ANPR
eagle rule

August 22, 2012

The Honorable Ken Salazar
Secretary, United States Department of the Interior
1849 C Street NW
Washington, DC 20240

Dear Secretary Salazar:

Thank you for your efforts and commitment to meeting our nation's renewable energy and conservation goals. Each of our organizations is deeply committed to responsibly sited renewable energy development opportunities that avoid and minimize the impacts on wildlife and their habitats. We write to suggest a path forward for needed fundamental improvements to the bald and golden eagle permit process by the United States Fish and Wildlife Service (Service). Recently, many of the undersigned submitted separate comments responding to the Service's notices proposing changes to the existing eagle permit regulations. We strongly believe that by working together and with the Service, we could find workable solutions to improve the permitting process and conservation of bald and golden eagles.

The conservation community, the wind industry, states, federally recognized Indian tribes and federal agencies have a long history of working with the Department of the Interior (Department) to develop workable policy recommendations for the responsible siting of wind energy projects. For example, the Wind Turbine Guidelines Federal Advisory Committee brought together scientists, industry, conservationists, federally recognized tribes and representatives from states, to provide recommendations to the Service, which were substantially adopted to help wind energy project developers avoid and minimize the impacts of land-based wind projects on wildlife and their habitats.

In that spirit, we urge the Service to supplement the current notice-and-comment proceedings through continued and collaborative interaction with key stakeholders with the express purpose of examining the issues identified in the two notices regarding eagle permits and the draft eagle conservation plan guidance. There are several potential processes ranging from a negotiated rulemaking, advisory committee, or policy dialogue to less formal interactive technical workshops, a technical conference, an agency task force, and/or a scientific panel. The important denominator is that the process includes a variety of experts on eagles, the permitting process, the regulatory process and energy development. Such a process could explore, for example: additional science and data on assessing eagle populations; further mitigation options; advanced conservation practices; short- and long-term resource needs and administrative priorities; implementation of effective risk criteria; how eagle information gaps should be addressed and how responsibly sited wind farms are allowed to move forward in the interim while this process is on-going; other causes of eagle mortality in addition to wind energy; and generally how to create more certainty for both the species and the wind industry under a regulatory process for eagle permits.

We appreciate this opportunity to share our thoughts with you and look forward to working with you to ensure the best possible outcome for the conservation of the iconic bald and golden eagles and the further development of needed renewable energy. While we understand that the Service will need time to analyze the comments submitted and to evaluate the appropriate next steps, the undersigned will continue to collaborate and discuss these issues. We sincerely hope that the Service will work with us, and other interested parties who are seeking reasonable solutions, to develop a

workable, comprehensive and transparent approach to eagle conservation that we will collectively be able to support.

Thank you for considering our request. We look forward to your reply.

Sincerely,

Jamie Clark
President and CEO
Defenders of Wildlife

David Yarnold
President and CEO
National Audubon Society

Frances Beinecke
President
Natural Resources Defense Council

Jonathan W. Gassett, Ph.D.
President, Association of Fish and Wildlife Agencies and Commissioner, Kentucky Department of Fish and Wildlife Resources

Larry Schweiger
President and CEO
National Wildlife Federation

Jamie Williams
President
The Wilderness Society

Robert Bendick
Director, U.S. Government Relations
The Nature Conservancy

Michael Brune
Executive Director
Sierra Club

Denise Bode
Chief Executive Officer
American Wind Energy Association

Jeff Clark
Executive Director
The Wind Coalition (TWC)

Carol Murphy
Executive Director
Alliance for Clean Energy New York (ACE NY)

Sarah Propst
Executive Director
Interwest Energy Alliance

Francis Pullaro
Executive Director
RENEW New England

Nancy Rader
Executive Director
California Wind Energy Association (CalWEA)

Rachel Shimshak
Executive Director
Renewable Northwest Project (RNP)

Beth Soholt
Executive Director
Wind on the Wires (WOW)

CC: Daniel Ashe, Director, US Fish and Wildlife Service
David Hayes, Deputy Secretary, US Department of the Interior
Steve Black, Counselor to the Secretary of the Interior

National Headquarters
1130 17th Street, N.W.
Washington, D.C. 20036-4604

The Honorable Steve Black
Counselor to the Secretary of the Interior
1849 C Street NW
Washington, DC 20240

Black, Steve <steve_black@ios.doi.gov>

Re: eagle mtg invitation

1 message

Cottingham, David <david_cottingham@fws.gov> Tue, Jan 29, 2013 at 9:51 AM
To: "Klein, Elizabeth" <elizabeth_klein@ios.doi.gov>
Cc: Betsy Hildebrandt <betsy_hildebrandt@fws.gov>, Steve Black <steve_black@ios.doi.gov>, Gareth Rees <gareth_rees@ios.doi.gov>

looks good to me.

one correction on emails -- Michael Brune's and Barbara Boyle's should be @sierraclub.org.

DC

On Tue, Jan 29, 2013 at 9:36 AM, Klein, Elizabeth <elizabeth_klein@ios.doi.gov> wrote:

> Ok, sounds like we have consensus around 2/11 at 4pm for the eagle mtg. Gareth - please go ahead and hold that time and reserve 5160. Below is a revised draft invite to go from David to the attached list. David C/Betsy/Steve - please let me know if this looks ok.
>
> Thanks
>
> Invitation to Group of 16 on eagles – DRAFT 2
>
> As you know, over the course of the past year, the U.S. Fish & Wildlife Service has been engaged in an extensive and productive effort to improve implementation of the Bald & Golden Eagle Protection Act (BGEPA), including undertaking a full review of the current BGEPA regulations and developing guidance to help FWS staff, industry, and stakeholders better understand potential paths forward to obtaining a BGEPA permit.
>
> I want to thank each of you for your ongoing interest in this process. Following your joint letter in August to Secretary Salazar, I know that many of you have provided constructive input to FWS and have expressed an interest in continued dialogue on these issues. To that end, I would like to invite you to a meeting that I will host on Monday, February 11, 2013 from 4:00pm-5:00pm to discuss how we can continue to work productively together on these issues. The meeting will be held at the Department of Interior, 1849 C Street NW, Washington DC, in Room 5160. Please respond to Gareth Rees at Gareth_Rees@ios.doi.gov or 202-208-6291 if you are able to attend.
>
> Thank you, and I look forward to seeing you on the 11th.
>
> --
> Elizabeth Klein
> Associate Deputy Secretary
> Department of the Interior
> 1849 C Street NW
> Washington, D.C. 20240
> ph: 202-513-0561

--

David Cottingham
Senior Advisor to the Director
US Fish and Wildlife Service
Room 3341 Main Interior
Washington DC 20240

Office: 202-208-4331
Cell: 202-372-7578

Black, Steve <steve_black@ios.doi.gov>

Re: eagle mtg invitation

1 message

Hildebrandt, Betsy <betsy_hildebrandt@fws.gov> Tue, Jan 29, 2013 at 9:37 AM
To: "Klein, Elizabeth" <elizabeth_klein@ios.doi.gov>
Cc: David Cottingham <david_cottingham@fws.gov>, Steve Black <steve_black@ios.doi.gov>, Gareth Rees <gareth_rees@ios.doi.gov>

Thanks Liz. Looks good by me.

On Tue, Jan 29, 2013 at 9:36 AM, Klein, Elizabeth <elizabeth_klein@ios.doi.gov> wrote:

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> Department of the Interior
> 1849 C Street NW
> Washington, D.C. 20240
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eagle mtg invitation

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--
Elizabeth Klein
Associate Deputy Secretary
Department of the Interior
1849 C Street NW
Washington, D.C. 20240
ph: 202-513-0561

G 16 contacts eagle mtg Feb 2013 (3).xlsx
11K

ORGANIZATION	CEO/SIGNATORY	CEO email -- need to check. Constructed from formula of staff
Defenders of Wildlife	Jamie Clark	Jclark@defenders.org
National Audubon Society	David Yarnold	dyarnold@audubon.org
NRDC	Frances Beinecke	fbeinecke@nrdc.org
AFWA	Jon Gassett	jon.gassett@ky.gov
National Wildlife Federation	Larry Schweiger	Schweiger@nwf.org
Wilderness Society	Jamie Williams	jamie_williams@tws.org
Nature Conservancy	Robert Bendick	rbendick@TNC.ORG
Sierra Club	Michael Brune	michael.brune@sierra.org
AWEA	Rob Gramlich	rgramlich@awea.org
The Wind Coalition	Jeff Clark	jeff@windcoalition.org
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Interwest Energy Alliance	Sarah Propst	propst@interwest.org
RENEW New England	Francis Pullaro	fpullaro@renew-ne.org
California Wind Energy Assoc	Nancy Rader	nrader@calwea.org
Renewable Northwest Project	Rachel Shimshak	rachel@rnp.org
Wind on the Wires	Beth Soholt	bsoholt@windonthewires.org

Lead contact	email
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Mike Dalton	mdaulton@audubon.org
Katie Umekubo	kumekubo@nrdc.org
Allison Vogt	AVogt@fishwildlife.org
Justin Allegro	allegroj@nwf.org
Chase Huntley	chase_huntley@tws.org
Christy Plumer	cplumer@TNC.ORG
Barbara Boyle	barbara.boyle@sierra.org
John Anderson	janderson@awea.org
TBD	
TBD	
TBD	
TBD	
TBD	
TBD	
TBD	

Black, Steve <steve_black@ios.doi.gov>

Draft Proposal

1 message

John Anderson <JAnderson@awea.org> Wed, Jan 30, 2013 at 6:51 PM
To: "Steve Black (steve_black@ios.doi.gov)" <steve_black@ios.doi.gov>

Steve,

Attached is the draft plan we discussed earlier today. I ask that you not share this any further. Copies have been provided to Julie Falkner at Defenders, Katie Umekubo at NRDC and Ginny Kreitler at Audubon and I believe has been circulated to the broader eNGO caucus through the three of them – although I don't know for certain who has copies. Please review and call me to discuss.

JA

John M. Anderson
Director of Siting Policy
American Wind Energy Association

janderson@awea.org email

1501 M St. NW, Suite 1000
Washington , DC 20005
www.awea.org

202-383-2516 direct
202.674.8569 cell

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Draft Eagle Plan 1-14-13.docx
29K

Draft Proposed Eagle Process Plan

January 14, 2013

As discussed over the past several months both the industry and conservation community (the "Parties") agree that the 2009 Permit Rule needs fundamental improvements in order to provide flexibility for individual projects to move forward and provide the certainty that both sides want, while continuing to protect eagles to the greatest extent practicable as intended by the Bald and Golden Eagle Protection Act ("BGEPA").

In order to achieve this goal the parties have created a bifurcated plan, in order to address both short and long-term processes. Details of the proposal are as follows:

1) Short-term strategy

   a) Low and Medium Risk Sites[1]: It is important to note that obtaining take coverage under BGEPA is a voluntary process, and not necessary in every instance as the potential for take may be so low as to not warrant authorization. However, for those projects falling within the low and medium risk categories for eagle take, project proponents will follow the current status quo of assessing risk and estimating take utilizing the Wind Energy Guidelines and Eagle Conservation Plan (v2 once available) and, if warranted, prepare an ECP-like document that sets forth the measures to be employed at the site level to avoid, minimize, mitigate and monitor for take.

      The mitigation plan will include an adaptive management component to address take levels higher than projected rates. Further, if take does occur in those instances where it was either not anticipated or fatality rates were higher than estimated, the facility owner/operator will work with the U.S. Fish and Wildlife Service (the "Service") to obtain the proper authorization once a function permit program is implemented and in place.

      Understanding there are fundamental flaws in the 2009 Eagle Permit Rule and that the wind industry and conservation community believe it is not fully implementable at present, during the interim, while the policy is being revised, the Service will commit to not requesting that companies pursue eagle take permits, so long as the above actions are followed and the companies proactively work with the Service to address site-specific eagle issues during the planning, construction and operational phases of a wind facility. In order to ensure that this occurs, the Service Director will send a memorandum out to all Regional and Field Offices explaining the interim process and instructing staff to not send out letters requesting that companies obtain a permit (until such time as they become available), as this can have a confounding and detrimental effect on project partnering, sale, and financing. Further, assuming the process laid out above is followed, in the event take should occur at those sites where it was either not expected or at higher than anticipated rates, the Service, Office of Law Enforcement and U.S. Department of Justice shall use this as evidence of due care and not pursue enforcement action against companies working in good faith to comply with BGEPA in this interim period.

   b) High Risk Sites: For those sites where the risk for eagle take is high, and that such take will occur on an on-going basis, and for those facilities that are currently taking eagles, the parties will (under 16 U.S.C. 668a[2]) work with the Service to develop a short-term national, programmatic research program. This research program (e.g. pilot program or other term of art that will signal

[1] Evaluating and establish risk levels to be determined.

[2] "Whenever, after investigation, the Secretary of the Interior shall determine that it is compatible with the preservation of the bald eagle or the golden eagle to permit the taking, possession, and transportation of specimens thereof for the scientific or exhibition purposes of public museums, scientific societies, and zoological parks…he may authorize the taking of such eagles pursuant to regulations which he is hereby authorized to prescribe…"

this is an interim solution, and not permanent) will be designed such that it will provide necessary information (e.g. population status, mitigation opportunities, fatality modeling) to be used to build a more effective and durable permit program to uphold the law and/or, allay concerns that the industry is being given a "free pass". It is suggested that this research program cover a set limit of both operating and proposed facilities, the study be scientifically designed by the parties, Service, and both private and public sector eagle experts, and that the program be coordinated by a University or zoological organization (e.g. San Diego Zoo). The program should cover the period during which the parties and the Service will be amending the 2009 Permit Rule, but not run for a period of more than 5 years (or as necessary to answer the theories being tested). As appropriate the project coordinator shall provide regular (e.g. annual) reports to the parties, with a full summary report to be prepared with the results of the study at the end of the study period. Once the research period is concluded, those participating facilities that are taking eagles on an on-going basis will be expected to work with the Service to obtain proper authorization available at that time.

While this research will occur at wind farms and help the parties and Service to better understand eagle and wind turbine interactions, which in turn will aid in making long term policy decisions regarding wind energy development, it is fully expected that this research will aid in ensuring the long-term preservation of eagles thereby meeting the goal of this provision of the Act. Specifically, as some population declines and shifts of golden eagles are largely connected to long-term, pervasive drought conditions throughout the western U.S., and these conditions are closely tied to global climate change, and the rapid deployment of wind energy is needed to reduce atmospheric carbon levels to arrest the advancement of climate change[3], it is critical to understand what creates the risks related to wind turbines and eagle interactions and how to reduce them so that this issue does not create a barrier for, or slow the deployment of, wind energy in the U.S. The research should cover both golden and bald eagles and be designed such that it examines interactions in different regions of the country and different topographic conditions.

Due to the unique nature of this issue and set of questions that need to be answered in order to reduce the risk for eagle fatalities at wind farms it is not expected that this research proposal will be replicated by other individuals or industries, thereby maintaining the sanctity of this provision of the Eagle Act.

2) Long-term strategy (e.g. 18-24 month timeframe)

This aspect of the overall plan entails the parties working collaboratively with each other and Service to revise or replace aspects of the 2009 Permit Rule through some, as yet undetermined, process informed by a "convening" where all stakeholders, including Interior/FWS, states, NGO's, industry, and other entities are consulted about their interests, concerns, and process suggestions (some examples of which could be a negotiated rule making, FAC, series of facilitated workshops, etc.). This process could be initiated by the FWS, or by an independent entity, like AWWI, or other organizations (universities, etc.) that invite the government parties to participate. There needs to be an open and transparent process, but also one where stakeholders can be candid with one another and free to talk about what will work on the ground.

It is the collective hope that through this process the stakeholders would be able to develop a better, more fully functional permitting program than what was created under the 2009 Rule. It is our further hope that through the process set forth above that in the interim projects will be allowed to move forward in a structured framework, different from the current permit process, and that the research program, designed to answer specific questions regarding such issues as eagle and wind turbine

[3] It is further noted that the deployment of wind energy will offsets and replace the use of traditional forms of energy production, such as coal, which are known to produce mercury and other airborne pollutants, currently found in high levels in eagles and other birds of prey, thereby benefitting the species and ensuring the long-term preservation.

interactions, and other necessary questions will both greatly inform the policy process and aid in the preservation of eagles on a national scale.

Weekly Report to the Secretary
Counselor to the Secretary
January 31, 2013

nonresponsive

(b) (5) [redacted]

[redacted]

AMERICAN BAR ASSOCIATION ENVIRONMENTAL LITIGATION COMMITTEE

On Saturday morning, I will make a presentation at the ABA's environmental litigation committee meeting. It should be a terrific opportunity to highlight Interior's record of success on energy under your leadership and to share our good story.

RENEWABLE ENERGY UPDATES

Meeting with FWS

On Tuesday, Janea and I met with Dan Ashe, Betsy Hildebrandt, David Cottingham, Ren Lohoefener, and Alex Pitts. Ren and Alex provided an update on the current status of the DRECP to Dan. We also discussed the need for a project manager to oversee the research that the FWS would like to see completed on eagles and brainstormed some ideas about how to identify this person in order to get started on the research. We'd be happy to provide you with some additional detail, if it is of interest.

Renewable Energy Priority & Active Projects

(b) (5) [redacted]

[redacted]

nonresponsive

nonresponsive

nonresponsive

Black, Steve <steve_black@ios.doi.gov>

Service eagle papers

1 message

Cottingham, David <david_cottingham@fws.gov> Fri, Feb 1, 2013 at 5:00 PM
To: Janea Scott <Janea_Scott@ios.doi.gov>, Steve Black <steve_black@ios.doi.gov>, Jerome Ford <jerome_ford@fws.gov>, Betsy Hildebrandt <betsy_hildebrandt@fws.gov>, "Mott, Sarah P" <Sarah_P_Mott@fws.gov>, David Cottingham <david_cottingham@fws.gov>, David Cottingham <david.cottingham@starpower.net>

Steve and all --

I'm attaching 2 versions of eagle briefing papers -- a short one dated Nov 23 and a longer version dated rev 2 Sept 28. We need to determine which one, if either, would be most appropriate to update and hand out at the meeting on FEb 11

Steve and Janea -- please let me know which you think is most appropriate and we'll start editing it.

thanks

have a good weekend.

dC

--
David Cottingham
Senior Advisor to the Director
US Fish and Wildlife Service
Room 3341 Main Interior
Washington DC 20240

Office: 202-208-4331
Cell: 202-372-7578

2 attachments

Eagle Briefing Document rev 2 Sept 28.docx
657K

Eagle Briefing Document - Nov 23.docx
427K

November 23, 2012

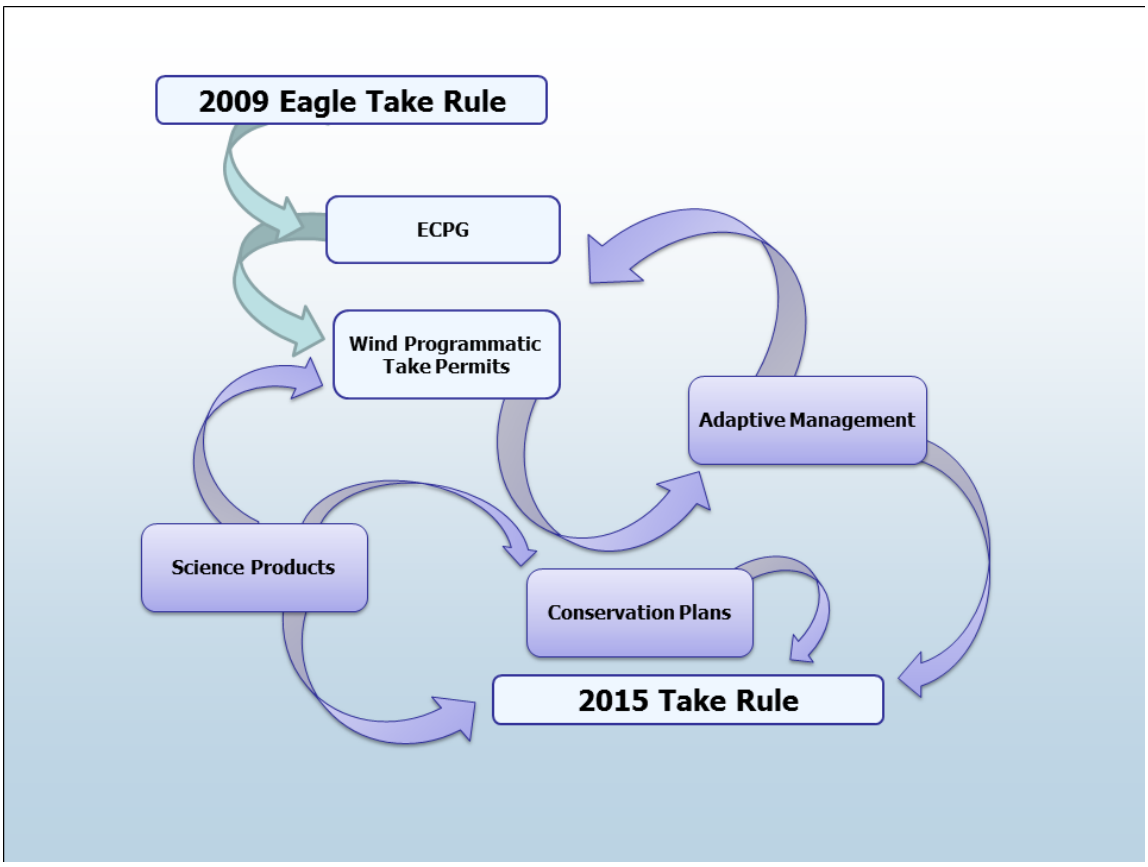
A Blueprint for Eagle Conservation and Wind Energy Development

Overview

The U.S. Fish and Wildlife Service (FWS or Service) supports the development of renewable energy resources as a means to reduce carbon emissions and their impacts on the landscape. Large scale renewable energy development, however, is not without challenge for the Service. In particular, the proliferation of industrial scale wind projects throughout the United States has required a focused effort to balance this much-needed energy resource with our trust responsibilities. The Service's mandate under the Bald and Golden Eagle Protection Act (BGEPA) is to ensure that the development of such resources is compatible with the preservation of bald and golden eagles. Because wind turbines can kill bald and golden eagles, the Service is working to better understand eagle populations, methods of avoidance and mitigation of eagle fatalities, and the overall population effects that wind turbines may be causing.

Strategy

The Service's strategy is to implement a defensible process for moving forward with eagle take permitting for wind facilities in a measured way now, and to learn from our experiences with these initial permits and the science products so that we can undertake an informed substantive rule revision and NEPA analysis in 2015. The concept relies on a structured, ordered architecture such that the pieces come together in sequence and support one-another.



Near-Term

In the near-term, the Service is working with the wind industry on methods to avoid, minimize and mitigate takes of eagles at specific project sites. In addition, the Service is assisting proponents in the development of eagle management plans and in their application for incidental take permits. All of this work is informed by the best available science.

- **Applying the Eagle Rule to Permits for Wind Facilities**. In 2009, the Service promulgated rules governing review and approval of permits that authorize take of bald and golden eagles when the take is associated with, but not the purpose of, an otherwise lawful activity, and cannot practicably be avoided. The regulations authorize permits for "programmatic" take, which can potentially include recurring multiple incidents. The Service established an Eagle Management Team (EMT) to address the challenge of burgeoning wind development to eagles. The EMT concluded that it was of conservation benefit to permit wind facilities for their take of eagles where the take meets the preservation standard of the Act and requirements in 50 CFR 22.26. The alternative was continued growth of wind development without an effective way to evaluate and authorize take resulting from operation of industrial-scale wind projects while the Service took several years to promulgate new rules.
- **Eagle Conservation Plan Guidance (ECPG)**. The ECPG outlines a process for data collection and analysis that could lead to the Service issuing a programmatic eagle take permit. The Service submitted a revised draft of ECPGv2 to the Department where it is currently in review. This draft incorporates significant changes to ECPGv1 in response to the public and peer-review comments. The ECPG includes a robust adaptive management framework so that the considerable uncertainty at many stages of the process can be reduced over time.
- **The Advanced Notice of Public Rulemaking and the "Tenure Rule."** When the Service promulgated the eagle rule in 2009, we received little comment from industries or environmental groups. After circulating the draft ECPG in 2011, the Service received extensive comments from the wind industry on the final rule itself, including comments regarding the preservation standard, permit term, and process for obtaining a permit. In April 2012, in response to these comments the Service took two actions: 1) we issued a proposed rule to extend the maximum tenure of programmatic permits under the Eagle Take Rule from 5 to 30 years, and 2) we published an Advanced Notice of Public Rulemaking (ANPR) announcing the intent to consider revising the Eagle Take Rule and soliciting responses to several key issues raised in the ECPG comments. The final revisions to the tenure rule will be ready to submit to OMB shortly. However, the Service is considering a request to postpone action on the tenure rule until it determines whether it will address permit tenure as part of the comprehensive review of the 2009 permit rule (see next point).
- **Discussions with industry and environmental organizations:** In August 2012, sixteen organizations (8 wind industry and 8 environmental organizations) wrote to Secretary Salazar requesting that the Service "…supplement the current notice-and-comment proceedings (on the tenure proposed rule and ANPR) through continued and collaborative interaction with key stakeholders with express purpose of examining the issues identified in the two notices regarding eagle permits and the draft eagle conservation plan guidance." The Service is working with representatives of these groups to explore potential processes and topics to address through a collaborative process.

- **DRECP:** The purpose of the Desert Renewable Energy Conservation Plan (DRECP) is to conserve covered species and their habitats while streamlining environmental review and permitting of renewable energy projects in the Mohave and Colorado deserts of California. The Service can authorize take of golden eagles in a habitat conservation plan (HCP) as long as the HCP meets BGEPA conservation standards. California also protects golden eagles as "fully protected species" under the California Department of Fish and Game (CDF&G) Code (Section 3511). The Service is working closely with CDF&G as well as other state and federal agencies to develop a process to authorize incidental take of eagles at renewable energy projects as part of DRECP and to collect eagle interaction information on new and existing renewable energy projects. The details of the eagle component of the DRECP are not yet completed.

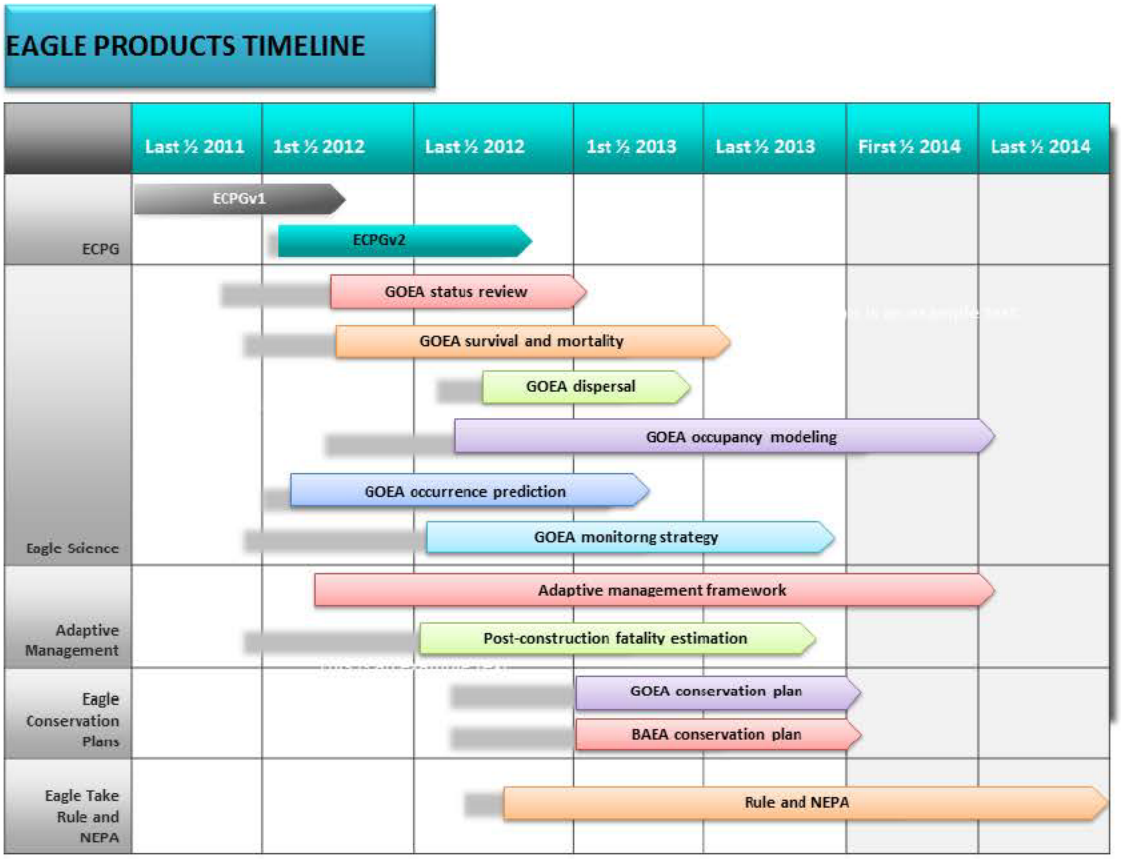
Long-Term

Science. The Service and USGS have partnered on eight priority science initiatives designed to improve knowledge of golden eagle population biology, improve eagle survey and population monitoring capabilities overall, and to frame the adaptive management process for eagle take permits. Projects are being undertaken jointly by USGS and the Service, and in some cases involve external partners as well. These are the specific projects.

- Golden eagle monitoring strategy - develop a Comprehensive Survey and Monitoring Plan to manage golden eagles.
- Golden eagle occurrence prediction - model predictions of the occurrence of golden eagles in the western United States to help the Service identify important geographic areas and habitats for golden eagles during the breeding and non-breeding seasons.
- Post-construction fatality estimation - development of landscape-level population approach to estimating cumulative mortality from carcass surveys accounting for carcass removal, and non-detection, given presence.
- Occupancy modeling - late summer occupancy modeling.
- Adaptive management framework - development of an adaptive management framework for wind energy permitting with regard to take of bald and golden eagles.
- Golden eagle status review - golden eagle population trends in the western United States, 1968-2010.
- Golden eagle dispersal - natal dispersal distances of bald and golden eagles in the coterminous US as inferred from band encounters.
- Golden eagle survival and mortality - assessment of annual survival rates, transmitter effects and causes of mortality of golden eagles in the western US (and Mexico) as inferred from satellite transmitters.

In addition to these projects, the Service is working through the American Wind-Wildlife Institute (AWWI) to collect better information about eagle and other migratory bird and bat fatalities at currently-operating wind energy facilities. We anecdotally receive fatality reports from a few operating wind projects. We lack a comprehensive estimate of avian or wildlife fatalities at wind projects. Having a better understanding of eagle mortality at wind projects will vastly improve our capability to develop advanced conservation and mitigation practices.

Conservation and Management. The Service will develop national golden eagle and bald eagle conservation and management plans by 2014. These plans will incorporate information garnered from the research described above. They will use best available scientific information on the status of eagle populations and identify conservation strategies to assure long-term survival of bald and golden eagle populations.



Eagle Conservation and Wind Development – the U.S Fish and Wildlife Service's and U.S. Geological Survey's Strategy

Overview

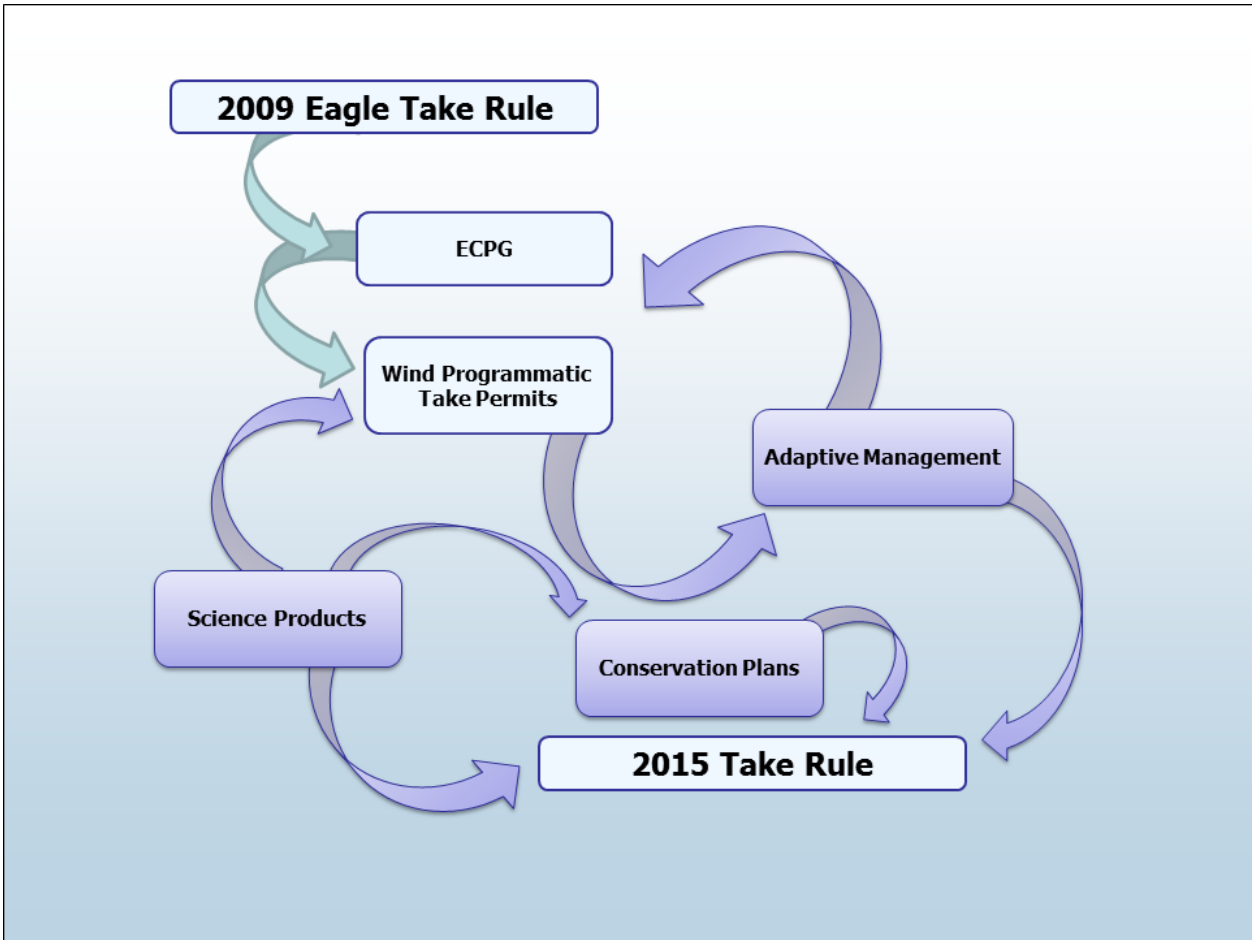
The rapid proliferation of industrial scale wind projects throughout the U.S. creates new challenges for the U.S. Fish and Wildlife Service. Our mandate in the Bald and Golden Eagle Protection Act (BGEPA) is to ensure that bald and golden eagle populations thrive. We know that wind farms can kill bald and golden eagles. Yet we lack specific information on eagle populations, how to avoid and mitigate for eagle fatalities, and the overall population effects that increased fatalities at wind turbines may be causing.

