

***U.S. Fish & Wildlife Service***  
**WIND TURBINE GUIDELINES ADVISORY COMMITTEE**

**Technical Workshop and  
Federal Advisory Committee Meeting**

Holiday Inn Arlington  
4601 North Fairfax Drive  
Arlington, VA

**April 23 – 24, 2008**

**– Meeting Summary –**

On April 23 – 24, 2008, the Wind Turbine Guidelines Advisory Committee convened its second meeting at the Holiday Inn in Arlington, VA. See Attachment A for the meeting agenda and Attachment B for the participant list.

*For copies of the slides presented at the meeting, please visit the U.S. Fish & Wildlife Service website at [www.fws.gov/habitatconservation/windpower/wind\\_turbine\\_advisory\\_committee.html](http://www.fws.gov/habitatconservation/windpower/wind_turbine_advisory_committee.html).*

*Meeting Objectives:*

- Discuss and finalize ground rules for Wind Turbine Guidelines Advisory Committee (Wind FAC or Committee)
- Review subcommittee progress and discuss next steps
  - Guiding Principles subcommittee
  - Legal subcommittee
  - Uncertainty/Other Models subcommittee
  - Landscape/Habitat subcommittee
  - Existing Guidelines subcommittee
- Hear presentations on Migratory Bird Treaty Act, Implementation of Voluntary Guidelines from FWS Region III, and Structured Decision Making: implications for Wind FAC deliberations
- Review and discuss additional important Wind FAC items
- Discuss timelines and process steps to address additional items

**I. WELCOME AND OVERVIEW OF THE AGENDA**

On the morning of April 23, 2008, Dave Stout, Chief of the Division of Habitat and Resource Conservation at the U.S. Fish & Wildlife Service (USFWS) and Designated Federal Officer and Chairman of the Wind FAC, welcomed Members of the Wind FAC (Members) and of the public to the second meeting of the Wind FAC. He noted that four new Members had been approved by Department of the Interior Secretary Dirk Kempthorne to complete the Wind FAC; Ed Arnett (Bat Conservation International), Rene Braud (Horizon Wind Energy), Scott Darling (Vermont Fish and Wildlife Department), and Karen Douglas (California Energy Commission).

Mr. Stout also requested that any Members who had not yet done so submit the name of their intended alternate to USFWS staff to be approved and appointed by the Secretary of the Interior. For a complete list of Members and their nominated alternates, please see Attachment C. Mr. Stout announced that Jeff Underwood (USFWS) has been appointed as the FWS alternate Committee

Chairman, and Rachel London (USFWS) will serve as alternate Designated Federal Officer (DFO) for managing the Wind FAC process.

After a round of introductions, Mr. Stout turned the floor over to Abby Arnold, Wind FAC facilitator and Vice President/Senior Mediator now at Kearns & West. Ms. Arnold reviewed the agenda for the two days of the Wind FAC's second meeting and catalogued the materials in the Members' packets. Materials from the meeting may be accessed at the USFWS website at [www.fws.gov/habitatconservation/windpower/wind\\_turbine\\_advisory\\_committee.html](http://www.fws.gov/habitatconservation/windpower/wind_turbine_advisory_committee.html) following the meeting. Those with comments should email Rachel London at [Rachel.London@fws.gov](mailto:Rachel.London@fws.gov).

## II. GROUND RULES FOR WIND TURBINE GUIDELINES FAC

Members received a copy of draft Wind FAC ground rules which incorporate Member feedback and comment from the draft distributed at the Wind FAC's first meeting on February 28, 2008.

During discussion of the updated draft, the questions about the following were addressed:

- ❖ **Consensus** – In Section 5a, the Wind FAC ground rules indicate that consensus is required on all Wind FAC decisions. Consensus is defined as “each Committee member can live with a decision made by the Committee.” A Member asked whether explicit consent would be required from those unable to attend before decisions could be finalized. The Committee agreed that Ms. Arnold will share all final decisions with Members who did not attend the meeting where consensus was reached and ask for their agreement. If the Member(s) feels he or she cannot “live with” a decision, their concerns will be shared with the rest of the Committee electronically.
- ❖ **Selection of and participation in Subcommittees:** – Section 5b of the draft ground rules previously required approval by the full Wind FAC prior to allowing non-members to participate in subgroup activities. Members noted that such requirements might create delays that could hamper subcommittee progress. Instead, the Committee agreed that Members and Member Alternates will participate on subcommittees. Additionally, other technical experts nominated by Members can participate under the following conditions:
  - o Members will circulate their non-Member candidates for review by all Subcommittee Members to determine if there is an objection to participation in the Subcommittee by the expert.
  - o Only Members and Alternates will be asked whether they approve reporting the recommendation(s) they are discussing forward to the full committee.
- ❖ **Member consultation with constituencies regarding subcommittee activities** – Mr. Stout clarified that Members were selected because they each represent a certain constituency. Each is expected to continue to consult with and represent that constituency throughout the Wind FAC process. Members are therefore encouraged to consult with constituents about subcommittee conversations and possible activities, bearing in mind Section 7 of the Wind FAC ground rules—Safeguards for the Parties.

## III. RISK MANAGEMENT AND STRUCTURED DECISION MAKING

Presenter: Robin Gregory, *Decision Research*

*Risk Management (RM) presentation* [Please see [website](#) for full presentation]

Dr. Gregory indicated that the objective of his presentation was to inform the Committee about theoretical and applied risk frameworks that might assist the Wind FAC in developing recommendations for guidelines that seek to minimize adverse effects of wind turbines on wildlife. Dr. Gregory's key messages included:

- ❖ Risk is a multidimensional construct, which means that efforts to minimize risk or to achieve an “acceptable” level of risk necessarily involve tradeoffs across competing risk management objectives.
- ❖ A basic distinction exists between an *objective* view of risks, which emphasizes the role of experts in defining the probability and consequences of events associated with management prescriptions, and a *subjective* view of risks, which emphasizes the importance of the risk management context and associated emotional or cognitive cues in shaping definitions of risk. For purposes of the Wind FAC discussions, Dr. Gregory suggested that a subjective view of risks might be most appropriate.
- ❖ Numerous psychological factors can influence perceptions of risk, including whether the risk is well known to science, whether adverse outcomes are controllable, and whether the distribution of costs and benefits is perceived to be equitable.
- ❖ Different individuals, and different groups, should be expected to have different attitudes toward risk. These reflect their understanding of the relevant facts and values, and their feelings about uncertainty (i.e., their risk tolerance).
- ❖ It is important to engage stakeholders early and meaningfully in the risk framework development and implementation process. For the Wind FAC, Dr. Gregory indicated a belief that states, industry, other federal agencies, and environmental NGOs are particularly important stakeholder groups to include.
- ❖ Being an “expert” does not preclude the provision of biased assessments of risk. As a result, Dr. Gregory cautioned that it is important to carefully elicit judgments about the risk associated with various actions and to minimize the influence of judgmental and motivational biases.
- ❖ Uncertainty can exist about both values (the key concerns in a given context and how they are prioritized) and about facts (e.g., the likely consequences of actions, whether there is sufficient data to make a decision, etc.). This means that a risk framework should allow for clarification of both factual (scientific) issues and values-based issues.
- ❖ There are many different ways to express uncertainty with respect to the anticipated consequences of management actions. Dr. Gregory indicated that selected methods should be technically defensible and understandable to a wide range of stakeholders.
- ❖ Questions about how thresholds are expressed and interact generally arise as part of the development of guidelines.

*Structured decision making presentation* [Please see [website](#) for full presentation]

Dr. Gregory indicated that his second presentation would demonstrate techniques of structured decision making (SDM) which could assist the Wind FAC in discerning the factors that influence management actions and in evaluating the effectiveness of those decisions in minimizing adverse effects of wind turbines on wildlife. Key messages of this presentation included:

- ❖ SDM seeks to help managers make better decisions by incorporating insights from the decision sciences, economics, psychology, and policy analysis.
- ❖ Dr. Gregory indicated that SDM is widely used as a foundation for adaptive management and for environmental decision making.
- ❖ Dr. Gregory indicated a belief that conventional risk assessment frameworks can be problematic in that the analysis may omit key questions, uncertainty is not explicitly expressed, and value judgments (e.g., relating to tradeoffs) are hidden.
- ❖ SDM can provide an explicit organizing format for documenting the choices and processes that lead to a recommended set of environmental guidelines. In SDM, problem objectives are clearly stated, alternative actions are evaluated in terms of their consequences, uncertainty is explicit, and the responses of different parties are clearly shown.

- ❖ Dr. Gregory suggested that developing agreed-upon scope for the discussions of the Wind FAC is both essential and likely to be problematic. Considerations include questions about the role of indirect or cumulative effects, the environmental impacts of wind turbines as compared to other energy sources, and the determination of appropriate wildlife species of interest.
- ❖ Specific and easily understood analytical techniques can be helpful: these include influence diagrams, means-ends diagrams, probability distributions, decision trees, and various trade-off approaches.

Dr. Gregory responded to questions regarding the following:

- ❖ **Characterization of risk when consequences cannot be considered discrete:** Dr. Gregory stressed that successful RM requires accurate characterization of risk. While “risk” is often understood as the product of an event’s probability and the consequences of that event, this definition of “risk” is only appropriate in the case that an event and its consequences can be discretely quantified. Hypothetical situations and potential consequences must be expressed in the form of a distribution, requiring a more complex approach to assessing risk. Tangible consequences (e.g., carcasses within a specific range of a turbine) on the other hand, can be considered discrete and calculated using a traditional risk formula.
- ❖ **Developing thresholds of risk:** Quantifying consequences can pose a challenge, suggested Dr. Gregory. Decision makers must specify thresholds within which a result is understood to have occurred. This threshold can take the form of a specific point, as a range, or as a distribution. Perceived results will vary depending on the chosen threshold. Currently, federal regulations include zero-tolerance policies for fatalities of endangered and protected species. Although USFWS can exercise prosecutorial discretion when the fatality was unintentional and small in scale, it does not clearly specify what is “sufficiently small”. Dr. Gregory indicated that developing thresholds for assessing impact as well as developer cooperation might be of use to the Committee.
- ❖ **Considering the future in calculations of uncertainty:** A Committee Member commented that uncertainties about wind energy’s impacts to wildlife could be compounded if it chooses to address the cumulative impacts that may occur in the more distant future. Dr. Gregory agreed that the Committee must address what is “a tolerable level of uncertainty” and the timeframe the Committee wishes to address.

#### **IV. PUBLIC COMMENT: DAY I**

David Brandes, Associate Professor at Lafayette College, read a letter to the Wind FAC on behalf of the Hawk Migration Association of North America (HMANA). The full text is available in Attachment D.

Sandy Spencer, the Ornithological Society of Virginia, said the state of Virginia is currently drafting voluntary guidelines and asked if she could share the charts prepared by the Existing Guidelines Committee. It was noted, however, that these documents are still in very draft form and might not be very helpful. Ms. Arnold encouraged Ms. Spencer to consult the handbook of state wind turbine siting guidelines compiled by the Association of Fish & Wildlife Agencies (AFWA) for examples of other state guidelines.

#### **V. REPORTS/PRESENTATIONS**

##### **THE MIGRATORY BIRD TREATY ACT AND THE BALD AND GOLDEN EAGLE PROTECTION ACT**

Presenters: Paul Schmidt and Benito Perez, *U.S. Fish and Wildlife Service*

Paul Schmidt, Assistant Director Migratory Birds, and Benito Perez, Assistant Director Office of Law Enforcement, provided the Committee with an overview of the Migratory Bird Treaty Act (MBTA) and

the Bald and Golden Eagle Protection Act (BGEPA), and how these laws relate to wind energy development in the United States.

Mr. Schmidt provided a brief background of the MBTA, explaining that the impetus for the passage of the MBTA in 1918 was the signing of a migratory bird treaty with Great Britain, on behalf of Canada, in 1916. The purpose of the MBTA was to implement the international treaty with Canada into domestic legislation. The U.S. subsequently signed international treaties with Russia, Mexico, and Japan. The MBTA has been amended to modernize and clarify its scope several times over the decades since its enactment.

Migratory bird species are listed in the various international treaties and domestic law implements these lists. The list includes native migratory birds in the U.S., and covers adults as well as their eggs, nests, their parts, and young. The MBTA does not cover protection of habitat. The list currently includes 832 species of waterfowl, songbirds, land birds, shore birds, water birds, and raptors. Excluded from the list are non-migratory upland game birds and non-native species. Species on the list are protected from “take,” defined in law as: “to pursue, hunt, shoot, wound, kill, trap, capture, or collect” or to attempt any of these acts. These activities may be authorized by a permit or other form of authorization. MBTA authorizes regulations permitting take to the extent compatible with the terms of the treaties. There are 20 different types of permits, including: import/export, scientific collecting, taxidermy, falconry, depredation, rehabilitation, and special purpose permitting (for education and salvage). Hunting of migratory game birds is administered through an annual regulatory process that establishes requirements such as open seasons and bag limits.

