

**TESTIMONY OF H. DALE HALL, DIRECTOR, UNITED STATES FISH AND WILDLIFE SERVICE, DEPARTMENT OF THE INTERIOR, BEFORE THE HOUSE NATURAL RESOURCES SUBCOMMITTEE ON FISHERIES, WILDLIFE, AND OCEANS, REGARDING WIND ENERGY DEVELOPMENT AND IMPACTS TO FISH AND WILDLIFE RESOURCES**

**May 1, 2007**

Madam Chairwoman and Members of the Subcommittee, thank you for the opportunity to provide the testimony of the Department of the Interior and the U.S. Fish and Wildlife Service on wind energy development and impacts to fish and wildlife resources. I am Dale Hall, Director of the U.S. Fish and Wildlife Service (Service).

**Introduction**

Wind-generated electrical energy is renewable, produces no emissions, and is considered to be generally environmentally-friendly technology. The President's National Energy Policy seeks, among other things, to stimulate development of alternative energy sources, including wind, and to explore the use of these new technologies along with energy conservation practices. The Department, through the Bureau of Land Management and the Minerals Management Service, is working to implement this policy by providing greater opportunities for the development of alternative energy, including wind energy.

As discussed in more detail below, while there are clear benefits to wind energy development, some facilities, particularly older facilities or those sited in areas with a high presence of birds and bats have the potential to cause deaths due to collisions, with unspecified long-term results. With this in mind, the Service is focusing its efforts on determining ways to balance wildlife needs when wind energy facilities are sited and constructed. My testimony does not address the benefits of wind power, nor does it compare the impacts of wind with those of other generation technologies, including traditional fossil fueled generation.

In addition to wildlife studies from both Europe and North America, the recent Government Accountability Office (GAO) report that addressed these issues, and the laws and regulations currently in place to manage wildlife impacts from wind energy development, I will discuss positive actions taken by the Service to assist industry in minimizing impacts to wildlife when constructing wind energy facilities. These positive steps include publication of interim guidelines relating to siting and evaluating wind power development proposals and establishment of the Wind Turbine Guidelines Advisory Committee to provide advice and recommendations to the Secretary of the Interior on development of measures to avoid or minimize impacts from land-based facilities to wildlife and habitat.

**Overview of Wind Energy Development**

Commercial wind energy facilities have been constructed in 34 states, with developments planned for several other states, as well as offshore areas and locations along all coasts, including

the Great Lakes. As more facilities with larger turbines are built, the cumulative impacts of this expanding industry and other energy generation technologies as well should be evaluated. Land-based turbines currently are approaching heights of 450 feet above ground level, while offshore turbines will likely be taller, with rotor swept areas currently covering nearly 3 acres of airspace and blade tip speeds exceeding 170 miles per hour at operating speeds. Wind energy continues to grow, with slightly more than 16,000 commercial wind turbines currently operating in the United States. The President's Advanced Energy Initiative of 2005 notes that wind energy has the potential to provide 20 percent of our national electricity needs, the estimated equivalent of over 300 gigawatts of electricity or over 150,000 commercial turbines nationwide. The potential harm to wildlife populations from direct mortality and from habitat disturbance and fragmentation makes careful evaluation of proposed facilities essential.

As noted in the GAO's September 2005 report, titled "Wind Power: Impacts on Wildlife and Government Responsibilities for Regulating Development and Protecting Wildlife," avian mortality has been well documented at older wind energy facilities in the western United States. Based on this knowledge, the wind industry has made many adjustments to locating facilities and equipment. However, the potential impact of wind energy developments on wildlife and their habitats is within the mission area of the Service. Due to local, seasonal, and annual differences in wildlife concentration and movement patterns, habitats, area topography, facility design, and weather, each proposed development site is unique and requires an appropriate level of evaluation.