When the Service removed bald eagles from the Endangered Species List in 200XX, we recognized the need to have a system to authorize incidental (unintentional) take of eagles. The Service promulgated the 2009 Eagle Permit Rule and accompanying environmental assessment to address this situation. We now acknowledge that some aspects of the rule make it difficult to accommodate relatively rare incidental take of eagles at a specific wind project that may be in operation for twenty-five to thirty years.

Working with colleagues at the U.S. Geologic Survey and other agencies, we have developed the comprehensive strategy described below to:

1. Provide guidance to wind industry how to avoid, minimize and mitigate takes of eagles and apply for incidental take permits;
2. Improve the scientific knowledge to help us manage eagle populations better;
3. Develop an effective process for authorizing appropriate wind projects;
4. Develop management plans for eagle populations; and
5. Promulgate revised eagle take regulations

FIGURE 1 – NEEDS MINOR EDITS



Regulating Eagle Takes

The Eagle Permit Rule. In 2009, the U.S. Fish and Wildlife Service (Service) promulgated new rules for eagles (the Eagle Permit Rule(s); 50 CFR 22.26 and 22.27) to allow permits that authorize take of bald and golden eagles when the take is associated with, but not the purpose of, an otherwise lawful activity, and cannot practicably be avoided. The regulations also authorize permits for "programmatic" take, which can potentially include recurring multiple incidents. The Service anticipated that most permits would be for short-term disturbance of eagles or to authorize programmatic take where conservation measures were being implemented to yield a net benefit to eagles.

Applying the Eagle Rule to Programmatic Permits for Wind Facilities. Soon after we finalized the rule, there was a substantial increase in the development of wind power for renewable energy purposes. Eagles are vulnerable to blade-strike mortality at wind turbines. The increased growth in the number of wind projects was of concern to the Service. In response, the Service established an Eagle Management Team (EMT) to recommend how to responsibly balance these competing interests and address the challenge of burgeoning wind development to eagles. The EMT concluded that it was of conservation benefit to permit wind facilities for their take of eagles where the take meets the preservation standard of the Act and requirements in 50

CFR 22.26. The alternative was continued growth of wind development without consideration of the effects on eagles while the Service took several years to promulgate a new rule.

The Conceptual Plan. The Service, aided by solicitors and initial science advisors from the U.S. Geological Survey (USGS), developed a plan to build on the 2009 Eagle Permit Rule and Final Environmental Assessment (FEA) and move forward with programmatic take permits for qualifying wind facilities. The plan called for:

(1) developing the Eagle Conservation Plan Guidance (ECPG) to provide assistance in applying the provisions of the Eagle Permit Rule to wind development in a risk-averse manner;
(2) developing an adaptive management framework to expedite learning about risk assessment and risk reduction at wind facilities;
(3) a science initiative to improve understanding of golden eagle biology;
(4) developing management plans for both bald eagles and golden eagles to establish quantitative population goals; and
(5) using knowledge from steps 2 through 4, revising the Eagle Permit Rule and NEPA in 2014 to address programmatic take in a comprehensive manner.

The end product of this process would be an amended Eagle Permit Rule in 2015. The Service circulated a draft of the ECPG in February 2011. That draft (ECPGv1) was subjected to a 90-day public comment process and was peer-reviewed by a scientific panel convened by The Wildlife Society.

The Advanced Notice of Public Rulemaking and the "Tenure Rule." The public comments on the ECPGv1 identified a number of substantive issues which were addressed in a revision to the ECPG (ECPGv2). However, two issues could not be addressed and were of particular concern to the Service and Department: (1) the public's concern over the lack of a plan for addressing problems with the Eagle Take Rule as applied to programmatic take permits for new wind facilities and (2) the wind industry's concerns that the five-year maximum tenure of permits under the Eagle Take Rule is fundamentally unworkable because of the 20-30 year life of most wind projects. The Service initially planned to consider the issue of permit tenure as part of the revision to the Eagle Permit Rule in 2014 – which would have allowed NEPA analysis of the implications of long-term programmatic permits. Instead, the Service and Department moved forward with a proposed rule to extend the maximum tenure of programmatic permits under the Eagle Take Rule to 30 years and published an Advanced Notice of Public Rulemaking (ANPR) announcing the intent to revise the Eagle Take Rule and soliciting responses to several key issues raised in the ECPG comments. Both notices were published in April 2012.

Current Status of Eagle Products

ECPG. The ECPG outlines a process for data collection and analysis that could lead to the Service issuing a programmatic eagle take permit. The Service submitted a revised draft of ECPGv2 to the Department where it is currently in review. This draft incorporates significant changes to ECPGv1 in response to the public and peer-review comments. The ECPG includes a robust adaptive management framework so that the considerable uncertainty at many stages of the process can be reduced over time.

Science. The Service and USGS have partnered on eight priority science initiatives designed to improve knowledge of golden eagle population biology, improve eagle survey and population monitoring capabilities overall, and to frame the adaptive management process for eagle take permits. Projects are being undertaken jointly by USGS and the Service, and in some cases involve external partners as well. These are the specific projects.

1. *GOEA monitoring strategy - develop a Comprehensive Survey and Monitoring Plan to Manage Golden Eagles*. This project will provide important information on effective protocols for surveying golden eagle populations at prospective wind project sites to improve the accuracy of risk predictions for a proposed wind project to golden eagles.

2. *GOEA occurrence prediction - model predictions of the occurrence of golden eagles in the western USA to help the USFWS identify important geographic areas and habitats for golden eagles during the breeding and non-breeding seasons*. This project will provide data on winter occurrence and distribution of golden eagles in the western United States to aid the Service and wind project developers in better categorizing potential projects according to eagle risk early in the planning process.

3. *Post-construction fatality estimation - development of super-population approach to estimating cumulative mortality from carcass surveys accounting for carcass removal, and non-detection, given presence.* Efforts here are intended to result in a methodology to meet statistical objectives of post-construction fatality estimates for eagles at operating wind facilities.

4. *Occupancy modeling - late summer occupancy modeling.* This work is a companion effort with science project 2 above to provide tools for predicting relative summer use of an area by golden eagles.

5. *Adaptive management framework - development of an adaptive management framework for wind energy permitting with regard to take of bald and golden eagles.* This project will develop the formal analytical structure of the adaptive management process. Project elements include: (1) fatality prediction models, (2) an improved model for estimating sustainable eagle take rates, (3) specifying a process for using post-construction data collected under science project 3 to update the fatality predictions using real data; and (4) specifying a process for using post-construction data collected under science project 3 to improve the predicative capability of the pre-construction fatality prediction model for future wind projects.

6. *GOEA status review - golden eagle population trends in the western United States, 1968-2010.* This analysis uses hierarchical statistical models to analyze summer golden eagle data from two sources to develop a composite prediction of population trends and population size by eagle management unit. Uncertainty over population trends of golden eagles has been a major concern of the Service in moving forward with eagle take permits, and population size estimates are crucial to grounding estimates of sustainable take rates.

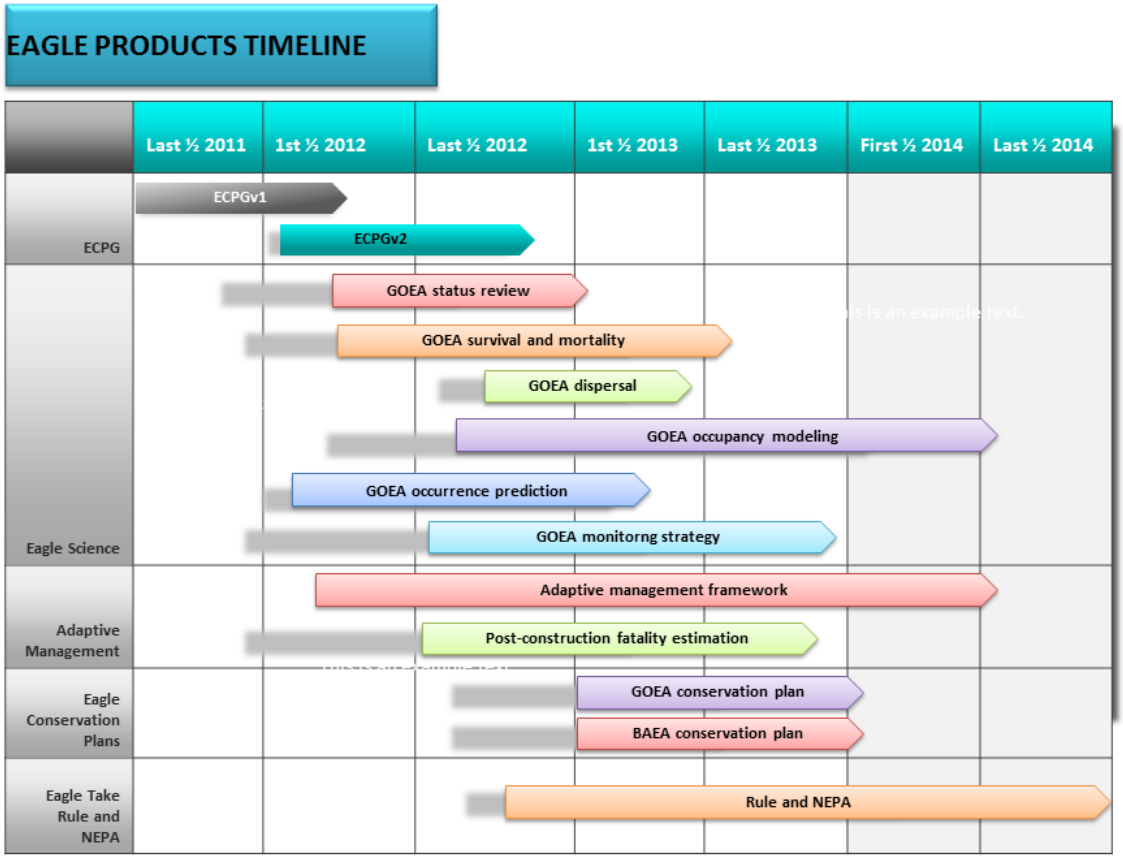
7. *GOEA dispersal - natal dispersal distances of bald and golden eagles in the coterminous US as inferred from band encounters*. The Service relied on estimates of natal dispersal to establish the effect-area for analysis of impacts of eagle take permits at the local-area population scale in the FEA and ECPG. The analysis presented in the FEA was coarse, and needs to be updated with more robust analytical procedures.

8. *GOEA survival and mortality - assessment of annual survival rates, transmitter effects and causes of mortality of golden eagles in the western US (and Mexico) as inferred from satellite transmitters.* Uncertainty over annual golden eagle survival rates and causes of mortality has been a major obstacle to several aspects of the Service's eagle permitting program. Demographic models must account for this uncertainty and thus are currently very imprecise. Moreover, because golden eagle take thresholds are currently set at zero, all permitted take must be offset by compensatory mitigation. That mitigation should target known existing sources of manageable mortality. This project aims to identify those causes of mortality to aid in effective targeting of compensatory mitigation.

Tenure Rule and ANPR. Public comments on the interlinked tenure rule and ANPR are currently being summarized by the Division of Migratory Bird Management staff. The Division of Migratory Bird Management will brief the Director soon on the implications of comments on the ANPR and the tenure rule and provide recommendations for moving forward. No work has formally begun on the substantive rule revision, although arguably much of the work outlined above will contribute to that process (see interrelationships between products below).

Eagle Management Plans. Preparing bald and golden eagle management plans is a top priority for the Service after the ECPG has been approved. The same people are working on the ECPG and management plans. Accordingly, no substantial progress on the plans can begin until those staff have completed revisions to the ECPG and associated training.

FIGURE 2 – TIMELINE – NEEDS MINOR EDITING



Interrelationships Among Eagle Products

None of the eagle permitting products is designed to stand alone. The conceptual plan is to implement a defensible process for moving forward with eagle programmatic take permitting for wind facilities in a measured way now, and to learn from our experiences with these initial permits and the science products so that we can undertake an informed substantive rule revision and NEPA analysis in 2014. The concept relies on a structured, ordered architecture such that the pieces come together in sequence and support one-another.

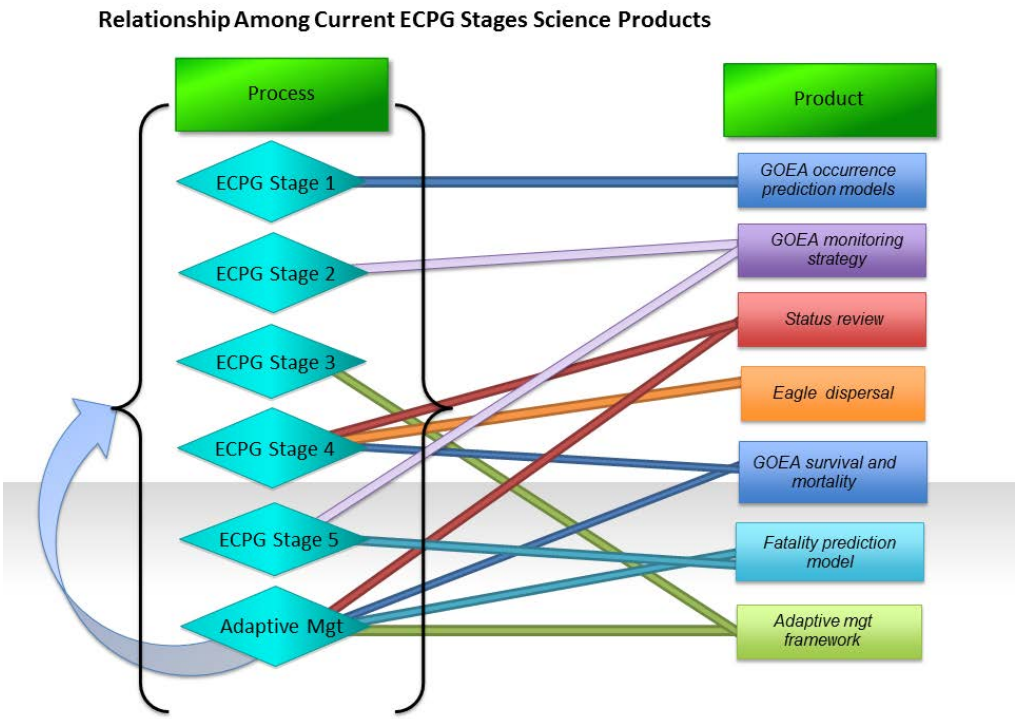


Figure 3. Primary relationships between science products under development by USGS and the Service, and the ECPG.

The ECPG is the cornerstone for implementation of the plan in the near-term. Many of the science projects are specifically intended to better inform decisions in the various stages of the ECPG or in the adaptive management process (Figure 1) and inform important changes to the regulations. The science products will provide immediate benefits to Service staff and wind developers who use the ECPG. Finally, all of the above will provide a substantial and solid basis for the Eagle Permit Rule revision and associated NEPA analysis.

Attention: Division of Policy and Directives Management
U.S. Fish and Wildlife Service
4401 North Fairfax Drive, MS 2042–PDM
Arlington, VA 22203-1610

Re: Comments of the American Wind Energy Association on Eagle Permits; Revisions to Regulations Governing Take Necessary To Protect Interests in Particular Localities; Docket No. FWS–R9–MB–2011–0094

Submitted via Federal Rulemaking Portal: http://www.regulations.gov

In September 2009, the United States Fish and Wildlife Service (FWS or Service) published a final rule (Eagle Permit Rule) establishing new permit regulations under the Bald and Golden Eagle Protection Act (Eagle Act or Eagle Act) for nonpurposeful take of eagles.[1] These regulations relate to permits to take eagles where the take is associated with, but not the purpose of, otherwise lawful activities. The regulations provide for both standard permits and programmatic permits.

On April 13, 2012, the FWS published an Advanced Notice of Proposed Rulemaking (ANOPR)[2] that seeks input on how the Eagle Permit Rule can be improved to create a more efficient permit process while continuing to provide adequate protection for eagles. The ANOPR states that FWS is particularly interested in public ideas and suggestions that would help clarify the permit issuance criteria, help determine appropriate compensatory mitigation, and better define the Eagle Act's

[1] 74 FR 46836.
[2] 77 FR 22278; 50 CFR 22.26.

preservation standard. In addition, FWS states that it will accept public input on other aspects of the permit governed by the Eagle Permit Rule that may be improved by revision of the existing regulations.

Ensuring that the Eagle Permit Rule is workable for the wind industry while providing for the protection of bald and golden eagles is of paramount importance to the American Wind Energy Association (AWEA).[3] We recognize the conservation mission of the Service and have been a partner with the agency, and others within the Department of the Interior (DOI), on a variety of wildlife conservation efforts and look forward to continuing that strong relationship. In that same spirit, AWEA appreciates the opportunity to provide the following comments to the ANOPR.

I. Background

The Eagle Act (16 U.S.C. 668–668d) prohibits take of bald eagles and golden eagles except pursuant to Federal regulations.[4] The Eagle Act regulations at title 50, part 22, of the Code of Federal Regulations (CFR), define the ''take'' of an eagle to include the following broad range of actions: ''pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, destroy, molest, or disturb'' (50 CFR 22.3). The Eagle Act allows the Secretary of the Interior to authorize certain otherwise prohibited activities through regulations.

The Secretary is authorized to prescribe regulations permitting the ''taking, possession, and transportation of [bald eagles or golden eagles] . . . for the scientific or exhibition purposes of public museums, scientific societies, and zoological parks, or for the religious purposes of Indian

[3] AWEA is the national trade association representing a broad range of entities with a common interest in encouraging the deployment and expansion of wind energy resources in the United States. AWEA members include wind turbine manufacturers, component suppliers, project developers, project owners and operators, financiers, researchers, renewable energy supporters, utilities, marketers, customers and their advocates.

[4] Section 668a of the Bald and Golden Eagle Protection Act (Eagle Act) states:

> Whenever, after investigation, the Secretary of the Interior shall determine that it is compatible with the preservation of the bald eagle or the golden eagle to permit the taking, possession, and transportation of specimens thereof for the scientific or exhibition purposes of public museums, scientific societies, and zoological parks, or for the religious purposes of Indian tribes, or that it is necessary to permit the taking of such eagles for the protection of wildlife or of agricultural or other interests in any particular locality, he may authorize the taking of such eagles pursuant to regulation which is hereby authorized to prescribe. 16 U.S.C. § 668a.

tribes, or . . . for the protection of wildlife or of agricultural or other interests in any particular locality,'' provided such permits are ''compatible with the preservation of the bald eagle or the golden eagle'' (16 U.S.C. 668a).

On September 11, 2009, FWS published a final rule that established new permit regulations under the Eagle Act for nonpurposeful take of eagles (74 FR 46836)—the Eagle Permit Rule. Those regulations at 50 CFR 22.26 provide for permits to take bald eagles and golden eagles where the taking is associated with, but not the purpose of, an activity. The regulations provide for both standard permits and programmatic permits.

Through the ANOPR, FWS solicits public input on aspects of the permit program governed by 50 CFR 22.26 that may be improved by revision of the regulations.

II. The Criteria for Issuance of Programmatic Permits Should Be the Same as That Required for Issuance of Standard Individual Permits.

Under the Eagle Permit Rule,[5] as noted, either standard permits or programmatic permits may be granted for the nonpurposeful take of bald and golden eagles.[6] Standard permits "authorize individual instances of take that *cannot practicably be avoided*."[7] "Practicable" in this context means "capable of being done after taking into consideration, relative to the magnitude of the impacts to eagles: (1) the cost of remedy comparative with proponent resources; (2) existing technology; and (3) logistics in light of overall project purposes."[8]

Programmatic take is defined as "take that is recurring, is not caused solely by indirect effects, and that occurs over the long term or in a location or locations that cannot be specifically identified."[9]

[5] 50 CFR 22.26.
[6] 74 FR 46836, September 11, 2009.
[7] *Id.* (emphasis added).
[8] 50 CFR 22.26.
[9] 50 CFR 22.3

Programmatic permits[10] "authorize recurring take that is *unavoidable* even after implementation of advanced conservation practices."[11]

The criteria for issuance of standard versus programmatic permits therefore differ rather substantially. Under the criteria for a standard permit, ''take that cannot practicably be avoided'' can be authorized; in contrast, a programmatic permit requires that the take be ''unavoidable.'' In addition, programmatic permit seekers must show that the take is "essentially unavoidable" despite implementation of "exceptionally comprehensive measures" developed in cooperation with the Service to reduce the take below current levels.[12]

Because the issuance criteria for programmatic permits makes no mention of "practicability," the standard does not technically require the Service to take into consideration, relative to the magnitude of the impacts to eagles: (1) the cost of remedy compared to proponent resources; (2) existing technology; and (3) logistics in light of overall project purposes, when imposing "exceptionally comprehensive" advanced conservation practices (ACPs) on programmatic permit holders. Because the programmatic permit criteria lacks any language describing the term "unavoidable," apart from the fact that such take requires implementation of ACPs, the Service potentially has great latitude to impose overly burdensome conservation requirements on permit holders that are disproportionate to actual impacts on eagles without considering other relevant factors.

The Service in acknowledgement of the high hurdle that an applicant faces that seeks a programmatic permit has stated: "Recipients of programmatic permits must perform more rigorous

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[10] Most take authorized under § 22.26 has been in the form of disturbance; however, permits may authorize lethal take that is incidental to an otherwise lawful activity, such as would be the case with wind turbines. Since publication of the 2009 final rule, the Service has issued approximately 50 permits under the new regulations. However, it has not yet issued any programmatic permits.

[11] 74 FR 46841, September 11, 2009 (emphasis added). ''Advanced conservation practices'' (ACPs) are defined at 50 CFR 22.3 as ''scientifically supportable measures that are approved by the Service and represent the best available techniques to reduce eagle disturbance and ongoing mortalities to a level where remaining take is unavoidable.'' This definition distinguishes programmatic take from any other take that has indirect effects that continue to cause take after the initial action. The Service can issue programmatic permits for disturbance as well as for take resulting in mortalities, based on implementation of advanced conservation practices developed in coordination with FWS.

[12] 74 FR 46838, September 11, 2009.

monitoring than is required for standard, individual take permits."[13] However, the preamble accompanying the Eagle Permit Rule states ''applicants for both types of permits must take all practicable steps to avoid and minimize take,''[14] adding some confusion to the difference between standard and programmatic permits. This language implies that programmatic permittees should be held to the same workable standard as standard individual take permittees, which allow a level of take "that cannot practicably be avoided," rather than being subject to "exceptionally comprehensive measures" that would make any remaining take essentially unavoidable.

In apparent reconsideration of this difference that separates these permits, the Service asks in the ANOPR whether the regulations should be revised so that the issuance criterion for programmatic permits is the same as for standard permits; in other words, whether the project proponent has to reduce take to the maximum degree practicable for the issuance of either type of permit.

AWEA thinks the standards should be the same for both standard and programmatic permits and does not see a rationale for having different standards, except that programmatic permits are granted for a longer duration, thereby allowing for recurring take for the life of the permit. However, ACPs compensate for this difference between standard and programmatic permits, thereby promoting eagle conservation throughout the permit duration.[15] In order to ensure that any ACPs required by a programmatic permit are not disproportionate to the impacts on eagles, the Service should also redefine ACPs as "scientifically supportable measures that are approved by the Service to reduce eagle disturbance and ongoing mortalities to a level where remaining take *cannot practicably be avoided*" to ensure consistency with programmatic permit issuance criteria.

<u>AWEA Recommendation:</u>

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[13] 74 FR 46842, September 11, 2009.
[14] *Id*.
[15] We note that, when applying ACPs, the Service should do so relative to the magnitude of the impacts to eagles because "whether something is practicable is relative to the risk of not doing it." *Id*. If the adverse impact is small, it may be impracticable to undertake enormously costly measures to avoid it, but if the impact will be extremely detrimental, increased measures may be deemed reasonable and practicable.

AWEA believes the issuance criteria for programmatic permits should be the same as for standard permits; as such, for either permit type, the project proponent need only have to reduce take to the maximum degree practicable. Thus, the programmatic permit issuance criteria should be redefined in keeping with the practicable avoidance standard, as should the definition of ACPs.

A. Applying the Same Workable Issuance Criteria for Programmatic Permits as for Standard Permits Better Aligns the Requirements for Issuing Eagle Take Permits with Those for Incidental Take Permits Under the ESA.

When the Service proposed the Eagle Permit Rule to allow incidental take of eagles, it assured the public that the "permitting process we are proposing under the Eagle Act would be *less burdensome* for the public" than the ESA's incidental take process, which applied to the bald eagle until it was delisted.[16] However, the issuance criteria for programmatic permits under the Eagle Permit Rule are more burdensome, less certain, and more costly with respect to the eagle plan/eagle take permit process for bald and golden eagles than criteria for issuing an incidental take permit (ITP) process for much more imperiled species under the ESA.

The ESA follows a more workable issuance standard for permit applicants than the process under Eagle Permit Rule. Under the ESA, an ITP can be granted if the "applicant will, to the maximum extent practicable, minimize and mitigate the impacts of such [incidental] taking."[17] While a programmatic eagle take permit cannot be issued unless ACPs specified by the Service are first applied,[18] there is no comparable constraint of applying ACPs or on reducing take to an "unavoidable" level to obtain an ITP under the ESA and its implementing rules. Given that the species protected under the ESA are more imperiled than eagles, no permitting scheme for eagles should impose more stringent requirements than the ESA.

<u>AWEA Recommendation:</u>

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[16] 72 Fed. Reg. 31141 (June 5, 2007) (emphasis added).
[17] 16 U.S.C. § 1539(a)(2)(B)(ii).
[18] *Id.* The ACPs must apply the "best available techniques to reduce eagle disturbances and ongoing mortalities to a level where remaining take is unavoidable." 50 C.F.R. § 22.3; *see id.* at § 22.26(a)(2).

The criteria for issuing programmatic permits under Eagle Act should, consistent with the requirement for an ESA ITP, only require minimization and mitigation to the extent that take cannot practicably be avoided.

B. At Present, the Eagle Permit Rule and the Draft Eagle Guidance Erroneously Conclude that Eagle Act Requires that the Take of Eagles Must First be Avoided and Then Minimized and Mitigated so That Any Remaining Take is Unavoidable.

In the Eagle Permit Rule and subsequent Draft Eagle Guidance, the Service interpreted the word "necessary" in Section 668a of the Eagle Act[19] to mean that take has been avoided and minimized to the point that "take cannot practicably be avoided" for standard permits, but for a programmatic eagle take permit, that take must be reduced through ACPs to the point that remaining take is "unavoidable."[20] This interpretation of Eagle Act is translated into the Draft Eagle Guidance's requirements for onerous studies, analyses, and consultations with the Service designed to create a scientific record demonstrating that eagle take has been avoided, then minimized, and then mitigated to the point that a remaining take is unavoidable. While the wind industry has always embraced the general responsibility to avoid, minimize, and mitigate the take of at risk species, the manner in which these duties are imposed in the Eagle Permit Rule and the Draft Eagle Guidance are overly burdensome and not consistent with the underlying act.

As the "necessary" language from Eagle Act does not apply to the clause on which the eagle take permit program is based, it does not require the Service's reading that the incidental take of eagles must first be avoided and then minimized and mitigated so that any remaining take is unavoidable. Instead, the relevant Eagle Act language in the second clause of section 668a allows, as noted, eagle takes on whatever terms the "Secretary of the Interior shall determine . . . is necessary . . . for the protection of . .

[19] "Whenever, after investigation, the Secretary of the Interior shall determine that it is compatible with the preservation of the bald eagle or the golden eagle to permit the taking, possession, and transportation of specimens thereof for the scientific or exhibition purposes of public museums, scientific societies, and zoological parks, or for the religious purposes of Indian tribes, or that it is necessary to permit the taking of such eagles for the protection of wildlife or of agricultural or other interests in any particular locality, he may authorize the taking of such eagles pursuant to regulation which is hereby authorized to prescribe."
[20] 50 C.F.R. §§ 22.3, 22.26(a) and (e) and (f).

. agricultural or other interests."[21] Thus, the word "necessary" in that clause of the section permits activities (such as a wind energy project) that are considered to be in the public interest (as is renewable energy development) and does not require the onerous process set forth by the current programmatic permit issuance criteria.

AWEA Recommendation:

AWEA requests that the Service reexamine its interpretation of Eagle Act, particularly Section 668a, and allow more flexible and efficient solutions on eagle take matters, consistent with the language in the Eagle Act, than is provided for in either the Eagle Permit Rule or the Draft Eagle Guidance.

C. The Service Should Not Consider a Proponent's Resources in Determining Whether a Measure is Practicable and Similarly Should Avoid Unreasonable Risk-Level Designations for Project Sites That Could be Prevented Through More Defined Criteria.

As noted, AWEA recommends modifying the issuance criteria for programmatic permits so that the criteria is in line with standard permit issuance criteria, thus authorizing recurring take that cannot practicably be avoided. However, AWEA also urges the Service to go one step further and redefine the word "practicable." As it stands, "practicable" means "capable of being done after taking into consideration, relative to the magnitude of the impacts to eagles: (1) the cost of remedy comparative with proponent resources; (2) existing technology; and (3) logistics in light of overall project purposes."[22] AWEA approves of factors (2) and (3) being considered, but does not agree that the definition should include any consideration of an applicant's financial or other resources.

The requirement for such case-by-case consideration of an individual proponent's resources is arbitrary and will have unjust and unnecessary disparate effects. Such consideration of financial resources could result in too high a bar for large projects with many resources, resulting in more stringent requirements for project proponents with more financial means, regardless of the risk posed

[21] We also note that section 22.23 of the Eagle Permit Rule grants the Service broad authority to issue a permit to allow the intentional killing of "depredating eagles" (*i.e.*, eagles that are interfering with livestock or other agricultural interests). 50 C.F.R. § 22.23. This provides another example of the fact that the USFWS is not limited by its constrained reading of Eagle Act in section 22.26 of the Eagle Permit Rule.

[22] 50 CFR 22.26.

by them to eagles. Further, costly measures, which are merely based on the characteristics of the company developing a project, could disincentivize large developers from developing wind energy projects. It is also unfair to consider an applicant's resources, because a parent company's resources should be irrelevant to what the economics of an individual project can bear in order to be profitable.

The Service thus should not consider the means of individual permit applicants when determining whether a measure is practicable when issuing programmatic permits. It should instead consider the reasonableness of such measures by balancing their costs and their ability to mitigate actual measurable impacts as compared to the overall benefit and utility of the project at issue. For example, the Service could achieve better conservation results by differentiating and requiring mitigation measures that are proven to work versus those with benefits that are merely speculative and requiring research to validate additional mitigation options.

To the extent that the Service amends the current issuance criteria for programmatic permits to align with the "practicable avoidance" criteria for standard permits, as AWEA suggests, the term "practicable" should therefore be redefined as "capable of being done after taking into consideration, relative to the magnitude of the impacts to eagles: (1) the cost of the remedy for an actual measurable impact as compared to the overall benefit and utility of the project with respect to public interest; (2) existing technology; and (3) logistics in light of overall project purposes."

The definition of ACPs,[23] in keeping with the practicability standard for programmatic permits that AWEA proposes here, should also be amended. First, to be "practicable," the Service must not impose ACPs based on "best-available techniques." The implementation of objectively best-available techniques is often simply not feasible for many project proponents and, therefore, not practicable. In short, while AWEA agrees that existing technologies should be one factor considered when applying

[23] 74 FR 46841, September 11, 2009. ''Advanced conservation practices'' (ACPs) are defined at 50 CFR 22.3 as ''scientifically supportable measures that are approved by the Service and represent the best available techniques to reduce eagle disturbance and ongoing mortalities to a level where remaining take is unavoidable.''

ACPs, we disagree that the requirement should be so stringent as to require the use of *best-available* techniques. In addition, the language of the ACP definition should be amended as follows: "scientifically-supportable measures that are approved by the Service to reduce eagle disturbance and/or ongoing mortalities to a level where remaining take cannot practicably be avoided." This language would ensure consistency with the new "practicability" standard for programmatic permits, if adopted.

Under the eagle regulatory framework, project sites are often categorized based on the level of risk they pose to eagles. While this categorization scheme has merits in some instances, designations are not made on the basis of specifically defined criteria. For example, few specific criteria are established for what constitutes a "low-risk" project and, therefore, it is very challenging for a developer to receive such a designation. This creates uncertainty and may contribute to designations being made on the basis of irrelevant, unreasonable factors. Accordingly, providing more details regarding what constitutes a "low-risk" project would help companies better evaluate their eagle portfolio risk and select suitable development sites, while concomitantly lowering the work burden and budget of the Service.