Mr. Schmidt emphasized that the MBTA is a strict liability statute, which means that the prosecution in an MBTA case is not required to prove intent on the part of the individual, although it is important to a case. Take of a species can be unintentional or intentional under the MBTA. Many things cause take; wind turbines are just one example. Take under the MBTA is a criminal violation – there are no civil suit provisions or civil penalties.

Mr. Schmidt continued by providing the background of the Bald and Golden Eagle Protection Act (BGEPA). The BGEPA was enacted in 1940, amended in 1959, and amended to include Golden eagles in 1962.

The BGEPA differs from the MBTA in several ways. The BGEPA includes protection of eagle nests, but BGEPA regulations currently only allow permits for take of golden eagle nests. Under BGEPA, there are civil penalties in addition to criminal violations. The criminal penalties require some proof of intention on the part of the individual, but the civil penalties do not require proof of intention. These penalties are listed on Attachment E.

Criminal liability for take is based on knowingly or with wanton disregard for the consequences of the act. “Take” under the BGEPA is defined as: “to pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb.” “Molest” and “disturb” are terms not used in the MBTA. This distinction became important when the U.S. Fish and Wildlife Service delisted the bald eagle in 2007.

In order to make a clean transition from Endangered Species Act coverage to coverage under only the BGEPA, it was necessary to have a clear definition of what “disturb” means. Through a public process, “disturb” has been defined as: “to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury to an eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering

behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior.”

Mr. Schmidt then discussed the Avian Power Line Interaction Committee, which published suggested practices dealing with electric utilities to avoid or minimize take from collisions and electrocutions with power lines. The suggested practices contain, among other things, scientifically-validated tools, techniques, and equipment that may be used to minimize take and the need for enforcement. This approach does not eliminate “take,” but does minimize it. The goal of the suggested practices is to work together with the utilities to reduce electrocutions and collisions. The APLIC process has proven to be a very successful model.

Mr. Schmidt handed the presentation over to Mr. Perez, who provided a law enforcement perspective.

Mr. Perez indicated that states have jurisdiction over the same activities covered by the MBTA; however, the MBTA does not trump state law. The MBTA is used when federal authority is deemed appropriate. States can be more restrictive, but not more liberal, than federal regulation. Mr. Perez observed that states usually don’t get involved with industry’s compliance with MBTA, although they have the authority to do so.

Mr. Perez emphasized that it is key to realize that FWS law enforcement are investigators and fact finders, not prosecutors, judges, or juries. The FWS has enforcement discretion to refer facts to the Department of Justice (DOJ). DOJ has the authority to prosecute or not prosecute. Fact finding is a tool of a conservation agency that must be done appropriately, with oversight. The role of conservation impact is and should be considered.

Mr. Perez gave the example of a rural electric cooperative, Moon Lake, which would not cooperate with the FWS to address issues that were impacting birds. As a result, the FWS referred facts to DOJ regarding take at Moon Lake. In this case, the facts provided by FWS resulted in criminal prosecution.

Mr. Schmidt added that under current law, there is no permit for unintentional take. There are no fundamental regulations to do that. There is some debate about whether the MBTA allows for such a permit.

*Quote from Director’s memorandum May 13, 2003, “While the Migratory Bird Treaty Act has no provision for allowing an unauthorized take, it must be recognized that some birds may be killed at structures such as wind turbines even if all reasonable measures to avoid it are implemented. The Service’s Office of Law Enforcement carries out its mission to protect migratory birds not only through investigations and enforcement, but also through fostering relationships with individuals and industries to proactively seek to eliminate their impacts to migratory birds. While it is not possible under the Act to absolve individuals, companies, or agencies from liability if they follow these recommended guidelines, the Office of Law Enforcement and Department of Justice have used enforcement and prosecutorial discretion in the past regarding individuals, companies, or agencies who have made good faith efforts to avoid the take of migratory birds.”*

Mr. Schmidt and Mr. Perez concluded by extending their thanks to the Committee, stating that the Service needs the Committee’s help to guide us through these tough issues.

Mr. Schmidt and Mr. Perez responded to questions regarding the following:

- ❖ **Law enforcement case evaluation:** Mr. Perez indicated that once FWS law enforcement becomes aware of a situation through either a citizen report or FWS field office staff, a law enforcement agent visits the site to investigate. The agent will associate carcasses with specific turbines and their

owners, and will have a record of whether a carcass was picked up at that site previously. Depending on which part of the country the investigation occurs, law enforcement requires different types of information in order to bring forth a case to DOJ. FWS law enforcement has the burden of proof.

- ❖ **Relationship between Federal and State regulations:** Mr. Perez indicated that the MBTA is used where a federal authority is deemed appropriate. State fish and wildlife agencies have primary jurisdiction. The only framework set by the federal government is for migratory waterfowl. There are no mandates that states cooperate with the federal government. Most states will say “that’s a federal burden.” Additionally, Mr. Schmidt provided the example of hunting regulations, which are set in states based on populations. States can be more restrictive than federal regulations, but not more liberal. State regulations that reduce duplicative efforts and fulfill federal needs in terms of overall conservation will be used.
- ❖ **Access to sites and wildlife impact information:** Mr. Schmidt provided as an example the FWS relationship with the power line industry using avian protection plans. In this case, the cooperation of the industry to work together on problem solving with take caused by power lines has been a good faith effort. This effort has promoted data collection and sharing, and has furthered the ability of the agency to conserve and reduce take.
- ❖ **Incidental take:** Mr. Schmidt agreed that there should be a level of concern in industries that take migratory birds. Strict liability statute means industry doesn’t have to intend to take. Take can be incidental, and the courts have ruled clearly on that point. However, Mr. Schmidt pointed out that most in the room have likely violated MBTA without realizing it. Mr. Schmidt added that the FWS has worked with over 20 federal agencies over last few years via Memoranda of Understanding (MOUs) to deal with their possible violations of the MBTA. There are currently four or five official MOUs, and the FWS hopes to have twenty or more in the future. An MOU doesn’t authorize take; but it can establish a good faith effort of interagency communication, give agencies certainty in their practices, and aid conservation in the long term. To date, this type of MOU hasn’t been done within the private sector.
- ❖ **Mortality at wind turbines:** Mr. Schmidt explained that the FWS will consider mortality at wind turbines in the context of priority actions relative to conservation. Law enforcement will determine whether or not to pursue a case taking into account the information particular to that case. As an example, Mr. Schmidt explained that golden eagles don’t have a robust population size, and so take could have a large impact on that species. In investigating a case, the emphasis is on long-term conservation. Out of the 832 species on the list, 131 have been determined to be birds of conservation concern, with another 92 listed on the Endangered Species Act. More attention is focused on these species from a management and enforcement perspective.
- ❖ **Elimination of “take” from policy:** Asked whether the FWS can develop a policy or guidelines that would not require the elimination of take, Mr. Schmidt indicated that such elimination would be impracticable because zero tolerance is not achievable. Mr. Perez added that industry will only be satisfied with very liberal tolerance rates. Additionally, tolerance levels, which are species-dependent, can’t legitimately be set when population and sensitivity information is unavailable, as is the case for many species.
- ❖ **Avian Protection Plans:** Mr. Schmidt indicated that an example of a model that is working to reduce industry liability is the development of a template for avian protection plans created by industry and FWS through the Avian Power Line Interaction Committee, released in 2005. Through a voluntary approach, avian protection plans are adopted as a way to further the dialogue with individual utilities. If a utility-specific avian protection plan is supported by the FWS, and take occurs, FWS law enforcement may use investigative discretion, focusing their efforts on those individuals, companies and entities that blatantly violate the law. Mr. Perez added that the success of this model lies on the good-faith effort and self-reporting by the utilities.



- ❖ **Bald eagle delisting:** Mr. Schmidt indicated that there will be two final rules by the end of this summer: one for authorizing incidental take for permits granted under the Endangered Species Act; and one to establish a permit program moving forward under the authority of the BGEPA. The language under the BGEPA is different than that in the MBTA and allows this incidental take permitting program.
- ❖ **FWS investigations:** Mr. Perez indicated that FWS investigations are directed by information from the public or FWS field office staff, and known problem areas such as open oil pits. Otherwise, the industries where investigations take place vary by U.S. regions. There are no particular industries nationwide where investigations are mainly taking place.
- ❖ **Suing for enforcement of MBTA:** A hypothetical situation was posed in which a whooping crane is killed at a wind farm, and an advocacy group sues the Department of the Interior (DOI) to enforce the MBTA. Mr. Schmidt explained that DOI can't successfully be sued for non-enforcement, because DOI has discretion to enforce the MBTA. In addition, citizen suits can be brought, but not successfully, because there is no provision that gives citizens the right to sue for criminal enforcement of the law under MBTA. However, citizen suits can be brought under the Endangered Species Act for whooping cranes. The Administrative Procedures Act allows private parties to file suit to prevent a federal agency from taking "final agency action" that is "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with the law." Lawsuits can help to bring public pressure on issues. Mr. Perez provided an example of where pressure was applied to the Department of the Interior through a lawsuit: The Secretary of the Interior was brought to litigation over a manatee issue. Through this suit, it was realized that better enforcement was needed, so policies changed and the effect was to enhance dedicated resources to the manatee issue in Florida.

## VI. SERVICE GUIDELINES IN REGION 3

**VIA. Presenter: Jeff Gosse, U.S. Fish and Wildlife Service, Region 3** [Please see [website](#) for full presentation]

Jeff Gosse briefed the Wind FACA on the effectiveness of U.S. Fish & Wildlife Service Interim Guidelines in Region 3, which includes Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Ohio, Wisconsin, four of the Great Lakes, and the upper two-thirds of the Mississippi River. Dr. Gosse indicated that, while the guidelines do a reasonable job of identifying environmentally undesirable sites, developers tend to consult with USFWS and state DNR's only after a development site has been chosen. This tendency eliminates the opportunity for developers to use Potential Impact Index (PII) scoring, the approach recommended by USFWS for screening *potential* sites. Dr. Gosse expressed a belief that earlier consultation would be greatly beneficial to environmentally compatible siting, whether the USFWS guidelines were used or not.

Through a series of case studies, Dr. Gosse illustrated that the primary goal of site screening is to avoid important bird areas, areas with endangered or protected species, and "episodic events", in which poor visibility and high winds intersecting migratory routes could potentially cause thousands of avian collisions with nearby wind turbines. However, Dr. Gosse asserted, the current, voluntary system, renders an uneven playing field for conscientious developers. Those who are willing to participate in early consultation and heed USFWS advice incur time and monetary costs, while developers who choose a site without consulting USFWS do not make such sacrifices. Further, Dr. Gosse argued, the reputation of wind energy could be damaged by poorly sited wind turbines with high probability of encountering episodic events.



Dr. Gosse acknowledged that USFWS can use the Migratory Bird Treaty Act (MBTA) as a persuasive tool. However, because MBTA only addresses fatalities, not habitat concerns, and can only be enforced after a problem has already occurred. Further, bats have no federal protection except those species that have been listed under the Endangered Species Act.

Dr. Gosse responded to questions regarding the following:

- ❖ **Potential for avian avoidance of wind turbines:** Dr. Gosse indicated that avian avoidance of wind turbines may be possible. As the results of most studies remain proprietary, there is little scientific knowledge or opportunity for advances relating to avoidance. He noted that cranes have demonstrated difficulty avoiding power lines, a concern that could extend to wind turbines.<sup>1</sup>
- ❖ **USFWS communication of species-specific risks to developers:** Dr. Gosse indicated that the Midwest Regional FWS [website](#) has developed some maps indicating migration routes and concentration areas for some species. A Committee Member noted that the American Wind Wildlife Institute hopes to gather and perform a meta-analysis of species specific data nationwide.
- ❖ **Use of PII vs. other screening tools:** Dr. Gosse clarified that it is early consultation with USFWS that makes screening so effective, whether using PII or a different screening approach.

**VIB. Presenter: Megan Seymour, U.S. Fish & Wildlife Service, Ohio Field Office** [Please see [website](#) for full presentation]

Megan Seymour briefed the Wind FACA on the use of USFWS Interim Guidelines in Ohio. Wind development in Ohio is currently in its “infancy” stages, with only one mega-watt scale project currently online; however, there are 6 utility scale projects under development within the state. Ohio’s best wind resource areas occur along the coast of Lake Erie, where the first demonstration offshore project is currently proposed.

