

# Wind power development on public lands – It isn't worth it

By the Pennsylvania Biological Survey

The Pennsylvania Biological Survey is a nonprofit organization whose purpose is to increase the knowledge of and foster the perpetuation of the natural biological diversity of the Commonwealth of Pennsylvania.

Our membership includes scientists, representatives of state and federal agencies concerned with natural resource management, and representatives of non-profit conservation organizations.

PABS technical committees serve as official advisory committees to several natural resource agencies in the state, including the Pennsylvania Department of Conservation and Natural Resources, Game Commission, and Fish and Boat Commission.

After reviewing evidence on the environmental costs and benefits of wind energy, PABS is opposed to wind energy development on Pennsylvania natural resource agency lands.

We are aware of the serious environmental costs of fossil fuel energy sources, including the threats of global climate change to Pennsylvania's natural biological diversity. We therefore support the responsible development of alternative energy sources, including properly sited wind energy development.

However, because wind energy development has associated environmental costs, wind energy development should only be instituted on state lands if the environmental benefits can be demonstrated to exceed the environmental costs.

Based on the available evidence, it is our conclusion that wind energy development is not suitable on state-owned lands where natural resource conservation is a major goal (i.e., primarily lands owned and managed by the Pennsylvania Department of Conservation and Natural Resources and the Pennsylvania Game Commission).

The reason for our opposition is outlined below but can be summarized as follows:

The environmental benefits of wind energy development, in the mid-Atlantic area in general and on Pennsylvania state lands in particular, are small relative to the negative consequences, which include habitat fragmentation and mortality to birds and bats.

The primary environmental benefit of wind energy production is that it offsets the use of fossil fuels, thereby reducing emissions of carbon dioxide, a potent greenhouse gas.

The Department of Energy projects that by 2020, wind power will meet 1.2 to 4.5 percent of the country's electricity generation, and will thus offset emissions of carbon

dioxide from electricity generation by 1.2 to 4.5 percent. Since electricity generation accounts for 39 percent of carbon dioxide emissions in the United States, wind power will offset between 0.5 and 1.8 percent of total carbon dioxide emissions (National Research Council 2007).

The National Research Council (2007) concludes "Wind energy will contribute proportionately less to electricity generation in the mid-Atlantic region than in the United States as a whole, because a smaller portion of the region has high-quality wind resources than the portion of high-quality wind resources in the United States as a whole."

Thus, it is apparent that wind energy development in the mid-Atlantic will offset a very minor portion of future carbon dioxide emissions.

Because Commonwealth Natural Resource Agency Lands make up only a fraction of land in Pennsylvania, the contribution of wind energy development on these lands to future energy needs, as well as any offset of carbon dioxide emissions, will be negligible.

Energy conservation, on the other hand, could considerably reduce the demand for energy and thus reduce carbon dioxide emissions. For example, residential home energy consumption in 2020 could be feasibly reduced by over 1/3 using existing technologies (Bressand et al.

2007).

The environmental impacts of wind energy are considerable. Mortality to birds and bats has been of particular concern. Bat mortality from wind turbines has been particularly high, especially along forested ridge tops in the eastern United States.

Because bats generally have low reproductive rates, cumulative negative impacts of wind energy development on bat populations are likely (Kunz et al. 2007). Based on projections of installed wind capacity, it is estimated that by 2020 annual mortality in the mid-Atlantic highlands could be as high as 45,000 birds (National Research Council 2007) and 111,000 bats (Kunz et al. 2007).

With wind energy development expanding on private lands in Pennsylvania, the forested ridge tops of state-owned lands will become even more critical for birds, bats, and other species that utilize these habitats.

Another important, and often overlooked, impact of wind development is habitat fragmentation and its associated effects. These effects include reduced habitat area, habitat isolation and loss of species from an area, disruption of dispersal, increased edge effects and loss of core habitat, and facilitation of invasive species (Groom et al. 2006).

Due to their linearity, roads and transmission lines, both of which

accompany wind energy development, have particularly pronounced fragmentation effects (Groom et al. 2006, Willyard et al. 2004).

The U.S. Fish and Wildlife Service (2003) recommends that wind energy development "avoid fragmenting large, contiguous tracts of wildlife habitat" and advises that wind turbines be placed "on lands already altered or cultivated, and away from areas of intact and healthy native habitats."

Because natural resource agency lands are among the last remaining large blocks of unfragmented land in Pennsylvania, these lands are particularly in need of protection.

A publication produced by the Pennsylvania Department of Conservation and Natural Resources (Moyer 2003) emphasizes the importance of preserving these last remaining large blocks of unfragmented habitat in the state.

In conclusion, the environmental benefits wind energy development on natural resource agency lands in Pennsylvania are negligible compared with the environmental consequences. These lands should remain closed to wind energy development.

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