AWEA Recommendation:

The Service should not consider the financial or other resources of permit applicants when determining whether a measure is practicable and should instead base its determination on whether the measure is reasonable. To that end, the Service should amend the definition of "practicable" accordingly. The Service should also amend the definition of ACPs to ensure consistency with the change to the definition "practicable." Finally, the Service should revise the criteria for designating the risk level of certain development sites, as some of these categorization decisions are made on the basis of irrelevant factors instead of specifically defined criteria.

III. A More Inflexible Conservation Standard for Less Imperiled Species

The conditions for eagle take permits in the Eagle Permit Rule are in stark contrast to those for ESA incidental take permits (ITPs), which explicitly provide "No Surprises assurances." ESA ITPs "were designed by Congress to authorize incidental take, not to be mandatory recovery tools" and do not require no-net-loss of individual members of a listed species.[24] In fact, under the ESA's No Surprises Policy, an applicant for an ESA ITP may negotiate for long-term regulatory assurances that no additional mitigation will be required under the plan even if the needs of the species change over the life of the permit.[25] In recognition of this fundamental fact of economic life, Interior Secretary Babbitt adopted the so-called No Surprises assurances in the 1990s. No Surprises assurances provide considerable certainty that the costs for ESA compliance will not increase over time due to future unforeseen events.

No Surprises assurances suggest that a deal-is-a-deal and that the Service will not seek further concessions from someone who has secured an ITP.[26] Once an ITP has been issued and its terms and conditions are being fully complied with, the permit holder may rest assured that the agreed upon cost of conservation and mitigation will not change.[27] If the status of a species addressed under an HCP unexpectedly worsens because of unforeseen circumstances, the Federal government, other government agencies, or other non-Federal landowners who have not yet developed a Habitat Conservation Plan (HCP) have the obligation to implement additional conservation measures.[28] Specifically, under the ESA, for any "unforeseen" changes in circumstances that are not explicitly included in the original permit, the government and/or other non-permitted landowners must bear

[24] HCP Handbook at 3-20.
[25] 63 FR 8867, Feb. 23, 1998.
[26] The No Surprises Rule assures the holder of a post-March 1998 ITP that, if unanticipated "unforeseen circumstances" occur, the USFWS "will not require" the ITP holder to commit "additional land . . . or financial compensation . . . beyond the level" agreed to in the HCP "without consent of the permittee." 50 C.F.R. § 17.22(b)(5)(iii) and 17.32(b)(5)(iii); *see* 63 Fed. Reg. 8862-64, 8866-69 (Feb. 23, 1998). And, even with respect to foreseen circumstances, though the parties might negotiate an ESA ITP that has some increasing costs over time, at least the negotiation "process will enable the applicant to assess the potential economic impacts of adjustments before agreeing to the HCP." 65 Fed. Reg. 35253 (June 1, 2000).
[27] *Id.*
[28] *Id.*

the costs of additional mitigation. The permit holder is only expected to implement additional conservation and mitigation measures to respond to changes in circumstances that were originally provided for in the HCP's operating conservation program.[29] Such measures would have already been factored into the estimated project costs, providing cost predictability to developers throughout the life of the permit. We note that the implementation of the ESA No Surprises policy had the intended effect of reviving private sector investment in projects that had a nexus with the ESA in the late 1990s and through the 2000s.

The ESA protects America's most imperiled species, which undergo a lengthy listing process to be listed as either "threatened" or "endangered."[30] It has been called the "pitbull" of environmental laws as it has halted major federal construction projects and closed entire forests to harvesting.[31] Despite this reputation as arguably the strictest federal environmental statute that protects the most threatened or endangered species, the ESA still provides No Surprises assurances for developers once they obtain a permit, assuming adequate mitigation measures for the life of the permit are provided for on the front end. Accordingly, we see no reason why the Service would not apply No Surprises assurances to eagles, which are less imperiled species than those listed under the ESA.

Neither bald eagles nor golden eagles, which are protected by the Eagle Act, are listed as "threatened" or "endangered" under the ESA. Still, species conservation under the Eagle Permit Rule is more stringent than that for listed species under the ESA, as it does not provide No Surprises assurances for developers. AWEA recognizes both the biological and historically symbolic significance of eagles and fully supports their careful conservation. However, the Service should hold eagle conservation to, at a maximum, the same conservation standard as the nation's most imperiled species, thereby allowing developers to negotiate No Surprises assurances in exchange for

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[29] *Id.* at 8868.
[30] 16 U.S.C. § 1533(a)(1).
[31] Patrick W. Ryan and Galen Schuler, "The Endangered Species Act—A Primer," 1998 Perkins Coie LLP, available at http://www.mrsc.org/subjects/environment/esa/esaprime.aspx.

predetermined mitigation measures in response to pre-defined potential changes in circumstances. We see no reason why the Eagle Permit Rule cannot provide the same certainty for non-listed species, such as eagles.

***AWEA Recommendation*:**

The Service should learn from the success of the ESA's No Surprises policy and, consistent with the requirement for an ESA ITP, promote cost certainty by extending No Surprises assurances to eagle take permits. Specifically, the Service should hold permits for the take of eagles to no greater than those for listed species under the ESA. In addition, consistent with the No Surprises policy allowed for ESA ITPs, before granting an eagle take permit, the Service should negotiate with permit applicants to pre-determine any mitigation measures that would potentially be imposed should specific changes in circumstances arise.

IV. Compensatory Mitigation.

In the ANOPR, the Service asks: (1) under what circumstances should permittees be required to provide compensatory mitigation; and (2) to what degree should any required mitigation offset the detrimental impacts to eagles. The following sections address these two questions, respectively.

A. When Avoidance and Minimization Measures Are Insufficient to Eliminate All Predicted Take, Then Compensatory Mitigation May Be Required.

AWEA believes that, if avoidance and minimization measures are insufficient to eliminate all predicted take, then it is reasonable to require compensatory mitigation. However, where compensatory mitigation is required, the proposed level of mitigation that must be achieved should be based on actual data.

Currently, under the Draft Eagle Guidance, the project proponent must often pay compensatory mitigation that offsets the "predicted number of fatalities per year . . . estimated from the product of

exposure rate and collision probability."[32] This model assumes that an eagle will not detect and avoid a wind turbine and, therefore, seems to calculate *risk* of an eagle-turbine collision. However, some behavioral research indicates that bald eagles in Alaska changed their flight patterns after the construction of a 3-turbine wind farm to avoid turbine blades, but did not avoid the wind project vicinity entirely.[33] This example demonstrates how the Service's approach in requiring compensatory mitigation for mere risk may be misguided.

With respect to the types of take caused by wind turbines (wound or kill), the Eagle Act only makes it unlawful to take an actual eagle.[34] Simply creating a risk of eagle take is not unlawful, and accordingly, even under a "no net loss of eagles" policy, compensatory mitigation should be tied to the actual measureable level of take of eagles or to a predicted level of take under fair assumptions. Thus, by calculating the risk of eagle take through a formula that does not account for eagle avoidance of turbine blades, and then requiring compensatory mitigation to completely offset the level of assumed take, the Service sets the compensatory mitigation level too high and requires compensation for in effect "phantom" take that may never occur.

AWEA Recommendation:

The Service should not set the level of compensatory mitigation based on the risk of an eagle take. Instead, compensatory mitigation should be tied to the actual measureable level of take of eagles or to a predicted level of take under fair assumptions.

B. Degree of Mitigation Required to Offset Actual Measureable Impacts on Eagles.

As mentioned in Part A of this section, compensatory mitigation should compensate for actual measureable take or a predicted level of take under fair assumptions that can demonstrate a direct

[32] Draft Eagle Guidance at 61.
[33] Sharp, L., C. Herrmann, R. Friedel, K. Kosciuch, and R. MacIntosh. 2010. Comparison of pre- and post-construction bald eagle use at the Pillar Mountain wind project, Kodiak, Alaska, Spring 2007 and 2010. Presentation at the National Wind Coordination Collaborative Research Results Meeting 8, Denver, Colorado, October 20, 2010.
[34] *Accord Babbitt v. Sweet Home Chapter of Communities for a Great Oregon*, 515 U.S. 687, 691 n.2 (1995) (the "harm" form of ESA take "emphasize[s] that actual death or injury of a protected animal is necessary for a violation").

numerical offset value. AWEA suggests that this offset could be accomplished by reducing take from another source (reducing mortality) or, in theory, by increasing eagle carrying capacity either through increases in productivity (number of fledged young) or post-fledging survival. To maintain fairness and general uniformity with respect to compensatory mitigation measures imposed, the Service, with input from potential stakeholders, should develop a menu of scientifically justifiable options for numerically offsetting take at wind energy facilities.

Some of the mitigation options that AWEA suggests be included in the "menu" of scientifically justifiable mitigation measures are listed below:[35]

- Allow research to count as a percentage of mitigation (for a period of time) to ensure it gets done in a timely manner.
- Evaluate feasibility of reducing eagle fatalities from other sources.
- Reduce mortality from vehicle collisions by removing road kill carcasses from roads.
- Shift to non-toxic ammunition (hunter education/voluntary lead abatement).
- Reduce stock tank drowning.
- Reduce unintentional poisoning.
- Implement reward system to reduce poaching.
- Mark fences to reduce collisions.
- Reduce impacts of secondary trapping (e.g., by covering bait).
- Evaluate cost-effectiveness of funding programs.
- Fund eagle rehabilitation centers.
- Fund livestock depredation compensation programs and compensate landowners that protect eagles.
- Decommission or repower old wind projects.

[35] American Wind and Wildlife Institute, "Eagles and Wind Energy: Identifies Research Priorities," May 2012.

- Improve management of public recreational activities (e.g., off-road vehicle management, climbing) that reduce eagle productivity.

This list is not exhaustive, so other measures that will increase either eagle productivity or adult survival and thereby offset eagle take at wind energy facilities should also be considered and made available for public comment.

The Service should, in addition, identify the metrics to evaluate the effectiveness of compensatory mitigation measures, including costs, and develop options at a geographic scale appropriate for the eagle management unit (for example, by Bird Conservation Regions (BCR) or some other relevant management scale). The Service should also recognize that in many instances mitigation within a given BCR may be more effective than limiting it to within 10 miles of a project. However, the Service should clarify that any compensatory mitigation measures will only be imposed as direct mortality offsets.

AWEA Recommendation:

With input from stakeholders, the Service should offer compensatory mitigation measures such as those listed above. The Service should also incorporate financial limits into compensatory mitigation schemes to provide more assurances and cost certainty for industry.

V. Eagle Preservation Standard.

The Service asks for input as to whether the current eagle preservation standard is appropriate or whether it should be further refined or otherwise modified. The Eagle Act requires the Service to determine that any take of eagles it authorizes is "compatible with the preservation of bald eagles or golden eagles." In the preamble to the Eagle Permit Rule, and in the Final Environmental Assessment of the regulations, the Service defined that standard to mean "consistent with the goal of stable or increasing breeding populations." In other words, the standard calls for

"no net loss" of eagles. In addition, in the Draft Eagle Guidance and the preamble to the Eagle Permit Rule, the Service has interpreted this standard as it applies to regional or local populations.

AWEA believes that this standard, or at least the Service's interpretation of this standard, should be refined for two reasons. First, as it has been interpreted, the standard unnecessarily requires "no net loss" conservation of each regional population of golden eagles or bald eagles. Second, the current standard, as interpreted, erroneously provides more stringent conditions for obtaining an Eagle Take Permit than required by the Eagle Act.

A. The Current Eagle Preservation, As Interpreted, Unnecessarily Requires "No Net Loss" Conservation of Each Regional Population of Golden Eagles or Bald Eagles.

In the Draft Eagle Guidance and the preamble to the Eagle Permit Rule, the Service has made it clear that it will issue an eagle take permit only if issuance is consistent with stabilizing each regional population of golden eagles and bald eagles across the U.S. In other words, the Service has translated its duty under the Eagle Act to preserve the species of golden eagle and bald eagle as a whole into a duty to preserve each regional eagle population wherever it currently exists.

In contrast, the standard for an ITP under the ESA is that the approved taking cannot "appreciably reduce the likelihood of the survival and recovery of the species in the wild."[36] This is the legislative restatement of the regulatory standard for compliance with "Section 7(a)(2) of the Act, that is, whether or not the taking would jeopardize the continued existence of the species."[37] In other words, ESA section 10 allows "permits for the incidental taking . . . provided the action will not jeopardize the continued existence of the species."[38] Since these ESA provisions only prohibit jeopardizing the entire listed species unit, the Service has made it clear that it applies ESA section 7 (and, in turn, ESA section 10(a)(2(B)(iv)) only to impacts that are likely to jeopardize the entire species

[36] 16 U.S.C. § 1539(a)(2)(B)(iv).
[37] H.R. Rep. No. 97-567 at 31, 1982 U.S.C.C.A.N. 2831.
[38] H.R. Conf. Rep. No. 97-835 at 29, 1982 U.S.C.C.A.N. 2870.

with extinction, and that adverse effects to a single population of that species often are not enough to demonstrate jeopardy.[39]

Because smaller populations are inherently more vulnerable than the entire species, as AWEA noted previously in its comments on the Draft Eagle Guidance, the Service has made it more difficult to obtain an eagle take permit than required by the Eagle Act.[40] AWEA thus urges the Service to make clear that the Eagle Act's preservation standard of "no net loss" applies to the national population of the eagle species.

AWEA Recommendation:

The Service should refine its interpretation of the eagle preservation standard to apply to the national population of eagles, and should therefore issue an eagle take permit if issuance would not reduce the likelihood of survival of the species of golden eagles and bald eagles nationally, rather than individual local or regional populations.

VI. Establishing an Inter-Agency Consultation Process for Eagle Permitting.

AWEA encourages the Service to take steps to streamline and expedite the process for making eagle permitting decisions. The lengthy and uncertain permitting process for wind development projects significantly compromises the industry's ability to attract financing and bring much needed clean energy to market, and eagle permitting constitutes just one of a multitude of permitting hurdles developers face in moving projects forward. Given this set of circumstances, AWEA recommends the establishment of an inter-agency consultation process similar to that provided by ESA section. Such a consultation process would be helpful for any development projects that have a federal nexus, including BLM, U.S. Army Corps of Engineers, and Forest Service projects.

AWEA Recommendation:

[39] *E.g.,* Memorandum from USFWS Director H. Dale Hall to Regional Directors, et al., "Recovery Units and Jeopardy Determinations under Section 7 of the Endangered Species Act" 1-2 (Mar. 6, 2006).
[40] Comments of the American Wind Energy Association on Draft Eagle Conservation Plan Guidance, at 23.

Implement an inter-agency consultation process for eagle permitting to allow the government to take permitting actions in a more expeditious fashion.

VII. Conclusion

AWEA respectfully requests that the Service consider our comments and make appropriate changes in the final rule. Please do not hesitate to contact us if you should have any questions regarding these comments.

Sincerely,

John Anderson
Director of Siting Policy

Tom Vinson
Senior Director of Federal
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July 12, 2012

Attention: Eagle Conservation Plan Guidance
Division of Migratory Bird Management
U.S. Fish and Wildlife Service
4401 North Fairfax Drive
Mail Stop 4107
Arlington, VA 22203–1610

Re: Comments of the American Wind Energy Association on Eagle Permits; Changes in the Regulations Governing Eagle Permitting; Docket No. FWS-R9-MB-2011-0054

Submitted via Federal Rulemaking Portal: http://www.regulations.gov

On April 13, 2012, the United States Fish and Wildlife Service (FWS or Service) proposed a rule (Proposed Rule) to revise the regulations for permits for nonpurposeful take of golden eagles and bald eagles where the take is associated with, but not the purpose of, an otherwise lawful activity. In the Proposed Rule, the Service proposes to increase the maximum term for programmatic permits to 30 years and to increase permit application processing fees for such long-term permits. Ensuring the Proposed Rule is workable for the wind industry while providing for the protection of bald and golden eagles is of paramount importance to the wind energy industry. The American Wind Energy Association (AWEA)[1] appreciates the Service's recognition in the Proposed Rule that the 5-year term limit, without explicit guarantees for renewal or that significant additional mitigation will not be required should the term be renewed, imposed by the 2009 regulations

[1] AWEA is the national trade association representing a broad range of entities with a common interest in encouraging the deployment and expansion of wind energy resources in the United States. AWEA members include wind turbine manufacturers, component suppliers, project developers, project owners and operators, financiers, researchers, renewable energy supporters, utilities, marketers, customers and their advocates.

(Eagle Permit Rule) (see 50 CFR 22.26(h)) needs to be extended to better correspond to the timeframe of renewable energy projects and the financing realities of those projects. While we generally support the proposal, we offer the following specific comments that we believe would improve the proposal, if adopted, and better balance the goals of responsible wind energy development and the conservation of eagles.

I. Background

Since publication of the Eagle Permit Rule, FWS states in the Proposed Rule that it has reviewed applications from proponents of renewable energy projects, such as wind and solar power facilities, for programmatic permits to authorize eagle take that may result from both the construction and ongoing operations of renewable energy projects.[2] During its review, FWS states that it became evident that the five-year term limit imposed by the Eagle Permit Rule needed to be extended to better correspond to the timeframe of renewable energy projects.

Under the proposed rule, the maximum permit tenure for standard § 22.26 permits would remain at five years, and the extended tenure permit would be only for programmatic permits issued under 50 CFR 22.26 for nonpurposeful take of eagles. Specifically, FWS proposes to amend the regulations to provide for terms of up to 30 years for programmatic permits. In light of the much longer permit durations that would be possible under the proposed regulations, FWS intends to incorporate into the terms and conditions of the permit a commitment from the applicant to implement additional specified mitigation measures that would be triggered if the level of take anticipated is exceeded or if new scientific information demonstrates that additional mitigation measures are necessary for the preservation of eagles. In other words, in exchange for a longer permit duration, the Service is proposing significant new mitigation requirements to ensure the

[2] In February 2011, the FWS published draft Eagle Conservation Plan Guidance (Draft Eagle Guidance) that provided information on how to prepare Eagle Conservation Plans and apply for eagle take permits. In our comments on the draft, AWEA and other commenters recommended that FWS extend the term of the permit.

conservation of eagles is maintained during the extend permit tenure. In addition, the Proposed Rule proposes to increase the fees associated with the review and issuance of permits in order to cover costs and ensure monitoring of projects over the extended permit terms.

II. Introduction

In light of wind energy's many environmental benefits, AWEA thinks that the Service should be creating positive incentives for the greater development of wind energy. Promoting greater use of renewable energy is a priority under the Energy Policy Act of 2005, as well as under the requirements in State laws that have established "renewable portfolio standards." It is also a priority for this Administration. [3]

Promoting greater use of wind energy and other renewable sources of energy is and should be a high priority for the Service and should go hand-in-hand with protecting wildlife, such as bald and golden eagles. The Eagle Act itself authorizes the Service to provide a better balance between the preservation of eagles and the responsible development of renewable energy.[4] With that end in mind, while we believe the Proposed Rule strikes a better balance between those goals than the existing regulations, the Proposed Rule, without additional changes, continues to have the potential to substantially impede wind energy development. It is our hope that the following comments are beneficial to FWS in guiding its efforts to both allow for the responsible deployment of wind energy facilities and ensure the conservation of eagles.

III. Although the Proposed Rule's Longer Permit Duration Provides Increased Cost Predictability for Developers, Costs Remain Uncertain As "No Surprises" Assurances Do Not Exist With Respect to Additional Mitigation Measures.

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[3] Interior press release entitled Secretary Salazar Issues Order to Spur Renewable Energy Development on U.S. Public Lands (March 11, 2009) (*available at* http://www.doi.gov/news/pressreleases/2009_03_11_releaseB.cfm and http://www.blm.gov/ca/st/en/info/newsroom/2009/march/DOI0911_Salazar_spurs_renewables.html). Interior Secretarial Order No. 3285 establishes the policy that [e]ncouraging the production, development, and delivery of renewable energy is one of the Department's highest priorities." *See* http://www.doi.gov/news/pressreleases/loader.cfm?csModule=security/getfile&pageID=5759.

[4] 16 U.S.C. §§ 668-668d.

AWEA appreciates the Service's recognition that eagle take permits for wind development should be issued for the full life span of long-term wind energy projects and, accordingly, has extended the maximum term for a programmatic permit from five to 30 years in the Proposed Rule.[5] This change demonstrates the Service's increasing recognition of the reality that, in order to secure financing for many capital-intensive long-term projects, such as wind energy facilities, there must be a high level of certainty that regulatory approvals will remain in effect over a facility's serviceable life and not allow for additional previously unanticipated mitigation costs to be applied at a later date (*e.g.*, upon renewal of a five-year permit). However, what the rule gives through the extended permit duration, it takes away by not providing more certainty with respect to the sanctity of that instrument. In light of the much longer permit durations that would be possible under the proposed regulations, the Service states in the Proposed Rule that it intends to incorporate into the terms and conditions of a permit a commitment from the applicant to implement additional specified mitigation measures that would be triggered if the level of take anticipated is exceeded or if new scientific information demonstrates that the additional mitigation measures are necessary for the preservation of eagles. It states that such additional mitigation measures "would be triggered if the level of take anticipated is exceeded or if new scientific information demonstrates that the additional mitigation measures are necessary for the preservation of eagles."[6] The Proposed Rule further states:

> Additional conservation measures that may be implemented during the life of a project for the proposed longer-term permit would be designed to achieve the intended (but not fully achieved) objectives of the original mitigation measures. The additional conservation measures may also include additional compensatory mitigation to mitigate the level of authorized take, or, if necessary for the preservation of eagles, below the originally authorized take levels, for example if, during the 30-year permit tenure, new information indicates unexpected declines in eagle populations that warrant restricting take.[7]

[5] See 77 FR 22267, April 13, 2012.
[6] 77 FR 22268, April 13, 2012.
[7] *Id.*

AWEA supports the concept that, in exchange for the longer permit duration than would be possible under the Proposed Rule, the Service should be able to incorporate additional specified mitigation measures into the permit when potential changes in circumstances arise. We also appreciate the Service's suggestion that such measures "could be described in detail in the permit so as to reduce uncertainty with respect to costs."[8] Indeed, we believe it is essential that these permits describe ''up front'' in the permit the consequences and expectations from the applicant of unexpected take or new information about eagle populations affected by a permitted activity, as well as describe the specific additional mitigation measures that may be required. This would certainly help reduce some uncertainty with respect to evaluating exposure to future costs.

As it stands, however, beyond the quoted statement above, the Proposed Rule does little to actually ensure cost certainty and project security for developers. In other words, while the Proposed Rule contains vague language with respect to ensuring cost certainty throughout the life of the permit, the rule explicitly gives the Service broad leeway to impose additional mitigation measures and even decrease the authorized level of take or revoke the permit entirely. As a result, the rule fosters more uncertainty with respect to costs than it does certainty. Indeed, the Proposed Rule provides permit holders with no assurances that unanticipated, overly burdensome mitigation requirements will not be placed on them or that the authorized level of take will be reduced whenever the Service deems that new scientific information calls for additional conservation measures. This is even more stringent than even under the Endangered Species Act (ESA)—the gold-standard of wildlife protection laws.

In sum, despite the Service's extension of the permit duration, the lack of cost certainty throughout the life of the permit will significantly impact the wind energy industry; as such, the Proposed Rule does not fully consider the realities of financing, permitting, constructing, and operating wind energy facilities. Rational businesses and investors favor cost certainty. To the extent

[8] 77 FR 22268, April 13, 2012.

that costs can be accurately predicted over time, the risk premium is reduced and the interest in investment is increased.

A unique set of challenges arises for each successful wind energy development, but the general model requires the following steps:

- Identify areas with promising wind resources, compatible land uses, and access to transmission lines with likely off-take;
- Identify and map prospective sites;
- Conduct a preliminary siting and environmental screening;
- Establish a relationship with landowners and negotiate wind measurement agreements and/or land leases;
- Maintain strong relationships with local stakeholders, including local government, environmental groups, and community groups among others;
- Commence preliminary project planning and design;
- Conduct initial environmental assessments and studies;
- Begin permitting discussions and planning with regulators; and
- Secure interconnection, transmission and power purchase agreements.

Each of these early stages of development requires coordination by multiple parties and substantial financial and time commitments. Together they create a project risk-benefit profile. All of these costs accumulate and are reflected in the price of wind energy, so the industry must continuously control these costs.

Permitting and regulatory compliance are two of the most important components of the project profile. Utility-scale wind energy development requires investment of hundreds of millions of dollars and contractual commitments by multiple parties spanning up to 30 years. Thus, any introduction of regulatory uncertainty combined with unknown and escalating compliance costs, including additional unexpected mitigation measures, is likely to make wind energy increasingly unattractive to investors, resulting in a significant reduction of wind energy development.

Wind energy developers must address the risk posed by unexpectedly increasing compliances and mitigation costs and changing regulatory projects, so that landowners, local governments, transmission providers, power purchasers, and investors may be assured that the project will be constructed and operated in compliance with the law. Developers must maintain compliance while also protecting the facility's ability to produce energy at competitive prices, and earn revenues adequate to justify the significant financial investment. Each of the stakeholder parties involved commit to project development for 20-30 years through changes to local land uses, power purchase commitments, transmission designation and upgrades, and capital investment. The Proposed Rule, while guaranteeing more certainty to developers and stakeholders with respect to permit duration, as suggested, still fails to provide sufficient certainty with respect to future mitigation costs, thereby perpetuating an imbalanced risk-benefit profile to all parties involved in wind energy development.

Given the rather rigid economic structure that is endemic to wind energy development, unlike many other development activities, the open-ended cost exposure under the Proposed Rule would negatively impact and restrict wind energy development more than other economic development projects. Unlike other energy development activities that have more economic variables and fluctuating prices, a wind energy project, once developed, has fairly predictable margins. This is due to the fact that under power purchase agreements prices are generally fixed, and the purchasing utility requires a minimum amount of production from the wind energy facility, which, if not met, results in penalties or contract termination. Because power purchase prices are fixed, any additional mitigation costs cannot later be passed on to consumers. Further, once a facility is constructed and operating, any costs related to the operation and maintenance of the plant (including any costs related to mitigation) must come out of the project's budget and not from the parent company, which either developed or acquired the facility at a later date. This inability to pass on increased costs would

further erode margins, and if the risk is unclear up-front, it would also impede investment in the first place.

If contract and operating costs are fixed and revenues are fixed, then any uncertainty with respect to post-construction mitigation and/or minimization requirements, such as that created by the change to the permit duration in the Proposed Rule, creates a significant barrier for attracting initial project financing. Specifically, under the current wind energy permitting and development structure, the bulk of development costs (approximately 80 percent) are spent before most of the project-associated risks are fully known. Thus, without "No Surprises" assurances against additional unexpected post-construction mitigation measures, as provided for under the ESA, parties who would potentially finance a wind project will be very conservative as to their assumptions, assuming the worst case scenario that risks will change and additional mitigation costs will ensue, thereby inhibiting funding.

As the Eagle Act's preservation standard calls for a stable or increasing population, under the Proposed Rule, developers would likely bear the burden of additional unexpected mitigation measures any time the Service found that new information demonstrated that the Eagle Act's extremely broad "no net loss" preservation standard was not being met. For example, whenever an eagle population were in decline or not stable, for whatever reason, the Service could require that the eagle take permit provide for additional mitigation measures down to a point of "no net loss" of eagles. In light of this restrictive standard, the chances that the measures specified in the permit up-front might fail to meet the Eagle Act's preservation standard could be high, and in turn, the Service may often be in the position of amending a programmatic permit to safeguard eagle populations or revoking the permit entirely if the activity is not compatible with eagle preservation.[9] This naturally makes it impossible to accurately predict project costs.

[9] *Id.; see also* 50 CFR § 22.26(c)(7).

AWEA Recommendation:

Rather than allow such an unrestricted provision for implementing additional mitigation measures, AWEA urges the Service to limit the additional compliance expectations to pre-defined measures in response to changed circumstances previously provided for in the permit and applied at the project level. This would be consistent with the intent of the "No Surprises assurances" provided for under the ESA, reducing cost uncertainty, making developers more likely to seek full-term permits and to comply with its conservation conditions, and thereby promoting positive economic investment and development while preserving the health of eagle populations. If the Service is reluctant to define all measures upfront, the Service should consider other options like a percentage cap in cost increases to a developer for mitigation measures over time; this would provide more certainty than just leaving the costs of compliance totally open-ended.

IV. The Requirement for Additional Mitigation Measures for Eagles Under the Proposed Rule is Unnecessarily More Stringent than Species Listed under the ESA.

A. A More Inflexible Conservation Standard for Less Imperiled Species

The conditions for eagle take permits in the Proposed Rule are in stark contrast to those for ESA incidental take permits (ITPs), which explicitly provide "No Surprises assurances." ESA ITPs "were designed by Congress to authorize incidental take, not to be mandatory recovery tools" and do not require no-net-loss of individual members of a listed species.[10] In fact, under the ESA's No Surprises Policy, an applicant for an ESA ITP may negotiate for long-term regulatory assurances that no additional mitigation will be required under the plan even if the needs of the species change over the life of the permit.[11] In recognition of this fundamental fact of economic life, Interior Secretary Babbitt adopted the so-called No Surprises assurances in the 1990s. No Surprises assurances provide

[10] HCP Handbook at 3-20.
[11] 63 FR 8867, Feb. 23, 1998.

considerable certainty that the costs for ESA compliance will not increase over time due to future unforeseen events.

No Surprises assurances suggest that a deal-is-a-deal and that the Service will not seek further concessions from someone who has secured an ITP.[12] Once an ITP has been issued and its terms and conditions are being fully complied with, the permit holder may rest assured that the agreed upon cost of conservation and mitigation will not change.[13] If the status of a species addressed under an HCP unexpectedly worsens because of unforeseen circumstances, the Federal government, other government agencies, or other non-Federal landowners who have not yet developed a Habitat Conservation Plan (HCP) have the obligation to implement additional conservation measures.[14] Specifically, under the ESA, for any "unforeseen" changes in circumstances that are not explicitly included in the original permit, the government and/or other non-permitted landowners must bear the costs of additional mitigation. The permit holder is only expected to implement additional conservation and mitigation measures to respond to changes in circumstances that were originally provided for in the HCP's operating conservation program.[15] Such measures would have already been factored into the estimated project costs, providing cost predictability to developers throughout the life of the permit. We note that the implementation of the ESA No Surprises policy had the intended effect of reviving private sector investment in projects that had a nexus with the ESA in the late 1990s and through the 2000s.

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[12] The No Surprises Rule assures the holder of a post-March 1998 ITP that, if unanticipated "unforeseen circumstances" occur, the USFWS "will not require" the ITP holder to commit "additional land . . . or financial compensation . . . beyond the level" agreed to in the HCP "without consent of the permittee." 50 C.F.R. § 17.22(b)(5)(iii) and 17.32(b)(5)(iii); *see* 63 Fed. Reg. 8862-64, 8866-69 (Feb. 23, 1998). And, even with respect to foreseen circumstances, though the parties might negotiate an ESA ITP that has some increasing costs over time, at least the negotiation "process will enable the applicant to assess the potential economic impacts of adjustments before agreeing to the HCP." 65 Fed. Reg. 35253 (June 1, 2000).
[13] *Id.*
[14] *Id.*
[15] *Id.* at 8868.

The ESA protects America's most imperiled species, which undergo a lengthy listing process to be listed as either "threatened" or "endangered."[16] It has been called the "pitbull" of environmental laws as it has halted major federal construction projects and closed entire forests to harvesting.[17] Despite this reputation as arguably the strictest federal environmental statute that protects the most threatened or endangered species, the ESA still provides No Surprises assurances for developers once they obtain a permit, assuming adequate mitigation measures for the life of the permit are provided for on the front end. Accordingly, we see no reason why the Service would not apply No Surprises assurances to eagles, which are less imperiled species than those listed under the ESA.

Neither bald eagles nor golden eagles, which are protected by the Eagle Act, are listed as "threatened" or "endangered" under the ESA. Still, species conservation under the Proposed Rule is more stringent than that for listed species under the ESA, as this rule does not provide No Surprises assurances for developers and even authorizes permit revocation under certain circumstances. AWEA recognizes both the biological and historically symbolic significance of eagles and fully supports their careful conservation. However, the Service should hold eagle conservation to, at a maximum, the same conservation standard as the nation's most imperiled species, thereby allowing developers to negotiate No Surprises assurances in exchange for predetermined mitigation measures in response to pre-defined potential changes in circumstances.In light of the fact that the extension of the programmatic permit makes the eagle permit structure consistent with ESA, which similarly allows an ITP for the full term of a project, we see no reason why the Eagle Permit Rule cannot provide the same certainty for non-listed species, such as eagles. In contrast, the Proposed Rule provides no such assurances for eagle take permit holders. As such, the rule would disincentivize, wind energy and other forms of development from occurring, defeating the intent of this proposed

[16] 16 U.S.C. § 1533(a)(1).
[17] Patrick W. Ryan and Galen Schuler, "The Endangered Species Act—A Primer," 1998 Perkins Coie LLP, available at http://www.mrsc.org/subjects/environment/esa/esaprime.aspx.

regulatory change to provide greater certainty for certain development activities by increasing the tenure of some eagle permits.

***AWEA Recommendation*:**

The Service should learn from the success of the ESA's No Surprises policy and, consistent with the requirement for an ESA ITP, promote cost certainty by extending No Surprises assurances to eagle take permits. Such assurances are a necessary component of any long-term permit program, without which the extended tenure of the permit would provide only marginally improved incentives for developers to seek permits than under the existing five-year permits. As a result, any additional eagle conservation measures provided in a long-term permit would not be realized. Thus, the Service should hold permits for the take of eagles to no greater than those for listed species under the ESA. In addition, consistent with the No Surprises policy allowed for ESA ITPs, before granting an eagle take permit, the Service should negotiate with permit applicants to pre-determine any mitigation measures that would potentially be imposed should specific changes in circumstances arise.