Because only projects of 50MW or higher are regulated by Ohio Power Siting Board, most projects are only subject to local zoning regulations. While a few developers have contacted USFWS about siting concerns, no projects have yet requested a full USFWS site evaluation. Ms. Seymour asserted that outreach through the Ohio Wind Working Group (OWWG), a stakeholder collaborative seeking successful and environmentally responsible wind energy development in Ohio and has raised awareness about siting concerns, as well as services USFWS can provide.

Ms. Seymour provided a map of Ohio, developed by USFWS in cooperation with Ohio Department of Natural Resources (ODNR), depicting buffer zones around migration paths, areas where federally protected species occur, bat hibernation sites and important habitat areas. The map is available on the USFWS Region 3 website. Accompanying guidance directs developers who wish to build wind projects in those areas to contact Ohio FWS for further examination of a specific site’s suitability.

Ms. Seymour also discussed ODNR’s Draft Cooperative Agreement [Attachment F], which is modeled on a similar agreement in Pennsylvania. Developers who sign on would agree to use a wildlife survey protocol, the extent of which will depend on the habitat and wildlife present. Those who sign on will also agree to follow appropriate pre- and post-construction protocols [Attachment G] and make use of mitigation strategies under certain conditions. In return, Ohio DNR will agree to limit enforcement of state wildlife laws on accidental fatalities. Ms. Seymour recommended the Wind FACA consider a similar “carrot and stick” approach in its recommendations to the USFWS, but cautioned that,

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<sup>1</sup> Note: Avoidance in this context refers to averting collisions. In other settings avoidance can mean abandoning habitats.

“Voluntary guidelines will only work if the carrots are delicious and the stick is poised to strike.” She also suggested the new guidelines should include a site-specific flexibility provision and provide standardized pre-and post-construction survey protocols.

Ms. Seymour responded to questions regarding the following:

- ❖ **Surveying requirements in areas occupied by Indiana bats:** Ms. Seymour clarified that present guidelines do not require surveys for any bats, even in occupied habitat. There is some incentive to develop a habitat conservation plan, as developers who do so may be protected from prosecution under the Endangered Species Act (ESA). Still, there is concern that habitat might be destroyed, eliminating the presence of bats without resulting in direct fatalities that would trigger prosecution under ESA.
- ❖ **Usefulness of current guidelines:** Ms. Seymour indicated a belief that current USFWS Interim Turbine Siting guidelines possess some value. However, she believes the site evaluation process is cumbersome.
- ❖ **USFWS relationship with ODNR:** Ms. Seymour indicated that USFWS and ODNR work cooperatively together. Mr. Stout further clarified that USFWS acts as a close-working partner to state agencies, but state agencies have different mandates and occasionally possess different views.
- ❖ **Similar maps in other states/other resources:** Ms. Seymour indicated that she is not aware of other states which have produced similar maps. However, a primary task of the Great Lakes Wind Collaborative is to develop an atlas of maps indicating sensitive wildlife areas.

## VII. SUBCOMMITTEE REPORTS

### VIIA. Guiding Principles

The Guiding Principles subcommittee presented a draft guidance document containing “premises” and “principles” for approval by the Wind FAC. The document may provide direction for the Wind FAC in the developing its recommendations to USFWS. The premises in the document are intended to articulate basic assumptions and terminologies contained within the principles, so as to prevent ambiguity. Wind FAC Members voiced concerns that the premises might reflect too narrow or too broad a scope and discussed clarifying the terms “wildlife” and “habitat” to reflect the charge contained in the Wind FAC’s charter (see Attachment H).

Members indicated a shared belief that a “Premises and Principles” guidance document would be useful in directing the Wind FAC’s work. However, Members felt that any such document would benefit from a Structured Decision Making (SDM) workshop assessing the Committee’s scope, priorities, and Member values. The Wind FAC thus agreed to postpone further subcommittee efforts on this document until after the June 18<sup>th</sup> SDM workshop with Robin Gregory.

### VII B. Legal

The Legal subcommittee reported on steps taken to summarize the array of available implementation processes, which range from mandatory regulations to voluntary guidelines, that the Wind FAC could choose to recommend. The subcommittee held a preliminary meeting with the Department of the Interior’s Solicitor’s office and the DOI Office of Policy Analysis and anticipates that Solicitor staff will soon identify experts in various aspects of federal wildlife law who can assist the subcommittee in formulating and populating the summary it plans to develop. The subcommittee hopes to have a draft summary and illustrative chart for Committee review prior to the Wind FAC’s July meeting.

The subcommittee indicated that it is also available to consult with other subcommittees on any legal questions that arise.

Members asked the subcommittee to investigate “no surprises” and “safe harbor” provisions as incentives for developer provisions. In addition, the Wind FAC agreed that the Legal subcommittee should review any proposals to the Committee from the Existing Guidelines subcommittee to ensure that the proposed actions will not conflict with state laws. The subcommittee will meet with the FWS Solicitors office and develop a white paper on the range of options allowable under existing law and regulation, and may also propose additional options.

### **VIIC. Uncertainty/Other Models**

The Uncertainty/Other Models subcommittee noted that its main purpose is to propose an approach for dealing with uncertainty in wildlife risk management decisions. This approach could then be included in the Wind FAC’s recommendations to USFWS.

The subcommittee requested and the Wind FAC Members agreed that additional Members be added. As a next step, the subcommittee will examine management programs or models that provide guidance on how to address environmental risk issues in the context of uncertainty. Following the June 18<sup>th</sup> workshop, subcommittee members will determine whether to request additional assistance from Dr. Gregory to develop a framework for accomplishing the subcommittee’s scope of work. The subcommittee will then develop proposed language articulating the Wind FAC’s interest in protecting wildlife without creating an uneven playing field for wind energy development.

### **VIID. Landscape/Habitat**

The subcommittee reported that it perceives its primary objective to be assisting the Wind FAC in recognizing and prioritizing wind development issues that affect wildlife habitat. To this end, the subcommittee has begun to inventory mapping tools used in assessing the value of habitat. As it proceeds, it intends to evaluate the benefits and challenges associated with each tool, and will report its findings back to the full Committee.

Members of the Wind FAC commented that developers, especially small developers, need more access to information about important habitat areas. Some members noted that this information should be provided as a means to raise concerns about potentially unsuitable sites. However, other Members said, areas of caution should not necessarily be off-limits to development; they should merely require more thorough investigations into potential risks from wind energy development.

The Wind FAC directed the subcommittee to examine state and local resources which could be incorporated into a national tool to avoid duplicative efforts. The subcommittee also clarified that it intends to investigate tools for site assessment and mitigation as they relate to habitat concerns once the subcommittee has completed its assessment of habitat mapping resources.

### **VIII. Existing Guidelines**

Following the February 26-28 Wind FAC meeting, the Existing Guidelines subcommittee reviewed a number of existing state guidelines for siting wind turbines<sup>2</sup>, in addition to existing USFWS and Canadian guidelines. The subcommittee developed draft matrices indicating major themes, or categories, emerging from the guidelines, e.g., Mitigation Measures and Pre-construction Wildlife Assessment. The matrices denote specific provisions within those categories and indicate which guidelines contain each provision.

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<sup>2</sup> The Existing Guidelines Committee reviewed state guidelines in Arizona, California, Hawaii, Iowa, Kansas, Maryland, Michigan, Montana, Nevada, New Hampshire, New Mexico, New York, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, South Dakota, Vermont, Washington, West Virginia, and Wisconsin

The Wind FAC commended subcommittee members for their work and suggested the subcommittee also examine other federal wind turbine siting guidelines from agencies like Bureau of Land Management and U.S. Forest Service. Members also commented that the Wind FAC's recommendations should not be restricted to provisions currently in practice. Members directed the subcommittee to assess, in consultation with industry and wildlife conservation representatives, existing state and federal guidelines to see what additional measures are needed, which may be contentious, which current measures should be promoted, and which could be improved. To that end, the Wind FAC directed the subcommittee to perform a meta-analysis to determine which guidelines best illustrate "best management practices" within each category, and what should be included in the Wind FAC's recommendations to USFWS. As a first step, the subcommittee committed to develop a proposed framework for such an evaluation, which will be reviewed by the full Committee prior to the July 23-24 Wind FAC meeting. The subcommittee will also develop proposals for: how to best solicit expert guidance, how the guidelines should affect state and tribal lands, how guidelines could address issues of uncertainty; and how to address other specific issues such as retrofitting, repowering and decommissioning, and site restoration.

#### **VII.F. Review of Scientific Tools and Procedures**

The Wind FAC determined the need for a new subcommittee to review provision 7c of the Wind FAC charter:

*The Committee will provide advice and recommendations to the Secretary of the Interior on the scientific tools and procedures best able to assess pre-development risk or benefits provided to wildlife, measure post-development mortality, assess behavioral modification, and provide compensatory mitigation for unavoidable impacts*

The subcommittee was asked to propose an approach for developing these products. For a list of subcommittee members, please see Attachment I.

#### **VIII. REVIEW OF NEXT STEPS**

Participants reviewed the next steps for the Wind FAC and its subcommittees. For a full list of next steps, see Attachment J.

#### **IX. PUBLIC COMMENT: DAY II**

Michael Fry, *American Bird Conservancy*, urged the Wind FAC to adopt mandatory guidelines, and advocated a number of measures he hopes to see in the Wind FAC's final recommendation to the USFWS. The full text of his remarks is available in Attachment K.

**ATTACHMENTS:**

**Attachment A:** Meeting Agenda

**Attachment B:** Participant List

**Attachment C:** List of Members and their Nominated Alternates

**Attachment D:** Letter read by David Brandes on behalf of the Hawk Migration Association of North America (HMANA)

**Attachment E:** List of penalties under Migratory Bird Treaty Act and Bald & Golden Eagle

**Attachment F:** Ohio DNR Voluntary Agreement

**Attachment G:** Draft addendum to Ohio DNR Agreement

**Attachment H:** Wind FAC Charter

**Attachment I:** List of Subcommittee Members

**Attachment J:** Next Steps from Wind FAC April 22-23 Meeting

**Attachment K:** Michael Fry Comments

**WIND TURBINE GUIDELINES ADVISORY COMMITTEE  
FEDERAL ADVISORY COMMITTEE MEETING #2**

**DRAFT AGENDA**

**HOLIDAY INN ARLINGTON  
4601 NORTH FAIRFAX DRIVE  
ARLINGTON, VA 22203**

**APRIL 23-24, 2008**

**SECOND WIND TURBINE GUIDELINES ADVISORY COMMITTEE MEETING**

- Discuss and finalize groundrules for the FAC
- Review Subcommittee progress and discuss next steps
  - Guiding Principles for FAC
  - Legal
  - Uncertainty/Other Models
  - Landscape/Habitat
  - Existing Guidelines
- Hear presentations on Migratory Bird Treaty Act, Implementation of Voluntary Guidelines from Regions II and III, and Structured Decision Making: implications for FAC deliberations
- Review and discuss additional important FAC items
- Discuss timelines and process steps to address additional items

**Comments Protocol for FAC Meeting**

*If you are a member of the public and want to make a comment to the FAC, please sign up on the “Comment Sign-Up Sheet” at the registration desk. Comments will be taken at the designated time on the agenda. Comments may need to be held to 3 minutes, depending on the number of parties who request time to comment. If time does not allow for all comments, then members of the public will be asked to write their comments down and submit them to the FWS staff at the registration desk. All comments will be made part of the public record and will be electronically distributed to all FAC members after the FAC meeting.*

**Day One, April 23, 2008**

8:00 – 8:15	<p><b><u>Welcome &amp; Overview of Agenda</u></b>     <i>D.Stout, DFO/USFWS / A.Arnold, facilitator</i>                  Introductions of all FAC members                  ➤ Review and agree on agenda for the day</p>
8:15 – 8:45	<p><b><u>Groundrules for Wind Turbine Guidelines FAC</u></b>     <i>A.Arnold, facilitator</i>  <i>(Objectives: Review and approve the revised draft proposed groundrules for the Wind/Wildlife FAC and identify any suggested changes needed to ensure a productive process.)</i>                  ➤ Review and discuss edits to groundrules based on discussion at Meeting 1 (February 28, 2008)                  ➤ Adopt groundrules by consensus (if possible)</p>