Europe has played a leading role in commercial wind development for at least the past decade, including offshore wind energy siting and operation. Norway, for example, produces nearly 15 percent of its electrical energy by wind, including offshore development. Until recently, detailed analysis of wind energy impacts to birds and bats in Europe – both for land-based and offshore facilities – had not been especially robust. However, recent studies of the impacts of offshore facilities on sea ducks, for example, have shown facility avoidance, behavioral modification, and feeding disturbance of these waterbirds. Detecting birds that have collided with offshore facilities is extremely difficult. The impacts that offshore facilities may have on increased sea duck energy demands, disruptions to feeding, and behavioral modification are only now being assessed.

Service personnel may become involved in the review of potential wind energy developments on public lands or where there is a Federal nexus (i.e., a Federal permit or Federal funding) through the required National Environmental Policy Act review. This may be as a cooperating agency or because of the Service's responsibilities under the Migratory Bird Treaty Act, the Bald and Golden Eagle Protection Act; or because of the agency's special expertise. The National Wildlife Refuge System Improvement Act requires that any activity on Refuge lands be determined to be compatible with the Refuge system mission and Refuge purposes. In addition, the Service is required by the Endangered Species Act to assist other Federal agencies in ensuring that any action they authorize, implement, or fund will not jeopardize the continued existence of any federally listed endangered or threatened species or adversely modify its designated critical habitat. Service biologists have also received requests from some industry representatives for consultation on wildlife impacts of proposed wind energy developments on private lands. Proposed offshore wind energy facilities within 3 nautical miles of the coast

currently require a permit under Section 10 of the Rivers and Harbors Act, which is administered by the U.S. Army Corps of Engineers. The Service routinely provides Section 10 permit application review and comment. Proposed offshore wind energy facilities in federal waters are regulated by the Minerals Management Service per its authorities under the Energy Policy Act of 2005. Their siting and operations will be subject to National Environmental Policy Act review and Endangered Species Act and Marine Mammal Protection Act requirements.

### **U.S. Government Accountability Office (GAO) September 2005 Report on Wind Power: Impacts on Wildlife and Government Responsibilities for Regulating Development and Protecting Wildlife**

As previously mentioned, the GAO published a study of wind power and its effects on wildlife in 2005. The study did not compare the impacts or benefits of wind with those of other generation technologies, including traditional fossil fueled generation. Many of their summaries and findings, which are summarized here, are relevant to today's discussion.

Habitat destruction and modification is a leading threat to the continued survival of wildlife species in the United States. Although wind power facilities were once thought to have practically no adverse environmental effects, it is now recognized wind energy, like all power generation technologies, can have adverse impacts, particularly on wildlife, and specifically on birds and bats and their habitats. Large numbers of birds and bats have been well documented to cross virtually all parts of the United States, including along mountain ridges, coastlines, and in broad front migrations from the Rocky Mountains to the Atlantic coast during their seasonal migrations. Consequently, wind power projects located in areas with a high presence of birds and bats could potentially impact these animals. For example, at older, first-generation wind power-generating facilities in California's Altamont Pass west of the Bay Area, wind turbines killed large numbers of migratory birds. High levels of bat mortality have been documented at two facilities in Appalachia, as well as at facilities in Oklahoma and southern Alberta, Canada. Wind power facilities may also have other impacts on wildlife through alterations of habitat, disturbance, and behavioral modification.

In this context, GAO assessed (1) what available studies and experts have reported about the impacts of wind power facilities on wildlife in the United States and what can be done to mitigate or prevent such impacts, (2) the roles and responsibilities of government agencies in regulating wind power facilities, and (3) the roles and responsibilities of government agencies in protecting wildlife.

As the GAO report points out, uncertainty and gaps in knowledge have resulted in the inability of scientists to draw definitive conclusions about the threat and cumulative impacts that wind power poses to wildlife. The impacts of wind power facilities on wildlife vary by region and species. Specifically, studies show that wind power facilities in central California, Pennsylvania, and West Virginia have killed large numbers of raptors and bats. It should also be noted, however, that studies in other parts of the country show comparatively lower levels of bird mortality, although most facilities have killed at least some birds. Many wind power facilities in the United States have yet not been studied, but where studies have been conducted, research efforts are not consistent and the findings may not be valid. Furthermore, much is still unknown

about bird migration pathways and corridors and overall species population levels. Notably, only a few studies have been or are being performed concerning ways in which to reduce wildlife fatalities at wind power facilities.