B. Degree of Take Minimization and Mitigation

The Proposed Rule not only provides no assurances for developers, but also continues to hold developers subject to the Eagle Act to a more stringent standard with respect to the degree of minimization and mitigation it requires. The Proposed Rule continues to support the current regulations for eagle take permits, which require ACPs to avoid and minimize take of eagles to the point of being unavoidable. This means that the Service may seek to minimize and mitigate for both: (1) risks that an eagle take might (or might not) occur; and (2) modification of habitat for eagles, without any actual take of an eagle. The Proposed Rule further states that:

> [a]dditional conservation measures . . . may be implemented during the life of a project for the proposed longer-term permit . . . to achieve the intended (but not fully achieved) objectives of the original mitigation measures. The additional conservation measures may also include additional compensatory mitigation to mitigate the level of authorized take, or, if necessary for the preservation of eagles, below the originally authorized take levels, for example if, during the 30-year permit tenure, new

> information indicates unexpected declines in eagle populations that warrant restricting take.[18]

The ACPs must, in turn, apply the "best available technologies to reduce eagle disturbances and ongoing mortalities to a level where remaining take is unavoidable."[19]

In contrast, under the ESA, an ITP must merely minimize and mitigate for the actual take (killing or wounding) of a listed animal. There is no comparable "no net loss" preservation standard requirement for an ITP, and there is no comparable constraint on applying ACPs or on reducing take to an "unavoidable" level to obtain an ITP. Again, eagles are held to a higher conservation standard than species listed under the ESA.

AWEA Recommendation:

Consistent with the requirement for an ESA ITP, any additional mitigation and minimization should only be required for the actual take (killing or wounding) of an eagle, helping reduce cost uncertainty for project developers. In addition, the Service should not require ACPs as a standard for demonstrating compliance. To the extent that ACPs are employed, they should be practical and proportional to the risk to eagles and the potential to adversely affect eagle species, as the preamble to the Eagle Permit Rule specifically includes the statement that "if the adverse impact is small, it may be impracticable to undertake enormously costly measures to avoid it, but if the impact will be extremely detrimental, increased measures may be deemed reasonable and practicable." However, if this standard is not adopted, a process must, at a minimum, be established to provide a permittee with a credit for takes that are mitigated for in advance but never occur, and the permittee should be able to apply those credits to other facilities/development projects owned by the permittee in the same Bird Conservation Region (BCR) or transferrable/saleable to other similar facilities/uses in the region.

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[18] 77 FR 22268, April 13, 2012.
[19] 50 C.F.R. § 22.3; *see id.* at § 22.26(a)(2).

V. Since Mitigation Should Only Be Required to Offset Actual Measureable Impacts, the Standard for When Predetermined Additional Mitigation Measures Will Be Triggered Must Be More Precisely Defined.

As mentioned previously, AWEA believes that cost and conservation certainty can both be best achieved by predicting changes in circumstances affecting eagle population health that may occur throughout the permit duration, listing those potential changes up front in the permit and providing any necessary mitigation measures that developers would be expected to implement should any of the listed changes arise. This process is consistent with the ESA and would ensure that any additional mitigation measures would only be required to offset actual measureable impacts previously determined and considered in initial expected project costs.

If the Service adopts the proposed triggers and imposes additional mitigation measures whenever new scientific information demonstrates that such measures are necessary for the preservation of eagles, the standards for doing so should be more precisely defined in the final rule to give permittees greater certainty as to when their permits might be subject to change.[20] The Eagle's preservation standard calls for a stable or increasing population (*i.e.*, no net loss), but the "new scientific information" trigger standard does not explicitly define what kind of qualitative and/or quantitative information is necessary to prompt additional mitigation measures. Therefore, this current trigger standard is too vague and gives the Service overly broad latitude to impose such measures. Such an open-ended trigger standard perpetuates cost uncertainty for wind developers as they would be unable to predict when the Service would require new costly mitigation measures.

AWEA Recommendation:

AWEA urges the Service to more precisely define the trigger standard for imposing additional mitigation measures, specifying qualitative and quantitative criteria for doing so.

[20] 77 FR 22268, April 13, 2012.

VI. The Service Should Make Clear That Any Additional Mitigation Measures Will Only Be Imposed If New Scientific Information Demonstrates that the Eagle Population Is Declining Nationally Rather Than Locally or Regionally.

In the Draft Eagle Guidance and the preamble to the Eagle Permit Rule, the Service has made it clear that it will issue an eagle take permit only if issuance is consistent with stabilizing each regional population of golden eagles and bald eagles across the U.S. In other words, the Service has translated its duty under the Eagle Act to preserve the species of eagles as a whole into a duty to preserve each regional eagle population wherever it currently exists.

In contrast, the standard for an ITP under the ESA is that the approved taking cannot "appreciably reduce the likelihood of the survival and recovery of the species in the wild."[21] This is the legislative restatement of the regulatory standard for compliance with "Section 7(a)(2) of the Act, that is, whether or not the taking would jeopardize the continued existence of the species."[22] In other words, ESA section 10 allows "permits for the incidental taking . . . provided the action will not jeopardize the continued existence of the species."[23] Since these ESA provisions only prohibit jeopardizing the entire listed species unit, the Service has made it clear that it applies ESA section 7 (and, in turn, ESA section 10(a)(2(B)(iv)) only to impacts that are likely to jeopardize the entire species with extinction, and that adverse effects to a single population of that species often are not enough to demonstrate jeopardy.[24]

Since smaller populations are inherently more vulnerable than the entire species, as AWEA noted previously in its comments on the Draft Eagle Guidance, the Service has made it more difficult to obtain an eagle take permit than necessitated by the language in the Eagle Act.[25] In those comments, AWEA thus urged the Service to make clear that it would issue an eagle take permit if

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[21] 16 U.S.C. § 1539(a)(2)(B)(iv).
[22] H.R. Rep. No. 97-567 at 31, 1982 U.S.C.C.A.N. 2831.
[23] H.R. Conf. Rep. No. 97-835 at 29, 1982 U.S.C.C.A.N. 2870.
[24] *E.g.,* Memorandum from USFWS Director H. Dale Hall to Regional Directors, et al., "Recovery Units and Jeopardy Determinations under Section 7 of the Endangered Species Act" 1-2 (Mar. 6, 2006).
[25] Comments of the American Wind Energy Association on Draft Eagle Conservation Plan Guidance, at 23.

issuance would not reduce the likelihood of survival of the species of golden eagles and bald eagles nationally. The same standard should be applied when triggering additional mitigation measures; that is, the Service should interpret the Eagle Act's preservation standard of "no net loss" to apply to the national population of the eagle species, rather than individual local or regional populations.

AWEA Recommendation:

To the extent that that the Service continues to use the Eagle Act's stringent eagle preservation standard of "no net loss," the Service should require additional mitigation measures only when the national golden eagle and/or bald eagle population, rather than individual local or regional populations, is declining.

VII. Transferability of a Permit to a Successive Owner Should Not Be Subject to Additional Unexpected Terms and Conditions.

AWEA supports the proposal to change the regulations at 50 CFR 13.24 (right of succession by certain persons) and 13.25 (transfer of permits and scope of permit authorization) to allow a programmatic permit to be transferable to the new owner of a project, and to ensure that any successors to the permit holder commit to carrying out the conditions of the permit. AWEA agrees that successive permit holders should be subject to the same terms and conditions as their predecessors, and that permits should not transfer if a new owner cannot assure that it will finance and implement the relevant terms and conditions. The Service provides that it will "negotiate such permits if successive owners agree to the terms of the permit."[26] The word "negotiate" implies that the Service may seek to impose additional restrictions on the right of succession and transferability of the permit or to change the terms of the permit as a condition of the transfer. The possibility of changes to the permit as a condition of permit transfer effectively reduces the value of such a permit since assurances cannot be conveyed by the seller to the buyer.

[26] 77 FR 22268, April 13, 2012.

AWEA Recommendation:

AWEA urges the Service to grant full transferability of a permit, without additional unexpected conditions or other restrictions on transferability, if a successive owner adheres to the same conditions as the preceding owner and there are no material changes to the permitted activity (*i.e.* increased project size and location, number of turbines, turbine locations, etc.).

VIII. Conclusion

AWEA respectfully requests that the Service consider our comments and make appropriate changes to the final rule. Please do not hesitate to contact us if you should have any questions regarding these comments.

Sincerely,

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Director of Siting Policy

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comments on ANPR

1 message

Cottingham, David <david_cottingham@fws.gov> Mon, Feb 4, 2013 at 2:41 PM
To: Michael Bean <Michael_Bean@ios.doi.gov>, Steve Black <steve_black@ios.doi.gov>, Janea Scott <Janea_Scott@ios.doi.gov>

You have both recently asked me about comments on the ANPR. I have the AWEA and joint enviro comments which I'm attaching. My hunch is that these pretty well hit the high points of the comments received. They are both fairly predictable. I included the AWEA comments on the permit extension as well

DC

--
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3 attachments

AWEA Eagle Permit Ext Comments.pdf
446K

AWEA Eagle ANOPR Comments July 2012.pdf
459K

joint comments Aud DoW NRDC et al FWS eagle ANPR 7 12 12.pdf
186K

Public Comments Processing
Attention: FWS-R9-MB-2011-0094
Division of Policy and Directives Management
U.S. Fish and Wildlife Service
4401 North Fairfax Drive, Mail Stop 2042-PDM
Arlington, VA 22203–1610

Re: Fish and Wildlife Service Advance Notice of Proposed Rulemaking- Eagle Permits; Revisions to Regulations Governing Take Necessary To Protect Interests in Particular Localities (Docket No. FWS-R9-MB-2011-0094)

Submitted electronically on July 12th to http://www.regulations.gov

Please accept and fully consider these comments on the Advanced Notice of Public Rulemaking on eagle permitting (Docket No. FWS-R9-MB-2011-0094, Revisions to Regulations Governing Take Necessary to Protect Interests in Particular Localities) on behalf of the National Audubon Society, Natural Resources Defense Council, Defenders of Wildlife, The Wilderness Society, the Sierra Club, and 88 Audubon Chapters and State Offices. We appreciate the opportunity to comment on this docket and the important issues it raises concerning the obligations imposed by the Bald and Golden Eagle Protection Act (BGEPA), mitigation requirements and options, permit issuance criteria, and the eagle preservation standard.

For many years, our organizations have been deeply engaged in efforts to protect the publicly-owned lands and resources under the jurisdiction of the Department of the Interior. While this proposed rule has a much broader potential reach, touching virtually all aspects of eagle conservation efforts, we do recognize that FWS has pointed towards renewable energy development as the underlying impetus for this rulemaking. Our organizations strongly support the development of responsibly sited and effectively mitigated renewable energy projects, including wind generation projects, to meet the challenge of climate change by reducing cumulative greenhouse gas emissions. However, renewable energy development is not appropriate everywhere and must be managed in such a way that, to the maximum extent possible, protects wildlife, wildlands and other natural resources while ensuring full compliance with all applicable laws.

As stated in our joint comments on the Proposed Rule in Docket No. FWS-R9-MB-2011-0054, we believe that the matters in these two dockets must be considered and resolved simultaneously. Our concerns and recommendations center on the need for a legally sound and scientifically credible framework for authorizing programmatic take of eagles at wind facilities and address the following:

- There is a need for a comprehensive and fully transparent approach, in accordance with National Environmental Policy Act (NEPA) and Administrative Procedure Act (APA), an approach that provides full and robust environmental review, greater clarity in the guidance documents provided by the US Fish and Wildlife Service (FWS), and guarantees of opportunity for public engagement. Further, there is a need for the demonstration and documentation of the successful implementation of such a process for a 5-year programmatic permit.
- Any changes considered to the eagle preservation standard must be both legally sound and scientifically credible. The preservation standard is the essential thrust of BGEPA, and in considering any changes to its interpretation or definition it will be essential to meet this

statutory mandate. With respect to the science, the FWS should develop a more comprehensive approach, decreasing the emphasis presently given to breeding adults.

- Absent the demonstration of a biological need, permit issuance criteria for eagle take should not be changed from the current standard which is limited to "unavoidable" take. The management of potential on-going, sustained take that is allowed under a programmatic permit requires a strong standard as embodied in the current language.
- There is an urgent need for an overarching national eagle conservation management plan with corresponding regional management plans to guide implementation of the Draft Eagle Conservation Plan Guidance. The lack of clarity in the absence of this guiding framework impedes all stages of site assessment and mitigation planning.
- As the FWS considers how to address its question on defining the circumstances under which mitigation is required, it must concurrently weigh the effect of its decision on permit term limits in Docket No. FWS-R9-MB-2011-0054. The Precautionary Principle directs sound policy toward avoidance, including abandonment of the project, detection and curtailment, or other developing measures as the preferred mitigation in the face of uncertainty, and substantially increased, not decreased, mitigation requirements as permit terms are made more generous. From a species management perspective, creating mitigation exemptions in combination with a framework for 30-year permit terms would be unsound at this time.
- Any consideration given to exempting a facility from mitigation requirements must be based upon clear scientific evidence justifying the decision, considering both site level risk and status of the regional eagle population. Mitigation exemptions must be based upon risk assessments, not upon the rated capacity of the facility being permitted, and the rationale for the assessed level of risk must be provided.
- The Draft Eagle Conservation Plan Guidance is grounded in the use of pre-construction monitoring data to assess risk. If the FWS moves toward the use of pre-construction monitoring data to identify sites where no mitigation requirements will be imposed, it must simultaneously institute use of the same pre-construction data to identify circumstances at the other end of the continuum - sites where no wind development will be allowed due to elevated risk levels.
- A recent analysis of pre-construction monitoring data suggests that current monitoring protocols may provide information useful for predicting sites that pose little or no risk of eagle mortality over short time horizons; however, other sources suggest that there are still deficiencies in monitoring data collection that must be rectified. Before such an approach can be developed, there needs to be peer review of the findings, improved adherence to appropriate data collection protocols, and the development of additional information on disturbance and on longer run impacts.
- In many cases there will be a need for compensatory mitigation to offset unavoidable take before a permit can be issued. The critical preservation function played by compensatory mitigation demands confidence that the mitigation options utilized will provide benefits commensurate to the take being permitted. Commensurateness should reflect the scale, duration and demographics of take impacts at the site, and this is not assured to date as disparate options are considered. The Service must avoid mitigation options that may not provide benefit streams commensurate with the ongoing, persistent take they are intended to offset and in all cases must meet the eagle preservation standard in BGEPA.
- Furthermore, compensatory mitigation options must provide additionality in conservation outcomes and should have a high probability of success in order to be approved as measures to compensate for take. The proposed rule contains no assurances of additionality and no explicit

processes for evaluating performance of new options, steps which must be put in place as the menu of mitigation options is expanded.

- Options to minimize take through operational mitigation (Advanced Conservation Practices) are sorely needed. Consistent with this, we urge the FWS to encourage test applications of measures such as seasonal operational mitigation at sites on eagle migration routes, verified radar detection and curtailment, and other developing methods of avoidance so that performance data can be developed. Similarly, newly refined methods for risk modeling should be tested for efficacy in improved siting.
- Population management needs to be undertaken at a regional level and regional conservation plans are urgently needed.
- Data challenges must be addressed, including not only steps to fill large data gaps for golden eagles but also strategies sufficient to cover the looming termination of current bald eagle monitoring programs. Funding mechanisms for public domain scientific data must be established.
- If data shortfalls are not solved, then management decisions must err on the side of being more, rather than less, protective of both species.

Further details on these recommendations are provided below.

Need for a Comprehensive and Fully Transparent Approach

First, we must reiterate a concern highlighted in our joint comments on the Proposed Rule in Docket No. FWS-R9-MB-2011-0054 (incorporated herein by reference); namely, the desire for FWS to address these complex issues in a comprehensive, coordinated and fully transparent manner. Unfortunately, to date, agency actions dealing with BGEPA have been disjointed and confusing. This includes FWS' failure to complete the Draft Eagle Conservation Plan Guidance, environmental review and/or issuance of the first programmatic eagle take permit applied for by West Butte Wind Power, LLC, and National Golden Eagle Management Guidance as set forth in the Finding of No Significant Impact issued in conjunction with the 2009 Eagle Permit Rulemaking. This also includes the bifurcated process that FWS has now used to propose additional changes to the eagle permitting regulations, through this advanced notice and the Proposed Rule in Docket No. FWS-R9-MB-2011-0054.

We recommend that FWS immediately incorporate the proposed rulemaking with issues set forth in this advanced notice of proposed rulemaking, thus ensuring that issues within each will be examined simultaneously. We further urge FWS to take a comprehensive and fully transparent approach to eagle conservation issues, in accordance with the requirements of the APA and NEPA. Such a process would incorporate, at a minimum:

- Consolidated and coherent rulemakings with a full and robust environmental review process and greater clarity on associated guidance documents;
- Firm guarantees that the public will be afforded the opportunity to engage in permit issuance decisions and oversight throughout the duration of each permit;
- Clear articulation, in a legally sound and scientifically justifiable manner, of how any proposed changes will ensure the preservation of eagles—especially in the face of acknowledged uncertainty; and
- Demonstration and documentation of the successful implementation of such a process for a 5-year programmatic permit.

Eagle Preservation Standard

In 1940, confronted with the potential extinction of our National symbol, Congress acted to avert this threat and make the bald eagle a "ward of the National Government" by enacting the Eagle Act.[1] In 1962, Congress extended the protections of the Eagle Act to golden eagles, both because the golden eagle population was in decline and to afford greater protection for the bald eagle.[2] It is against this backdrop that we must examine any modifications of the authority created to ensure the continued persistence of these important trust species.

FWS is bound by the preservation standard set forth in BGEPA,[3] which endeavors to achieve and maintain stable or increasing breeding populations of bald and golden eagles. This advanced notice seeks comment on whether "consistent with the goal of stable or increasing breeding populations" is an appropriate interpretation of the preservation standard. While we appreciate FWS' original clarification of the preservation standard in the 2009 rulemaking, new data and analysis have clarified the significance of sub-adults and floaters to eagle populations—as described in more detail below under *Population Management* – and we recommend that the term "breeding" is deleted as a modifier to "populations" in the definition of the preservation standard. This change would allow for greater consideration of juveniles, sub-adults and floaters in determining overall population status and trends. In order to continue to recognize the fundamental importance of breeding pairs, though, we also recommend the addition of the following clarifying text: "with no significant decline in nesting pairs."

We propose amending the interpretation of BGEPA's preservation standard to "consistent with the goal of stable or increasing populations with no significant declines in nesting pairs" because it will focus efforts on a more accurate and scientifically credible determination of eagle populations while continuing to provide necessary guidance and assurance in allowing limited eagle take while sustaining a population necessary to preserve each species. In the Final EA for the 2009 rulemaking, FWS discussed the inclusion of "consistent with the goal of," which "will allow take that is compatible with long-term stability or growth of eagle populations" and thus assures that appropriate levels of take may be assigned.[4] The term "breeding" was incorporated in order to clarify "the significance of the number of breeding pairs for maintaining or growing populations, versus floaters (non-breeding adults)"—an issue that has since been revisited.[5]

The preservation standard is the essential thrust of BGEPA, and in considering any changes to its interpretation or definition we would also like to highlight the necessity of meeting this statutory mandate. Unfortunately, FWS has yet to demonstrate that it is able to ensure that programmatic eagle take is compatible with the preservation of the species.

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[1] H.R. Rep. No. 2104, 76th Cong., 3d Sess. 1 (1940).

[2] Pub. L. No. 87-884, 76 Stat. 1246.

[3] 16 U.S.C. § 668a. In compliance with the preservation standard, unless permitted, BGEPA prohibits the "take" of any eagle—part, nest, or egg thereof—where "take" also includes to pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb. 16 U.S.C. § 668c.

[4] Final Environmental Assessment, Proposal to Permit Take as Provided Under the Bald and Golden Eagle Protection Act, 177 (April 2009).

[5] Hunt, W.G. 1998. Raptor Floaters at Moffat's Equilibrium. Oikos 82(1): 191-197.

Need for national and regional eagle conservation management plans
As reflected in comments submitted with regard to the first request for an eagle take permit[6] as well as comments submitted on the 2011 Draft Eagle Conservation Plan Guidance,[7] there is an urgent need for a legally sound and scientifically credible framework for authorizing the programmatic take of eagles. Such a framework would help ensure that the necessary data are supplied, proper risk modeling is completed, and mechanisms are established for ensuring the preservation of affected eagle populations. Already it is apparent that incomplete data in permit applications is going to be an issue; a clearer management framework with regionally specific guidance for developers could greatly improve this. Clear definition of what constitutes a satisfactory application, what constitutes compliance with BGEPA, and the consequences for non-compliance must be provided in regional and national eagle conservation management plans. Establishing sound mitigation regimes and proper estimation of cumulative impacts will necessitate a framework comprised of regional conservation plans.

Permit issuance criteria
In the advanced notice, FWS seeks clarification on whether the eagle permit regulations should revise the permit issuance criteria for programmatic permits—currently required to be "unavoidable take"—to parallel that described for standard permits, or consistent with "take that cannot practicably be avoided." In this case, the burden is placed squarely on FWS to demonstrate why this issue is problematic.[8] Without further illustration of a biological need it is our opinion that the issuance criteria should *not* be changed. Not only has a mechanism already been identified and defined to demonstrate when take is "unavoidable," Advanced Conservation Practices, but the mere notion of on-going, sustained take that is allowed under a programmatic permit requires a heightened standard to demonstrate consistency with the preservation standard. We further agree that "applicants for both types of permits must take all practicable steps to avoid and minimize take"[9] and do not believe that this is inconsistent with the programmatic permit issuance criteria that take is "unavoidable."

While BGEPA expressly prohibits the take of bald and golden eagles, it does allow FWS to permit the otherwise unlawful take of eagles—in the form of mortality—in very *limited* circumstances. The stress on *limited* is an issue expressly acknowledged throughout the 2009 rulemaking as well as the reliance on "unavoidable" take for programmatic permits, and both are clearly articulated in the Description of the Rulemaking,

> We anticipate that permits issued under this regulation will usually authorize take that occurs in the form of disturbance; however, *in some limited cases*, a permit may authorize lethal take that results from but is not the purpose of an otherwise lawful activity. Programmatic take (take that is recurring and not in a specific, identifiable

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[6] Comments on the Environmental Assessment for an Application for Programmatic Take of Golden Eagles [at West Butte Wind Farm], submitted to FWS February 17, 2012, by Defenders of Wildlife. Comments on the DEA for the West Butte Wind Project, submitted to FWS February 17, 2012, by Natural Resources Defense Council. Comments on DEA for West Butte Wind Project, submitted to FWS February 17, 2012, by National Audubon Society, Audubon California, Audubon Society of Portland, and Lane County Audubon Society.
[7] Eagle Conservation Plan Guidance Comments, submitted to FWS May 19, 2011, by National Audubon Society, Defenders of Wildlife, Natural Resources Defense Council, National Wildlife Federation, The Wilderness Society, Sierra Club, and numerous Audubon Chapters and Friends
[8] *See N.Y. Public Interest Research Group, Inc. v. Johnson*, 427 F.3d 172, 182-83 (2nd Cir. 2005) for a discussion on the requirement that an agency explain a change in position and its reasons for changing its policy.
[9] Eagle Permits; Take Necessary To Protect Interests in Particular Localities; Final Rules, 74 Fed. Reg. 46836, 46838 (Sept. 11, 2009).

> timeframe and/or location) will be authorized *only where it is unavoidable* despite implementation of comprehensive measures developed in cooperation with the FWS to reduce the take below current levels…This type of authorization can be extended to industries, such as electric utilities or transportation industries, that currently take eagles in the course of otherwise lawful activities but *who can work with the FWS to develop and implement additional, exceptionally comprehensive measures to reduce take* to the level where it is essentially unavoidable (*emphasis added*).[10]

Programmatic permits for lethal take undoubtedly envision a different type of impact on eagle populations, an effect that carries a much higher possibility of harm and uncertainty. Not only is the possibility of harm greater, but also the nature of the harm is quite different than that presented for standard permits. Rather than presenting discrete "one-time" take or a defined impact, as a standard permits does, programmatic permits by their very nature are "activities that may disturb or otherwise take eagles on an on-going operational basis" and "occurs over the long term and/or in a location or locations that cannot by specifically identified."[11] This is precisely the reason that FWS incorporated the use of Advanced Conservation Practices, or "scientifically supportable measures approved by the FWS that represent the best available techniques to reduce eagle disturbance and ongoing mortalities to a level where remaining take is unavoidable," to ensure that programmatic permits would be compatible with the preservation of eagles.[12]

Continuing to allow only "unavoidable" take for programmatic permits—especially considering that there has not yet been any demonstration and documentation of successful implementation of such a process for issuing and administering a programmatic eagle take permit—further is entirely consistent with first taking all practicable measures to avoid and minimize take. Such a requirement is cornerstone to the well-accepted mitigation hierarchy, outlined in FWS' official mitigation policy as a tiered approach for first incorporating avoidance, then minimization measures and finally requiring compensatory mitigation for large-scale impacts with greater, unavoidable impacts.[13] We place extreme importance on continuing to incorporate sound, smart from the start planning and siting, which include avoidance measures and the best available minimization measures, prior to addressing the standard for and requirements stemming from the actual "take" of the species.

Circumstances requiring mitigation

In the advanced notice, the FWS requests comments on the following questions: *"Under what circumstances should permittees be required to provide compensatory mitigation? To what degree should any required mitigation offset the detrimental effects to eagles?"* Implicit in these questions is an underlying question as to whether there are circumstances in which not requiring mitigation is consistent with the eagle preservation standard that the FWS is obligated to implement.

In addressing this matter, we are first compelled to address those circumstances in which mitigation must always be assumed to be mandatory. These circumstances would include: Eagle Management Units in which the populations have been determined as not able to sustain take, Important Bird Areas

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[10] *Id.* at 46838.
[11] *Id.* at 46841.
[12] 50 C.F.R. § 22.3 (2011).
[13] U.S. Fish and Wildlife Service Manual (501 FW 2). *See also* 74 Fed. Reg. at 46852 and 46 Fed. Reg. 7656 (Feb. 24, 1993).

(IBAs)[14] and other special protection areas recognized for their importance to bald or golden eagles, eagle migration corridors, and areas of high value habitat, particularly areas known for eagle usage for foraging, nesting, or concentrated migration activity prior to the applicant's interest in developing a wind facility. The circumstances described above are excluded from further consideration here as potential prospects for reduced mitigation requirements.

Determining mitigation needs in the context of Docket No. FWS-R9-MB-2011-0054
As the FWS considers how to address its question as to the circumstances under which mitigation is required, it must consider the effect of its decision under Docket No. FWS-R9-MB-2011-0054 with respect to permit term limits. As noted by the FWS and others, uncertainties over eagle population status and effectiveness of mitigation options require a cautious approach. As the prospect of making permit terms more generous by a 6-fold margin is considered and associated uncertainties correspondingly magnified, the Precautionary Principle would tilt sound policy away from allowing mitigation exemptions. The probability that the obligations of BGEPA can be met under a 30 year permit declines unless the FWS imposes substantially increased mitigation requirements.

Determining mitigation needs from pre-construction monitoring data
Without a foundation in sound science, no waivers from mitigation obligations can be granted. Furthermore, consideration for exempting a facility from mitigation requirements must be based upon a determination of risk which must be based upon scientific data. For example, eagle use of the area should be documented via FWS-approved pre-construction monitoring protocols to predict disturbance and site mortality. If results indicate that the use falls below thresholds which have been empirically demonstrated, using USFWS-approved pre-construction monitoring protocols, to predict site mortality and disturbance, then discussions can be entertained on waiving mitigation obligations. Facility characteristics alone (such as rated capacity or number of turbines) should not serve as a basis for mitigation exemptions. Mitigation requirements must be justified relative to site-related risks and status of the regional eagle population(s).

We also wish to emphasize that if preconstruction data provide a rationale for defining areas where mitigation may not be necessary, these same data must also be used to assess the obverse: identifying sites where risk levels are so high that the appropriate course of action is avoidance, not mitigation. As articulated in our 2011 comments on the Draft Eagle Conservation Plan Guidance, we believe that another Tier for sites with unmitigable risk needs to be created. And, by extension, pre-construction data would provide the basis for those determinations. A piecemeal approach of applying pre-construction data for the purpose of identifying low risk sites without a balancing consideration identifying high risk sites would be inconsistent with the protection obligations under BGEPA.

It is conceivable that, with further scientific justification, it will be reasonable to establish standards that define those circumstances under which mitigation will not be required of project developers. At present there is insufficient data on disturbance to make an empirical case for this, but emerging data on mortality suggest that such data can be compiled and can provide scientific justification for developing such a standard in the future. A recent synthesis[15] of the relationship between pre-

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[14] IBAs are part of an international program to scientifically identify priority areas where threatened, restricted-range, biome-restricted and congregatory birds occur. These locations provide essential habitat to one or more species of birds during some portion of the year (nesting areas, crucial migration stop-over sites, or wintering grounds). For more information, go to http://web4.audubon.org/bird/iba/.
[15] A preliminary analysis which had not been peer-reviewed.

construction monitoring data and post-construction mortality concluded that, below a certain usage threshold, low pre-construction eagle use was related to low post-construction mortality.[16] This preliminary finding suggests that current monitoring protocols are capable of providing useful advance indications of levels of risk at proposed wind farm locations and that it may be feasible to identify low risk sites in this way once more data are developed and, importantly, proper data collection protocols are enforced. Unfortunately, there are still deficiencies in the methods used for avian monitoring for sites that lie on migratory pathways. Surveys for migrating golden eagles on the eastern ridges have typically been undertaken too early in the autumn, missing the peak migration movements altogether[17] and thus, we'd suggest, grossly underestimating eagle use of the sites. Such fundamental mis-measurement problems must be corrected *before* critical population management decisions can be tied to these data.

Before this approach can provide the basis for permit decisions, further work is needed. Additional information on disturbance and on longer run impacts are needed so that take risks can be fully examined. In addition, far too much uncertainty exists today to apply such a screening tool in the case of a 30 year permit.

The degree to which impacts must be mitigated

The benefits provided by compensatory mitigation are inherently more uncertain than those provided by avoidance of high risk sites and by operational mitigation (aka Advanced Conservation Practices). Avoided take is, by definition, equivalent in scale, kind, and duration to the take that would have occurred without these avoidance and minimization measures. This equivalency is not inherent in compensatory mitigation measures. Compensatory mitigation measures may benefit different demographic groups than those harmed by facility take, may under-perform and hence provide less benefit than the projected take levels, or may decay over time and so provide declining compensatory benefits while the take impacts continue at a constant level from year to year. In the face of these benefit uncertainties, to ensure that take impacts are fully offset and thus the obligation of the eagle preservation standard are met, the FWS must set a greater than 1:1 ratio of benefit to take for compensatory mitigation measures and monitoring mechanisms must be established for tracking predicted vs. actual benefits. Until such time as actual field performance data is compiled, equivalency standards for compensatory mitigation must be more stringent than the computed levels of take estimated at a site.

Expanding the mitigation menu: emphasizing avoidance and operational mitigation measures

As the FWS seeks to identify new mitigation options for eagle conservation, strong emphasis should be given to operational mitigation and site avoidance measures. For reasons discussed elsewhere in these comments, the preservation benefits of avoidance and operational mitigation are more assuredly matched to the take threats at a site than are compensatory mitigation measures. Hence, the FWS's preservation obligations are more conclusively achieved when avoidance and operational mitigation are employed.

Some of the difficulties of expanding the mitigation portfolio are lessening as new science and improved technology are providing needed data which can inform risk estimation and population management decisions. For example, curtailment and improvements to siting offer important and underutilized

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[16] Data analysis by WEST Inc. as reported in *Eagles and Wind Energy: Identifying Research Priorities,* AWWI, May 2012, page 14.

[17] Personal communication, FWS staff, June 2012.

mitigation tools for facilities located along migration corridors where high concentrations of birds and limited periods of risk promise high conservation benefit in return for limited business risk. Emerging data collected using high frequency GPS-GSM telemetry suggest the viability of targeting curtailment schedules on the basis of wind speed parameters during seasonal migration and the value of altering siting to reduce risk while minimizing cost to energy developers. In addition, the data suggest greater predictability of eagle flight paths during high risk, high wind speed times, suggesting greater predictive power of risk analysis models precisely during the higher risk timeframes when model performance is most critical. These findings provide a basis for delineating season- and weather-related strategies to minimize risk by selective curtailments during high risk periods, with those high risk periods being defined on the basis of new telemetered data. The FWS should fast-track the field testing of operational mitigation actions during high risk weather and season conditions and site-specific siting strategies.[18] The same technology can also demonstrate how stereotyped flight behavior relative to topographical features can be used to improve turbine siting (unpublished data).

In addition, sites where post-construction take levels substantially exceeded expectations, and where these levels exceed levels consistent with the regional conservation plan, must be subject to more stringent operational mitigation constraints. Data collection – by the FWS – must occur in these circumstances to develop the data to frame the mitigation plan.

Broadening the menu of compensatory mitigation measures

With limited developer resources and a FWS obligation to protect bald and golden eagle populations, it is important to avoid investments in mitigation measures which have a low probability of success. This would include the use of mitigation funds to rehabilitate injured eagles (which usually are not released back in to the wild, and thus wouldn't contribute to regional population numbers). It would also include many educational campaigns designed to alter citizen or business behavior without providing any inducement for behavior change (for example educational campaigns to reduce the use of lead ammunition). The additional conservation impacts could too easily fall short of projections through failures to reach or to influence the intended audience, or due to behavior attrition over time. The conservation framework for eagles cannot be grounded on highly uncertain and potentially ephemeral mitigation options.

We also caution against reliance on mitigation measures whose success relies upon outcomes and actors beyond the influence of either FWS or the wind industry. Such a framework, essentially unenforceable, introduces a new set of uncertainties and risk, and could create a false vision of take offsets that cannot be realized.