<p>8:45- 10:00 (including break)</p>	<p><b><u>Subcommittee Reports</u></b> <i>(Each Subcommittee give a short update(10 min) so all parties have full picture of subcommittee activities; then later in the morning/afternoon return to each report and review and discuss reports, recommendations, and offer advice on next steps – next steps might carry on to Day 2).</i></p> <ul style="list-style-type: none"> <li>➤ Guiding Principles (tbd)</li> <li>➤ Legal (tbd)</li> <li>➤ Uncertainty/Other Models (tbd)</li> <li>➤ Landscape/Habitat (tbd)</li> <li>➤ Existing Guidelines (tbd)</li> </ul>
<p>10:00-11:15</p>	<p><b><u>Structured Decision Making</u></b>      <i>Dr. Robin Gregory, Value Scope Research</i> <i>(Learn about structured decision making and its application to the FAC Charge and committee business)</i></p> <ul style="list-style-type: none"> <li>➤ Presentation on Structured Decision Making</li> <li>➤ How can the Committee use this tool?</li> </ul> <p><i>Example of how to use the tool applied to Subcommittee work/list of items/issues/questions the Committee Listed in last meeting that they wanted to discuss</i></p>
<p>11:15 – 3:30</p>	<p><b><u>Discuss and Review Subcommittee Reports</u></b></p>
<p>11:15- 12:00</p>	<p><b><u>Guiding Principles</u></b></p> <ul style="list-style-type: none"> <li>➤ Discuss Suggested Principles for Developing Recommendations</li> <li>➤ Does the full Committee want to adopt the principles to guide its discussions?</li> <li>➤ Next steps; does the Subcommittee need to continue; if yes, what is the focus?</li> </ul>
<p>12:00– 1:15</p>	<p><b><u>Lunch</u></b> <i>(on your own)</i></p>
<p>1:15 – 1:45</p>	<p><b><u>Legal</u></b></p> <ul style="list-style-type: none"> <li>➤ Discuss legal report</li> <li>➤ In light of the structured decision making tool, are there changes we want to make to our committee’s work?</li> <li>➤ Next steps; direction to the Subcommittee.</li> </ul>



1:45-2:30	<p><u>Uncertainty/Other Models</u></p> <ul style="list-style-type: none"> <li>➤ Discuss uncertainty report</li> <li>➤ In light of the structured decision making tool, are there changes we want to make to our committee’s work?</li> <li>➤ Next steps; direction to the Subcommittee</li> </ul>
2:30 – 3:00	<p><b><u>Break</u></b></p>
3:00 – 4:00	<p><b><u>Report on Subcommittee Reports</u></b>, <i>continued</i></p> <p><u>Landscape/Habitat</u></p> <ul style="list-style-type: none"> <li>➤ Discuss landscape habitat report</li> <li>➤ In light of the structured decision making tool, are there changes we want to make to our committee’s work?</li> <li>➤ Next steps; direction to the Subcommittee?</li> </ul>
4:00 – 5:00	<p><u>Existing Guidelines</u></p> <ul style="list-style-type: none"> <li>➤ Discuss existing models report</li> <li>➤ In light of the structured decision making tool, are there changes we want to make to our committee’s work?</li> <li>➤ Next steps; direction from FAC to the Subcommittee?</li> </ul>
5:00-5:15	<p><b><u>Public Comment</u></b> <i>(may be earlier, depending on FAC schedule)</i>  <i>(Members of the public are invited to speak to the FAC; Please sign up on the Public Comment Form; time permitting each party will be asked to keep their comments to 3 minutes each. Written comments will be accepted by the Committee.</i></p>
5:15-6:15	<p><b><u>Reports/Presentations</u></b> <span style="float: right;"><i>Paul Schmidt and Benito Perez, FWS</i></span></p> <ul style="list-style-type: none"> <li>➤ Migratory Bird Treaty Act &amp; Bald and Golden Eagle Protection Act: <ul style="list-style-type: none"> <li>○ Overview of the Act, implications for wind power</li> <li>○ When does wind/wildlife interaction become a law enforcement issue,</li> <li>○ What is prosecutorial discretion?</li> </ul> </li> </ul>
6:15-6:30	<p><b><u>Wrap Up and Review Next Steps</u></b> <span style="float: right;"><i>A.Arnold, facilitator</i></span>  Review agenda for Day II in light of progress made on Day I</p>
6:30	<p><b><u>Adjourn for evening</u></b></p>

**Day 2 April 24, 2008**

- 8:00-8:15            **Review Day’s Agenda**
- 8:15 – 9:00        **Report From USFWS Regions II and III on Use of Existing Interim Guidelines**
- 9:00 – 12:00      **Return to Discussion of Subcommittee Activities**  
*(Depending on meeting progress Day 1’s discussion, time is allotted to return to discussion of respective subcommittees, or discussion of subcommittee discussion)*  
*Stepping back*  
                         Considering the discussion yesterday on structured decision making: is the Committee focused on the right issues. Are there issues that the Committee wants to address that require additional work? Can these issues be directed at an active Subcommittee? Do we need to create a new subcommittee?
- Drilling into the Subcommittees:* Additional discussion of subcommittee activities: Do we have the right mix of expertise and representation on each of the existing subcommittees? Should any of the existing subcommittees be split or merged?
- 12:00-1:15        **Lunch**  
*(on your own)*
- 1:15-2:45        **Return to Discussion of Subcommittee Activities, continued**
- 2:30-2:45        **Reflections from Chairman/DFO**
- 2:45–2:55        **Review of Next Steps**  
                         ➤ Review next steps, activities between now and July  
                         ➤ Agenda items for July
- 2:55-3:15        **Public Comment**
- 3:15                **Adjourn Public FAC Meeting**
- 3:30-4:30        **Convene Administrative Session**

**WIND TURBINE GUIDELINES ADVISORY COMMITTEE:  
2<sup>ND</sup> COMMITTEE MEETING**

**April 23-24, 2008  
Arlington, VA**

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As of 7/7/2008

**Wind Turbine Guidelines Advisory Committee Nominated Alternates**

<b>Nominated* Alternate</b>	<b>Nominated By</b>	<b>Representing</b>
John Austin	Keith Sexson	Association of Fish and Wildlife Agencies
Tom Bancroft	Michael Daulton	Wildlife Conservation Organizations
Panama Bartholomy	Karen Douglas	California Energy Commission
Joseph Carpenter	Mark Sinclair	State of Vermont
Brian Chappell	Patrick Traylor	Wind Energy Development Organizations
Jim Eisen	Steven Quarles	Wind Energy Development Organizations
Samuel Enfield	Andrew Linehan	Wind Energy Development Organizations
Caroline Kennedy	Aimee Delach	Wildlife Conservation Organizations
Curt Leigh	Greg Hueckel	State of Washington
James Lindsay	Winifred Perkins	Wind Energy Development Organizations
Jay Pruett	Rob Manes	Wildlife Conservation Organizations
Barry Sweitzer	Michael Azeka	Wind Energy Development Organizations
Chris Taylor	René Braud	Wind Energy Development Organizations
Robert Thresher	Steve Lindenberg	Department of Energy
Julie Wicker	Kathy Boydston	State of Texas

\*Note that the nominated alternates listed have not yet been recommended by the U.S. Fish and Wildlife Service, or approved and appointed by the Secretary of the Interior.



HMANA

**Board of Directors:**

- Iain MacLeod, Chairman
- Gil Randell, Vice-chairman
- John Weeks, Membership
- Jason Sodergren, Secretary
- Wavell Fogleman, Treasurer
- David Brandes
- Susan Fogleman
- Laurie Goodrich
- Wayne Greenstone
- Steve Hoffman
- Mike Lanzone
- David McNicholas
- Paul Roberts
- Steve Small

**Staff:**

- Ernesto Ruelas Inzunza  
RPI Manager
- Jason Sodergren  
HawkCount Database Manager
- David McNicholas  
Director of Development

HMANA's mission: To advance scientific knowledge and promote conservation of raptor populations through study, enjoyment, and appreciation of raptor migration

**Hawk Migration Association of North America**

c/o Cornell Lab of Ornithology, 159 Sapsucker Woods Rd., Ithaca, NY 14850

April 16, 2008

Wind Turbine Guidelines Advisory Committee  
U.S. Fish and Wildlife Service

Dear Committee Members:

The Hawk Migration Association of North America (HMANA) is a scientific, educational and conservation organization that collects standardized data from hundreds of affiliated raptor monitoring sites throughout the United States, Canada and Mexico. HMANA maintains the on-line raptor migration database hawkcount.org and publishes the journal *Hawk Migration Studies*. We are teaming with Hawk Mountain Sanctuary and HawkWatch International on the Raptor Population Index project, which has developed and published indices of trends in migratory raptor populations using HMANA count data and state-of-the-art statistical methods.

HMANA's Board of Directors is keenly interested in the deliberations of the Wind Turbine Guidelines Advisory Committee. We strongly support the original language of the Interim Guidance recommending that wind energy developers avoid known raptor migration pathways, as well as landscape features where concentrations of raptors are known to occur, such as ridgelines, lakeshores, and coastlines.

Furthermore, due to incomplete knowledge of raptor migration and the inherent annual variability in raptor flights, we strongly support a recommendation for multiyear pre- and post-construction monitoring, particularly for sites that are proposed in or near known or suspected raptor migration pathways or concentration areas. Finally, we support guidelines recommending that wind energy developers avoid sensitive habitats such as wetlands, large blocks of interior forest, or other lands that have been identified as ecologically significant, such as Important Bird Areas.

Based on the U.S. General Accountability Office report of 2005 and the National Academy of Science report of 2007, there is currently a lack of knowledge of the impacts of new generation turbines on raptors. Window glass and domestic cats kill many more total birds than wind turbines, but this is not the case for all species, in particular many raptors. According to the National Wind Coordinating Committee (2004), raptors are at higher risk of turbine collisions than other birds. Long-lived, slowly reproducing species like golden eagles and bald eagles will be at particular risk if turbines are placed in migration corridors or concentration areas. We know from recent experience in Smola, Norway, that eagles are susceptible to strikes from poorly-sited new generation turbines.

HMANA is concerned that the lack of rigorous scientific study and data on the impacts of new generation turbines in or near raptor migration pathways and concentration areas may be misconstrued by the Committee as a lack of impacts. Given the likelihood that thousands of turbines will be constructed in the coming years, it is imperative that the direct and indirect effects on raptors be carefully studied and monitored.

Finally, HMANA would like to offer its services to you as you move forward in your work. Our Board includes a number of highly qualified scientists and biologists who are experts on raptor migration and are eager to be involved in finalizing a set of comprehensive, scientifically defensible guidelines.

Sincerely,

Iain MacLeod  
Chairman, HMANA Board of Directors



## Summary of the Migratory Bird Treaty Act and the Eagle Protection Act

U.S. Fish and Wildlife Service  
Office of Law Enforcement



April 2008

**Migratory Bird Treaty Act**

PURPOSE: Protection of migratory birds, their parts, nests, and eggs.

TREATIES: Canada 1916  
 Japan 1974  
 Mexico 1936  
 Russia 1978

STATUTE: 16 USC 703 - 712

REGULATIONS: 50 CFR 10, 20 & 21

PROHIBITIONS: Unless permitted by regulation, it is unlawful to pursue, hunt, take, capture, kill, possess, sell, barter, purchase, ship, export, or import any migratory bird, as defined in 50 CFR 10, or any part, nest, egg, or product thereof.

PENALTY: Felony  
 - 2 years of imprisonment  
 - \$250,000 per individual  
 - \$500,000 per organization  
Misdemeanor  
 - 6 months of imprisonment  
 - \$15,000 per individual/organization  
Misdemeanor Baiting Offense (1998 MBTA Reforms amended the penalty provisions.)  
 - 1 year of imprisonment for placing or directing the placement of bait for the purpose of taking migratory birds.  
 - \$100,000 per individual for placing or directing the placement of bait for the purpose of taking migratory birds.  
 - \$200,000 per organization for placing or directing the placement of bait for the purpose of taking migratory birds.

Civil - None

CULPABILITY: Misdemeanor - Strict liability for non-baiting offenses  
Misdemeanor Baiting Offenses - (Since 1998 Reforms - Know or reasonably should know that an area is baited (OR) placed or directed the placement of bait for the purpose of taking migratory birds  
Felony - Knowingly

FORFEITURE: Misdemeanor - all migratory birds, eggs, nests, and parts thereof.  
Felony - All migratory birds, eggs, nests, and parts thereof and all guns, traps, nets, other equipment, vessels, and vehicles.

**Eagle Protection Act**

PURPOSE:	To protect bald and golden eagles, their nests, eggs, and parts thereof.
STATUTE:	16 USC 668a - 668c
REGULATION:	50 CFR 22
PROHIBITIONS:	No person shall take, possess, sell, purchase, barter, offer for sale, purchase, or barter, transport, export, or import any bald or golden eagle, alive or dead, or any part, nests, or eggs thereof without a valid permit to do so.
PENALTY:	<u>Felony</u> - 2 years of imprisonment (2nd or Subsequent offense) - \$250,000 per individual - \$500,000 per organization  <u>Misdemeanor</u> - 1 year of imprisonment - \$100,000 per individual - \$200,000 per organization  <u>Civil</u> - \$5,000
CULPABILITY:	<u>Criminal</u> - Knowingly or with wanton disregard for the consequences of their act.  <u>Civil</u> - Strict liability.
FORFEITURE:	All bald and golden eagles and parts thereof.  All guns, traps, equipment, vessels, vehicles, and aircraft used in violation of this Act.
REWARDS:	One half of the fine not to exceed \$2,500 to the person who provides information that leads to a conviction under the Act.

