Fall 2007

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Sustainable Development Law & Policy

Volume 8
Issue 1 *Fall 2007: Federal Environmental Policy*

Article 7

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*by Michael Distefano**

Wind turbines are often criticized for posing a significant risk to surrounding bird life. As certain numbers indicate, this argument has some merit. A 2001 study estimated that 33,000 birds are killed in the United States each year by wind turbines.[1] More troubling is the fact that of those 33,000, an estimated 28,500 are protected species.[2] Birds may collide with the structure itself, be struck by a spinning blade, or, if flying close enough, be pulled into the turbine's wake.[3] Though these numbers seem troublesome at first glance, they are an inaccurate depiction of modern wind turbine sites nor do they constitute a valid reason to discourage wind turbine construction.

The most often criticized wind farm is California's Altamont Pass wind power site. Figures suggest that since its construction in the early 1980s, the 7,000 turbine site has been responsible for killing 22,000 birds, including 400 golden eagles.[4] Altamont Pass represents an older generation of wind sites and by examining the factors that set it apart from modern sites, one can understand the causes of avian mortality.

The first factor is the site's location. Had an adequate environmental impact assessment taken place at Altamont Pass, it would have shown that it is an important migration route, as well as a wintering place for many species of raptors.[5] Its craggy landscape and various canyons make it an ideal setting for birds of prey, many of which are listed on the endangered species list.[6] Properly situating turbine sites in areas with low bird populations would drastically reduce collision rates simply by placing the turbines where there are less birds to fly into them. Today it is common practice to study bird traffic at proposed sites before construction begins. If the studies find that the proposed site is heavily trafficked, operation schedules can then take into account peak migratory periods.

The second factor is technology. The turbine designs at Altamont are considerably outdated. It takes fifteen Altamont turbines to produce the same energy as one modern, larger turbine.[7] Newer turbines, with rotor diameters in excess of one hundred meters, sweep a larger patch of sky and therefore need not spin as fast as small turbines.[8] The slower the rotation speed, the easier it is for flying birds to dodge the blades. Though more costly, large turbines reduce bird fatalities and generate energy more efficiently. Fortunately, there are plans to replace all of the Altamont turbines with larger, more efficient units within the coming decade.[9]

Courtesy of Kevin Dooley

Wind farm in San Gorgonio, California

To put these factors in perspective, consider the Maple Ridge Wind Farm in upstate New York. In the last year or so 195 turbines have come online and collectively they produce 320 megawatts of electricity per year.[10] By contrast, the Altamont Pass wind farm generates approximately 600 megawatts per year but employs 7,000 turbines to do so.[11] The Maple Ridge Wind Farm enjoys an efficiency rate almost twenty times that of the Altamont Pass. Because fewer turbines equal reduced chances of collision, every gain in efficiency reduces the occurrence of avian mortality.

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Concerns have been raised with the possible increase in avian mortality, if wind energy were to experience a sudden boom and turbines increased by the thousands However, it is not clear that an increase in wind energy will cause an avian mortality incidence swell. In absolute numbers bird fatalities

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would undoubtedly rise. But bird fatalities per turbine drop the more we learn about turbine technology and operation. As long as wind turbines can produce a substantial portion of our energy without posing an unnecessarily large risk to birds, their use is warranted. Our measure of success must be the next best alternative. Conventional energy resources such as coal and petroleum also pose a substantial danger to birds. Acid rain has done considerable damage to avian habitats and climate change has disrupted migratory patterns and synchrony with food sources.[12] Environmental catastrophes like the Exxon Valdez, though rare, continue to pose threats not just to individual birds, but entire ecosystems. There is no question that the use and extraction of coal and other fossil fuels has had and will continue to have a tremendous negative effect on birdlife.[13]

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The Altamont Pass has been a learning experience not only for the California Energy Commission but for the renewable energy community as a whole. By improving wind turbine technology and properly choosing and operating turbine sites, the incidence of avian mortality can be reduced. Even concerned organizations, such as the American Bird Conservancy and Sierra Club, have pledged their support in favor of wind energy as long as proper attention is given to its location, design, and operation.[14]

Wind farms are, by their very nature, large industrial projects. It would be impossible to completely mitigate their impacts on wildlife and habitats but with careful attention those impacts can be reduced. Wind energy should be viewed within its larger context—that of the urgent need for diversified and renewable energy resources. As the United States and other countries begin to explore energy alternatives, wind's role should not be sidelined because of this unfortunate consequence. Wind turbines will always pose a degree of danger to birdlife but the value to be gained from their responsible use is undeniable.

Endnotes:

[1] Wallace P. Erickson, et al., *Avian Collisions with Wind Turbines: A Summary of Existing Studies and Comparisons to Other Sources of Avian Collision Mortality in the United States*, National Wind Coordinating Community, August 2001, *available at* http://www.nationalwind.org/publications/wildlife/avian_collisions.pdf (last visited Oct. 9, 2007).

[2] Erickson, *id.*

[3] Victoria Sutton & Nicole Tomich, *Harnessing Wind is Not* (*by Nature*) *Environmentally Friendly*, PACE ENV. L. REV., Spring 2005, at 96.

[4] Frances Cerra Whittelsey, *The Birds and the Breeze: Making Wind Power Safe for Wildlife* (Jan./Feb. 2007), *available at* http://www.calwea.org/articles/0207FrancesWhittelsey.html (last visited Oct. 19, 2007).

[5] Whittelsey, *id.*

[6] Erickson, *supra* note 1.

[7] Whittelsey, *supra* note 4.

[8] GEpower.com, Wind Turbine Specifications, http://www.gepower.com/prod_serv/products/wind_turbines/en/36mw/index.htm (last visited Oct. 8, 2007).

[9] Whittelsey, *supra* note 4.

[10] Joseph D'Agnese, *Falling in Love with Wind*, OnEarth, http://www.nrdc.org/onearth/07sum/windfarm1.asp (last visited Oct. 8, 2007).

[11] PIER Energy-Related Environmental Research, *Developing Methods to Reduce Bird Fatalities in the Altamont Pass Wind Resource Area* (Nov. 2005), *available at* http://www.energy.ca.gov/pier/environmental/project_summaries/PS_500-01-019_THELANDER.PDF (last visited Oct. 8, 2007).

[12] ABC Wind Energy Policy, American Bird Conservancy website, http://www.abcbirds.org/policy/windpolicy.htm (last visited Oct. 9, 2007); Wind Siting Advisory—Sierra Club Conservation Policies, Sierra Club, http://www.sierraclub.org/policy/conservation/wind_siting.asp (last visited Oct. 8, 2007).

[13] *Id.*

[14] *Id.*