It is imperative that approved mitigation measures provide additionality of benefits specific to the regional eagle population. Proof of additionality will require evidence that "mitigation" activities are attributable to the actions of the wind project developer and not to extrinsic market forces. Reliance on mitigation options for which it will be impossible to document a net conservation benefit is unacceptable and insufficient for ensuring that obligations under BGEPA are met. This concern is relevant in circumstances where the mitigation option targets mortality sources extrinsic to the wind industry and the option merely provides funding to external programs. As an example, funding roadside carrion removal, which focuses on an important source of mortality, may provide little benefit

[18] Duerr A.E., T.A. Miller TA, M. Lanzone, D. Brandes, and J. Cooper J. 2012. Testing an emerging paradigm in migration ecology shows surprising differences in efficiency between flight modes. PLoS ONE 7(4): e35548. doi:10.1371/journal.pone.0035548.

additionality if no mechanisms are created to ensure that the funds do not merely displace comparable sources of funding for the same activity. Without such safeguards, it is likely that the mitigation strategy will accomplish more in shifting a cost burden to the wind industry than it achieves in reducing a known source of mortality to eagles.

While addressing additionality requirements could be handled by creating monitoring systems to track indicators of additionality, we are concerned at the prospect of the FWS, or the wind industry, needing to establish reliable new monitoring mechanisms for an expanded set of actors and actions when it is unclear that adequate resources exist for core administrative responsibilities for implementing the Draft Eagle Conservation Plan Guidance and the voluntary wind guidelines. It is important to keep the emphasis on mitigation actions controlled by the project developers, supplemented by a funding mechanism to drive mitigation dollars to habitat projects. In addition, we recommend that a portion of all eagle conservation mitigation funding should be dedicated to an eagle database to support the development of a robust decision support system useful to the FWS, industry, and other conservation biologists.

Need for Additional Research to Improve Mitigation Effectiveness

Based on the recognition of the limitations in current eagle population knowledge and the effectiveness of current mitigation tools, a period of mitigation testing lies ahead. Until we have amassed a body of information establishing actual performance in the field, it will be necessary to base decisions on preliminary estimates of effectiveness and then to continually reassess the actual effectiveness of the measures being piloted and adjust assumptions used in future rounds of planning. This holds true for measures classified as Advanced Conservation Practices (ACPs) as well as non-ACP mitigation actions. To facilitate rapid progress and greater certainty in allowing the use of new mitigation measures, rapidly shared information on field performance must be required, so that this adaptive management is feasible.

Population management requires full life cycle approach

To manage eagle populations, the FWS must understand and manage risks for migration, winter roosting, and foraging activities as well as breeding. Winter survival and/or condition upon completion of migration has direct consequences for fecundity, fitness, and thus demography. Hence, non-breeding behavior events are highly relevant to population success and management must encompass a full life cycle approach.

Scientific data are increasingly demonstrating that the demographic impacts of wind facilities differ depending upon the types of eagle activities impacted by a wind facility (foraging, nesting, migration, etc.). Juvenile birds have been found to be most at risk at sites where foraging use predominates. However, during migration the reverse can be true: breeding golden eagles appear more likely to use flight behavior that places the birds at greater collision risk than immature eagles. The risk differential arises from differences in flight patterns between mature and immature birds. The migration strategies of breeding adults make increased use of lower altitude, slope soaring behaviors that increase the likelihood of movement through rotor swept zones.[19]

More fundamentally, management of eagle populations requires monitoring more than the breeding population and their nesting success. Sub-adults and “floaters” that have not established territories are

[19] *Ibid.*

critical to buffer the loss of breeding adults. [20] This class of eagles also serves as an indicator of decreased productivity and incipient population declines.[21] Floaters are under-represented in current survey data, thus the age class of eagles whose status and trend is least well known and under-represented by traditional survey techniques and baseline data is also potentially the most important to buffer population changes. The accurate assessment of the floating segment is critical for assessing status of populations.

Given these findings, we believe it is imperative that the FWS:

- assess risks throughout the eagle life cycle in order to fully capture demographically linked risk profiles
- develop context-sensitive management plans that reflect expected differences in demographic risk based upon eagle use of the area in and surrounding the facility site
- evaluate and implement all management within the context of regional management plans.

Addressing areas of data insufficiency and providing funding mechanisms for essential science

It is not possible to determine how effectively the FWS is managing for stable or increasing populations without the essential information on status and trends. Impaired assessment, in turn, makes adaptive management infeasible. The FWS simply will not be able to demonstrate the adequacy of its actions in upholding BGEPA without the foundational scientific data to document population status and effectiveness of FWS actions.

The problem of data insufficiency is widely recognized and commented upon with respect to golden eagles. The nation's experts have identified data gaps with respect to population size, distribution, food and habitat availability impacts on reproductive output and survivorship, critical migration corridor areas, pre-adult dispersal, human disturbance impacts and critical habitat factors across all seasons and age classes (breeding, floaters, migration, and wintering), age-specific survival rates and causes of mortality, population sizes and trends, population demography, natal dispersal within and among regions.[22] Given that these fundamental data have not yet been developed, there are, at best, weak scientific justifications for management decisions made today regarding golden eagles. Furthermore, to manage populations over the long-term, post-construction monitoring is strongly recommended. The information gathered would guide more effective siting and mitigation strategies going forward.

New resources for eagle monitoring must be established and these resources must be sufficient to address both the sunsetting of bald eagle monitoring programs and to provide new funding for the understudied golden eagle. As the FWS is establishing a new fee structure for wind project permitting, we urge that it address the need for a national eagle research and monitoring fund to direct moneys to the most critical data gaps and research priorities, including topics such as post-construction mortality, and to ensure sufficient access to decision-relevant information to allow these data to be used to guide future wind facility siting and operations.

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[20] Kochert, M.N., Steenhof, K.*, 2002, Golden eagles in the U.S. and Canada- Status, trends, and conservation challenges: Journal of Raptor Research, v.* 36, no. Supplement 1, p. 32-40

[21] Nielson, R. M., T. Rintz, L. McManus, and L. L. McDonald. 2012. A survey of golden eagles (Aquila chrysaetos) in the western U.S.: 2011 Annual Report. A report for the U.S. Fish & Wildlife Service. WEST, Inc., Laramie, Wyoming. U.S. Fish & Wildlife Service. 2011. Draft Eagle Conservation Plan Guidance. Available at http://www.fws.gov/windenergy/docs/ECP_draft_guidance_2_10_final_clean_omb.pdf

[22] Katzner et al, *Status, Biology, and Conservation Priorities for North America's Eastern Golden Eagle (Aquila chrysaetos), Auk* volume *129(1):1*, 2011, and North American Golden Eagle Science Meeting, 2010.

Conclusion
We appreciate the opportunity to comment on the regulations governing take permits for bald and golden eagles, and we urge the FWS to fully consider the issues with respect to the need for conservation management plans, strong assurances of mitigation effectiveness and management oversight of same, the importance of emphasizing avoidance and ACPs over compensatory options, and, above all, the need for a legally sound and scientifically credible framework. For the reasons described above, we believe the FWS must simultaneously consider, and resolve, the issues in this docket with those of Docket No. FWS-R9-MB-2011-0054 to ensure that obligations under BGEPA are met. The issues discussed herein are amplified in the context of a potential 30 year programmatic take permit framework, and the risks of adverse consequences to bald and golden eagles greatly amplified.

Our organizations are fully committed to working with FWS, industry, and other stakeholders to identify and incorporate a collaborative, legally sound and scientifically credible framework for addressing these issues.

Thank you for your thorough consideration of these comments.

Sincerely,

Mike Daulton
Vice President, Government Relations
National Audubon Society

Juliette Falkner
Senior Policy Analyst, Renewable Energy and
Wildlife
Defenders of Wildlife

Katie Umekubo
Western Renewable Energy Project Attorney
Natural Resources Defense Council

Liese Dart
Policy Advisor Wildlife and Clean Energy
The Wilderness Society

Barbara Boyle
Senior Representative, Beyond Coal Campaign
Sierra Club

Audubon Chapters and State Offices

AR
Audubon Arkansas
Audubon Society of Central Arkansas

AZ
Maricopa Audubon Society

CA
Audubon California
Ferncrest Audubon Society
Napa-Solano Audubon Society
Ohlone Audubon Society
Palomar Audubon Society
Peregrine Audubon Society
Sacramento Audubon Society
Santa Barbara Audubon Society
Sierra Foothills Audubon Society
Yosemite Area Audubon Society

CT
Audubon Connecticut

CO
Audubon Rockies
Arkansas Valley Audubon Society
Roaring Fork Audubon Society

ID
Golden Eagle Audubon Society
Portneuf Valley Audubon Society

FL
Bay County Audubon Society
Duval Audubon Society
Citrus County Audubon Society
Clearwater Audubon Society
Halifax River Audubon
Lake Region Audubon
Manatee County Audubon Society
South Florida Audubon Society
Space Coast Audubon Society
St. Lucie Audubon Society
St. Petersburg Audubon Society
Venice Area Audubon Society
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West Volusia Audubon Society

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Quad City Audubon Society

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John Wesley Powell Audubon
South Bend-Elkhart Audubon Society
Thorn Creek Audubon Society

IN
Amos Butler Audubon
Evansville Audubon Society

KS
Smokey Hills Audubon Society

LA
Audubon Louisiana
Orleans Audubon Society

MD
Audubon Maryland
Audubon Society of Central Maryland
Chesapeake Audubon Society
Southern Maryland Audubon Society

MN
Audubon Minnesota
Central Minnesota Audubon Society
St. Paul Audubon Society

MO
Audubon Missouri
Ozark Gateway Audubon Society

MS
Audubon Mississippi

MT
Upper Missouri Breaks Audubon

NE
Audubon Nebraska
Wachiska Audubon Society

NC
Audubon North Carolina
Audubon Society of Forsyth County
New Hope Audubon Society
Elisha Mitchell Audubon
T. Gilbert Pearson Audubon Society

NJ
Monmouth County Audubon Society

NM
Audubon New Mexico
Sangre de Cristo Audubon Society

NY
Audubon New York
Adirondack Audubon Society
Buffalo Audubon Society
Genesee Valley Audubon Society
Great South Bay Audubon Society
Jamestown Audubon Society
Northern Catskills Audubon Society

OH
Audubon Society of Ohio

OR
Umpqua Valley Audubon Society

PA
Greater Wyoming Valley Audubon Society
Northeast Pennsylvania Audubon Society
Quittapahilla Audubon Society
Wyncote Audubon Society

SC
Audubon South Carolina

TX
Houston Audubon Society

VA
Audubon Society of Northern Virginia

VT
Ascutney Mountain Audubon Society

WA
Black Hills Audubon Society
Kitsap Audubon Society
Pilchuck Audubon Society
Vancouver Audubon Society

WI
Green Rock Audubon Society
Madison Audubon Society
Wisconsin Audubon Council

WY
Meadowlark Audubon Society

Black, Steve <steve_black@ios.doi.gov>

Fwd: Invitation for Meeting on Eagles

1 message

Black, Steve <steve_black@ios.doi.gov> Mon, Feb 4, 2013 at 1:19 PM
To: Brian Rutledge <brutledge@audubon.org>
Cc: "Rees, Gareth C." <Gareth_Rees@ios.doi.gov>, Lizzie Marsters <Lizzie_Marsters@ios.doi.gov>

Brian, as discussed, please see the invitation below. Please reply to Gareth to confirm your availability to call in.

Thanks, as always, for your assistance.

Steve

---------- Forwarded message ----------
From: **OS, DeputySecretaryoftheInterior** <deputysecretaryoftheinterior@ios.doi.gov>
Date: Mon, Feb 4, 2013 at 1:16 PM
Subject: Invitation for Meeting on Eagles
To: Gareth Rees <gareth_rees@ios.doi.gov>
Cc: Steve Black <steve_black@ios.doi.gov>, Janea Scott <janea_scott@ios.doi.gov>, Dan Ashe <d_m_ashe@fws.gov>, Betsy Hildebrandt <betsy_hildebrandt@fws.gov>, David Cottingham <david_cottingham@fws.gov>, Michael Bean <michael_bean@ios.doi.gov>, Elizabeth Klein <elizabeth_klein@ios.doi.gov>, David Hayes <david_hayes@ios.doi.gov>

Good afternoon,

As you know, over the course of the past year, the U.S. Fish & Wildlife Service has been engaged in an extensive and productive effort to improve implementation of the Bald & Golden Eagle Protection Act (BGEPA), including undertaking a full review of the current BGEPA regulations and developing guidance to help FWS staff, industry, and stakeholders better understand potential paths forward to obtaining a BGEPA permit.

I want to thank each of you for your ongoing interest in this process. Following your joint letter in August to Secretary Salazar, I know that many of you have provided constructive input to FWS and have expressed an interest in continued dialogue on these issues. To that end, I would like to invite you to a meeting that I will host on Monday, February 11, 2013 from 4:00pm-5:00pm to discuss how we can continue to work productively together on these issues. The meeting will be held at the Department of Interior, 1849 C Street NW, Washington DC, in Room 5160. A call-in will be available at (b) (5) [redacted], code (b) (5) [redacted] Please respond to Gareth Rees at Gareth_Rees@ios.doi.gov or 202-208-6291 if you are able to attend.

Thank you, and I look forward to seeing you on the 11th.

David J. Hayes
Deputy Secretary
Department of the Interior

--
Steve Black
Counselor to the Secretary

U.S. Department of the Interior
1849 C Street, N.W., MS 7229
Washington, D.C. 20240
Phone: 202-208-4123
Fax: 202-208-4561
e-mail: steve_black@ios.doi.gov

Black, Steve <steve_black@ios.doi.gov>

Re: Invitation for Meeting on Eagles

1 message

Anderson, James <james_anderson@ios.doi.gov> Mon, Feb 4, 2013 at 1:18 PM
To: "OS, DeputySecretaryoftheInterior" <deputysecretaryoftheinterior@ios.doi.gov>
Cc: Gareth Rees <gareth_rees@ios.doi.gov>, Steve Black <steve_black@ios.doi.gov>, Janea Scott <janea_scott@ios.doi.gov>, Dan Ashe <d_m_ashe@fws.gov>, Betsy Hildebrandt <betsy_hildebrandt@fws.gov>, David Cottingham <david_cottingham@fws.gov>, Michael Bean <michael_bean@ios.doi.gov>, Elizabeth Klein <elizabeth_klein@ios.doi.gov>, David Hayes <david_hayes@ios.doi.gov>

Everyone in the attached spreadsheet was BCC'ed

On Mon, Feb 4, 2013 at 1:16 PM, OS, DeputySecretaryoftheInterior <deputysecretaryoftheinterior@ios.doi.gov> wrote:

> Good afternoon,
>
> As you know, over the course of the past year, the U.S. Fish & Wildlife Service has been engaged in an extensive and productive effort to improve implementation of the Bald & Golden Eagle Protection Act (BGEPA), including undertaking a full review of the current BGEPA regulations and developing guidance to help FWS staff, industry, and stakeholders better understand potential paths forward to obtaining a BGEPA permit.
>
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>
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>
> David J. Hayes
> Deputy Secretary
> Department of the Interior

--
James Anderson
Special Assistant to the Deputy Secretary
U.S. Department of the Interior
202-208-4591 direct
202-208-6291 office

G 16 contacts eagle mtg Feb 2013 (3).xlsx
11K

ORGANIZATION	CEO/SIGNATORY	CEO email -- need to check. Constructed from formula of staff
Defenders of Wildlife	Jamie Clark	Jclark@defenders.org
National Audubon Society	David Yarnold	dyarnold@audubon.org
NRDC	Frances Beinecke	fbeinecke@nrdc.org
AFWA	Jon Gassett	jon.gassett@ky.gov
National Wildlife Federation	Larry Schweiger	Schweiger@nwf.org
Wilderness Society	Jamie Williams	jamie_williams@tws.org
Nature Conservancy	Robert Bendick	rbendick@TNC.ORG
Sierra Club	Michael Brune	michael.brune@sierra.org
AWEA	Rob Gramlich	rgramlich@awea.org
The Wind Coalition	Jeff Clark	jeff@windcoalition.org
Alliance for Clean Energy NY	Valerie Strauss	vstrauss@aceny.org
Interwest Energy Alliance	Sarah Propst	propst@interwest.org
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California Wind Energy Assoc	Nancy Rader	nrader@calwea.org
Renewable Northwest Project	Rachel Shimshak	rachel@rnp.org
Wind on the Wires	Beth Soholt	bsoholt@windonthewires.org

Lead contact	email
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Katie Umekubo	kumekubo@nrdc.org
Allison Vogt	AVogt@fishwildlife.org
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Chase Huntley	chase_huntley@tws.org
Christy Plumer	cplumer@TNC.ORG
Barbara Boyle	barbara.boyle@sierra.org
John Anderson	janderson@awea.org
TBD	
TBD	
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Black, Steve <steve_black@ios.doi.gov>

Invitation for Meeting on Eagles

1 message

OS, DeputySecretaryoftheInterior <deputysecretaryoftheinterior@ios.doi.gov> Mon, Feb 4, 2013 at 1:16 PM
To: Gareth Rees <gareth_rees@ios.doi.gov>
Cc: Steve Black <steve_black@ios.doi.gov>, Janea Scott <janea_scott@ios.doi.gov>, Dan Ashe <d_m_ashe@fws.gov>, Betsy Hildebrandt <betsy_hildebrandt@fws.gov>, David Cottingham <david_cottingham@fws.gov>, Michael Bean <michael_bean@ios.doi.gov>, Elizabeth Klein <elizabeth_klein@ios.doi.gov>, David Hayes <david_hayes@ios.doi.gov>

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David J. Hayes
Deputy Secretary
Department of the Interior

Black, Steve <steve_black@ios.doi.gov>

RE: Invitation for Meeting on Eagles

1 message

Roxane Perruso <Roxane.Perruso@tac-denver.com> Thu, Feb 7, 2013 at 10:09 PM
To: "Black, Steve" <steve_black@ios.doi.gov>

Steve,

I had not heard of this meeting.

Thanks!

Roxane

From: Black, Steve [mailto:steve_black@ios.doi.gov]
Sent: Thursday, February 07, 2013 7:13 PM
To: Steve Black
Subject: Fwd: Invitation for Meeting on Eagles

FYI -- I trust you are aware of this meeting invitation. Call with any questions.

---------- Forwarded message ----------
From: **OS, DeputySecretaryoftheInterior** <deputysecretaryoftheinterior@ios.doi.gov>
Date: Mon, Feb 4, 2013 at 1:16 PM
Subject: Invitation for Meeting on Eagles
To: Gareth Rees <gareth_rees@ios.doi.gov>
Cc: Steve Black <steve_black@ios.doi.gov>, Janea Scott <janea_scott@ios.doi.gov>, Dan Ashe <d_m_ashe@fws.gov>, Betsy Hildebrandt <betsy_hildebrandt@fws.gov>, David Cottingham <david_cottingham@fws.gov>, Michael Bean <michael_bean@ios.doi.gov>, Elizabeth Klein <elizabeth_klein@ios.doi.gov>, David Hayes <david_hayes@ios.doi.gov>

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on Monday, February 11, 2013 from 4:00pm-5:00pm to discuss how we can continue to work productively together on these issues. The meeting will be held at the Department of Interior, 1849 C Street NW, Washington DC, in Room 5160. A call-in will be available at (b) (5) [redacted], code (b) (5) [redacted] Please respond to Gareth Rees at Gareth_Rees@ios.doi.gov or 202-208-6291 if you are able to attend.

Thank you, and I look forward to seeing you on the 11th.

David J. Hayes

Deputy Secretary

Department of the Interior

--

Steve Black
Counselor to the Secretary
U.S. Department of the Interior
1849 C Street, N.W., MS 7229
Washington, D.C. 20240
Phone: 202-208-4123
Fax: 202-208-4561
e-mail: steve_black@ios.doi.gov

Black, Steve <steve_black@ios.doi.gov>

RE: Invitation for Meeting on Eagles

1 message

Glick, Richard <Richard.Glick@iberdrolaren.com> Thu, Feb 7, 2013 at 9:17 PM
To: "Black, Steve" <steve_black@ios.doi.gov>

Thanks Steve – I will be there.

Rich Glick
Iberdrola Renewables
Government Affairs
607 14th Street, N.W., Suite 225; Washington, D.C. 20005

Telephone: (202) 783–0036; Mobile: (202) 549–7437; Fax (202) 783–0069
richard.glick@iberdrolaren.com

From: Black, Steve [mailto:steve_black@ios.doi.gov]
Sent: Thursday, February 07, 2013 9:13 PM
To: Steve Black
Subject: Fwd: Invitation for Meeting on Eagles

FYI -- I trust you are aware of this meeting invitation. Call with any questions.

---------- Forwarded message ----------
From: **OS, DeputySecretaryoftheInterior** <deputysecretaryoftheinterior@ios.doi.gov>
Date: Mon, Feb 4, 2013 at 1:16 PM
Subject: Invitation for Meeting on Eagles
To: Gareth Rees <gareth_rees@ios.doi.gov>
Cc: Steve Black <steve_black@ios.doi.gov>, Janea Scott <janea_scott@ios.doi.gov>, Dan Ashe <d_m_ashe@fws.gov>, Betsy Hildebrandt <betsy_hildebrandt@fws.gov>, David Cottingham <david_cottingham@fws.gov>, Michael Bean <michael_bean@ios.doi.gov>, Elizabeth Klein <elizabeth_klein@ios.doi.gov>, David Hayes <david_hayes@ios.doi.gov>

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Phone: 202-208-4123
Fax: 202-208-4561
e-mail: steve_black@ios.doi.gov

Black, Steve <steve_black@ios.doi.gov>

Fwd: Invitation for Meeting on Eagles

1 message

Black, Steve <steve_black@ios.doi.gov> Thu, Feb 7, 2013 at 9:13 PM
To: Steve Black <steve_black@ios.doi.gov>
Bcc: "Glick, Richard" <Richard.Glick@iberdrolaren.com>, "Roxane J. Perruso" <roxane.perruso@tac-denver.com>, Greg Wetstone <gwetstone@terra-genpower.com>, "David J. van Hoogstraten" <david.vanhoog@bp.com>

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Deputy Secretary
Department of the Interior

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Phone: 202-208-4123
Fax: 202-208-4561
e-mail: steve_black@ios.doi.gov

DRAFT -- AGENDA

EAGLE CONSERVATION

FEBRUARY 11, 2013

Main Interior Building, Room 5160

4:00 pm

Welcome and Introductions	Deputy Secretary Hayes	5
General Comments	Industry representative	5
	Environmental representative	5
Comprehensive FWS eagle strategy	Director Ashe	5
Discussion	Group	10
Eagle rule revision process	Director Ashe	5
Discussion	Group	10
Eagle permit duration rule	Director Ashe	5
Discussion	Group	10
Wrap up and next steps	Deputy Secretary Hayes Director Ashe Group	

Black, Steve <steve_black@ios.doi.gov>

Fwd: draft agenda for Feb 11 eagle meeting

1 message

Scott, Janea <janea_scott@ios.doi.gov> Thu, Feb 7, 2013 at 4:43 PM
To: Steve Black <steve_black@ios.doi.gov>

Hi Steve -- This looks good to me. My only suggestion would be to include (b) (5) [redacted] Take care, Janea

---------- Forwarded message ----------
From: **Cottingham, David** <david_cottingham@fws.gov>
Date: Thu, Feb 7, 2013 at 4:27 PM
Subject: draft agenda for Feb 11 eagle meeting
To: Betsy Hildebrandt <betsy_hildebrandt@fws.gov>, Jerome Ford <jerome_ford@fws.gov>, Elizabeth Klein <Elizabeth_Klein@ios.doi.gov>, Steve Black <steve_black@ios.doi.gov>, Janea Scott <Janea_Scott@ios.doi.gov>, Dan Ashe <d_m_ashe@fws.gov>

All --

please see a draft agenda Jerome and I developed for the meeting on Monday. If you get me comments back tomorrow, I can revise prior to 4:00 meeting

We've only got an hour and the participants will want ample opportunity to speak. That's why I put in times

dc

--
David Cottingham
Senior Advisor to the Director
US Fish and Wildlife Service
Room 3341 Main Interior
Washington DC 20240

Office: 202-208-4331
Cell: 202-372-7578

AGENDA for Feb 11 meeting -- DRAFT-1.docx
16K

DRAFT -- AGENDA

EAGLE CONSERVATION

FEBRUARY 11, 2013

Main Interior Building, Room 5160

4:00 pm

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Discussion	Group	10
~~Eagle permit duration rule~~	~~Director Ashe~~	~~5~~
~~Discussion~~	~~Group~~	~~10~~
Coverage for Eagles in the DRECP	Director Ashe	5
Wrap up and next steps	Deputy Secretary Hayes	
	Director Ashe	
	Group	5

Black, Steve <steve_black@ios.doi.gov>

Re: draft agenda for Feb 11 eagle meeting

1 message

Black, Steve <steve_black@ios.doi.gov> Thu, Feb 7, 2013 at 4:40 PM
To: "Cottingham, David" <david_cottingham@fws.gov>
Cc: Betsy Hildebrandt <betsy_hildebrandt@fws.gov>, Jerome Ford <jerome_ford@fws.gov>, Elizabeth Klein <Elizabeth_Klein@ios.doi.gov>, Janea Scott <Janea_Scott@ios.doi.gov>, Dan Ashe <d_m_ashe@fws.gov>

Thanks David. Good agenda. I agree we're going to be very tight on time, and I also think it will be important for Dan to spend (b) (5) [redacted]

My suggested revisions are attached.

Steve

On Thu, Feb 7, 2013 at 4:27 PM, Cottingham, David <david_cottingham@fws.gov> wrote:

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>
> please see a draft agenda Jerome and I developed for the meeting on Monday. If you get me comments back tomorrow, I can revise prior to 4:00 meeting
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> **David Cottingham**
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Fax: 202-208-4561

e-mail: steve_black@ios.doi.gov

AGENDA for Feb 11 meeting -- DRAFT-1_swb edits.docx
16K

DRAFT -- AGENDA

EAGLE CONSERVATION

FEBRUARY 11, 2013

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draft agenda for Feb 11 eagle meeting

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TITLE 16. CONSERVATION
CHAPTER 5A. PROTECTION AND CONSERVATION OF WILDLIFE
BALD AND GOLDEN EAGLE PROTECTION ACT

§ 668. Bald and golden eagles

(a) Prohibited acts; criminal penalties. Whoever, within the United States or any place subject to the jurisdiction thereof, without being permitted to do so as hereinafter provided, shall knowingly, or with wanton disregard for the consequences of his act take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import, at any time or in any manner, any bald eagle commonly known as the American eagle, or any golden eagle, alive or dead, or any part, nest, or egg thereof of the foregoing eagles, or whoever violates any permit or regulation issued pursuant to this Act, shall be fined not more than $ 5,000 or imprisoned not more than one year or both: Provided, That in the case of a second or subsequent conviction for a violation of this section committed after the date of the enactment of this proviso [Oct. 23, 1972], such person shall be fined not more than $ 10,000 or imprisoned not more than two years, or both: Provided further, That the commission of each taking or other act prohibited by this section with respect to a bald or golden eagle shall constitute a separate violation of this section: Provided further, That one-half of any such fine, but not exceed $ 2,500, shall be paid to the person or persons giving information which leads to conviction: Provided further, That nothing herein shall be construed to prohibit possession or transportation of any bald eagle, alive or dead, or any part, nest, or egg thereof, lawfully taken prior to June 8, 1940, and that nothing herein shall be construed to prohibit possession or transportation of any golden eagle, alive or dead, or any part, nest, or egg thereof, lawfully taken prior to the addition to this Act of the provisions relating to preservation of the golden eagle.

(b) Civil penalties. Whoever, within the United States or any place subject to the jurisdiction thereof, without being permitted to do so as provided in this Act, shall take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import, at any time or in any manner, any bald eagle, commonly known as the American eagle, or any golden eagle, alive or dead, or any part, next, or egg thereof of the foregoing eagles, or whoever violates any permit

or regulation issued pursuant to this Act, may be assessed a civil penalty by the Secretary of not more than $ 5,000 for each such violation. Each violation shall be a separate offense. No penalty shall be assessed unless such person is given notice and opportunity for a hearing with respect to such violation. In determining the amount of the penalty, the gravity of the violation, and the demonstrated good faith of the person charged shall be considered by the Secretary. For good cause shown, the Secretary may remit or mitigate any such penalty. Upon any failure to pay the penalty assessed under this section, the Secretary may request the Attorney General to institute a civil action in a district court of the United States for any district in which such person is found or resides or transacts business to collect the penalty and such court shall have jurisdiction to hear and decide any such action. In hearing any such action, the court must sustain the Secretary's action if supported by substantial evidence.
(c) Cancellation of grazing agreements. The head of any Federal agency who has issued a lease, license, permit, or other agreement authorizing the grazing of domestic livestock on Federal lands to any person who is convicted of a violation of this Act or of any permit or regulation issued hereunder may immediately cancel each such lease, license, permit, or other agreement. The United States shall not be liable for the payment of any compensation, reimbursement, or damages in connection with the cancellation of any lease, license, permit, or other agreement pursuant to this section.

HISTORY: (June 8, 1940, ch 278, § 1, 54 Stat. 250; June 25, 1959, P.L. 86-70, § 14, 73 Stat. 143; Oct. 24, 1962, P.L. 87-884, 76 Stat. 1246; Oct. 23, 1972, P.L. 92-535, § 1, 86 Stat. 1064.)

§ 668a. Taking and using of the bald and golden eagle for scientific, exhibition, and religious purposes

Whenever, after investigation, the Secretary of the Interior shall determine that it is compatible with the preservation of the bald eagle or the golden eagle to permit the taking, possession, and transportation of specimens thereof for the scientific or exhibition purposes of public museums, scientific societies, and zoological parks, or for the religious purposes of Indian tribes, or that it is necessary to permit the taking of such eagles for the protection of wildlife or of agricultural or other interests in any particular locality, he may authorize the taking of such eagles pursuant to regulations which he is hereby authorized to prescribe: Provided, That on request of the Governor of any State, the Secretary of the Interior shall authorize the taking of golden eagles for the purpose of seasonally protecting domesticated flocks and herds in such State, in accordance with regulations established under the provisions of this section, in such part or parts of such State and for such periods as the Secretary determines to be necessary to protect such interest: Provided further, That bald eagles may not be taken for any purpose unless, prior to such taking, a permit to do so is procured from the Secretary of the Interior: Provided further, That the Secretary of the Interior, pursuant to such regulations as he may prescribe, may permit the taking, possession, and transportation of golden eagles for the purposes of falconry, except that only golden eagles which would be taken because of depredations on livestock or wildlife may be taken for purposes of falconry: Provided further, That the Secretary of the Interior, pursuant to such regulations as he may prescribe, may permit the taking of golden eagle nests which interfere with resource development or recovery operations.

HISTORY: (June 8, 1940, ch 278, § 2, 54 Stat. 251; Oct. 24, 1962, P.L. 87-884, 76 Stat. 1246; Oct. 23, 1972, P.L. 92-535, § 2, 86 Stat. 1065; Nov. 8, 1978, P.L. 95-616, § 9, 92 Stat. 3114.)

§ 668b. Enforcement provisions

(a) Arrest; search; issuance and execution of warrants and process. Any employee of the Department of the Interior authorized by the Secretary of the Interior to enforce the provisions of this Act may, without warrant, arrest any person committing in his presence or view a violation of this Act or of any permit or regulation issued hereunder and take such person immediately for examination or trial before an officer or court of competent jurisdiction; may execute any warrant or other process issued by an officer or court of competent jurisdiction for the enforcement of the provisions of this Act; and may, with or without a warrant, as authorized by law, search any place. The Secretary of the Interior is authorized to enter into cooperative agreements with State fish and wildlife agencies or other appropriate State authorities to facilitate enforcement of this Act, and by said agreements to delegate such enforcement authority to State law enforcement personnel as he deems appropriate for effective enforcement of this Act. Any judge of any court established under the laws of the United States, and any United States commissioner [magistrate judge] may, within his respective jurisdiction, upon proper oath or affirmation showing probable cause, issue warrants in all such cases.

(b) Forfeiture. All bald or golden eagles, or parts, nests, or eggs thereof, taken, possessed, sold, purchased, bartered, offered for sale, purchase, or barter, transported, exported, or imported contrary to the provisions of this Act, or of any permit or regulation issued hereunder, and all guns, traps, nets, and other equipment, vessels, vehicles, aircraft, and other means of transportation used to aid in the taking, possessing, selling, purchasing, bartering, offering for sale, purchase, or barter, transporting, exporting, or importing of any bird, or part, nest, or egg thereof, in violation of this Act or of any permit or regulation issued hereunder shall be subject to forfeiture to the United States.

(c) Customs laws applied. All provisions of law relating to the seizure, forfeiture, and condemnation of a vessel for violation of the customs laws, the disposition of such vessel or the proceeds from the sale thereof, and the remission or mitigation of such forfeitures, shall apply to the seizures and forfeitures incurred, or alleged to have been incurred, under the provisions of this Act, insofar as such provisions of law are applicable and not inconsistent with the provisions of this Act: Provided, That all powers, rights, and duties conferred or imposed by the customs laws upon any officer or employee of the Treasury Department shall, for the purposes of this Act, be exercised or performed by the Secretary of the Interior or by such persons as he may designate.

HISTORY: (June 8, 1940, ch 278, § 3, 54 Stat. 251; Oct. 23, 1972, P.L. 92-535, § 3, 86 Stat. 1065.)

§ 668c. Definitions
As used in this Act "whoever" includes also associations, partnerships, and corporations; "take" includes also pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb; "transport" includes also ship, convey, carry, or transport by any means whatever, and deliver or receive or cause to be delivered or received for such shipment, conveyance, carriage, or transportation.