**OHIO DEPARTMENT OF NATURAL RESOURCES TERRESTRIAL WIND  
ENERGY VOLUNTARY COOPERATION AGREEMENT**

March 14, 2008

The Ohio Department of Natural Resources (ODNR) seeks to coordinate wind energy projects with wind energy developers (Cooperator) in order to work collaboratively to ensure that wind-energy development project sites are developed in both an environmentally conscientious manner and with best regard to the conservation of the State's wildlife resources.

Whereas, the ODNR under its jurisdiction from Ohio Revised Code §§ 1531.08, 1533.07, 1533.08, and 1518.02 (Powers of Division of Wildlife, Protection of Non-game Birds, Permits, and Powers of Division of Natural Areas and Preserves Endangered Species) has authority to protect, propagate, manage and preserve the game or wildlife and native plants of this State and to enforce, by proper actions and proceedings, the laws of this State relating thereto.

Whereas, both the ODNR and Cooperator support renewable energy initiatives and are dedicated to arriving at uniform guidance, in the absence of comprehensive state regulations, on how best to avoid, minimize, and/or mitigate potentially adverse impacts to wildlife and native plant resources.

Whereas, the ODNR and Cooperator, in an effort to best avoid, minimize, and/or mitigate potential adverse impacts with specific intent to birds and mammals, have entered into this Cooperative Agreement in an effort to standardize wildlife monitoring protocols and wildlife impact review methods associated with wind-energy development projects in a mutually beneficial and flexible manner and with high regard to both parties goals, objectives, and purviews.

This Cooperative Agreement applies specifically to birds and bats throughout the entire lifetime of wind power projects from pre-construction through end of operations, as these animals are of concern for all wind power projects. Impacts to other State- or Federally-listed species will be addressed principally during the sighting and pre-construction phase of wind projects, and possibly during later phases depending on the project location and onsite habitat. Any necessary measures or surveys to address impacts to other listed species will be provided by ODNR through the ODNR Environmental Review Process.

Therefore, the ODNR and Cooperator enter into this Cooperative Agreement based on the following terms and conditions:

1. (a) The Cooperator will notify the ODNR of any potential wind energy development sites of or above 10MW or 5 turbines (or an expansion of an existing site with the addition of 5 or more turbines or 10MW), at least eighteen months, preferably as early as possible, prior to construction. The notification prior to the initiation of construction at the site will allow the ODNR to review and provide as much known information on bird and mammal resources, as well as other information such as impacts on other wildlife, plants, wetlands, streams, coastal areas, and geologic substrate and slope stability, which may be present and/or potentially impacted by the development of the proposed wind-energy project. The notification should include a brief narrative of the project's planned development and proposed construction times and include as much detailed information as available such as: an original copy of the U.S.G.S. topographic map(s) depicting the proposed project area boundary limits with the quadrangle name and associated county identified on it, the proposed project site's general infrastructure delineations (both known and planned) to include access roads, electric transmission lines, wind turbine locations, planned surface impact areas needed to support construction, development and future maintenance of the project, and any known wetland areas or predetermined wildlife habitat regimes which are deemed to be of critical importance or high value.
- (b) The Cooperator shall request a scientific collectors permit at least fourteen months, preferably as early as possible, prior to construction. ODNR agrees to issue a scientific collectors permit in accord with Ohio Revised Code §1533.08 (and further defined under Ohio Administrative Code Section 1501:31-25-01 and 02), defining the terms and conditions for use throughout the project area by the Cooperator's designated biologist(s) for all bats, birds, and state-listed threatened or endangered species which are collected while conducting the ODNR's approved monitoring plan and mortality protocol. The general format for the scientific collectors permit is attached as Exhibit D and may be automatically renewed upon the anniversary date of the permit, providing further that the permit terms and conditions have been strictly adhered to and this Cooperation Agreement remains in effect.
- (c) For those projects, which the Cooperator has already initiated prior to the



effective date of this agreement and are planned for construction prior to the eighteen-month time frame noted herein, the Cooperator shall submit the required information as requested in Paragraph 1 (a) and request a permit as required by Paragraph 1(b), within ninety days (90) from the date of this Agreement, preferably as early as possible.

- (d) For those projects which are currently under construction prior to the date of this Agreement, the Cooperator shall only be required to comply with the monitoring efforts referenced within Paragraph 6 that pertain to assessing post-construction bird & bat mortality. Further, within 90 days of the Agreement date, the Cooperator shall provide to the ODNR a listing of all other projects or phases of projects that are planned for construction to begin within 18 months from the date of this Agreement. The listing will include all available site-specific project information as more clearly specified within this paragraph for each project identified on the list. For each project identified on the list where construction commences within 18 months from the date of this Agreement, the Cooperator shall be required to comply with the monitoring efforts referenced within Paragraph 1 (a) and 6 that pertain to assessing post-construction bird & bat mortality.
2. It is understood between the Cooperator and ODNR that both parties may support the use of other potential funding mechanisms or processes which directly or indirectly reduce the overall costs associated with the Cooperator's monitoring requirements as identified herein providing further the intent of those monitoring requirements remain the same.
3. The ODNR and Cooperator will share all relevant information concerning wildlife and resources under the jurisdiction of the ODNR in and around the project area and the potential adverse impact to those resources. Shared information will include all known publicly available data from past/current/future monitoring efforts and pre- and post-construction study results relative to the subject project area. The ODNR further agrees to consider all existing relevant wildlife resource information provided by the Cooperator and the ODNR will reduce to the fullest extent possible any further requests made to the Cooperator to provide additional relevant data and/or monitoring results which can be ascertained from known existing data regarding potential known wildlife impacts.

4. The ODNR will provide the Cooperator with the results of all its internal reviews and provide written comment and/or meet with the Cooperator within 45 days of receiving the information specified in Paragraph 1, as well as the results of the Ohio Natural Heritage Database, and all pre- and post-construction monitoring methods and recommendations on how best to avoid and reduce direct and indirect impacts to wildlife. Additional coordination will occur from the ODNR for actions needed in regards to species listed in the Ohio Comprehensive Wildlife Conservation Strategy (CWCS) to include all state threatened and endangered wildlife species known to occur or determined to exist within or adjacent to the project area.
5. The ODNR in consultation with the Cooperator will determine the risk level for monitoring and survey efforts. The Cooperator agrees to conduct monitoring according to the attached protocol, unless otherwise directed by the ODNR. The ODNR may request the Cooperator conduct an additional year's post-construction monitoring if a state or federally listed threatened or endangered species is killed or other mortality is deemed to be at an unacceptable level for any species. The Cooperator may request a reduction in the mortality monitoring effort for the second year based on the first year's mortality results. Such a request by either party for additional or reduced monitoring shall be made in writing by the party requesting a change and an informal meeting will be arranged between the parties to discuss and mutually agree upon any changes in monitoring efforts.
6. All suggested pre-construction and some post-construction monitoring protocol are designed to reduce the exposure of state-listed species in order to avoid, minimize or mitigate potential adverse risk to species of special concern, through the collaborative efforts of both the Cooperator and ODNR. Attached to this Agreement, and included by reference herein, are protocols for monitoring bird and bat populations in and around wind-energy development project sites during both pre- and post-construction time periods and protocols for assessing bird and bat mortality at wind-energy facilities after they begin operating (Exhibits A, B & C). The ODNR will use all available information, including site-specific project plans provided by the Cooperator as described in Paragraph 1, to identify the level of monitoring needed for a proposed project where the intensity or duration of monitoring described in Exhibits A-C is associated with site priority or other assessment of risk. In general, Cooperators will be expected to monitor site use by wildlife, primarily raptors, breeding and migratory birds and bats.

Project-specific information will be used to determine the intensity or necessity of such surveys with the goal to provide reliable biological data to define wildlife use of the project area and make recommendations to decrease or eliminate potential adverse impacts to wildlife resources. The goals of post-construction bird and bat mortality monitoring are to (1) determine if project operations are causing an unacceptable level of impact so that additional minimization or mitigation measures can be employed if needed, and (2) assess the predictive value of pre-construction monitoring, minimization and avoidance measures by comparing those results with post-construction mortality.

7. Cooperator agrees to utilize to the greatest extent possible, all reasonable and feasible generally accepted wind industry and ODNR best management practices relevant to the conservation of wildlife resources during construction and subsequent operation of the wind-energy facility. The ODNR shall provide URL links to or copies of all known and updated best management practices to the Cooperator on an annual basis.
8. The ODNR agrees not to pursue liability against the Cooperator due to any incidental takings of the State's bird, mammal or native plant resources for which it has purview under Ohio Revised Code §§ 1531.08, 1533.07, 1533.08 and 1518.02 (Powers of Division of Wildlife, Protection of Non-game Birds, Permits, and Injury to Endangered Native Plants) as a result of the Cooperator's wind-energy development and operations within the State of Ohio providing further such incidental takings were not malicious in their intent and the Cooperator remains in compliance with the terms and conditions of this Agreement and has with a good faith effort avoided and minimized potential adverse impacts by way of implementing best management practices and ODNR guidance as noted herein.

The ODNR and Cooperator agree to work cooperatively in the future to avoid, and minimize further impacts to the State's bird and mammal resources as new relevant project information becomes available. In the event that an incidental take occurs upon an Ohio listed threatened or endangered species of bird, mammal during the operation of any of the Cooperator's wind-energy facilities, the Cooperator agrees to take all reasonable best management practices, including: painting turbine blades, feathering, minimizing lighting, burying collection lines, curtailing during high risk periods, decommissioning turbines no longer in operation, and

enhancing off-site habitat areas; as deemed appropriate by the ODNR and the Cooperator to further avoid, minimize and/or mitigate such wildlife losses in the future.

9. ODNR recommendations or decisions under the Cooperative Agreement do not supercede any comments, decisions, or recommendations of the United States Fish & Wildlife Service.
10. The Cooperator agrees to provide coordinated access to ODNR, upon 24-hour prior notice during normal business hours, to all its wind-energy facilities, during the pre-construction and operational life of the wind-energy facility, as deemed necessary by ODNR staff in order to ensure both parties' compliance to this Agreement. All ODNR access shall be subject to all the normal safety measures implemented by the Cooperator with regard to access to the facility.
11. Either party upon their own discretion and reason can terminate this Agreement in its entirety after having first provided the other party written notification of such termination forty-five (45) days in advance of such termination date. Said written notification to be sent certified mail to the respective parties' place of address as noted herein. Termination can be conditioned to exclude those projects identified, which remain in compliance with the Agreement.
12. It is understood between the parties that information resulting from the Cooperator's compliance with this Agreement shall be treated with the highest affordable level of confidentiality available unless otherwise agreed to in writing by both parties, or if it is necessary to support the ODNR's waiver of liability set forth in Paragraph 8 hereof. It is the intent of both parties to release to the general public relevant project monitoring & mortality information deemed to be in the best interest of both the ODNR and Cooperator. Release of information will be by mutual consent only in accordance with applicable law.
13. Assignment: The Cooperator may assign this Agreement, or any project covered under the terms of this Agreement, to any affiliate (as defined below) without the approval or consent of the ODNR provided that (i) the Cooperator is not in default of this Agreement with respect to the project(s) being so assigned at the time of the proposed assignment and (ii) the

## Attachment F

Cooperator notifies the ODNR of any proposed assignment in accordance with this Agreement. The Cooperator may assign this Agreement, or any project covered under the terms of this Agreement, to any non-affiliate (as defined below) provided that (a) the Cooperator is not in default of this Agreement with respect to the project(s) being so assigned at the time of the proposed assignment, (b) the proposed assignee has agreed in writing to be bound by all of the terms and conditions of this Agreement, (c) the ODNR has met with the proposed assignee and the Cooperator, after being notified of the proposed assignment, to discuss the terms and conditions of the project(s) covered by the assignment, and (d) the ODNR consents to the proposed assignment in writing, which consent shall not be unreasonably withheld, conditioned or delayed. For purposes of this section, an "affiliate" of the Cooperator refers to any person, corporation or entity that (i) has a direct or indirect ownership interest in the Cooperator or vice versa or (ii) is subject to common operating control and is operated as part of the same system or enterprise as the Cooperator. Any person, corporation or entity that is not an "affiliate" as defined above shall be a non-affiliate for purposes of this section. At the request of the Cooperator, the ODNR and the assignee shall execute, after said assignment is approved if required, a new Agreement with terms identical to the terms of the Agreement at the time of the assignment.