In addition to impacts to birds and bats due to air strikes, the Service is concerned about the cumulative impacts of wind power to terrestrial fauna. New wind power development will require not only construction of wind turbines, but also construction of related infrastructure such as access roads and transmission facilities. The effects of such habitat fragmentation could impact terrestrial species.

Regulating wind power facilities is largely the responsibility of state and local governments. However, there are regulations related to air safety and obstruction evaluation and analysis of wind projects administered by the Department of Transportation's Federal Aviation Administration. In addition, wind projects proposed in Federally-administered offshore waters would be within the purview of the Minerals Management Service, which serves as lead regulatory agency. In the six states that GAO reviewed, wind power facilities are subject to local- or state-level processes, such as zoning ordinances to permit the construction and operation of wind power facilities. As part of this process, some agencies require environmental assessments before construction. However, regulatory agency officials do not always have experience or expertise to address environmental and wildlife impacts from wind power.

As a general rule, the Federal government has a regulatory role in wind power development only when development occurs on Federal land or involves some form of Federal participation, such as providing funding for projects. In these cases, the development and operation of a wind power facility must comply with any state or local laws as well as Federal laws, such as the National Environmental Policy Act and the Endangered Species Act, which often require preconstruction studies or analyses and possibly modifications to proposed projects to avoid adverse environmental effects.

As with any activity, Federal and state laws afford protections to wildlife from wind power facilities. Four laws, the Migratory Bird Treaty Act, the Bald and Golden Eagle Protection Act, the Endangered Species Act, and the Marine Mammal Protection Act (for offshore facilities), are the Federal laws most relevant to protecting wildlife from wind power facilities, and these laws generally forbid harm to various species of wildlife. The Service is the Federal agency that has primary responsibility for implementing and enforcing these laws. Although none of the four laws expressly require wind power developers and operators to take specific steps to ensure that wildlife will not be harmed during either the construction or operation of their facilities, wind power developers or operators are arguably liable for any harm to protected species that may occur. In some cases, developers voluntarily consult with the Service--or a state natural resources agency--before they construct a project or they do so as a requirement of a state or local wind power regulatory agency, to identify potential impacts to wildlife. In other cases, Federal involvement may consist of Service law enforcement officials investigating instances of wildlife fatalities at a wind power facility.

Rather than seeking to prosecute wind power facilities companies when mortality events occur, the Service prefers to work with companies to encourage them to take mitigation steps to avoid

future harm. The Service has been working with the wind industry to help identify solutions and ensure that wildlife mortality at wind power facilities is minimized. For example, the Service has participated in many industry-sponsored workshops and conferences, issued interim voluntary guidelines for industry to use in developing new projects that are wildlife- and habitat-friendly, and served as a member in a wildlife working group with industry, their consultants, states, other Federal agencies, scientists, and conservationists since 1995.

Regarding state wildlife protections, all of the six states that GAO reviewed have statutes that can be used to protect some wildlife from wind power impacts. However, no states have taken any prosecutorial actions against wind power facilities where wildlife mortalities have occurred.

To encourage potential wildlife impacts to be considered when wind power facilities are permitted, GAO recommended that the Service reach out to state and local regulatory agencies with information on the potential wildlife impacts due to wind power and on the resources available to help make decisions about the siting of wind power facilities. The Service has taken these recommendations very seriously, having participated in recent meetings with state and local regulatory officials in California, Colorado, Ohio, New Mexico, New York, Pennsylvania, Texas, and Wisconsin. The Service is also a cooperating agency on NEPA documents for two proposed offshore wind power facilities in the Northeast.

### **2003 Interim Guidelines on Avoiding and Minimizing Wildlife Impacts from Wind Turbines**

At the request of the Secretary of the Interior, the Service established a Wind Turbine Siting Working Group in 2002, to develop a set of comprehensive national guidelines for siting and constructing wind energy facilities. On July 10, 2003, the Service published a notice in the *Federal Register* announcing the availability of the interim Guidelines and requesting comments through July 7, 2005. The Service received 25 comments from a wide range of stakeholders regarding the interim guidelines. After reviewing the comments and evaluating advances in the science behind wind turbine siting and design, the Service determined that a Federal Advisory Committee Act (FACA) advisory group would best balance representation from wind development, wildlife conservation, and government in the process.