HISTORY: (June 8, 1940, ch 278, § 4, 54 Stat. 251; Oct. 23, 1972, P.L. 92-535, § 4, 86 Stat. 1065.)

§ 668d. Availability of appropriations for Migratory Bird Treaty Act
Moneys now or hereafter available to the Secretary of the Interior for the administration and enforcement of the aforesaid Migratory Bird Treaty Act of July 3, 1918, shall be equally available for the administration and enforcement of this Act.
HISTORY: (June 8, 1940, ch 278, § 5, 54 Stat. 251.)

Black, Steve <steve_black@ios.doi.gov>

Re: Materials for Feb 11 meeting

1 message

Ford, Jerome <jerome_ford@fws.gov> Fri, Feb 8, 2013 at 5:59 PM
To: "Anderson, James" <james_anderson@ios.doi.gov>
Cc: "Cottingham, David" <david_cottingham@fws.gov>, Elizabeth Klein <Elizabeth_Klein@ios.doi.gov>, Janea Scott <Janea_Scott@ios.doi.gov>, Steve Black <steve_black@ios.doi.gov>, Betsy Hildebrandt <betsy_hildebrandt@fws.gov>, Dan Ashe <d_m_ashe@fws.gov>

Here is the attachment. Sorry.

On Fri, Feb 8, 2013 at 5:58 PM, Ford, Jerome <jerome_ford@fws.gov> wrote:

> James,
>
> Here is the BGEPA Statutory language that Deputy Secretary Hayes asked for.
>
> Have a good evening.
>
> On Fri, Feb 8, 2013 at 5:35 PM, Anderson, James <james_anderson@ios.doi.gov> wrote:
>
> > Got it. Thanks.
> >
> > On Fri, Feb 8, 2013 at 5:34 PM, Cottingham, David <david_cottingham@fws.gov> wrote:
> >
> > > SORRY --
> > >
> > > I sent a redline version of the Eagle Briefing Document. Please disregard it and use the one attached here.
> > >
> > > DC
> > >
> > > On Fri, Feb 8, 2013 at 5:27 PM, Cottingham, David <david_cottingham@fws.gov> wrote:
> > >
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> > > >
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> > > > 2. Attachment 2 -- Aug 2012 letter from industry
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> > > > 5. Eagle rule revision process
> > > >
> > > > I've also sending:
> > > >
> > > > - comments from AWEA
> > > > - comments in a joint enviro letter on the ANPR
> > > > - BGEPA regulations on take
> > > >
> > > > I'll check emails over the weekend if you have questions.
> > > >
> > > > David

--
David Cottingham
Senior Advisor to the Director
US Fish and Wildlife Service
Room 3341 Main Interior
Washington DC 20240

Office: 202-208-4331
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--
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--
James Anderson
Special Assistant to the Deputy Secretary
U.S. Department of the Interior
202-208-4591 direct
202-208-6291 office

BGEPA Statute.docx
22K

Black, Steve <steve_black@ios.doi.gov>

Re: Materials for Feb 11 meeting

1 message

Cottingham, David <david_cottingham@fws.gov> Fri, Feb 8, 2013 at 5:34 PM
To: James Anderson <james_anderson@ios.doi.gov>, Elizabeth Klein <Elizabeth_Klein@ios.doi.gov>, Janea Scott <Janea_Scott@ios.doi.gov>, Steve Black <steve_black@ios.doi.gov>, Jerome Ford <jerome_ford@fws.gov>, David Cottingham <david_cottingham@fws.gov>, Betsy Hildebrandt <betsy_hildebrandt@fws.gov>, Dan Ashe <d_m_ashe@fws.gov>

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> David
> --
> **David Cottingham**
> **Senior Advisor to the Director**
> **US Fish and Wildlife Service**
> **Room 3341 Main Interior**
> **Washington DC 20240**
>
> **Office: 202-208-4331**
> **Cell: 202-372-7578**

--
David Cottingham
Senior Advisor to the Director
US Fish and Wildlife Service

Room 3341 Main Interior
Washington DC 20240

Office: 202-208-4331
Cell: 202-372-7578

Eagle Briefing Document - Feb 2013 FINAL.docx
42K

U.S. FISH AND WILDLIFE SERVICE
Blueprint for Eagle Conservation and Wind Energy Development

Overview

The U.S. Fish and Wildlife Service (FWS or Service) actively supports the conservation and management of bald and golden eagles as authorized in the Bald and Golden Eagle Protection Act (BGEPA). With the recovery of bald eagles and their removal from their being listed under the Endangered Species Act (ESA), the Service developed a new approach to managing eagle populations. One of the dilemmas the Service faced was creating a process to conserve both eagle species including ways to authorize non-intentional takes of eagles.

The Service supports development of renewable energy resources as a means to reduce carbon emissions and their impacts on the landscape. Large scale renewable energy development, however, is not without challenge for the Service. In particular, the development of industrial scale wind projects throughout the United States has required a focused effort to balance this much-needed energy resource with our statutory responsibilities to conserve migratory birds. The Service's mandate under BGEPA is to ensure that development of such resources is compatible with the preservation of bald and golden eagles. Because wind turbines can kill bald and golden eagles, the Service and its partners are conducting research to better understand eagle populations, methods of avoidance and mitigation of eagle fatalities, and the effects of wind turbines on eagle populations.

Strategy

The Service's strategy is to implement a defensible process for moving forward with authorizing incidental or programmatic eagle take at wind facilities in a measured way in the near future and to learn from our experiences with these initial permits and the science products developed through a focused research program so that we can undertake an informed substantive rule revision and NEPA analysis by 2015. The strategy relies on a structured, ordered architecture such that results of the research, monitoring, and data analysis come together in sequence and support one-another.

Near-Term

In the near-term, the Service is working with the wind industry on methods to avoid, minimize and mitigate takes of eagles at specific project sites. In addition, the Service is assisting proponents in the development of eagle conservation plans and in their applications for incidental take permits. All of this work is informed by the best available science.

- **Applying the Eagle Rule to Permits for Wind Facilities**. In 2009, the Service promulgated rules governing review and approval of permits that authorize take of bald and golden eagles when take is associated with, but not the purpose of, an otherwise lawful activity, and cannot practicably be avoided. The regulations authorize permits for "programmatic" take, which can potentially include recurring multiple incidents. The Service established an Eagle Management Team (EMT) to address the challenge of wind development to eagles.
- **Eagle Conservation Plan Guidance (ECPG)**. The ECPG outlines a process for adaptive management, data collection, and analysis that could lead to the Service issuing a

programmatic eagle take permit. The Service recently submitted a draft of ECPGv2 to the Office of Management and Budget for inter-agency review. This draft incorporates significant changes to draft ECPG circulated in 2011 in response to the public and peer-review comments. The ECPG includes a robust adaptive management framework so that the considerable uncertainty at many stages of the process can be reduced over time.

- **The Advanced Notice of Public Rulemaking and the "Tenure Rule."** When the Service promulgated the eagle rule in 2009, we received little comment from industries or environmental groups. After circulating the draft ECPG in 2011, the Service received extensive comments from the wind industry on the final rule itself, including comments regarding the preservation standard, permit term, and process for obtaining a permit. In April 2012, in response to these comments the Service took two actions:
    - We issued a proposed rule to extend the maximum tenure of programmatic permits under the Eagle Take Rule from 5 to 30 years, and
    - We published an Advanced Notice of Public Rulemaking (ANPR) announcing the intent to consider revising the Eagle Take Rule and soliciting responses to several key issues raised in the ECPG comments. The final revisions to the tenure rule will be ready to submit to OMB shortly.
- **Discussions with industry and environmental organizations:** In August 2012, sixteen organizations (8 wind industry and 8 environmental organizations) wrote to Secretary Salazar requesting that the Service "…supplement the current notice-and-comment proceedings (on the tenure proposed rule and ANPR) through continued and collaborative interaction with key stakeholders with express purpose of examining the issues identified in the two notices regarding eagle permits and the draft eagle conservation plan guidance." The Service is working with representatives of these groups to explore potential processes and topics to address through a collaborative process. The Service proposes to hold a series of public workshops during 2013 to gain additional input prior to proposing a regulation revision in 2014.
- **DRECP:** The purpose of the Desert Renewable Energy Conservation Plan (DRECP) is to conserve covered species and their habitats while streamlining environmental review and permitting of renewable energy projects in the Mohave and Colorado deserts of California. The Service can authorize take of golden eagles in a habitat conservation plan (HCP) as long as the HCP meets BGEPA conservation standards. California also protects golden eagles as "fully protected species" under the California Department of Fish and Wildlife (CDF&W) Code . The Service is working closely with CDF&W, as well as other state and federal agencies, to develop a process to authorize incidental take of eagles at renewable energy projects as part of DRECP and to collect eagle interaction information on new and existing renewable energy projects. The proposed framework for coverage of golden eagles in the DRECP is outlined in Appendix K of the comparative analysis published in December 2012.

Long-Term

Science. The Service and U.S. Geological Survey (USGS) have partnered on eight priority science initiatives to improve knowledge of golden eagle population biology, eagle survey and population monitoring capabilities overall, and to frame the adaptive management process for eagle take permits. Projects are being undertaken jointly by USGS and the Service, and in some cases involve external partners. These are the specific projects.

- Golden eagle monitoring strategy - develop a Comprehensive Survey and Monitoring Plan to manage golden eagles.
- Golden eagle occurrence prediction - model predictions of the occurrence of golden eagles in the western United States to help the Service identify important geographic areas and habitats for golden eagles during the breeding and non-breeding seasons.
- Post-construction fatality estimation - development of landscape-level population approach to estimating cumulative mortality from carcass surveys accounting for carcass removal, and non-detection, given presence.
- Occupancy modeling - late summer occupancy modeling.
- Adaptive management framework - development of an adaptive management framework for wind energy permitting with regard to take of bald and golden eagles.
- Golden eagle status review - golden eagle population trends in the western United States, 1968-2010.
- Golden eagle dispersal - natal dispersal distances of bald and golden eagles in the coterminous US as inferred from band encounters.
- Golden eagle survival and mortality - assessment of annual survival rates, transmitter effects and causes of mortality of golden eagles in the western US (and Mexico) as inferred from satellite transmitters.

In addition to these projects, the Service is working through the American Wind-Wildlife Institute (AWWI) to collect better information about eagle and other migratory bird and bat fatalities at currently-operating wind energy facilities. We opportunistically receive fatality reports from operating wind projects. We lack a comprehensive estimate of avian or wildlife fatalities at wind projects. Having a better understanding of eagle mortality at wind projects will vastly improve our capability to develop advanced conservation and mitigation practices.

Conservation and Management. The Service will develop national golden eagle and bald eagle conservation and management plans by 2014. These plans will incorporate information garnered from the research described above. They will use best available scientific information on the status of eagle populations and identify conservation strategies to assure long-term survival of bald and golden eagle populations.

§ 22.26 Permits for eagle take that is associated with, but not the purpose of, an activity.

(a) *Purpose and scope* . This permit authorizes take of bald eagles and golden eagles where the take is compatible with the preservation of the bald eagle and the golden eagle; necessary to protect an interest in a particular locality; associated with but not the purpose of the activity; and

(1) For individual instances of take: the take cannot practicably be avoided; or

(2) For programmatic take: the take is unavoidable even though advanced conservation practices are being implemented.

(b) *Definitions* . In addition to the definitions contained in part 10 of this subchapter, and §22.3, the following definition applies in this section:

Eagle means a live bald eagle (*Haliaeetus leucocephalus*), live golden eagle (*Aquila chrysaetos)*, a bald eagle egg, or a golden eagle egg.

(c) *Permit conditions* . In addition to the conditions set forth in part 13 of this subchapter, which govern permit renewal, amendment, transfer, suspension, revocation, and other procedures and requirements for all permits issued by the Service, your authorization is subject to the following additional conditions:

(1) You must comply with all avoidance, minimization, or other mitigation measures determined by the Director as reasonable and specified in the terms of your permit to compensate for the detrimental effects, including indirect effects, of the permitted activity on the regional eagle population;

(2) You may be required to monitor eagle use of important eagle-use areas where eagles are likely to be affected by your activities for up to 3 years after completion of the activity or as set forth in a separate management plan, as specified on your permit. Unless different monitoring protocols are required under a separate management plan approved by the Service and denoted on the permit, monitoring consists of periodic site visits, during the season(s) when eagles would normally be present, to the area where the take is likely to occur, and noting whether eagles continue to nest, roost, or forage there. The periodic monitoring is required for the duration of the activity that is likely to cause take (during the season(s) that eagles would normally be present). The frequency and duration of required monitoring *after* the activity is completed will depend on the form and magnitude of the anticipated take and the objectives of associated conservation measures, not to exceed what is reasonable to meet the primary purpose of the monitoring, which is to provide data needed by the Service regarding the impacts of human activity on eagles for purposes of adaptive management. Monitoring will not be required beyond 3 years after completion of an activity that was likely to cause take. For ongoing activities and enduring site features that continue to be likely to result in take, periodic monitoring may be required for as long as the data are needed to assess impacts to eagles.

(3) You must submit an annual report summarizing the information you obtained through monitoring to the Service every year that your permit is valid and for up to 3 years after

completion of the activity or termination of the permit, as specified in your permit. If your permit expires or is suspended or revoked before the activity is completed, you must submit the report within 60 days of such date. Reporting requirements include:

(i) Whether eagles are observed using the important eagle-use areas designated on the permit; and

(ii) Description of the human activities conducted at the site when eagles are observed.

(4) While the permit is valid and for up to 3 years after it expires, you must allow Service personnel, or other qualified persons designated by the Service, access to the areas where eagles are likely to be affected, at any reasonable hour, and with reasonable notice from the Service, for purposes of monitoring eagles at the site(s).

(5) The authorizations granted by permits issued under this section apply only to take that results from activities conducted in accordance with the description contained in the permit application and the terms of the permit. If the permitted activity changes after a permit is issued, you must immediately contact the Service to determine whether a permit amendment is required in order to retain take authorization.

(6) You must contact the Service immediately upon discovery of any unanticipated take.

(7) The Service may amend, suspend, or revoke a programmatic permit issued under this section if new information indicates that revised permit conditions are necessary, or that suspension or revocation is necessary, to safeguard local or regional eagle populations. This provision is in addition to the general criteria for amendment, suspension, and revocation of Federal permits set forth in §§13.23, 13.27, and 13.28.

(8) Notwithstanding the provisions of §13.26 of this subchapter, you remain responsible for all outstanding monitoring requirements and mitigation measures required under the terms of the permit for take that occurs prior to cancellation, expiration, suspension, or revocation of the permit.

(9) You must promptly notify the Service of any eagle(s) found injured or dead at the activity site, regardless of whether the injury or death resulted from your activity. The Service will determine the disposition of such eagles.

(10) The authorization granted by permits issued under this section is not valid unless you are in compliance with all Federal, tribal, State, and local laws and regulations applicable to take of eagles.

(d) *Applying for an eagle take permit* . (1) You are advised to coordinate with the Service as early as possible for advice on whether a permit is needed and for technical assistance in assembling your permit application package. The Service may provide guidance on developing complete and adequate application materials and will determine when the application form and materials are ready for submission.

(2) Your application must consist of a completed application Form 3-200-71 and all required attachments. Send applications to the Regional Director of the Region in which the disturbance would occur—Attention: Migratory Bird Permit Office. You can find the current addresses for the Regional Directors in §2.2 of subchapter A of this chapter.

(e) *Evaluation of applications* . In determining whether to issue a permit, we will evaluate:

(1) Whether take is likely to occur based on the magnitude and nature of the impacts of the activity, which include indirect effects. For potential take in the form of disturbance, this evaluation would include:

(i) The prior exposure and tolerance to similar activity of eagles in the vicinity;

(ii) Visibility of the activity from the eagle's nest, roost, or foraging perches; and

(iii) Whether alternative suitable eagle nesting, roosting, and/or feeding areas that would not be detrimentally affected by the activity are available to the eagles potentially affected by the activity.

(2) Whether the take is:

(i) Compatible with the preservation of the bald eagle and the golden eagle, including consideration of indirect effects and the cumulative effects of other permitted take and other additional factors affecting eagle populations;

(ii) Associated with the permanent loss of an important eagle use area;

(iii) Necessary to protect a legitimate interest in a particular locality; and

(iv) Associated with, but not the purpose of, the activity.

(3) Whether the applicant has proposed avoidance and minimization measures to reduce the take to the maximum degree practicable, and for programmatic authorizations, the take is unavoidable despite application of advanced conservation practices developed in coordination with the Service.

(4) Whether issuing the permit would preclude the Service from authorizing another take necessary to protect an interest of higher priority, according to the following prioritization order:

(i) Safety emergencies;

(ii) Native American religious use for rites and ceremonies that require eagles be taken from the wild;

(iii) Renewal of programmatic take permits;

(iv) Non-emergency activities necessary to ensure public health and safety; and

(v) Other interests.

(5) Any additional factors that may be relevant to our decision whether to issue the permit, including, but not limited to, the cultural significance of a local eagle population.

(f) *Required determinations* . Before we issue a permit, we must find that:

(1) The direct and indirect effects of the take and required mitigation, together with the cumulative effects of other permitted take and additional factors affecting eagle populations, are compatible with the preservation of bald eagles and golden eagles;

(2) The taking is necessary to protect a legitimate interest in a particular locality;

(3) The taking is associated with, but not the purpose of, the activity;

(4) The taking cannot practicably be avoided; or for programmatic authorizations, the take is unavoidable;

(5) The applicant has avoided and minimized impacts to eagles to the extent practicable, and for programmatic authorizations, the taking will occur despite application of advanced conservation practices; and

(6) Issuance of the permit will not preclude issuance of another permit necessary to protect an interest of higher priority as set forth in paragraph (e)(4) of this section.

(g) We may deny issuance of a permit if we determine that take is not likely to occur.

(h) *Permit duration* . The duration of each permit issued under this section will be designated on its face, and will be based on the duration of the proposed activities, the period of time for which take will occur, the level of impacts to eagles, and mitigation measures, but will not exceed 5 years.

[74 FR 46877, Sept. 11, 2009]

§ 22.27 Removal of eagle nests.

(a) *Purpose and scope* . (1) A permit may be issued under this section to authorize removal or relocation of:

(i) An active or inactive nest where necessary to alleviate a safety emergency;

(ii) An inactive eagle nest when the removal is necessary to ensure public health and safety;

(iii) An inactive nest that is built on a human-engineered structure and creates a functional hazard that renders the structure inoperable for its intended use; or

(iv) An inactive nest, provided the take is necessary to protect an interest in a particular locality and the activity necessitating the take or the mitigation for the take will, with reasonable certainty, provide a clear and substantial benefit to eagles.

(2) Where practicable and biologically warranted, the permit may require a nest to be relocated, or a substitute nest provided, in a suitable site within the same territory to provide a viable nesting option for eagles within that territory, unless such relocation would create a threat to safety. However, we may issue permits to remove nests that we determine cannot or should not be relocated. The permit may authorize take of eggs or nestlings if present. The permit may also authorize the take of adult eagles (e.g., disturbance or capture) associated with the removal or relocation of the nest.

(3) A programmatic permit may be issued under this section to cover multiple nest takes over a period of up to 5 years, provided the permittee complies with comprehensive measures that are developed in coordination with the Service, designed to reduce take to the maximum degree technically achievable, and specified as conditions of the permit.

(4) This permit does not authorize intentional, lethal take of eagles.

(b) *Conditions* . (1) Except for take that is necessary to alleviate an immediate threat to human or eagle safety, only inactive eagle nests may be taken under this permit.

(2) When an active nest must be removed under this permit, any take of nestlings or eggs must be conducted by a Service-approved, qualified, and permitted agent, and all nestlings and viable eggs must be immediately transported to foster/recipient nests or a rehabilitation facility permitted to care for eagles, as directed by the Service.

(3) Possession of the nest for any purpose other than removal or relocation is prohibited without a separate permit issued under this part authorizing such possession.

(4) You must submit a report consisting of a summary of the activities conducted under the permit to the Service within 30 days after the permitted take occurs, except that for programmatic permits, you must report each nest removal within 10 days after the take and

submit an annual report by January 31 containing all the information required in Form 3-202-16 for activities conducted during the preceding calendar year.

(5) You may be required to monitor the area and report whether eagles attempt to build or occupy another nest at another site in the vicinity for the duration specified in the permit.

(6) You may be required under the terms of the permit to harass eagles from the area following the nest removal when the Service determines it is necessary to prevent eagles from re-nesting in the vicinity.

(7) You must comply with all avoidance, minimization, or other mitigation measures determined by the Director as reasonable and specified in the terms of your permit to compensate for the detrimental effects, including indirect effects, of the permitted activity on—and for permits issued under paragraph (a)(1)(iv) of this section, to provide a net benefit to—the regional eagle population.

(8) The Service may amend or revoke a programmatic permit issued under this section if new information indicates that revised permit conditions are necessary, or that suspension or revocation is necessary, to safeguard local or regional eagle populations.

(9) Notwithstanding the provisions of §13.26 of this subchapter, you remain responsible for all outstanding monitoring requirements and mitigation measures required under the terms of the permit for take that occurs prior to cancellation, expiration, suspension, or revocation of the permit.

(10) The authorization granted by permits issued under this section is not valid unless you are in compliance with all Federal, tribal, State, and local laws and regulations applicable to take of eagles.

(c) *Applying for a permit to take eagle nests* . (1) If the take is necessary to address an immediate threat to human or eagle safety, contact your local U.S. Fish and Wildlife Service Regional Migratory Bird Permit Office (*http://www.fws.gov/permits/mbpermits/addresses.html*) at the earliest possible opportunity to inform the Service of the emergency.

(2) Your application must consist of a completed application Form 3-200-72 and all required attachments. Send applications to the Regional Director of the Region in which the disturbance would occur—Attention: Migratory Bird Permit Office. You can find the current addresses for the Regional Directors in §2.2 of subchapter A of this chapter.

(d) *Evaluation of applications* . In determining whether to issue a permit, we will evaluate:

(1) Whether the activity meets the requirements of paragraph (a)(1) of this section;

(2) The direct and indirect effects of the take and required mitigation, together with the cumulative effects of other permitted take and additional factors affecting eagle populations;

(3) Whether there is a practicable alternative to nest removal that will protect the interest to be served;

(4) Whether issuing the permit would preclude the Service from authorizing another take necessary to protect an interest of higher priority, as set forth in paragraph (e)(5) of this section;

(5) For take that is not necessary to alleviate an immediate safety emergency, whether suitable nesting and foraging habitat is available to accommodate eagles displaced by the nest removal; and

(6) Any additional factors that may be relevant to our decision whether to issue the permit, including, but not limited to, the cultural significance of a local eagle population.

(e) *Required determinations* . Before issuing a permit under this section, we must find that:

(1) The direct and indirect effects of the take and required mitigation, together with the cumulative effects of other permitted take and additional factors affecting eagle populations, are compatible with the preservation of the bald eagle or the golden eagle;

(2) For inactive nests:

(i) The take is necessary to ensure public health and safety;

(ii) The nest is built on a human-engineered structure and creates a functional hazard that renders the structure inoperable for its intended use; or

(iii) The take is necessary to protect a legitimate interest in a particular locality, and the activity necessitating the take or the mitigation for the take will, with reasonable certainty, provide a clear and substantial benefit to eagles;

(3) For active nests, the take is necessary to alleviate an immediate threat to human safety or eagles;

(4) There is no practicable alternative to nest removal that would protect the interest to be served; and

(5) Issuing the permit will not preclude the Service from authorizing another take necessary to protect an interest of higher priority, according to the following prioritization order:

(i) Safety emergencies;

(ii) Native American religious use for rites and ceremonies that require eagles be taken from the wild;

(iii) Renewal of programmatic nest-take permits;

(iv) Non-emergency activities necessary to ensure public health and safety;

(v) Resource development or recovery operations (under §22.25, for golden eagle nests only);

(vi) Other interests.

(6) For take that is not necessary to alleviate an immediate threat to human safety or eagles, we additionally must find that suitable nesting and foraging habitat is available to the area nesting population of eagles to accommodate any eagles displaced by the nest removal.

(f) *Tenure of permits* . The tenure of any permit to take eagle nests under this section is set forth on the face of the permit and will not be longer than 5 years.

[74 FR 46877, Sept. 11, 2009]

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Washington, D.C. 20240

OCT 23 2012

Ms. Jamie Clark
President and CEO
Defenders of Wildlife
1130 17th Street, NW
Washington, DC 20036

Dear ~~Ms. Clark~~ Jamie:

Thank you for your letter of August 22, 2010 to Secretary of the Interior Ken Salazar, co-signed by several of your peers, suggesting a path forward regarding renewable energy development and impacts to bald and golden eagles. The Secretary asked the U.S. Fish and Wildlife Service (Service) to respond directly to you.

Because the 2009 eagle take regulations involve all activities that may affect eagle populations, the Service recognizes the importance of working with all interested parties in this era of increased renewable energy development. The Service would like to invite you or a designee to a one-to-two-day meeting during which you and other partners would work with Service staff to develop a collaborative process to ensure the long-term sustainability of eagle populations and responsible renewable energy development.

Please reply to Mr. Jerome Ford, Assistant Director, Migratory Birds, with your availability during the week of December 10, 2012. I look forward to this important conversation.

Sincerely,

DIRECTOR

Attention: Division of Policy and Directives Management
U.S. Fish and Wildlife Service
4401 North Fairfax Drive, MS 2042–PDM
Arlington, VA 22203-1610

Re: Comments of the American Wind Energy Association on Eagle Permits; Revisions to Regulations Governing Take Necessary To Protect Interests in Particular Localities; Docket No. FWS–R9–MB–2011–0094

Submitted via Federal Rulemaking Portal: http://www.regulations.gov

In September 2009, the United States Fish and Wildlife Service (FWS or Service) published a final rule (Eagle Permit Rule) establishing new permit regulations under the Bald and Golden Eagle Protection Act (Eagle Act or Eagle Act) for nonpurposeful take of eagles.[1] These regulations relate to permits to take eagles where the take is associated with, but not the purpose of, otherwise lawful activities. The regulations provide for both standard permits and programmatic permits.

On April 13, 2012, the FWS published an Advanced Notice of Proposed Rulemaking (ANOPR)[2] that seeks input on how the Eagle Permit Rule can be improved to create a more efficient permit process while continuing to provide adequate protection for eagles. The ANOPR states that FWS is particularly interested in public ideas and suggestions that would help clarify the permit issuance criteria, help determine appropriate compensatory mitigation, and better define the Eagle Act's

[1] 74 FR 46836.
[2] 77 FR 22278; 50 CFR 22.26.

preservation standard. In addition, FWS states that it will accept public input on other aspects of the permit governed by the Eagle Permit Rule that may be improved by revision of the existing regulations.

Ensuring that the Eagle Permit Rule is workable for the wind industry while providing for the protection of bald and golden eagles is of paramount importance to the American Wind Energy Association (AWEA).[3] We recognize the conservation mission of the Service and have been a partner with the agency, and others within the Department of the Interior (DOI), on a variety of wildlife conservation efforts and look forward to continuing that strong relationship. In that same spirit, AWEA appreciates the opportunity to provide the following comments to the ANOPR.

I. Background

The Eagle Act (16 U.S.C. 668–668d) prohibits take of bald eagles and golden eagles except pursuant to Federal regulations.[4] The Eagle Act regulations at title 50, part 22, of the Code of Federal Regulations (CFR), define the ''take'' of an eagle to include the following broad range of actions: ''pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, destroy, molest, or disturb'' (50 CFR 22.3). The Eagle Act allows the Secretary of the Interior to authorize certain otherwise prohibited activities through regulations.

The Secretary is authorized to prescribe regulations permitting the ''taking, possession, and transportation of [bald eagles or golden eagles] . . . for the scientific or exhibition purposes of public museums, scientific societies, and zoological parks, or for the religious purposes of Indian

[3] AWEA is the national trade association representing a broad range of entities with a common interest in encouraging the deployment and expansion of wind energy resources in the United States. AWEA members include wind turbine manufacturers, component suppliers, project developers, project owners and operators, financiers, researchers, renewable energy supporters, utilities, marketers, customers and their advocates.

[4] Section 668a of the Bald and Golden Eagle Protection Act (Eagle Act) states:

> Whenever, after investigation, the Secretary of the Interior shall determine that it is compatible with the preservation of the bald eagle or the golden eagle to permit the taking, possession, and transportation of specimens thereof for the scientific or exhibition purposes of public museums, scientific societies, and zoological parks, or for the religious purposes of Indian tribes, or that it is necessary to permit the taking of such eagles for the protection of wildlife or of agricultural or other interests in any particular locality, he may authorize the taking of such eagles pursuant to regulation which is hereby authorized to prescribe. 16 U.S.C. § 668a.

tribes, or . . . for the protection of wildlife or of agricultural or other interests in any particular locality,'' provided such permits are ''compatible with the preservation of the bald eagle or the golden eagle'' (16 U.S.C. 668a).

On September 11, 2009, FWS published a final rule that established new permit regulations under the Eagle Act for nonpurposeful take of eagles (74 FR 46836)—the Eagle Permit Rule. Those regulations at 50 CFR 22.26 provide for permits to take bald eagles and golden eagles where the taking is associated with, but not the purpose of, an activity. The regulations provide for both standard permits and programmatic permits.

Through the ANOPR, FWS solicits public input on aspects of the permit program governed by 50 CFR 22.26 that may be improved by revision of the regulations.

II. The Criteria for Issuance of Programmatic Permits Should Be the Same as That Required for Issuance of Standard Individual Permits.

Under the Eagle Permit Rule,[5] as noted, either standard permits or programmatic permits may be granted for the nonpurposeful take of bald and golden eagles.[6] Standard permits "authorize individual instances of take that *cannot practicably be avoided*."[7] "Practicable" in this context means "capable of being done after taking into consideration, relative to the magnitude of the impacts to eagles: (1) the cost of remedy comparative with proponent resources; (2) existing technology; and (3) logistics in light of overall project purposes."[8]

Programmatic take is defined as "take that is recurring, is not caused solely by indirect effects, and that occurs over the long term or in a location or locations that cannot be specifically identified."[9]

[5] 50 CFR 22.26.
[6] 74 FR 46836, September 11, 2009.
[7] *Id.* (emphasis added).
[8] 50 CFR 22.26.
[9] 50 CFR 22.3

Programmatic permits[10] "authorize recurring take that is *unavoidable* even after implementation of advanced conservation practices."[11]

The criteria for issuance of standard versus programmatic permits therefore differ rather substantially. Under the criteria for a standard permit, ''take that cannot practicably be avoided'' can be authorized; in contrast, a programmatic permit requires that the take be ''unavoidable.'' In addition, programmatic permit seekers must show that the take is "essentially unavoidable" despite implementation of "exceptionally comprehensive measures" developed in cooperation with the Service to reduce the take below current levels.[12]

Because the issuance criteria for programmatic permits makes no mention of "practicability," the standard does not technically require the Service to take into consideration, relative to the magnitude of the impacts to eagles: (1) the cost of remedy compared to proponent resources; (2) existing technology; and (3) logistics in light of overall project purposes, when imposing "exceptionally comprehensive" advanced conservation practices (ACPs) on programmatic permit holders. Because the programmatic permit criteria lacks any language describing the term "unavoidable," apart from the fact that such take requires implementation of ACPs, the Service potentially has great latitude to impose overly burdensome conservation requirements on permit holders that are disproportionate to actual impacts on eagles without considering other relevant factors.

The Service in acknowledgement of the high hurdle that an applicant faces that seeks a programmatic permit has stated: "Recipients of programmatic permits must perform more rigorous

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[10] Most take authorized under § 22.26 has been in the form of disturbance; however, permits may authorize lethal take that is incidental to an otherwise lawful activity, such as would be the case with wind turbines. Since publication of the 2009 final rule, the Service has issued approximately 50 permits under the new regulations. However, it has not yet issued any programmatic permits.

[11] 74 FR 46841, September 11, 2009 (emphasis added). ''Advanced conservation practices'' (ACPs) are defined at 50 CFR 22.3 as ''scientifically supportable measures that are approved by the Service and represent the best available techniques to reduce eagle disturbance and ongoing mortalities to a level where remaining take is unavoidable.'' This definition distinguishes programmatic take from any other take that has indirect effects that continue to cause take after the initial action. The Service can issue programmatic permits for disturbance as well as for take resulting in mortalities, based on implementation of advanced conservation practices developed in coordination with FWS.

[12] 74 FR 46838, September 11, 2009.

monitoring than is required for standard, individual take permits."[13] However, the preamble accompanying the Eagle Permit Rule states ''applicants for both types of permits must take all practicable steps to avoid and minimize take,''[14] adding some confusion to the difference between standard and programmatic permits. This language implies that programmatic permittees should be held to the same workable standard as standard individual take permittees, which allow a level of take "that cannot practicably be avoided," rather than being subject to "exceptionally comprehensive measures" that would make any remaining take essentially unavoidable.

In apparent reconsideration of this difference that separates these permits, the Service asks in the ANOPR whether the regulations should be revised so that the issuance criterion for programmatic permits is the same as for standard permits; in other words, whether the project proponent has to reduce take to the maximum degree practicable for the issuance of either type of permit.

AWEA thinks the standards should be the same for both standard and programmatic permits and does not see a rationale for having different standards, except that programmatic permits are granted for a longer duration, thereby allowing for recurring take for the life of the permit. However, ACPs compensate for this difference between standard and programmatic permits, thereby promoting eagle conservation throughout the permit duration.[15] In order to ensure that any ACPs required by a programmatic permit are not disproportionate to the impacts on eagles, the Service should also redefine ACPs as "scientifically supportable measures that are approved by the Service to reduce eagle disturbance and ongoing mortalities to a level where remaining take *cannot practicably be avoided*" to ensure consistency with programmatic permit issuance criteria.