14. Notices. All notices demands or requests required or permitted under this Agreement shall be in writing and shall be personally delivered or sent by certified United States mail (postage prepaid, return receipt requested), overnight express mail, courier service, facsimile transmission or electronic mail with confirming receipt (in the case of facsimile transmission and electronic mail with the original transmitted by any of the other aforementioned delivery methods) addressed as follows:

If to ODNR to:

Ohio Department of Natural Resources  
Office of Legal Services  
Building D-3  
2045 Morse Road  
Columbus, OH 43229

and

If to Cooperator to:

or to such other person at such other address as a Party shall designate by like Notice to the other Party. Unless otherwise provided herein, all Notices hereunder shall be effective at the close of business on the Day actually received, if received during business hours on a Business Day, and otherwise shall be effective at the close of business on the first Business Day after the Day on which received.

15. No Third-Party Beneficiaries. This Agreement is not intended to, and does not confer upon any Person other than the Parties hereto and their respective successors and permitted assigns, any rights or remedies hereunder.
16. Entire Agreement. This Agreement, including all Protocols hereto, constitutes the entire agreement between the Parties hereto with respect to the matters contained herein and therein, and all prior agreements with respect to the matters covered herein are superseded, and each Party confirms that it is not relying upon any representations or warranties of the other Party, except as specifically set forth herein or incorporated by reference hereto.
17. Amendment. This Agreement and the attached protocols may only be amended or modified in writing by the mutual consent of the Parties hereto.

IN WITNESS WHEREOF, ODNR and Cooperator have caused this agreement to be duly executed and have caused their seals to be hereto affixed and attached by their proper officers, all hereunto duly authorized, on the date first above written.

STATE OF OHIO  
DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF WILDLIFE

ATTEST:

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Director, Department of Natural Resources                      Date

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Chief, Division of Wildlife    Date

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Chief, Division of Natural Areas & Preserves                      Date

COOPERATOR

ATTEST:

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President    Date

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Company Name

## On-Shore Bird and Bat Pre- and Post-Construction Monitoring Protocol for Commercial Wind Energy Facilities in Ohio

### An Addendum to the Ohio Department of Natural Resource's Voluntary Cooperative Agreement

The following protocols are meant to establish a standardized framework in which pre- and post-construction surveying should be conducted at proposed commercial wind turbine facilities within the state of Ohio. The ODNR will assess the level of surveying effort required within the project area boundary limits (henceforth referred to as the "site"), based upon the information provide from section 1.(a) of the cooperative agreement, the habitat characteristics within the site, and its proximity to focal points of bird and bat activity. Additional surveys for species other than birds and bats may be requested based upon a review of the ODNR Division of Natural Areas and Preserves' natural heritage database. The type of surveying required will be the discretion of the ODNR Division of Wildlife, but may fit generally in one of the categories listed below. These survey types are to be cumulative, meaning if the "moderate" level of surveying is required, the survey techniques described in the "minimum" level must also be conducted.

- **Minimum**  
These areas are large tracts of agricultural lands that do not come within 500 meters of a forest, wetland, or water body.
- **Moderate**  
Primarily agricultural or grasslands, with patches of forests, wetlands, and/or other habitat.
- **Extensive**  
Those areas within proximity to migratory corridors, staging areas, important bird areas, ridges, the Lake Erie shoreline (3-mile buffer), or current or historic locations of either state or federal listed protected species of bird or bat (Current Map<sup>3</sup>, to be revised).

In an effort to standardize information collected between projects, data should be recorded on provided forms for each of the various types of required surveys for all pre- and post-construction monitoring activities. Weather data should be recorded during all types of surveying.

#### 1. Minimum Surveying Effort

##### 1.1. *Breeding birds*

While breeding birds in the eastern United States have not been shown to be at high risk from turbines within their territories, it is important to identify what

<sup>3</sup> [http://www.fws.gov/midwest/eco\\_serv/wind/wind\\_maps/OHWildlifemap10-06.pdf](http://www.fws.gov/midwest/eco_serv/wind/wind_maps/OHWildlifemap10-06.pdf)



## DRAFT

species may be impacted through habitat disturbance or avoidance. Therefore, point-counts should be conducted at all known proposed turbine locations, with 2 points established for each turbine. These points should be at 100, and 300-meters from each turbine pad, without encroaching within these distances of adjacent turbines. The 100-meter point will be used to assess those species that may be directly affected by construction of the turbine; the 300-meter point will be used as a control to examine avoidance. Habitat for the point-counts should be similar to that of the turbine location. Because of increased detectability, points within grassland/agricultural habitats may be placed at every other turbine. If turbine locations have not yet been determined, 2 point-count locations should be established for the maximum number of turbines proposed. These points should be randomly stratified across the site relative to the proportion of individual habitat types. Point-count locations (GIS coverage and/or GPS coordinates) should be provided to the ODNR, Division of Wildlife. Three 10-minute point-count surveys should be conducted at each point: 1 in May, and 2 in June.

Certain bird species do not frequently sing until later in the breeding season; given this reduced detectability, 1 additional point-count is required in July for sites with suitable habitat for the Henslow's sparrow, Dickcissel, and/or sedge wrens. These additional point-counts should be conducted on sites where there are >50 hectares of contiguous grassland (for Henslow's sparrow and Dickcissel) or >1 hectare of wet meadow or freshwater marsh (for Sedge wren).

All surveys should begin at approximately dawn and not extend past 10:00 a.m. Surveys should be conducted by experienced personnel who are able to distinguish species by sight and sound. All birds detected during surveys should be identified to species and their behavior, indications of breeding activity (refer to breeding bird atlas codes), estimated distance, and direction (bearing) should be recorded. Birds flying overhead that do not land or originate within 200-meters of the center of the point should be listed as "fly over." Observations should be recorded using appropriate alpha species codes. Incidental observations of state and federal threatened or endangered species should be noted regardless of whether detected with the given survey time or while at a point-count location. Due to reduced detectability surveys are not to be conducted on mornings of heavy wind, rain, or fog. To assess avoidance of the project area after construction, surveys should be conducted 1 year prior to and 1 year post-construction.

### 1.2. *Raptor nest searching*

One early season (1 February – 31 March) survey should be conducted on and within a 1 mile of the proposed site. A 2-mile buffer should be used if the site is within a mile of large water bodies (lakes, rivers, or reservoirs) or wetlands >5 hectares as these areas have a higher potential for use by threatened or endangered species of raptors (bald eagle, northern harrier, peregrine falcon, or osprey). The

species and locations of nest sites should be marked on a USGS 1:24,000 topographic quadrangle.

### 1.3. *Bat acoustic monitoring*

With the expansion of wind turbines into the eastern United States, incidences of bat mortalities have become increasingly more common. Initially, these issues were limited to forested sites within the Appalachian Mountains. Now, unfortunately, they have been documented on agricultural sites as well. As a result, activity levels should be assessed at all proposed wind turbine facilities.

At least 1 full season (15 March – 15 November) of acoustic monitoring should be conducted. This can be accomplished by attaching AnaBat (either SD1 or those equipped with CF ZCAIMS) units to all meteorological towers, with units positioned at 5 and 20 meters, and 1 within the rotor swept area. In an effort to standardize results between study sites, the AnaBat's sensitivity should be adjusted to detect a calibration tone<sup>4</sup> at 20 meters. AnaBat units must monitor from 0.5 hour before sunset until 0.5 hour after sunrise. A "pass" will be defined as any file with  $\geq 2$  echolocation pulses. When possible, detections should be identified to species or species group (e.g. big brown/silver-haired) within AnaLook. Copies of original and identified detections should be provided to the ODNR, Division of Wildlife. In an effort to assess both potential attractant issues, and to correlate the number of detections with bat mortalities, acoustic monitoring should continue through the conclusion of post-construction monitoring.

## 2. **Moderate surveying effort**

### 2.1. *Passerine migration*

Numerous incidences exist of nocturnally migrating songbirds colliding with tall structures such as lighthouses, cell phone towers, and tall buildings. It is unclear what the cumulative impact of potentially 100s of turbines on the landscape will be to migrating birds. In an effort to gauge the amount of use a particular site receives during bird migration, point-counts should be conducted in the spring and fall. One point-count location should be established for every 150 hectares of combined forest, shrub, and wooded wetland. Points should be established in patches of the aforementioned habitats, and should be stratified across the extent of the site. Weekly surveys should occur 1 April - 15 May, and from 15 August - 15 November. Procedures should be similar to breeding bird surveys.

### 2.2. *Diurnal bird/raptor migration*

Though modern turbines seem to pose less of a threat to birds during the day, surveys should still be undertaken to minimize possible wildlife/wind turbine

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<sup>4</sup> Unlike most ultrasonic pest repellents, this product produces a constant ultrasonic sound and should be used to calibrate AnaBat units. <http://home.earthlink.net/~nevadabat/BatChirp/index.html>

interactions. Day-long (9:00 a.m. to 4:00 p.m.) surveys should be conducted 3 times a week, during seasonally favorable weather for migration (southerly winds in spring, northerly winds in fall). Due to species-specific differences in migration timing, surveying should be conducted 15 March – 1 May, and 1 September – 31 October.

#### 2.2.1. *Sandhill crane migration*

Sandhill cranes are listed as an endangered species in Ohio. If sandhill cranes are known to migrate within the vicinity of the proposed project, additional surveys should be conducted. These surveys will be an extenuation of the weekly diurnal bird/raptor migration protocol to include the extents of sandhill crane migration, from 1 November – 15 December.

#### 2.3. *Owl playback surveys*

These surveys should be conducted once monthly for the appropriate species: December (Great horned), January (Barred), and April (Screech). One sample point should be created for every 100 hectares of contiguous forest. Points should be established within forest patches and be spaced >400 meters apart. Surveys should begin 0.5 hour after sunset. Owl calls should be played through a megaphone or portable radio. Three replications of 1 minute of calls, followed by 4 minutes of listening (15 minutes total per station) should be played at each point-count location. Playback calls should have a minimum of background noise, and equipment must be able to broadcast so that the sound pressure is 80-90 dB at 1 m from the speaker.

### **Where applicable (determined by ODNR)**

#### 2.4. *Nocturnal marsh bird surveys*

Ohio has lost more than 90% of its original wetland habitat. Accordingly, several species of marsh birds are protected within the state. For projects that contain or that are directly adjacent to  $\geq 3$  hectares of contiguous wetland, marsh bird surveys should be conducted. Playback surveys should be used to assess the presence of least bittern, sora, Virginia rail, king rail, and American bittern. Surveys are to be conducted weekly 20 May – 15 June. Points should be spaced >400 meters apart in appropriate habitat. Each survey should be conducted during a 2-hour period centered on either sunrise or sunset. Thirty seconds of territorial calls should be broadcast through either a portable radio or megaphone, followed by 30 seconds of listening, for each species. Playback calls should have a minimum of background noise, and equipment must be able to broadcast so that the sound pressure is 80-90 dB at 1 m from the speaker. Due to interspecies competition, the sequence of the species calls should be played as they are listed above.

### 2.5. *Waterfowl surveys*

Ohio not only has a large migratory population of waterfowl, but is also provides important over-wintering habitat for numerous species. If the site includes wetlands, rivers, ponds, or lakes, static or driving surveys of the waterfowl community should be conducted weekly, from 1 September – 1 April. The number of points will vary with the size and configuration of the water body. Consult with the ODNR, Division of Wildlife for possible locations or tracts.

### 2.6. *Shorebird migration*

The Lake Erie basin provides important stop-over habitat for migratory shorebirds. Twice monthly point-counts (1 March – 30 June, and 1 July – 30 November) should be conducted in appropriate habitat such as beaches, flooded fields and mudflats. A minimum of 10 minutes should be spent at each point; additional time may be spent to accurately assess the number and species composition of the flock. The number of points will vary with the habitat surveyed and the size of the site. Consultation with ODNR Division of Wildlife is suggested.

### 2.7. *Bat mist-netting*

The range of the federal and state endangered Indiana myotis (*Myotis sodalis*) is considered statewide within Ohio. This species is known to occur in a variety of habitats including stream and river corridors, forest canopy, edges, and old fields. Mist-net surveys should be conducted in accordance with U.S. Fish & Wildlife Service guidelines<sup>5</sup>, and by an individual approved to handle Indiana myotis (contact U.S. Fish & Wildlife Service for list). Prior to beginning mist-netting activities, project consultants must meet with Division of Wildlife and U.S. Fish & Wildlife Service staff on-site to review habitats within the project area. One netting station should be established per square kilometer of forest on site. In order to better assess the bat species community, each station should consist of a minimum of 3 net sets, with at least 1 a high net (triple high). Sites should be surveyed weekly from 15 June – 31 July. Mist-netting should occur during the 5 hours following sunset. Documentation photos should be taken for all species encountered on site. To identify within night recaptures, a small (i.e., ~ 5 mm) mark of non-toxic water-soluble paint should be applied to one forearm. Due to concerns over White Nose Syndrome (WNS), equipment such as capture bags, or gloves previously used in areas where WNS is known to occur should not be used. Metal equipment such as wing-cord gauges should be sterilized.

