Rick Webb, 050307

ENVIRONMENTAL IMPACTS OF WIND PROJECTS

Concerning the benefits and risk based on information in the National Academies report . . .

Contribution to Electricity Supply and Emissions Reductions

Based on 3 DOE projections for U.S. onshore wind development by **2020**:

- There will be 19 to 72 GW of installed wind generation capacity; or 9500 to 36000 2-MW turbines.
- This development will equal 2 to 7 % of total U.S. installed generation capacity, but only 1.2 to 4.5% of actual U.S. generation (less than installed capacity due to the intermittency of wind).
- Demand for electricity will continue to increase, and wind power will provide 3.5 to 19% of this increase; that is, 96.5 to 81% of new generation must be obtained from other sources. *Thus, wind power development will achieve no actual "reduction" in demand for electricity generation from other sources.*
- Wind power development will provide no reduction in NO_x and SO_2 emissions in the eastern U.S. –because these pollutants associated with acid rain and ozone formation are regulated by emissions caps.
- Wind power development will offset emissions of carbon dioxide by 1.2 to 4.5% from the levels of emissions that would otherwise occur from electricity generation. At present, electrical generating units account for 39% of total U.S. CO_2 emissions from energy use. *If the 39% value does not change, wind power development will offset only 0.5 to 1.8% of U.S. CO_2 emissions from energy use.*
- Given that the density of the wind resource is less for the Mid-Atlantic region than for the U.S. as a whole, the benefits in terms of electricity supply and emissions reductions will be less for the Mid-Atlantic region than for the country as a whole.

Cumulative Impact on Birds and Bats

Based on two projections for wind development in the Mid-Atlantic Highlands and the range of mortality observed at existing Appalachian wind projects:

- National Renewable Energy Laboratory projection for wind development: 2.2 GW of installed capacity or 1439 1.5-MW turbines.
    - 5,805 to 25,183 birds killed per year; 33,017 to 61,935 bats killed per year
- Projection for wind development based on the PJM Interconnection Queue: 3.9 GW installed capacity or 2571 1.5 MW turbines.
    - 10,372 to 44,999 birds killed per year; 58,997 to 110,665 bats killed per year
- There is insufficient information to assess the potential for population impacts on birds in the eastern U.S. (Data are not available for most wind project sites.)
- The potential for impacts on bat populations in the eastern U.S. appears to be significant.
- Due to insufficient data, the committee made no finding concerning the relative impact of new versus old turbines.
- Additional impacts to birds, bats, and other wildlife will occur due to forest fragmentation and habitat alteration related to access roads, transmission corridors, and turbine sites associated with wind power development, especially on forested ridges.

Rick Webb note: The committee was not charged with making a determination about the significance of the potential contribution of wind energy development. Nor was it charged with weighing the costs and benefits. My personal perspective, however, is that wind energy development on Appalachian ridges carries great risk of environmental harm and very little potential for benefits.