<u>AWEA Recommendation:</u>

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[13] 74 FR 46842, September 11, 2009.
[14] *Id*.
[15] We note that, when applying ACPs, the Service should do so relative to the magnitude of the impacts to eagles because "whether something is practicable is relative to the risk of not doing it." *Id*. If the adverse impact is small, it may be impracticable to undertake enormously costly measures to avoid it, but if the impact will be extremely detrimental, increased measures may be deemed reasonable and practicable.

AWEA believes the issuance criteria for programmatic permits should be the same as for standard permits; as such, for either permit type, the project proponent need only have to reduce take to the maximum degree practicable. Thus, the programmatic permit issuance criteria should be redefined in keeping with the practicable avoidance standard, as should the definition of ACPs.

A. Applying the Same Workable Issuance Criteria for Programmatic Permits as for Standard Permits Better Aligns the Requirements for Issuing Eagle Take Permits with Those for Incidental Take Permits Under the ESA.

When the Service proposed the Eagle Permit Rule to allow incidental take of eagles, it assured the public that the "permitting process we are proposing under the Eagle Act would be *less burdensome* for the public" than the ESA's incidental take process, which applied to the bald eagle until it was delisted.[16] However, the issuance criteria for programmatic permits under the Eagle Permit Rule are more burdensome, less certain, and more costly with respect to the eagle plan/eagle take permit process for bald and golden eagles than criteria for issuing an incidental take permit (ITP) process for much more imperiled species under the ESA.

The ESA follows a more workable issuance standard for permit applicants than the process under Eagle Permit Rule. Under the ESA, an ITP can be granted if the "applicant will, to the maximum extent practicable, minimize and mitigate the impacts of such [incidental] taking."[17] While a programmatic eagle take permit cannot be issued unless ACPs specified by the Service are first applied,[18] there is no comparable constraint of applying ACPs or on reducing take to an "unavoidable" level to obtain an ITP under the ESA and its implementing rules. Given that the species protected under the ESA are more imperiled than eagles, no permitting scheme for eagles should impose more stringent requirements than the ESA.

<u>AWEA Recommendation:</u>

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[16] 72 Fed. Reg. 31141 (June 5, 2007) (emphasis added).
[17] 16 U.S.C. § 1539(a)(2)(B)(ii).
[18] *Id.* The ACPs must apply the "best available techniques to reduce eagle disturbances and ongoing mortalities to a level where remaining take is unavoidable." 50 C.F.R. § 22.3; *see id.* at § 22.26(a)(2).

The criteria for issuing programmatic permits under Eagle Act should, consistent with the requirement for an ESA ITP, only require minimization and mitigation to the extent that take cannot practicably be avoided.

B. At Present, the Eagle Permit Rule and the Draft Eagle Guidance Erroneously Conclude that Eagle Act Requires that the Take of Eagles Must First be Avoided and Then Minimized and Mitigated so That Any Remaining Take is Unavoidable.

In the Eagle Permit Rule and subsequent Draft Eagle Guidance, the Service interpreted the word "necessary" in Section 668a of the Eagle Act[19] to mean that take has been avoided and minimized to the point that "take cannot practicably be avoided" for standard permits, but for a programmatic eagle take permit, that take must be reduced through ACPs to the point that remaining take is "unavoidable."[20] This interpretation of Eagle Act is translated into the Draft Eagle Guidance's requirements for onerous studies, analyses, and consultations with the Service designed to create a scientific record demonstrating that eagle take has been avoided, then minimized, and then mitigated to the point that a remaining take is unavoidable. While the wind industry has always embraced the general responsibility to avoid, minimize, and mitigate the take of at risk species, the manner in which these duties are imposed in the Eagle Permit Rule and the Draft Eagle Guidance are overly burdensome and not consistent with the underlying act.

As the "necessary" language from Eagle Act does not apply to the clause on which the eagle take permit program is based, it does not require the Service's reading that the incidental take of eagles must first be avoided and then minimized and mitigated so that any remaining take is unavoidable. Instead, the relevant Eagle Act language in the second clause of section 668a allows, as noted, eagle takes on whatever terms the "Secretary of the Interior shall determine . . . is necessary . . . for the protection of . .

[19] "Whenever, after investigation, the Secretary of the Interior shall determine that it is compatible with the preservation of the bald eagle or the golden eagle to permit the taking, possession, and transportation of specimens thereof for the scientific or exhibition purposes of public museums, scientific societies, and zoological parks, or for the religious purposes of Indian tribes, or that it is necessary to permit the taking of such eagles for the protection of wildlife or of agricultural or other interests in any particular locality, he may authorize the taking of such eagles pursuant to regulation which is hereby authorized to prescribe."
[20] 50 C.F.R. §§ 22.3, 22.26(a) and (e) and (f).

. agricultural or other interests."[21] Thus, the word "necessary" in that clause of the section permits activities (such as a wind energy project) that are considered to be in the public interest (as is renewable energy development) and does not require the onerous process set forth by the current programmatic permit issuance criteria.

AWEA Recommendation:

AWEA requests that the Service reexamine its interpretation of Eagle Act, particularly Section 668a, and allow more flexible and efficient solutions on eagle take matters, consistent with the language in the Eagle Act, than is provided for in either the Eagle Permit Rule or the Draft Eagle Guidance.

C. The Service Should Not Consider a Proponent's Resources in Determining Whether a Measure is Practicable and Similarly Should Avoid Unreasonable Risk-Level Designations for Project Sites That Could be Prevented Through More Defined Criteria.

As noted, AWEA recommends modifying the issuance criteria for programmatic permits so that the criteria is in line with standard permit issuance criteria, thus authorizing recurring take that cannot practicably be avoided. However, AWEA also urges the Service to go one step further and redefine the word "practicable." As it stands, "practicable" means "capable of being done after taking into consideration, relative to the magnitude of the impacts to eagles: (1) the cost of remedy comparative with proponent resources; (2) existing technology; and (3) logistics in light of overall project purposes."[22] AWEA approves of factors (2) and (3) being considered, but does not agree that the definition should include any consideration of an applicant's financial or other resources.

The requirement for such case-by-case consideration of an individual proponent's resources is arbitrary and will have unjust and unnecessary disparate effects. Such consideration of financial resources could result in too high a bar for large projects with many resources, resulting in more stringent requirements for project proponents with more financial means, regardless of the risk posed

[21] We also note that section 22.23 of the Eagle Permit Rule grants the Service broad authority to issue a permit to allow the intentional killing of "depredating eagles" (*i.e.*, eagles that are interfering with livestock or other agricultural interests). 50 C.F.R. § 22.23. This provides another example of the fact that the USFWS is not limited by its constrained reading of Eagle Act in section 22.26 of the Eagle Permit Rule.

[22] 50 CFR 22.26.

by them to eagles. Further, costly measures, which are merely based on the characteristics of the company developing a project, could disincentivize large developers from developing wind energy projects. It is also unfair to consider an applicant's resources, because a parent company's resources should be irrelevant to what the economics of an individual project can bear in order to be profitable.

The Service thus should not consider the means of individual permit applicants when determining whether a measure is practicable when issuing programmatic permits. It should instead consider the reasonableness of such measures by balancing their costs and their ability to mitigate actual measurable impacts as compared to the overall benefit and utility of the project at issue. For example, the Service could achieve better conservation results by differentiating and requiring mitigation measures that are proven to work versus those with benefits that are merely speculative and requiring research to validate additional mitigation options.

To the extent that the Service amends the current issuance criteria for programmatic permits to align with the "practicable avoidance" criteria for standard permits, as AWEA suggests, the term "practicable" should therefore be redefined as "capable of being done after taking into consideration, relative to the magnitude of the impacts to eagles: (1) the cost of the remedy for an actual measurable impact as compared to the overall benefit and utility of the project with respect to public interest; (2) existing technology; and (3) logistics in light of overall project purposes."

The definition of ACPs,[23] in keeping with the practicability standard for programmatic permits that AWEA proposes here, should also be amended. First, to be "practicable," the Service must not impose ACPs based on "best-available techniques." The implementation of objectively best-available techniques is often simply not feasible for many project proponents and, therefore, not practicable. In short, while AWEA agrees that existing technologies should be one factor considered when applying

[23] 74 FR 46841, September 11, 2009. ''Advanced conservation practices'' (ACPs) are defined at 50 CFR 22.3 as ''scientifically supportable measures that are approved by the Service and represent the best available techniques to reduce eagle disturbance and ongoing mortalities to a level where remaining take is unavoidable.''

ACPs, we disagree that the requirement should be so stringent as to require the use of *best-available* techniques. In addition, the language of the ACP definition should be amended as follows: "scientifically-supportable measures that are approved by the Service to reduce eagle disturbance and/or ongoing mortalities to a level where remaining take cannot practicably be avoided." This language would ensure consistency with the new "practicability" standard for programmatic permits, if adopted.

Under the eagle regulatory framework, project sites are often categorized based on the level of risk they pose to eagles. While this categorization scheme has merits in some instances, designations are not made on the basis of specifically defined criteria. For example, few specific criteria are established for what constitutes a "low-risk" project and, therefore, it is very challenging for a developer to receive such a designation. This creates uncertainty and may contribute to designations being made on the basis of irrelevant, unreasonable factors. Accordingly, providing more details regarding what constitutes a "low-risk" project would help companies better evaluate their eagle portfolio risk and select suitable development sites, while concomitantly lowering the work burden and budget of the Service.

AWEA Recommendation:

The Service should not consider the financial or other resources of permit applicants when determining whether a measure is practicable and should instead base its determination on whether the measure is reasonable. To that end, the Service should amend the definition of "practicable" accordingly. The Service should also amend the definition of ACPs to ensure consistency with the change to the definition "practicable." Finally, the Service should revise the criteria for designating the risk level of certain development sites, as some of these categorization decisions are made on the basis of irrelevant factors instead of specifically defined criteria.

III. A More Inflexible Conservation Standard for Less Imperiled Species

The conditions for eagle take permits in the Eagle Permit Rule are in stark contrast to those for ESA incidental take permits (ITPs), which explicitly provide "No Surprises assurances." ESA ITPs "were designed by Congress to authorize incidental take, not to be mandatory recovery tools" and do not require no-net-loss of individual members of a listed species.[24] In fact, under the ESA's No Surprises Policy, an applicant for an ESA ITP may negotiate for long-term regulatory assurances that no additional mitigation will be required under the plan even if the needs of the species change over the life of the permit.[25] In recognition of this fundamental fact of economic life, Interior Secretary Babbitt adopted the so-called No Surprises assurances in the 1990s. No Surprises assurances provide considerable certainty that the costs for ESA compliance will not increase over time due to future unforeseen events.

No Surprises assurances suggest that a deal-is-a-deal and that the Service will not seek further concessions from someone who has secured an ITP.[26] Once an ITP has been issued and its terms and conditions are being fully complied with, the permit holder may rest assured that the agreed upon cost of conservation and mitigation will not change.[27] If the status of a species addressed under an HCP unexpectedly worsens because of unforeseen circumstances, the Federal government, other government agencies, or other non-Federal landowners who have not yet developed a Habitat Conservation Plan (HCP) have the obligation to implement additional conservation measures.[28] Specifically, under the ESA, for any "unforeseen" changes in circumstances that are not explicitly included in the original permit, the government and/or other non-permitted landowners must bear

[24] HCP Handbook at 3-20.
[25] 63 FR 8867, Feb. 23, 1998.
[26] The No Surprises Rule assures the holder of a post-March 1998 ITP that, if unanticipated "unforeseen circumstances" occur, the USFWS "will not require" the ITP holder to commit "additional land . . . or financial compensation . . . beyond the level" agreed to in the HCP "without consent of the permittee." 50 C.F.R. § 17.22(b)(5)(iii) and 17.32(b)(5)(iii); *see* 63 Fed. Reg. 8862-64, 8866-69 (Feb. 23, 1998). And, even with respect to foreseen circumstances, though the parties might negotiate an ESA ITP that has some increasing costs over time, at least the negotiation "process will enable the applicant to assess the potential economic impacts of adjustments before agreeing to the HCP." 65 Fed. Reg. 35253 (June 1, 2000).
[27] *Id.*
[28] *Id.*

the costs of additional mitigation. The permit holder is only expected to implement additional conservation and mitigation measures to respond to changes in circumstances that were originally provided for in the HCP's operating conservation program.[29] Such measures would have already been factored into the estimated project costs, providing cost predictability to developers throughout the life of the permit. We note that the implementation of the ESA No Surprises policy had the intended effect of reviving private sector investment in projects that had a nexus with the ESA in the late 1990s and through the 2000s.

The ESA protects America's most imperiled species, which undergo a lengthy listing process to be listed as either "threatened" or "endangered."[30] It has been called the "pitbull" of environmental laws as it has halted major federal construction projects and closed entire forests to harvesting.[31] Despite this reputation as arguably the strictest federal environmental statute that protects the most threatened or endangered species, the ESA still provides No Surprises assurances for developers once they obtain a permit, assuming adequate mitigation measures for the life of the permit are provided for on the front end. Accordingly, we see no reason why the Service would not apply No Surprises assurances to eagles, which are less imperiled species than those listed under the ESA.

Neither bald eagles nor golden eagles, which are protected by the Eagle Act, are listed as "threatened" or "endangered" under the ESA. Still, species conservation under the Eagle Permit Rule is more stringent than that for listed species under the ESA, as it does not provide No Surprises assurances for developers. AWEA recognizes both the biological and historically symbolic significance of eagles and fully supports their careful conservation. However, the Service should hold eagle conservation to, at a maximum, the same conservation standard as the nation's most imperiled species, thereby allowing developers to negotiate No Surprises assurances in exchange for

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[29] *Id.* at 8868.
[30] 16 U.S.C. § 1533(a)(1).
[31] Patrick W. Ryan and Galen Schuler, "The Endangered Species Act—A Primer," 1998 Perkins Coie LLP, available at http://www.mrsc.org/subjects/environment/esa/esaprime.aspx.

predetermined mitigation measures in response to pre-defined potential changes in circumstances. We see no reason why the Eagle Permit Rule cannot provide the same certainty for non-listed species, such as eagles.

***AWEA Recommendation*:**

The Service should learn from the success of the ESA's No Surprises policy and, consistent with the requirement for an ESA ITP, promote cost certainty by extending No Surprises assurances to eagle take permits. Specifically, the Service should hold permits for the take of eagles to no greater than those for listed species under the ESA. In addition, consistent with the No Surprises policy allowed for ESA ITPs, before granting an eagle take permit, the Service should negotiate with permit applicants to pre-determine any mitigation measures that would potentially be imposed should specific changes in circumstances arise.

IV. Compensatory Mitigation.

In the ANOPR, the Service asks: (1) under what circumstances should permittees be required to provide compensatory mitigation; and (2) to what degree should any required mitigation offset the detrimental impacts to eagles. The following sections address these two questions, respectively.

A. When Avoidance and Minimization Measures Are Insufficient to Eliminate All Predicted Take, Then Compensatory Mitigation May Be Required.

AWEA believes that, if avoidance and minimization measures are insufficient to eliminate all predicted take, then it is reasonable to require compensatory mitigation. However, where compensatory mitigation is required, the proposed level of mitigation that must be achieved should be based on actual data.

Currently, under the Draft Eagle Guidance, the project proponent must often pay compensatory mitigation that offsets the "predicted number of fatalities per year . . . estimated from the product of

exposure rate and collision probability."[32] This model assumes that an eagle will not detect and avoid a wind turbine and, therefore, seems to calculate *risk* of an eagle-turbine collision. However, some behavioral research indicates that bald eagles in Alaska changed their flight patterns after the construction of a 3-turbine wind farm to avoid turbine blades, but did not avoid the wind project vicinity entirely.[33] This example demonstrates how the Service's approach in requiring compensatory mitigation for mere risk may be misguided.

With respect to the types of take caused by wind turbines (wound or kill), the Eagle Act only makes it unlawful to take an actual eagle.[34] Simply creating a risk of eagle take is not unlawful, and accordingly, even under a "no net loss of eagles" policy, compensatory mitigation should be tied to the actual measureable level of take of eagles or to a predicted level of take under fair assumptions. Thus, by calculating the risk of eagle take through a formula that does not account for eagle avoidance of turbine blades, and then requiring compensatory mitigation to completely offset the level of assumed take, the Service sets the compensatory mitigation level too high and requires compensation for in effect "phantom" take that may never occur.

AWEA Recommendation:

The Service should not set the level of compensatory mitigation based on the risk of an eagle take. Instead, compensatory mitigation should be tied to the actual measureable level of take of eagles or to a predicted level of take under fair assumptions.

B. Degree of Mitigation Required to Offset Actual Measureable Impacts on Eagles.

As mentioned in Part A of this section, compensatory mitigation should compensate for actual measureable take or a predicted level of take under fair assumptions that can demonstrate a direct

[32] Draft Eagle Guidance at 61.
[33] Sharp, L., C. Herrmann, R. Friedel, K. Kosciuch, and R. MacIntosh. 2010. Comparison of pre- and post-construction bald eagle use at the Pillar Mountain wind project, Kodiak, Alaska, Spring 2007 and 2010. Presentation at the National Wind Coordination Collaborative Research Results Meeting 8, Denver, Colorado, October 20, 2010.
[34] *Accord Babbitt v. Sweet Home Chapter of Communities for a Great Oregon*, 515 U.S. 687, 691 n.2 (1995) (the "harm" form of ESA take "emphasize[s] that actual death or injury of a protected animal is necessary for a violation").

numerical offset value. AWEA suggests that this offset could be accomplished by reducing take from another source (reducing mortality) or, in theory, by increasing eagle carrying capacity either through increases in productivity (number of fledged young) or post-fledging survival. To maintain fairness and general uniformity with respect to compensatory mitigation measures imposed, the Service, with input from potential stakeholders, should develop a menu of scientifically justifiable options for numerically offsetting take at wind energy facilities.

Some of the mitigation options that AWEA suggests be included in the "menu" of scientifically justifiable mitigation measures are listed below:[35]

- Allow research to count as a percentage of mitigation (for a period of time) to ensure it gets done in a timely manner.
- Evaluate feasibility of reducing eagle fatalities from other sources.
- Reduce mortality from vehicle collisions by removing road kill carcasses from roads.
- Shift to non-toxic ammunition (hunter education/voluntary lead abatement).
- Reduce stock tank drowning.
- Reduce unintentional poisoning.
- Implement reward system to reduce poaching.
- Mark fences to reduce collisions.
- Reduce impacts of secondary trapping (e.g., by covering bait).
- Evaluate cost-effectiveness of funding programs.
- Fund eagle rehabilitation centers.
- Fund livestock depredation compensation programs and compensate landowners that protect eagles.
- Decommission or repower old wind projects.

[35] American Wind and Wildlife Institute, "Eagles and Wind Energy: Identifies Research Priorities," May 2012.

- Improve management of public recreational activities (e.g., off-road vehicle management, climbing) that reduce eagle productivity.

This list is not exhaustive, so other measures that will increase either eagle productivity or adult survival and thereby offset eagle take at wind energy facilities should also be considered and made available for public comment.

The Service should, in addition, identify the metrics to evaluate the effectiveness of compensatory mitigation measures, including costs, and develop options at a geographic scale appropriate for the eagle management unit (for example, by Bird Conservation Regions (BCR) or some other relevant management scale). The Service should also recognize that in many instances mitigation within a given BCR may be more effective than limiting it to within 10 miles of a project. However, the Service should clarify that any compensatory mitigation measures will only be imposed as direct mortality offsets.

AWEA Recommendation:

With input from stakeholders, the Service should offer compensatory mitigation measures such as those listed above. The Service should also incorporate financial limits into compensatory mitigation schemes to provide more assurances and cost certainty for industry.

V. Eagle Preservation Standard.

The Service asks for input as to whether the current eagle preservation standard is appropriate or whether it should be further refined or otherwise modified. The Eagle Act requires the Service to determine that any take of eagles it authorizes is "compatible with the preservation of bald eagles or golden eagles." In the preamble to the Eagle Permit Rule, and in the Final Environmental Assessment of the regulations, the Service defined that standard to mean "consistent with the goal of stable or increasing breeding populations." In other words, the standard calls for

"no net loss" of eagles. In addition, in the Draft Eagle Guidance and the preamble to the Eagle Permit Rule, the Service has interpreted this standard as it applies to regional or local populations.

AWEA believes that this standard, or at least the Service's interpretation of this standard, should be refined for two reasons. First, as it has been interpreted, the standard unnecessarily requires "no net loss" conservation of each regional population of golden eagles or bald eagles. Second, the current standard, as interpreted, erroneously provides more stringent conditions for obtaining an Eagle Take Permit than required by the Eagle Act.

A. The Current Eagle Preservation, As Interpreted, Unnecessarily Requires "No Net Loss" Conservation of Each Regional Population of Golden Eagles or Bald Eagles.

In the Draft Eagle Guidance and the preamble to the Eagle Permit Rule, the Service has made it clear that it will issue an eagle take permit only if issuance is consistent with stabilizing each regional population of golden eagles and bald eagles across the U.S. In other words, the Service has translated its duty under the Eagle Act to preserve the species of golden eagle and bald eagle as a whole into a duty to preserve each regional eagle population wherever it currently exists.

In contrast, the standard for an ITP under the ESA is that the approved taking cannot "appreciably reduce the likelihood of the survival and recovery of the species in the wild."[36] This is the legislative restatement of the regulatory standard for compliance with "Section 7(a)(2) of the Act, that is, whether or not the taking would jeopardize the continued existence of the species."[37] In other words, ESA section 10 allows "permits for the incidental taking . . . provided the action will not jeopardize the continued existence of the species."[38] Since these ESA provisions only prohibit jeopardizing the entire listed species unit, the Service has made it clear that it applies ESA section 7 (and, in turn, ESA section 10(a)(2(B)(iv)) only to impacts that are likely to jeopardize the entire species

[36] 16 U.S.C. § 1539(a)(2)(B)(iv).
[37] H.R. Rep. No. 97-567 at 31, 1982 U.S.C.C.A.N. 2831.
[38] H.R. Conf. Rep. No. 97-835 at 29, 1982 U.S.C.C.A.N. 2870.

with extinction, and that adverse effects to a single population of that species often are not enough to demonstrate jeopardy.[39]

Because smaller populations are inherently more vulnerable than the entire species, as AWEA noted previously in its comments on the Draft Eagle Guidance, the Service has made it more difficult to obtain an eagle take permit than required by the Eagle Act.[40] AWEA thus urges the Service to make clear that the Eagle Act's preservation standard of "no net loss" applies to the national population of the eagle species.

AWEA Recommendation:

The Service should refine its interpretation of the eagle preservation standard to apply to the national population of eagles, and should therefore issue an eagle take permit if issuance would not reduce the likelihood of survival of the species of golden eagles and bald eagles nationally, rather than individual local or regional populations.

VI. Establishing an Inter-Agency Consultation Process for Eagle Permitting.

AWEA encourages the Service to take steps to streamline and expedite the process for making eagle permitting decisions. The lengthy and uncertain permitting process for wind development projects significantly compromises the industry's ability to attract financing and bring much needed clean energy to market, and eagle permitting constitutes just one of a multitude of permitting hurdles developers face in moving projects forward. Given this set of circumstances, AWEA recommends the establishment of an inter-agency consultation process similar to that provided by ESA section. Such a consultation process would be helpful for any development projects that have a federal nexus, including BLM, U.S. Army Corps of Engineers, and Forest Service projects.

AWEA Recommendation:

[39] *E.g.,* Memorandum from USFWS Director H. Dale Hall to Regional Directors, et al., "Recovery Units and Jeopardy Determinations under Section 7 of the Endangered Species Act" 1-2 (Mar. 6, 2006).
[40] Comments of the American Wind Energy Association on Draft Eagle Conservation Plan Guidance, at 23.

Implement an inter-agency consultation process for eagle permitting to allow the government to take permitting actions in a more expeditious fashion.

VII. Conclusion

AWEA respectfully requests that the Service consider our comments and make appropriate changes in the final rule. Please do not hesitate to contact us if you should have any questions regarding these comments.

Sincerely,

John Anderson
Director of Siting Policy

Tom Vinson
Senior Director of Federal
Regulatory Affairs

Chris Long
Manager of Offshore Wind and Siting Policy

Gene Grace
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BRIEFING MEMORANDUM FOR THE DEPUTY SECRETARY

FROM: Director, U.S. Fish and Wildlife Service

SUBJECT: Meeting with wind industry and environmental groups regarding eagle conservation and management – Monday, February 11 at 4 pm

I. Introduction and Background

In April 2012 the Service published two notices requesting comment on proposals to: 1) revise the 2009 regulations to authorize incidental take of eagles (advanced notice of proposed rulemaking (ANPR)) and 2) extend the duration of eagle take permits up to 30 years and charge a fee to permit applicants. In August, representatives of eight environmental organizations and eight wind industry groups wrote to Secretary Salazar (attachment 1) asking that we engage with them in a collaborative dialog about the two proposals. Dan Ashe replied that we would be happy to engage with the groups and potentially others as we moved ahead with the proposals (attachment 2).

Since November, Service staff met several times with representatives of these groups to discuss various processes we might employ for such a dialog, including a series of facilitated workshops (now proposed), chartering a Federal advisory committee, or negotiated rule making. Service staff also worked closely with the Department's Center for Alternative Dispute Resolution (CADR) and Solicitor's Office regarding this.

II. Update

You are meeting with leadership of many of these organizations on Monday February 11 at 4:00 pm in 5160 (see attachment 3 for list of attendees and people who will attend by phone). At that meeting, you and I will describe where we are with processing various aspects of our comprehensive eagle conservation and management strategy:

- (b) (5)
-
-
-

While initially jointly asking for a collaborative dialog, wind industry and environmental organizations have since raised several issues that they say are essential to their intent:

- The wind industry wants very much to talk about an "interim solution" to eagle permitting while we revise the regulation. They want "assurance" from the Service that in exchange for assessing risks to eagles and consulting with the Service about conservation measures they could immediately implement, the Service would not require them to apply for a permit. Should an eagle be taken after they implemented the conservation practices, they want the Service to use its enforcement discretion to not recommend that the Justice Department prosecute them for taking eagle(s).
- The environmental community has adamantly opposed the Department/Service promulgating the final rule to extend the permit duration up to 30 years. Several have indicated that if we promulgate the rule: 1) they will likely sue us; and 2) they may not participate in a collaborative dialog.

III. Talking Points

- Thank you for meeting with us today and demonstrating the leadership you have on these issues.
- Eagle conservation is very important to the Department and Service
- (b) (5)
- [redacted]

Attachments

1. Meeting agenda
2. Letter from wind industry and environmental group representatives
3. Director Ashe response
4. Meeting participants in-person and by phone
5. Fish and Wildlife Service Eagle Conservation and Management Strategy
6. Eagle rule revision workshop process proposal

ATTACHMENT 1

AGENDA

EAGLE CONSERVATION

FEBRUARY 11, 2013

Main Interior Building, Room 5160

4:00 pm

Welcome and Introductions	Deputy Secretary Hayes	5
General Comments	Industry representative	5
	Environmental representative	5
Comprehensive FWS eagle strategy	Director Ashe	5
Discussion	Group	10
Eagle rule revision process	Director Ashe	10
Discussion	Group	10
Coverage for Eagles in the DRECP	Director Ashe	5
Wrap up and next steps	Deputy Secretary Hayes	5
	Director Ashe	
	Group	5

ATTACHMENT 4

Attending the meeting (as of Feb 7, 2013)

Frances Beinecke	Natural Resources Defense Council
Katie Umekubi	Natural Resources Defense Council
Jamie Williams	The Wilderness Society
Tom Vinson	American Wind Energy Association
John M Anderson	American Wind Energy Association
Jim Lindsay	Next Era Energy Resources, LLC
Jaime Steve	Pattern Energy
David J. van Hoogstraten	BP Wind Energy North America, Inc.
Jim Lyons	Defenders of Wildlife
Julie Falkner	Defenders of Wildlife
Derek Rieman	EDP Renewables, North America
Richard Glick	Iberdrola Renewables, LLC
David Yarnold	Audubon
Justin Allegro	National Wildlife Federation
John Kostyack	National Wildlife Federation
Jamie Rappaport Clark	Defenders of Wildlife

Participating by phone (as of Feb 7, 2013):

Johanna Wald	Natural Resources Defense Council
Todd Mattson	Element Power
Michael Horn	GE Energy - Renewables
Rene Braud	American Wind Energy Association
Sam Enfield	MAP
Kimberly Wells	BP Wind Energy North America, Inc.
Brandy Gibson	BP Wind Energy North America, Inc.
Joseph Grennan	RES Americas Inc.
Roby Roberts	EDP Renewables, North America
Stu S. Webster	Iberdrola Renewables
Rick Miller	EDF Renewable Energy

Black, Steve <steve_black@ios.doi.gov>

Materials for Feb 11 meeting

1 message

Cottingham, David <david_cottingham@fws.gov> Fri, Feb 8, 2013 at 5:27 PM
To: James Anderson <james_anderson@ios.doi.gov>, Elizabeth Klein <Elizabeth_Klein@ios.doi.gov>, Janea Scott <Janea_Scott@ios.doi.gov>, Steve Black <steve_black@ios.doi.gov>, Jerome Ford <jerome_ford@fws.gov>, David Cottingham <david_cottingham@fws.gov>, Betsy Hildebrandt <betsy_hildebrandt@fws.gov>, Dan Ashe <d_m_ashe@fws.gov>

I'm attaching briefing documents for the Deputy Secretary and Director for the briefing.

1. briefing memo including: Attachment 1 -- agenda and Att 4 -- meeting participants
2. Attachment 2 -- Aug 2012 letter from industry
3. Attachment 3 -- Response from Dan
4. FWS eagle conservation strategy
5. Eagle rule revision process

I've also sending:

- comments from AWEA
- comments in a joint enviro letter on the ANPR
- BGEPA regulations on take

I'll check emails over the weekend if you have questions.

David
--
David Cottingham
Senior Advisor to the Director
US Fish and Wildlife Service
Room 3341 Main Interior
Washington DC 20240

Office: 202-208-4331
Cell: 202-372-7578

8 attachments

briefing paper -- Group of 16 meeting -- draft 1 (2).docx
25K

Joint eagle process letter8 22 2012.pdf
65K

Ashe letter to Clark- Oct 23.pdf
137K

Eagle Briefing Document - Feb 2013 draft 2.docx
361K

Workshop plan diagram.pptx
70K

AWEA Eagle ANOPR Comments July 2012.pdf
459K

joint comments Aud DoW NRDC et al FWS eagle ANPR 7 12 12.pdf
186K

2009 Eagle Permit Rule Statutory Language.docx
21K

February 7, 2013 DRAFT

U.S. FISH AND WILDLIFE SERVICE

~~A~~ Blueprint for Eagle Conservation and Wind Energy Development

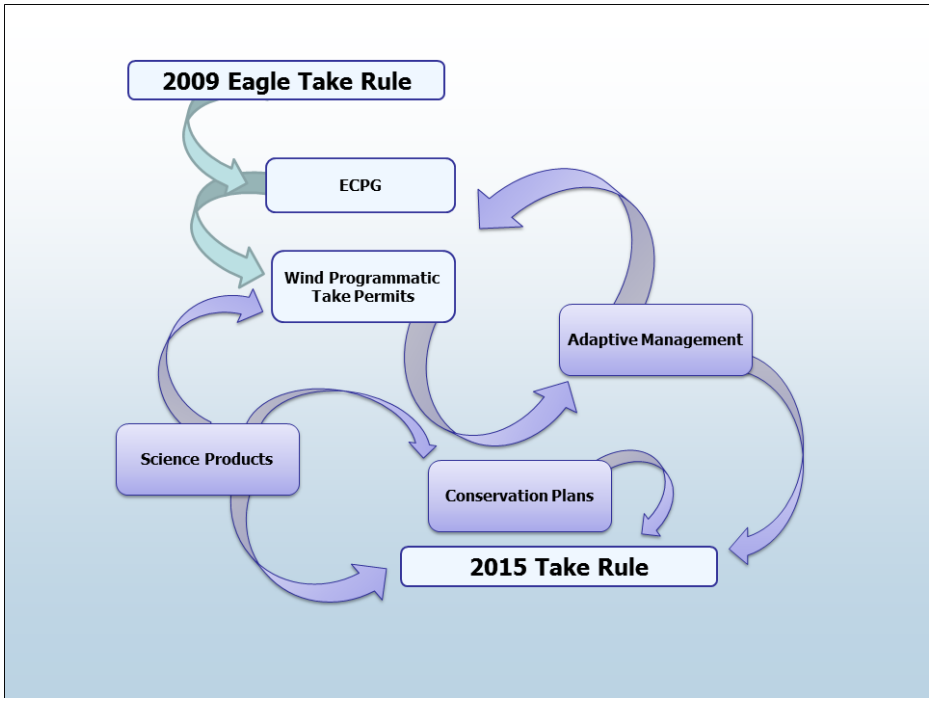
Overview

The U.S. Fish and Wildlife Service (FWS or Service~~-~~) actively supports the conservation and management of bald and golden eagles as authorized in the Bald and Golden Eagle Protection Act (BGEPA). With the recovery of bald eagles and their removal from their being listed under the Endangered Species Act (ESA), the Service developed a new approach to managing eagle populations. One of the dilemmas the Service faced was creating a process to conserve both eagle species including ways to authorize non-intentional takes of eagles.

The Service supports ~~the~~ development of renewable energy resources as a means to reduce carbon emissions and their impacts on the landscape. Large scale renewable energy development, however, is not without challenge for the Service. In particular, the development ~~proliferation~~ of industrial scale wind projects throughout the United States has required a focused effort to balance this much-needed energy resource with our ~~trust~~ statutory responsibilities to conserve migratory birds. The Service's mandate under ~~the Bald and Golden Eagle Protection Act (~~BGEPA~~)~~ is to ensure that ~~the~~ development of such resources is compatible with the preservation of bald and golden eagles. Because wind turbines can kill bald and golden eagles, the Service and its partners are ~~is working~~ conducting research to better understand eagle populations, methods of avoidance and mitigation of eagle fatalities, and the ~~overall population~~ effects ~~that~~ of wind turbines on eagle populations. ~~may be causing.~~

Strategy

The Service's strategy is to implement a defensible process for moving forward with authorizing incidental or programmatic eagle take ~~permitting for~~ at wind facilities in a measured way in the near future ~~now,~~ and to learn from our experiences with these initial permits and the science products developed through a focused research program so that we can undertake an informed substantive rule revision and NEPA analysis by 2015. ~~in 2015.~~ The ~~concept~~ strategy relies on a structured, ordered architecture such that results of the research, monitoring, and data analysis ~~the pieces~~ come together in sequence and support one-another.