If Indiana myotis, Rafinesque's big-eared bat, or eastern small-footed myotis are encountered during mist-netting surveys, additional information is required. Each

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<sup>5</sup> <http://www.fws.gov/northeast/nyfo/es/2007Mistnetting.pdf>

individual captured should have voucher photographs taken of the head, body, and species-specific identifiable features, such as the calcar, foot, or mask. Radio telemetry should be conducted on up to 4 Indiana myotis (3-4 females, no more than 1 male) and all Rafinesque's big-eared bats or small-footed myotis. Home range (nightly locations taken every 5 minutes, for the life of the transmitter), roost trees, and maternity colonies should all be identified. Photos, GPS location, tree species, dbh, site characteristics, and exit counts should be collected at each roost. If high densities (>15 of 1 species) of lactating females of more common species (e.g., big brown bat, little brown, or northern myotis) are captured within a night's trapping, 2 transmitters should be used to identify the location of the maternity colony. Maternity colonies represent an area of increased activity and thus greater risk if turbines were located in proximity to nightly travel routes. Additionally, Indiana myotis are known to occasionally share roosts with the more common little brown myotis. Banding (following US Fish & Wildlife Service protocol<sup>4</sup>) should be done on Indiana myotis and Rafinesque's big-eared bat, but not eastern small-footed myotis due to entrapment concerns associated with its over-wintering habitat. Bands will be provided by ODNR, Division of Wildlife.

Finally, any possible hibernacula sites on or within 5 miles of the proposed site should be trapped during spring emergence and fall swarming to determine potential use. Monitoring should follow the current U.S. Fish & Wildlife Service protocol<sup>6</sup>. Surveys are to be conducted twice weekly from 15 March – 15 April, and 15 September – 15 November. Nightly captures should be marked similar to those captured during mist-netting. Internal surveys are not permitted due to safety concerns, difficulty in determining species absence, and increased risk of transmitting WNS.

### 3. Extensive

#### 3.1. Radar monitoring

Marine radar should be used to monitor nightly passage rates, 5 nights a week from 15 April - 15 May, and 15 August - 31 October. Surveys should begin at sunset and continue until sunrise. Information on estimated numbers/density, direction, hourly changes in activity and altitudes should be included. Hourly weather data should also be recorded in order to correlate passage rates with climatic factors. Due to reduced detectability, monitoring should not be conducted on nights of heavy rain or fog.

### Interpretation of pre-construction survey results

Upon completion of surveys, a summary report of all findings should be presented to the ODNR, Division of Wildlife. Construction should not commence prior to review of these

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<sup>6</sup> <http://www.fws.gov/Midwest/endangered/mammals/inba/DrftSrvyPrctl.html>

data and findings by ODNR (and U.S. Fish & Wildlife Service for federal listed species). A pre-construction meeting to review monitoring results and discuss potential concerns with respect to turbine locations and wildlife resources will be scheduled with ODNR, the developer, and their consultants before construction of the facility begins and before official agency comments are provided for any permits pending. Based on survey results, the ODNR/U.S. Fish & Wildlife Service may recommend 1 or several of the following:

- a) The project be constructed without altering the initial design.
- b) Changes regarding the number or micro-siting of turbines, auxiliary structures, and/or access roads.
- c) Additional surveying based upon initial survey results.
- d) The project not be constructed due to significant environmental concerns.

### **Facility design**

Several measures are thought to decrease the likelihood of wildlife strikes at wind turbine facilities. Accordingly, these measures should be incorporated into the design of all turbine facilities within Ohio.

#### *Lighting*

Passerines use celestial cues to aid in navigation during migration. Lights are known to disorient nocturnally migrating passerines; this may directly increase the mortality risk from collisions, or indirectly through exhaustion. Therefore the numbers of lights on a site should be minimized. Turbines and meteorological towers should have the fewest number of lights permitted by the Federal Aviation Administration (FAA). Preferably these will be white lights with the minimum intensity, and number of flashes per minute (longest strobe) allowable by the FAA. Lights around substations or auxiliary structures should be down-shielded or turned off when not in use.

#### *Minimization of perches*

New commercial wind turbine facilities have decreased the use of guyed lattice-work towers which were thought to contribute to the large numbers of raptor fatalities at sites such as Altamont, California. However, effort should still be made to reduce the number of perches available at a site. When possible all electrical cables connecting turbines to each other or to the substation should be buried.

### **Post-construction monitoring (all sites)**

#### *Birds and Bats*

## DRAFT

One initial year (1 April – 15 November) of daily mortality searches will be required at each site. Depending on the results of the first year, ODNR and U.S. Fish & Wildlife Service will determine if a partial (focused on time periods when higher numbers of fatalities were detected), full, or no post-construction monitoring should be conducted during the second year.

The number of turbines searched will depend on the number of turbines at the facility.

- ≤10: all searched.
- 11-40: 1/2 searched, minimum of 10.
- >40: 1/4 searched, minimum of 20.
- All meteorological towers.

Turbines to be searched will be randomly selected but may include specific turbines in areas of concern if so noted by the ODNR, Division of Wildlife based on pre-construction monitoring results.

#### *Transect area and design*

At each searched turbine, north-south oriented transects should be established every 5 meters. The length of these transects, and the perpendicular distance that transects should extend from the turbine base should be equal to twice the blade length of the turbine being searched. Transects should not venture into hazardous areas, such as steep slopes or high water. Vegetation mapping should be done for each of the searched turbines 3 times a year (spring, summer, and fall), owing to how vegetation influences carcass detectability. Mapping will consist of recording the GPS location, vegetation height and percent cover (1 meter transect) every 5 meters for each transect. Additional points should be taken at abrupt transition zones such as the edge of a road. An estimate of searchable area also should be provided for each searched turbine.

#### **Corrective measures**

In order to compensate for carcasses that are scavenged or those missed by observers, searcher efficiency and scavenging rates should be determined for each site using the procedure described below. These corrective measures should be calculated for each year of post-construction monitoring.

#### *Searcher efficiency*

Search efficiency trials consist of placing test carcasses at locations chosen at random to assess an individual's ability to detect turbine mortalities. These surveys should be conducted by the project manager (appointed by group coordinating mortality searches, and not someone actively involved in the searches), and carcasses should be placed unbeknownst to the searchers.

## DRAFT

Individual trials should be conducted randomly at least 200 times each year (1 trial = 1 carcass). Carcasses may be used for multiple trials throughout the season. Each carcass should be placed at a turbine, with distance (within the searched area) and direction selected at random. Each carcass should be discreetly marked to identify it as a trial individual. Carcasses must be similar to those expected to be encountered during the search and should vary in both species composition and stage of decomposition. After a searcher has finished his or her survey, the project manager should attempt to recover any missed carcasses to ascertain whether they were scavenged prior to the beginning of the search.

*Scavenging rate*

In an effort to assess how quickly carcasses are removed from the site by scavengers, a minimum of 50 carcasses per year should be placed at random distances and directions. Several carcasses should be placed each month, since rates are likely to change throughout the year. These carcasses should be checked daily for the first week, then every 2 days until the carcass is removed or completely decomposed. Preferably, carcasses used for scavenging rate estimation will be those collected from the site, and not surrogate species such as pigeons, starlings, or house sparrows since these have been found to be scavenged less frequently. Characteristics that should be recorded for each placed carcass include: the GPS location, vegetation height, percent cover, distance/direction from turbine, and species.

*Turbine searches*

Each day searches should begin approximately at first light; this reduces the number of carcasses removed by diurnal scavengers and increases the likelihood of recovering live individuals. The appropriate number of surveyors should be hired to completely search the allotted turbines by 1:00 p.m. The initial start and stop time should be recorded for each survey. Searchers should walk slowly, scanning ~ 2.5 meters on either side of the transect. When a bird or bat is encountered, the distance when the observer first detected it should be recorded. The searcher should then assess whether the individual is alive or dead. If the individual is alive, efforts should be made to release or take the animal to a licensed rehabilitator<sup>7</sup>. If successful rehabilitation is not likely, then the individual should be humanely euthanized through cervical dislocation. For each individual (regardless of dead or alive), the site should be flagged, and returned to after the turbine search has been completed. Once relocated, a photograph should be taken of the carcass before it is moved. The carcass should be collected in individual re-sealable plastic bags, and the carcass identification number written in pencil on a piece of write-in-the-rain paper should be enclosed with the carcass. All

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<sup>7</sup> Contact the Ohio Division of Wildlife District office nearest to the site



information on the “Fatality Reporting Form” should be recorded. Mortalities encountered outside the bounds of an official search should be collected, and have the same information collected, but “Incidental” should be written into the notes area. These will not be used in the calculation of site mortality rates, but may (depending on species) be used in searcher efficiency or carcass removal trials. Bats within the *Myotis* family are difficult to differentiate, and should not be used for scavenging rate or searcher efficiency trials. These carcasses should be frozen and given to the ODNR Division of Wildlife at a prearranged date. If a state or federal threatened or endangered species is located, the ODNR Division of Wildlife and U.S. Fish & Wildlife Service must be contacted within 48 hours. At that time arrangements will be made for turning over the carcass to the appropriate agency. If a larger than expected mortality event occurs, ODNR, Division of Wildlife and the U.S. Fish & Wildlife Service will be notified within 24 hours. For our purposes a mortality event will be defined as >5 birds/bats at an individual turbine, or >20 birds and/or bats across the entire facility.

### *Mitigation measures*

If fatality estimates for the site during the first year of post-construction monitoring exceeds 5 individuals/turbine/year (twice the current national average), mitigation measures should be enacted to reduce the number of fatalities. These measures include but are not limited to those listed within the National Wind Coordinating Collaborative’s Mitigation toolbox<sup>8</sup>. If seasonal feathering is used for mitigating impacts, it will be limited to nights of higher risk (established through an examination of the first year’s monitoring), and will not exceed 400 hours/per year, most likely occurring on nights with low wind speeds (<4 m/s). The second year of post-construction searches will be used to assess the effectiveness of mitigation measures on the site. If mitigation measures decrease the number of fatalities to acceptable levels (determined by ODNR), the use of these measures should continue for the life of the facility.

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<sup>8</sup> [http://www.nationalwind.org/publications/wildlife/Mitigation\\_Toolbox.pdf](http://www.nationalwind.org/publications/wildlife/Mitigation_Toolbox.pdf)

**UNITED STATES DEPARTMENT OF THE INTERIOR**  
**WIND TURBINE GUIDELINES ADVISORY COMMITTEE**  
**CHARTER**

1. **Official Designation:** Wind Turbine Guidelines Advisory Committee
2. **Scope and Objective:** The Committee will provide advice and recommendations to the Secretary of the Interior (Secretary) on developing effective measures to avoid or minimize impacts to wildlife and their habitats related to land-based wind energy facilities.
3. **Duration:** The Committee will exist from the date of the charter until its purpose is achieved or this charter is revoked or not renewed. We expect that the Committee will last for 2 years.
4. **Official to Whom the Committee Reports:** The Committee reports to the Secretary through the Director, U.S. Fish and Wildlife Service (Service).
5. **Bureau Responsible for Providing Necessary Support:** The Service will provide support services for activities of the Committee.
6. **Estimated Operating Costs:** Estimated operating cost for the Committee is \$210,000 per year for all direct and indirect expenses, including independent facilitation, staff support, meeting expenses, and work products. It is expected that one FTE will be required to support the Committee.
7. **Description of Duties:** The Committee will provide advice and recommendations to the Secretary of the Interior on:
  - a. the Service interim guidelines on how to avoid and minimize wildlife impacts from land-based wind energy facilities;
  - b. balancing potential impacts to wildlife with the cost of acquiring the information necessary to assess those impacts prior to selecting sites and designing facilities;
  - c. the scientific tools and procedures best able to assess pre-development risk or benefits provided to wildlife, measure post-development mortality, assess behavioral modification, and provide compensatory mitigation for unavoidable impacts; and,
  - d. a process for coordinating State, tribal, local, and national review and evaluation of the impacts to wildlife from wind energy facilities to standardize approaches and requirements, and achieve compliance with State and Federal laws and international treaties.
8. **Allowances:** All Committee members serve without compensation. Travel costs will be provided for Committee members who are special Government employees.

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9. **Estimated Number and Frequency of Meetings:** It is estimated that the Committee will meet four times per year, and at such other times as determined by the Designated Federal Officer.