### **Establishment of Wind Turbine Guidelines Advisory Committee**

On March 13, 2007, the Service published a notice in the *Federal Register*, announcing the establishment of the Wind Turbine Guidelines Advisory Committee. This Committee will provide advice and recommendations to the Secretary of the Interior through the Director of the Service on developing effective measures to avoid or minimize impacts to wildlife and their habitats related to land-based wind energy facilities. The Committee will help us examine issues such as site selection and turbine design, scientifically validated mitigation measures, peer-reviewed pre- and post-construction monitoring protocols, and field tested and validated deterrents so that we can develop land-based wind resources while protecting wildlife. The Committee will also make recommendations on how to coordinate review and evaluation of facilities by state, tribal, local, and Federal agencies. The Committee will be established under the Federal Advisory Committee Act and is expected to exist for two years, with its continuation

subject to biennial renewal. Nominations of members closed on April 12, 2007, and we are working with the Secretary on recommendations for appointments to the Committee.

Member organizations will be selected to represent the varied interests associated with wind energy development and wind/wildlife interactions, including state, local, and Federal agencies, tribes, non-governmental conservation organizations, and the wind industry and its consultants. Members will be senior representatives of their respective constituent groups with knowledge of: wind energy facility location, design, operation, and transmission requirements; wildlife species and their habitats potentially affected; wildlife survey techniques; applicable laws and regulations; and current research on wind/wildlife interactions.

The Service will review the final recommendations of the Committee, revise its voluntary guidelines to avoid and minimize wildlife impacts from wind turbines, and make the guidelines available for public review and comment prior to making them final. The Service also plans to develop a national template for an avian protection plan for the wind industry, possibly based on recommendations from the FACA Committee, much like what has been developed for the electric utility industry, with the expectation of regional step-down plans that provide for wildlife-friendly wind power.

### **Bolstering Service Efforts to Address Impacts**

The Service believes that the development of consistent, scientifically valid pre- and post-construction monitoring protocols, capable of being stepped down to regional and local levels would be helpful for all energy generation technologies. Results of studies conducted using scientifically valid protocols to assess risk to species and habitats at energy development sites could be published, ideally in refereed scientific journals. The published information could then be used by the energy industry to validate a risk assessment process, make course corrections based on new post-construction findings, adopt mitigation measures, use deterrents where bird and bat mortality is shown to be problematic, and update and further improve the Service's future guidance.

The Service wants to work with the states, public utility commissions, zoning and planning boards, and industry before wind energy and other generation technology plants are permitted and developed. The Service would like the opportunity for our biologists to review pre-construction and risk assessment data/documents prior to project development. Presently, due to issues of confidentiality, much of this information, especially on pre-construction monitoring and potential impacts, is not available. The Service also seeks cooperation, including site access, to enable monitoring of sites being proposed for energy project development, sites being selected and assessed using pre-construction monitoring protocols, sites being developed, and sites that are operating to assess mortality, changes in bird and bat behavior, and modifications to habitats that negatively impact species. The Service can assist in the environmentally responsible development of all energy generation, including wind energy, if we have access to research and monitoring information. The Service believes we can work effectively with industry to help develop energy projects in the most environmentally friendly way possible.

## **Conclusion**

In closing, Madam Chairwoman, the Service is responsible for conservation of wildlife in the public trust, and will work to ensure that development of energy projects is carried out in a manner that is bird- and bat-friendly and that sound science and adequate environmental assessments are the basis for informed decisionmaking. The Service will continue to work collaboratively with all stakeholders, including the wind industry, to minimize impacts to wildlife and habitats while maximizing opportunities for energy development in the most wildlife- and habitat-friendly way possible.

This concludes my testimony. I appreciate the opportunity to appear today before the Subcommittee, and I would be pleased to answer any questions that you or members of the Subcommittee may have.