, their annual contribution nonetheless is likely to be less than the projected net increase in CO₂ emissions due to the growth in demand for electricity in the Mid-Atlantic region between now and 2020. And less than 40% of this region's CO₂ emissions come from burning fossil fuels to generate electricity. Energy conservation and improved efficiency, nuclear power and perhaps even offshore wind energy development (beyond 10 miles of coast) offer a far greater CO₂ reduction potential than onshore wind energy development within the eastern US. Each of these alternative energy strategies could provide more climate change benefits than onshore wind turbines yet they would result in far less wildlife and habitat impact.

- The wind industry is largely unfettered by the safeguards provided by the National Environmental Policy Act (NEPA) because there is no federal "nexus" involved in nearly all onshore wind energy projects. Apparently the wind industry believes it can ignore the Migratory Bird Treaty Act and even the Bald and Golden Eagle Protection Act, spurred on by the failure of USFWS to enforce these laws by prosecuting any of the owner's of Altamont's wind turbines – despite the high level of mortality they annually cause to golden eagles and other migratory birds.

- An unstoppable stampede appears to be coalescing behind a national policy which calls for industrial wind turbines to supply 20% of our country's electricity by 2025 or before. But this level of development would involve the installation of about 325,000 MW of wind turbines – more than 20 times the amount of wind generating capacity which exists today. However, more than half of this incredibly high level of wind energy development is currently underway, with over 165,000 MW of wind turbine projects having already applied for interconnection with the various grid regions of the US. Voluntary or ineffective and unenforceable "siting guidelines" should no longer be considered a desirable option given that "the wolf is already at the door".

If the information above improves your understanding of this issue or otherwise is of interest, then I hope you will consider inviting me to give a PowerPoint presentation about wind energy to the DC staff of Audubon and any others you would like to include.

In conclusion, the wind industry is already a powerful lobbying force at the federal level as well as in most state legislatures. It has considerable influence with the Public Service Commission or its equivalent in most states, and as a consequence most applications for industrial wind plants are approved as requested.

Wind energy projects enable investors to recover 2/3 of the enormous capital cost of each facility through federal income tax credits and other tax subsidies – "earning" at least \$1-million per MW by reducing income tax liability (quite a "windfall"). Plus, the legislatively mandated demand for renewable sources of electricity has created an additional revenue stream for wind plant owners and investors (i.e., through the sale of Renewable Energy Credits). The huge financial stakes involved with wind energy development usually affords a vigorous and active defense of a project's application, which makes it very difficult to successfully challenge the most egregiously sited or poorly evaluated ventures – even when the permit approval process is not biased overtly in favor of developers.

Wildlife and habitat impacts of wind energy projects – if they receive any substantive consideration – are almost always evaluated on a project by project basis, with no effort to assess cumulative impacts. The wind industry and its coordinated support groups have spawned an effective public relations campaign to dismiss concern about wildlife and habitat impacts of industrial wind energy projects. Plus, this industry currently has no federal oversight or regulations to keep it from steam-rolling concerns about inappropriate siting and wildlife protections.

While climate change is indeed a serious concern and an important issue, there are MANY organizations which have jumped on the bandwagon and are now loudly "banging the drum" on behalf of actions to reduce the threat of global warming. What we now need is for a national wildlife organization to realize that the wind industry has gained sufficient momentum and now threatens to become a "run-away train".

Regards,

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