10. **Termination Date:** The Committee is subject to the provisions of the Federal Advisory Committee Act (FACA), 5 U.S.C. Appendix 2, and will take no action unless the charter filing is in compliance with the requirements of Section 9 of FACA. The Committee is subject to biennial renewal and will terminate 2 years from the date this charter is filed, unless, prior to that time, this charter is renewed in accordance with Section 14 of FACA.

11. **Committee Membership:** The Committee will not exceed 22 members, appointed by the Secretary to achieve balanced representation of wind energy development, wildlife conservation, and government. The members will include representatives from the U.S. Fish and Wildlife Service and other Federal agencies, as well as representatives from other interested parties, including, but not limited to, States, tribes, wind energy development organizations, nongovernmental conservation organizations, and local regulatory/licensing commissions. The committee will include one or more experts on wind energy/wildlife interactions as special Government employees to provide technical advice. Alternate members may be selected and appointed by the Secretary. Alternates will attend meetings as a member of the Committee only in the absence of the primary member.

The term of office for appointed members and alternates will be 2 years. The Secretary may remove Committee members and alternates at his discretion.

12. **Designated Federal Officer:** The Designated Federal Officer is the Chief, Division of Habitat and Resource Conservation, 4401 N. Fairfax Drive, Suite 400, Arlington, Virginia 22203.

13. **Ethics Responsibilities of Members:** No Committee or subcommittee member may participate in any specific party matter, including a lease, license, permit, contract, claim, agreement, or related litigation, with the Department in which the member has a direct financial interest. In addition, the Department of the Interior will provide materials to those members appointed as special Government employees, explaining their ethical obligations with which the members should be familiar. Consistent with the ethics requirements, members will endeavor to avoid any actions that would cause the public to question the integrity of the Committee's operations, activities, or advice. The provisions of this paragraph do not affect any other statutory or regulatory ethical obligations to which a member may be subject.

14. **Subgroups:** The Committee may establish such workgroups and subcommittees as it and the Designated Federal Officer deem necessary for the purposes of compiling information or conducting research. Such subgroups may not be created, compile information, or conduct research without the direction of the Committee as a whole and must report to the full

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Committee.

15. **Authority:** The Committee is created in furtherance of 16 U.S.C. 703-712, Migratory Bird Treaty Act; 16 U.S.C. 668-668-d, Bald and Golden Eagle Protection Act; 16 U.S.C. 1531-1544, Endangered Species Act; and 42 U.S.C. 4371 et seq., National Environmental Policy Act.

  
Secretary of the Interior

OCT 24 2007

Date Signed \_\_\_\_\_

OCT 26 2007

Date Filed \_\_\_\_\_

As of 5/22/08

*U.S. Fish and Wildlife Service*  
**WIND TURBINE GUIDELINES ADVISORY COMMITTEE**

**Subcommittees and Membership**

**Scientific Tools & Procedures Subcommittee**

<b>Members:</b>	Taber Allison	<b>Technical Experts:</b>	Doug Johnson
	Ed Arnett		Dale Strickland
	René Braud		
	Robert Robel		
	Rachel London (FWS)		

**Existing Guidelines Subcommittee**

**Members:** Ed Arnett  
Mike Azeka  
Kathy Boydston  
Aimee Delach  
Jim Eisen  
Greg Hueckel  
Jeri Lawrence  
Andrew Linehan  
Keith Sexson  
Mark Sinclair  
George Allen (FWS)

**Risk & Uncertainty Subcommittee**

**Members:** Taber Allison  
Scott Darling  
Aimee Delach  
Caroline Kennedy  
Steve Lindenberg  
Winifred Perkins  
Mark Sinclair  
Patrick Traylor

**Landscape/Habitat Subcommittee**

<b>Members:</b>	Ed Arnett	<b>Technical Experts:</b>	Caitlin Coberly
	René Braud		
	Scott Darling		
	Mike Daulton		
	Aimee Delach		
	Rob Manes		

As of 5/22/08

Rich Rayhill  
Robert Robel  
Keith Sexson  
Michael Green (FWS)  
Jo Ann Mills (FWS)

**Legal Subcommittee**

**Members:** Mike Daulton  
Jim Eisen  
Jeri Lawrence  
Rob Manes  
Mark Sinclair  
Steve Quarles  
Patrick Traylor

**Guiding Principles Subcommittee** *will Adjourn for the time being, a decision whether to resume the Subcommittee will be made at the end of June.*

**Members:** Taber Allison  
Caroline Kennedy  
Jeri Lawrence  
Rob Manes  
Winifred Perkins  
Mark Sinclair  
David Stout

**FISH & WILDLIFE SERVICE WIND TURBINE GUIDELINES ADVISORY COMMITTEE  
NEXT STEPS FROM APRIL 23-24 COMMITTEE MEETING**

**HIGHLIGHTS/OVERALL NEXT STEPS FOR THE COMMITTEE:**

- **FAC meet June 18 in Denver, Colorado** to refine FAC objectives.
- FAC simultaneously, continue with Subcommittee work as outlined below, and after June workshop review Subcommittee activities.
- Block out the following dates for subsequent **FAC Committee meetings**:
  1. **July 23-24, 2008 (Washington DC)**
  2. **October 21-23, 2008 (location TBD)**, and
  3. **January 27-29, 2009 (location TBD)**.
- FAC Members are encouraged to submit in writing to [Rachel.London@fws.gov](mailto:Rachel.London@fws.gov) and [Cheryl.Amrani@fws.gov](mailto:Cheryl.Amrani@fws.gov) and [aarnold@resolv.org](mailto:aarnold@resolv.org) by Friday, May 9 concerns about draft premises or principles discussed at April 23-24 meeting.
- The Principles Subcommittee will pause its work until after the June 18 FAC workshop.
- FAC members are encouraged to review assessments of wind impact on wildlife (e.g. NAS study, Wildlife Society Technical Report) for a refresher on what is known about wind/wildlife interaction, and what recommendations were made.
- FAC Facilitator will begin to draft a Table of contents (draft strawman) for the FAC members to review and edit throughout the committee deliberations.

**NEXT STEPS FOR SUBCOMMITTEES: [SEE ATTACHED FOR MEMBERS]**

New Subcommittee. Review of Scientific Tools and Procedures:

- Review FAC Committee Charter I.c. (Scientific Tools and Procedures) a proposed approach to develop recommendations/and or/product(s) that would be incorporated into the FAC recommendations.

Legal Subcommittee:

- Subcommittee will develop a memo and summary table on the spectrum of management options available to minimize direct or indirect impact of wind development on wildlife under existing law and regulation, and will explore what options are available, but would require changes to current law or regulation. The Subcommittee was asked to address inclusion of a 'no surprises' or 'safe harbor' reward for those who comply with whatever guidelines are developed.

Uncertainty/Other models:

- Identify management programs or other models (that address natural or other environmental issues) that address uncertainty and how decisions are made in the context of uncertainty. (If there is uncertainty about the impact of an activity, what models are available?)
- After June 18 workshop, address how Subcommittee wants to address uncertainty, risk management concerns/issues; including development of language that reflects interest of committee to protect wildlife (as defined in principles) while ensuring that wind development proceeds.

- Review potential applicability of a revised Avian Protection Plan (from APLIC) approach to managing wind/wildlife.

Existing Guidelines:

- The Subcommittee wants to begin to develop a draft set of recommendations for a national framework. The first step is to develop a scope of work for review by the FAC presenting how the Subcommittee proposes to develop the draft national framework. Upon review of FAC comments the Subcommittee will try to develop an outline for what factors ought to be considered in a national framework. The outline will include the “best of” all factors that have been proposed or adopted by states, Canada and the US in their guidelines. (E.g. effectiveness in minimizing direct or indirect impact, cost, timeliness of process, etc).
  - The work plan will include a suggested approach for:
    - a) How to solicit expert input in specifying the best guidelines in each category examined (e.g. mitigation, post-construction assessment), and
    - b) Assess the pros and cons of these examples, with an eye toward what provisions could be useful in federal guidelines. (including a survey of states).
  - The Subcommittee was asked to address how the guidelines will be applied to states and tribal land, as well as address specific issues such as retrofitting, repowering and commissioning, site restoration; and how the guidelines address uncertainty and scientific questions or needed research.
  - The FAC acknowledged this Subcommittee may need additional technical expertise; the work plan will propose how to engage additional expertise.

Landscape Mapping/Habitat:

In light of the interest in addressing habitat and habitat fragmentation, the Subcommittee will try to make progress on the following:

- Inventory various landscape mapping and analysis tools and other techniques and the methods and parameters by which these tools characterize the status of habitats.
- Evaluate:
  - The accuracy and objectivity of the tools, including their ability to incorporate and characterize individual species’ landscape habitat needs, ecologically important landscapes, and cumulative impacts; and
  - The user-friendliness and cost-effectiveness of the tools.
  - Produce a statement of needs for development of landscape mapping and analysis tools.
  - Based on the subcommittee’s findings, develop appropriate recommendations to the full FAC on how to use the maps and tools. (e.g., standards or processes for acquiring and applying maps and other information and tools, evaluation of mitigation tools for habitat impacts), and address varying degrees of scientific rigor in application recommendations.



**FWS/FACILITATOR NEXT STEPS:**

- Be in contact with FAC members not at the April 23-24 meeting and determine by in to Groundrules adopted by FAC at April meeting. [see attached]
- Distribute copy of Ohio's draft guidelines to the Committee.
- Plan for proposed wind development site visit and consult with FAC members about the visit (reach out to industry).
- Plan for June 18 workshop on Objectives in Denver, CO.
- Write meeting summary and next steps memo and distribute to FAC for review.
- Update FAC FWS web site with new materials, presentations from April 23-24 FAC meeting.
- Schedule and plan for Subcommittee calls.
- Facilitator, create "Table of Contents" summary of tasks and products proposed for the Committee and each of the subcommittees to preserve ideas while continuing strategic prioritization of tasks, including, but not limited to[[background, FAC Charter, FAC Objectives; assessment of technical or scientific principles, state of art research and mitigation technologies, available literature, areas of wide agreement between sectors, areas of controversy, proposed national approach; and discussion of how to address cumulative effects].

**MICHAEL FRY, AMERICAN BIRD CONSERVANCY**  
REMARKS DURING PERIOD OF PUBLIC COMMENT  
WIND TURBINE GUIDELINES ADVISORY COMMITTEE MEETING - APRIL 24, 2008

QUESTIONS AND OBSERVATIONS:

- 1) It is clear that the MBTA will not be an enforcement tool for wind, and judging from the placement of wind projects in highly sensitive bird areas the developers know it. This Committee had best proceed under the assumption that the MBTA does not exist. Without an enforcement tool, it must be realized that to be effective, any guidelines developed must be mandatory.
- 2) Precautionary Principle. Do not develop a project if there is substantial potential for harm. Given that: Initial guidelines for protection should be overly strict to protect sensitive areas. Buffers may be too wide, red areas on maps too many or too large, etc. Realize now is just the beginning of the major expansion of wind. Develop the least sensitive sites first. Prove the safety of projects with good post construction monitoring studies. Then, relax protections based on good data. With President's goal of 275,000 new turbines, there will be many many future sites developed. (Don't develop the most sensitive sites first)
- 3) To get federal requirements for doing studies of listed species a federal nexus is needed. Transmission is that nexus. There should be a subcommittee to creatively evaluate ways to use that nexus to strengthen guidelines.
- 4) Existing guideline subcommittee: (was particularly impressed by) Great work (done by this committee), but an additional need is to evaluate current guidelines data, and critically determine what additional or alternative components are needed. There may be many parts of existing guidelines that are off point or overly burdensome. These need to be trimmed.

**MICHAEL FRY, AMERICAN BIRD CONSERVANCY**  
REMARKS DURING PERIOD OF PUBLIC COMMENT  
WIND TURBINE GUIDELINES ADVISORY COMMITTEE MEETING - APRIL 24, 2008

- 5) Existing **mitigation** guidelines are very thin (in existing guidelines). They are in the same state as the BMPs; they are being developed now, but there is very little good data as to the practicality of most proposed mitigation techniques, such as adjusting rotor height to avoid resident raptors, utility of end-of-string pylons (to keep birds away from rotor), rotor placement on lee-side of hills, ultrasound loudspeakers to deter bats, etc. There should be a subcommittee to catalog and evaluate new mitigation techniques (and what data exists to validate them)
  
- 6) Mike Azeka observed that there are few sites available for building wind projects that are near transmission lines. The lack of sites is apparently one reason industry does not want restrictions on sites by marking red areas on maps. US transmission planning still does not include wind as a priority for expansion. Given this, how will industry build the additional 275,000 turbines needed to reach the goal of 350 GW? Transmission grid will constrain wind development. Will the Committee (as a siting committee) have an opinion on where it thinks transmission should go?