**** need to update schematic. 1) Change "Conservation Plans" to "Management Plans" 2) Insert the permit duration rule**

Near-Term

In the near-term, the Service is working with the wind industry on methods to avoid, minimize and mitigate takes of eagles at specific project sites. In addition, the Service is assisting proponents in the development of eagle ~~management~~ conservation plans and in their applications for incidental take permits. All of this work is informed by the best available science.

- **Applying the Eagle Rule to Permits for Wind Facilities**. In 2009, the Service promulgated rules governing review and approval of permits that authorize take of bald and golden eagles when ~~the~~ take is associated with, but not the purpose of, an otherwise lawful activity, and cannot practicably be avoided. The regulations authorize permits for "programmatic" take, which can potentially include recurring multiple incidents. The Service established an Eagle Management Team (EMT) to address the challenge of ~~burgeoning~~ wind development to eagles. ~~The EMT concluded that it was of conservation benefit to permit wind facilities for their take of eagles where the take meets the preservation standard of the Act and requirements in 50 CFR 22.26. The alternative was continued growth of wind development without an effective way to evaluate and authorize take resulting from operation of industrial-scale wind projects while the Service took several years to promulgate new rules.~~

- **Eagle Conservation Plan Guidance (ECPG).** The ECPG outlines a process for adaptive management, data collection, and analysis that could lead to the Service issuing a programmatic eagle take permit. The Service recently submitted a ~~revised~~ draft of ECPGv2 to the Office of Managmetne and Budget for inter-agency review. ~~Department where it is currently in review.~~ This draft incorporates significant changes to draft ECPG ~~v1~~circulated in 2011 in response to the public and peer-review comments. The ECPG includes a robust adaptive management framework so that the considerable uncertainty at many stages of the process can be reduced over time.
- **The Advanced Notice of Public Rulemaking and the "Tenure Rule."** When the Service promulgated the eagle rule in 2009, we received little comment from industries or environmental groups. After circulating the draft ECPG in 2011, the Service received extensive comments from the wind industry on the final rule itself, including comments regarding the preservation standard, permit term, and process for obtaining a permit. In April 2012, in response to these comments the Service took two actions:
  - ~~1) w~~We issued a proposed rule to extend the maximum tenure of programmatic permits under the Eagle Take Rule from 5 to 30 years, and
  - ~~2) w~~We published an Advanced Notice of Public Rulemaking (ANPR) announcing the intent to consider revising the Eagle Take Rule and soliciting responses to several key issues raised in the ECPG comments. The final revisions to the tenure rule will be ready to submit~~-~~ to OMB shortly. ~~However, the Service is considering a request to postpone action on the tenure rule until it determines whether it will address permit tenure as part of the comprehensive review of the 2009 permit rule (see next point).~~

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- **Discussions with industry and environmental organizations:** In August 2012, sixteen organizations (8 wind industry and 8 environmental organizations) wrote to Secretary Salazar requesting that the Service "…supplement the current notice-and-comment proceedings (on the tenure proposed rule and ANPR) through continued and collaborative interaction with key stakeholders with express purpose of examining the issues identified in the two notices regarding eagle permits and the draft eagle conservation plan guidance." The Service is working with representatives of these groups to explore potential processes and topics to address through a collaborative process. (b) (5) [redacted]

  The purpose of the Desert Renewable Energy Conservation Plan (DRECP) is to conserve covered species and their habitats while streamlining environmental review and permitting of renewable energy projects in the Mohave and Colorado deserts of California. The Service can authorize take of golden eagles in a habitat conservation plan (HCP) as long as the HCP meets BGEPA conservation standards. California also protects golden eagles as "fully protected species" under the California Department of Fish and Wildlife ~~Game~~ (CDF&~~G~~W) Code . ~~(Section 3511).~~ The Service is working closely with CDF&W, ~~G~~ as well as other state and federal agencies, to develop a process to authorize incidental take of eagles at renewable energy projects as part of DRECP and to collect eagle interaction information on new and existing renewable energy projects. ~~The details of the eagle component of the DRECP are not yet completed.~~ The proposed framework for coverage of golden eagles in the DRECP is outlined in Appendix K of the comparative analysis published in December 2012.

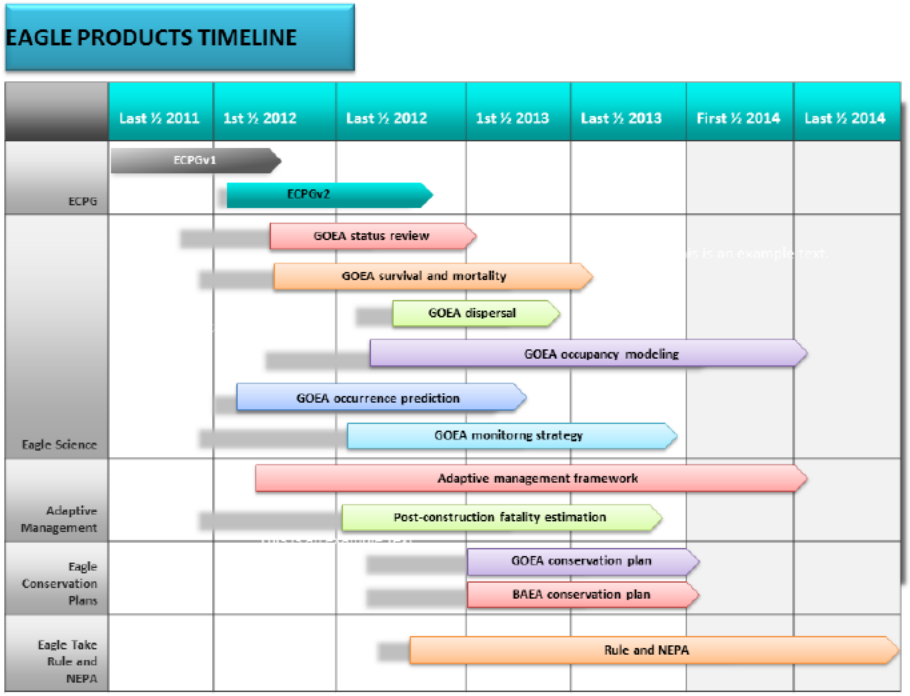
Long-Term

Science. The Service and U.S. Geological Survey (USGS) have partnered on eight priority science initiatives ~~designed~~ to improve knowledge of golden eagle population biology, ~~improve~~ eagle survey and population monitoring capabilities overall, and to frame the adaptive management process for eagle take permits. Projects are being undertaken jointly by USGS and the Service, and in some cases involve external partners. ~~as well.~~ These are the specific projects. (b) (5) [redacted]

- Golden eagle monitoring strategy - develop a Comprehensive Survey and Monitoring Plan to manage golden eagles.
- Golden eagle occurrence prediction - model predictions of the occurrence of golden eagles in the western United States to help the Service identify important geographic areas and habitats for golden eagles during the breeding and non-breeding seasons.
- Post-construction fatality estimation - development of landscape-level population approach to estimating cumulative mortality from carcass surveys accounting for carcass removal, and non-detection, given presence.
- Occupancy modeling - late summer occupancy modeling.
- Adaptive management framework - development of an adaptive management framework for wind energy permitting with regard to take of bald and golden eagles.
- Golden eagle status review - golden eagle population trends in the western United States, 1968-2010.
- Golden eagle dispersal - natal dispersal distances of bald and golden eagles in the coterminous US as inferred from band encounters.
- Golden eagle survival and mortality - assessment of annual survival rates, transmitter effects and causes of mortality of golden eagles in the western US (and Mexico) as inferred from satellite transmitters.

In addition to these projects, the Service is working through the American Wind-Wildlife Institute (AWWI) to collect better information about eagle and other migratory bird and bat fatalities at currently-operating wind energy facilities. We ~~anecdotally~~ opportunistically receive fatality reports from ~~a few~~ operating wind projects. We lack a comprehensive estimate of avian or wildlife fatalities at wind projects. Having a better understanding of eagle mortality at wind projects will vastly improve our capability to develop advanced conservation and mitigation practices.

Conservation and Management. The Service will develop national golden eagle and bald eagle conservation and management plans by 2014. These plans will incorporate information garnered from the research described above. They will use best available scientific information on the status of eagle populations and identify conservation strategies to assure long-term survival of bald and golden eagle populations.


EAGLE PRODUCTS TIMELINE
Last ½ 2011
1st ½ 2012
Last ½ 2012
1st ½ 2013
Last ½ 2013
First ½ 2014
Last ½ 2014
ECPG
ECPGv1
ECPGv2
Eagle Science
GOEA status review
GOEA survival and mortality
GOEA dispersal
GOEA occupancy modeling
GOEA occurrence prediction
GOEA monitoring strategy
Adaptive Management
Adaptive management framework
Post-construction fatality estimation
Eagle Conservation Plans
GOEA conservation plan
BAEA conservation plan
Eagle Take Rule and NEPA
Rule and NEPA

(b) (5) [redacted]

Public Comments Processing
Attention: FWS-R9-MB-2011-0094
Division of Policy and Directives Management
U.S. Fish and Wildlife Service
4401 North Fairfax Drive, Mail Stop 2042-PDM
Arlington, VA 22203–1610

Re: Fish and Wildlife Service Advance Notice of Proposed Rulemaking- Eagle Permits; Revisions to Regulations Governing Take Necessary To Protect Interests in Particular Localities (Docket No. FWS-R9-MB-2011-0094)

Submitted electronically on July 12th to http://www.regulations.gov

Please accept and fully consider these comments on the Advanced Notice of Public Rulemaking on eagle permitting (Docket No. FWS-R9-MB-2011-0094, Revisions to Regulations Governing Take Necessary to Protect Interests in Particular Localities) on behalf of the National Audubon Society, Natural Resources Defense Council, Defenders of Wildlife, The Wilderness Society, the Sierra Club, and 88 Audubon Chapters and State Offices. We appreciate the opportunity to comment on this docket and the important issues it raises concerning the obligations imposed by the Bald and Golden Eagle Protection Act (BGEPA), mitigation requirements and options, permit issuance criteria, and the eagle preservation standard.

For many years, our organizations have been deeply engaged in efforts to protect the publicly-owned lands and resources under the jurisdiction of the Department of the Interior. While this proposed rule has a much broader potential reach, touching virtually all aspects of eagle conservation efforts, we do recognize that FWS has pointed towards renewable energy development as the underlying impetus for this rulemaking. Our organizations strongly support the development of responsibly sited and effectively mitigated renewable energy projects, including wind generation projects, to meet the challenge of climate change by reducing cumulative greenhouse gas emissions. However, renewable energy development is not appropriate everywhere and must be managed in such a way that, to the maximum extent possible, protects wildlife, wildlands and other natural resources while ensuring full compliance with all applicable laws.

As stated in our joint comments on the Proposed Rule in Docket No. FWS-R9-MB-2011-0054, we believe that the matters in these two dockets must be considered and resolved simultaneously. Our concerns and recommendations center on the need for a legally sound and scientifically credible framework for authorizing programmatic take of eagles at wind facilities and address the following:

- There is a need for a comprehensive and fully transparent approach, in accordance with National Environmental Policy Act (NEPA) and Administrative Procedure Act (APA), an approach that provides full and robust environmental review, greater clarity in the guidance documents provided by the US Fish and Wildlife Service (FWS), and guarantees of opportunity for public engagement. Further, there is a need for the demonstration and documentation of the successful implementation of such a process for a 5-year programmatic permit.
- Any changes considered to the eagle preservation standard must be both legally sound and scientifically credible. The preservation standard is the essential thrust of BGEPA, and in considering any changes to its interpretation or definition it will be essential to meet this

statutory mandate. With respect to the science, the FWS should develop a more comprehensive approach, decreasing the emphasis presently given to breeding adults.

- Absent the demonstration of a biological need, permit issuance criteria for eagle take should not be changed from the current standard which is limited to "unavoidable" take. The management of potential on-going, sustained take that is allowed under a programmatic permit requires a strong standard as embodied in the current language.
- There is an urgent need for an overarching national eagle conservation management plan with corresponding regional management plans to guide implementation of the Draft Eagle Conservation Plan Guidance. The lack of clarity in the absence of this guiding framework impedes all stages of site assessment and mitigation planning.
- As the FWS considers how to address its question on defining the circumstances under which mitigation is required, it must concurrently weigh the effect of its decision on permit term limits in Docket No. FWS-R9-MB-2011-0054. The Precautionary Principle directs sound policy toward avoidance, including abandonment of the project, detection and curtailment, or other developing measures as the preferred mitigation in the face of uncertainty, and substantially increased, not decreased, mitigation requirements as permit terms are made more generous. From a species management perspective, creating mitigation exemptions in combination with a framework for 30-year permit terms would be unsound at this time.
- Any consideration given to exempting a facility from mitigation requirements must be based upon clear scientific evidence justifying the decision, considering both site level risk and status of the regional eagle population. Mitigation exemptions must be based upon risk assessments, not upon the rated capacity of the facility being permitted, and the rationale for the assessed level of risk must be provided.
- The Draft Eagle Conservation Plan Guidance is grounded in the use of pre-construction monitoring data to assess risk. If the FWS moves toward the use of pre-construction monitoring data to identify sites where no mitigation requirements will be imposed, it must simultaneously institute use of the same pre-construction data to identify circumstances at the other end of the continuum - sites where no wind development will be allowed due to elevated risk levels.
- A recent analysis of pre-construction monitoring data suggests that current monitoring protocols may provide information useful for predicting sites that pose little or no risk of eagle mortality over short time horizons; however, other sources suggest that there are still deficiencies in monitoring data collection that must be rectified. Before such an approach can be developed, there needs to be peer review of the findings, improved adherence to appropriate data collection protocols, and the development of additional information on disturbance and on longer run impacts.
- In many cases there will be a need for compensatory mitigation to offset unavoidable take before a permit can be issued. The critical preservation function played by compensatory mitigation demands confidence that the mitigation options utilized will provide benefits commensurate to the take being permitted. Commensurateness should reflect the scale, duration and demographics of take impacts at the site, and this is not assured to date as disparate options are considered. The Service must avoid mitigation options that may not provide benefit streams commensurate with the ongoing, persistent take they are intended to offset and in all cases must meet the eagle preservation standard in BGEPA.
- Furthermore, compensatory mitigation options must provide additionality in conservation outcomes and should have a high probability of success in order to be approved as measures to compensate for take. The proposed rule contains no assurances of additionality and no explicit

processes for evaluating performance of new options, steps which must be put in place as the menu of mitigation options is expanded.

- Options to minimize take through operational mitigation (Advanced Conservation Practices) are sorely needed. Consistent with this, we urge the FWS to encourage test applications of measures such as seasonal operational mitigation at sites on eagle migration routes, verified radar detection and curtailment, and other developing methods of avoidance so that performance data can be developed. Similarly, newly refined methods for risk modeling should be tested for efficacy in improved siting.
- Population management needs to be undertaken at a regional level and regional conservation plans are urgently needed.
- Data challenges must be addressed, including not only steps to fill large data gaps for golden eagles but also strategies sufficient to cover the looming termination of current bald eagle monitoring programs. Funding mechanisms for public domain scientific data must be established.
- If data shortfalls are not solved, then management decisions must err on the side of being more, rather than less, protective of both species.

Further details on these recommendations are provided below.

Need for a Comprehensive and Fully Transparent Approach

First, we must reiterate a concern highlighted in our joint comments on the Proposed Rule in Docket No. FWS-R9-MB-2011-0054 (incorporated herein by reference); namely, the desire for FWS to address these complex issues in a comprehensive, coordinated and fully transparent manner. Unfortunately, to date, agency actions dealing with BGEPA have been disjointed and confusing. This includes FWS' failure to complete the Draft Eagle Conservation Plan Guidance, environmental review and/or issuance of the first programmatic eagle take permit applied for by West Butte Wind Power, LLC, and National Golden Eagle Management Guidance as set forth in the Finding of No Significant Impact issued in conjunction with the 2009 Eagle Permit Rulemaking. This also includes the bifurcated process that FWS has now used to propose additional changes to the eagle permitting regulations, through this advanced notice and the Proposed Rule in Docket No. FWS-R9-MB-2011-0054.

We recommend that FWS immediately incorporate the proposed rulemaking with issues set forth in this advanced notice of proposed rulemaking, thus ensuring that issues within each will be examined simultaneously. We further urge FWS to take a comprehensive and fully transparent approach to eagle conservation issues, in accordance with the requirements of the APA and NEPA. Such a process would incorporate, at a minimum:

- Consolidated and coherent rulemakings with a full and robust environmental review process and greater clarity on associated guidance documents;
- Firm guarantees that the public will be afforded the opportunity to engage in permit issuance decisions and oversight throughout the duration of each permit;
- Clear articulation, in a legally sound and scientifically justifiable manner, of how any proposed changes will ensure the preservation of eagles—especially in the face of acknowledged uncertainty; and
- Demonstration and documentation of the successful implementation of such a process for a 5-year programmatic permit.

Eagle Preservation Standard

In 1940, confronted with the potential extinction of our National symbol, Congress acted to avert this threat and make the bald eagle a "ward of the National Government" by enacting the Eagle Act.[1] In 1962, Congress extended the protections of the Eagle Act to golden eagles, both because the golden eagle population was in decline and to afford greater protection for the bald eagle.[2] It is against this backdrop that we must examine any modifications of the authority created to ensure the continued persistence of these important trust species.

FWS is bound by the preservation standard set forth in BGEPA,[3] which endeavors to achieve and maintain stable or increasing breeding populations of bald and golden eagles. This advanced notice seeks comment on whether "consistent with the goal of stable or increasing breeding populations" is an appropriate interpretation of the preservation standard. While we appreciate FWS' original clarification of the preservation standard in the 2009 rulemaking, new data and analysis have clarified the significance of sub-adults and floaters to eagle populations—as described in more detail below under *Population Management* – and we recommend that the term "breeding" is deleted as a modifier to "populations" in the definition of the preservation standard. This change would allow for greater consideration of juveniles, sub-adults and floaters in determining overall population status and trends. In order to continue to recognize the fundamental importance of breeding pairs, though, we also recommend the addition of the following clarifying text: "with no significant decline in nesting pairs."

We propose amending the interpretation of BGEPA's preservation standard to "consistent with the goal of stable or increasing populations with no significant declines in nesting pairs" because it will focus efforts on a more accurate and scientifically credible determination of eagle populations while continuing to provide necessary guidance and assurance in allowing limited eagle take while sustaining a population necessary to preserve each species. In the Final EA for the 2009 rulemaking, FWS discussed the inclusion of "consistent with the goal of," which "will allow take that is compatible with long-term stability or growth of eagle populations" and thus assures that appropriate levels of take may be assigned.[4] The term "breeding" was incorporated in order to clarify "the significance of the number of breeding pairs for maintaining or growing populations, versus floaters (non-breeding adults)"—an issue that has since been revisited.[5]

The preservation standard is the essential thrust of BGEPA, and in considering any changes to its interpretation or definition we would also like to highlight the necessity of meeting this statutory mandate. Unfortunately, FWS has yet to demonstrate that it is able to ensure that programmatic eagle take is compatible with the preservation of the species.

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[1] H.R. Rep. No. 2104, 76th Cong., 3d Sess. 1 (1940).

[2] Pub. L. No. 87-884, 76 Stat. 1246.

[3] 16 U.S.C. § 668a. In compliance with the preservation standard, unless permitted, BGEPA prohibits the "take" of any eagle—part, nest, or egg thereof—where "take" also includes to pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb. 16 U.S.C. § 668c.

[4] Final Environmental Assessment, Proposal to Permit Take as Provided Under the Bald and Golden Eagle Protection Act, 177 (April 2009).

[5] Hunt, W.G. 1998. Raptor Floaters at Moffat's Equilibrium. Oikos 82(1): 191-197.

Need for national and regional eagle conservation management plans
As reflected in comments submitted with regard to the first request for an eagle take permit[6] as well as comments submitted on the 2011 Draft Eagle Conservation Plan Guidance,[7] there is an urgent need for a legally sound and scientifically credible framework for authorizing the programmatic take of eagles. Such a framework would help ensure that the necessary data are supplied, proper risk modeling is completed, and mechanisms are established for ensuring the preservation of affected eagle populations. Already it is apparent that incomplete data in permit applications is going to be an issue; a clearer management framework with regionally specific guidance for developers could greatly improve this. Clear definition of what constitutes a satisfactory application, what constitutes compliance with BGEPA, and the consequences for non-compliance must be provided in regional and national eagle conservation management plans. Establishing sound mitigation regimes and proper estimation of cumulative impacts will necessitate a framework comprised of regional conservation plans.

Permit issuance criteria
In the advanced notice, FWS seeks clarification on whether the eagle permit regulations should revise the permit issuance criteria for programmatic permits—currently required to be "unavoidable take"—to parallel that described for standard permits, or consistent with "take that cannot practicably be avoided." In this case, the burden is placed squarely on FWS to demonstrate why this issue is problematic.[8] Without further illustration of a biological need it is our opinion that the issuance criteria should *not* be changed. Not only has a mechanism already been identified and defined to demonstrate when take is "unavoidable," Advanced Conservation Practices, but the mere notion of on-going, sustained take that is allowed under a programmatic permit requires a heightened standard to demonstrate consistency with the preservation standard. We further agree that "applicants for both types of permits must take all practicable steps to avoid and minimize take"[9] and do not believe that this is inconsistent with the programmatic permit issuance criteria that take is "unavoidable."

While BGEPA expressly prohibits the take of bald and golden eagles, it does allow FWS to permit the otherwise unlawful take of eagles—in the form of mortality—in very *limited* circumstances. The stress on *limited* is an issue expressly acknowledged throughout the 2009 rulemaking as well as the reliance on "unavoidable" take for programmatic permits, and both are clearly articulated in the Description of the Rulemaking,

> We anticipate that permits issued under this regulation will usually authorize take that occurs in the form of disturbance; however, *in some limited cases*, a permit may authorize lethal take that results from but is not the purpose of an otherwise lawful activity. Programmatic take (take that is recurring and not in a specific, identifiable

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[6] Comments on the Environmental Assessment for an Application for Programmatic Take of Golden Eagles [at West Butte Wind Farm], submitted to FWS February 17, 2012, by Defenders of Wildlife. Comments on the DEA for the West Butte Wind Project, submitted to FWS February 17, 2012, by Natural Resources Defense Council. Comments on DEA for West Butte Wind Project, submitted to FWS February 17, 2012, by National Audubon Society, Audubon California, Audubon Society of Portland, and Lane County Audubon Society.
[7] Eagle Conservation Plan Guidance Comments, submitted to FWS May 19, 2011, by National Audubon Society, Defenders of Wildlife, Natural Resources Defense Council, National Wildlife Federation, The Wilderness Society, Sierra Club, and numerous Audubon Chapters and Friends
[8] *See N.Y. Public Interest Research Group, Inc. v. Johnson*, 427 F.3d 172, 182-83 (2nd Cir. 2005) for a discussion on the requirement that an agency explain a change in position and its reasons for changing its policy.
[9] Eagle Permits; Take Necessary To Protect Interests in Particular Localities; Final Rules, 74 Fed. Reg. 46836, 46838 (Sept. 11, 2009).

> timeframe and/or location) will be authorized *only where it is unavoidable* despite implementation of comprehensive measures developed in cooperation with the FWS to reduce the take below current levels…This type of authorization can be extended to industries, such as electric utilities or transportation industries, that currently take eagles in the course of otherwise lawful activities but *who can work with the FWS to develop and implement additional, exceptionally comprehensive measures to reduce take* to the level where it is essentially unavoidable (*emphasis added*).[10]

Programmatic permits for lethal take undoubtedly envision a different type of impact on eagle populations, an effect that carries a much higher possibility of harm and uncertainty. Not only is the possibility of harm greater, but also the nature of the harm is quite different than that presented for standard permits. Rather than presenting discrete "one-time" take or a defined impact, as a standard permits does, programmatic permits by their very nature are "activities that may disturb or otherwise take eagles on an on-going operational basis" and "occurs over the long term and/or in a location or locations that cannot by specifically identified."[11] This is precisely the reason that FWS incorporated the use of Advanced Conservation Practices, or "scientifically supportable measures approved by the FWS that represent the best available techniques to reduce eagle disturbance and ongoing mortalities to a level where remaining take is unavoidable," to ensure that programmatic permits would be compatible with the preservation of eagles.[12]

Continuing to allow only "unavoidable" take for programmatic permits—especially considering that there has not yet been any demonstration and documentation of successful implementation of such a process for issuing and administering a programmatic eagle take permit—further is entirely consistent with first taking all practicable measures to avoid and minimize take. Such a requirement is cornerstone to the well-accepted mitigation hierarchy, outlined in FWS' official mitigation policy as a tiered approach for first incorporating avoidance, then minimization measures and finally requiring compensatory mitigation for large-scale impacts with greater, unavoidable impacts.[13] We place extreme importance on continuing to incorporate sound, smart from the start planning and siting, which include avoidance measures and the best available minimization measures, prior to addressing the standard for and requirements stemming from the actual "take" of the species.

Circumstances requiring mitigation

In the advanced notice, the FWS requests comments on the following questions: *"Under what circumstances should permittees be required to provide compensatory mitigation? To what degree should any required mitigation offset the detrimental effects to eagles?"* Implicit in these questions is an underlying question as to whether there are circumstances in which not requiring mitigation is consistent with the eagle preservation standard that the FWS is obligated to implement.

In addressing this matter, we are first compelled to address those circumstances in which mitigation must always be assumed to be mandatory. These circumstances would include: Eagle Management Units in which the populations have been determined as not able to sustain take, Important Bird Areas

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[10] *Id.* at 46838.
[11] *Id.* at 46841.
[12] 50 C.F.R. § 22.3 (2011).
[13] U.S. Fish and Wildlife Service Manual (501 FW 2). *See also* 74 Fed. Reg. at 46852 and 46 Fed. Reg. 7656 (Feb. 24, 1993).

(IBAs)[14] and other special protection areas recognized for their importance to bald or golden eagles, eagle migration corridors, and areas of high value habitat, particularly areas known for eagle usage for foraging, nesting, or concentrated migration activity prior to the applicant's interest in developing a wind facility. The circumstances described above are excluded from further consideration here as potential prospects for reduced mitigation requirements.

Determining mitigation needs in the context of Docket No. FWS-R9-MB-2011-0054
As the FWS considers how to address its question as to the circumstances under which mitigation is required, it must consider the effect of its decision under Docket No. FWS-R9-MB-2011-0054 with respect to permit term limits. As noted by the FWS and others, uncertainties over eagle population status and effectiveness of mitigation options require a cautious approach. As the prospect of making permit terms more generous by a 6-fold margin is considered and associated uncertainties correspondingly magnified, the Precautionary Principle would tilt sound policy away from allowing mitigation exemptions. The probability that the obligations of BGEPA can be met under a 30 year permit declines unless the FWS imposes substantially increased mitigation requirements.

Determining mitigation needs from pre-construction monitoring data
Without a foundation in sound science, no waivers from mitigation obligations can be granted. Furthermore, consideration for exempting a facility from mitigation requirements must be based upon a determination of risk which must be based upon scientific data. For example, eagle use of the area should be documented via FWS-approved pre-construction monitoring protocols to predict disturbance and site mortality. If results indicate that the use falls below thresholds which have been empirically demonstrated, using USFWS-approved pre-construction monitoring protocols, to predict site mortality and disturbance, then discussions can be entertained on waiving mitigation obligations. Facility characteristics alone (such as rated capacity or number of turbines) should not serve as a basis for mitigation exemptions. Mitigation requirements must be justified relative to site-related risks and status of the regional eagle population(s).

We also wish to emphasize that if preconstruction data provide a rationale for defining areas where mitigation may not be necessary, these same data must also be used to assess the obverse: identifying sites where risk levels are so high that the appropriate course of action is avoidance, not mitigation. As articulated in our 2011 comments on the Draft Eagle Conservation Plan Guidance, we believe that another Tier for sites with unmitigable risk needs to be created. And, by extension, pre-construction data would provide the basis for those determinations. A piecemeal approach of applying pre-construction data for the purpose of identifying low risk sites without a balancing consideration identifying high risk sites would be inconsistent with the protection obligations under BGEPA.

It is conceivable that, with further scientific justification, it will be reasonable to establish standards that define those circumstances under which mitigation will not be required of project developers. At present there is insufficient data on disturbance to make an empirical case for this, but emerging data on mortality suggest that such data can be compiled and can provide scientific justification for developing such a standard in the future. A recent synthesis[15] of the relationship between pre-

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[14] IBAs are part of an international program to scientifically identify priority areas where threatened, restricted-range, biome-restricted and congregatory birds occur. These locations provide essential habitat to one or more species of birds during some portion of the year (nesting areas, crucial migration stop-over sites, or wintering grounds). For more information, go to http://web4.audubon.org/bird/iba/.
[15] A preliminary analysis which had not been peer-reviewed.

construction monitoring data and post-construction mortality concluded that, below a certain usage threshold, low pre-construction eagle use was related to low post-construction mortality.[16] This preliminary finding suggests that current monitoring protocols are capable of providing useful advance indications of levels of risk at proposed wind farm locations and that it may be feasible to identify low risk sites in this way once more data are developed and, importantly, proper data collection protocols are enforced. Unfortunately, there are still deficiencies in the methods used for avian monitoring for sites that lie on migratory pathways. Surveys for migrating golden eagles on the eastern ridges have typically been undertaken too early in the autumn, missing the peak migration movements altogether[17] and thus, we'd suggest, grossly underestimating eagle use of the sites. Such fundamental mis-measurement problems must be corrected *before* critical population management decisions can be tied to these data.

Before this approach can provide the basis for permit decisions, further work is needed. Additional information on disturbance and on longer run impacts are needed so that take risks can be fully examined. In addition, far too much uncertainty exists today to apply such a screening tool in the case of a 30 year permit.

The degree to which impacts must be mitigated

The benefits provided by compensatory mitigation are inherently more uncertain than those provided by avoidance of high risk sites and by operational mitigation (aka Advanced Conservation Practices). Avoided take is, by definition, equivalent in scale, kind, and duration to the take that would have occurred without these avoidance and minimization measures. This equivalency is not inherent in compensatory mitigation measures. Compensatory mitigation measures may benefit different demographic groups than those harmed by facility take, may under-perform and hence provide less benefit than the projected take levels, or may decay over time and so provide declining compensatory benefits while the take impacts continue at a constant level from year to year. In the face of these benefit uncertainties, to ensure that take impacts are fully offset and thus the obligation of the eagle preservation standard are met, the FWS must set a greater than 1:1 ratio of benefit to take for compensatory mitigation measures and monitoring mechanisms must be established for tracking predicted vs. actual benefits. Until such time as actual field performance data is compiled, equivalency standards for compensatory mitigation must be more stringent than the computed levels of take estimated at a site.

Expanding the mitigation menu: emphasizing avoidance and operational mitigation measures

As the FWS seeks to identify new mitigation options for eagle conservation, strong emphasis should be given to operational mitigation and site avoidance measures. For reasons discussed elsewhere in these comments, the preservation benefits of avoidance and operational mitigation are more assuredly matched to the take threats at a site than are compensatory mitigation measures. Hence, the FWS's preservation obligations are more conclusively achieved when avoidance and operational mitigation are employed.

Some of the difficulties of expanding the mitigation portfolio are lessening as new science and improved technology are providing needed data which can inform risk estimation and population management decisions. For example, curtailment and improvements to siting offer important and underutilized

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[16] Data analysis by WEST Inc. as reported in *Eagles and Wind Energy: Identifying Research Priorities,* AWWI, May 2012, page 14.

[17] Personal communication, FWS staff, June 2012.

mitigation tools for facilities located along migration corridors where high concentrations of birds and limited periods of risk promise high conservation benefit in return for limited business risk. Emerging data collected using high frequency GPS-GSM telemetry suggest the viability of targeting curtailment schedules on the basis of wind speed parameters during seasonal migration and the value of altering siting to reduce risk while minimizing cost to energy developers. In addition, the data suggest greater predictability of eagle flight paths during high risk, high wind speed times, suggesting greater predictive power of risk analysis models precisely during the higher risk timeframes when model performance is most critical. These findings provide a basis for delineating season- and weather-related strategies to minimize risk by selective curtailments during high risk periods, with those high risk periods being defined on the basis of new telemetered data. The FWS should fast-track the field testing of operational mitigation actions during high risk weather and season conditions and site-specific siting strategies.[18] The same technology can also demonstrate how stereotyped flight behavior relative to topographical features can be used to improve turbine siting (unpublished data).

In addition, sites where post-construction take levels substantially exceeded expectations, and where these levels exceed levels consistent with the regional conservation plan, must be subject to more stringent operational mitigation constraints. Data collection – by the FWS – must occur in these circumstances to develop the data to frame the mitigation plan.

Broadening the menu of compensatory mitigation measures

With limited developer resources and a FWS obligation to protect bald and golden eagle populations, it is important to avoid investments in mitigation measures which have a low probability of success. This would include the use of mitigation funds to rehabilitate injured eagles (which usually are not released back in to the wild, and thus wouldn't contribute to regional population numbers). It would also include many educational campaigns designed to alter citizen or business behavior without providing any inducement for behavior change (for example educational campaigns to reduce the use of lead ammunition). The additional conservation impacts could too easily fall short of projections through failures to reach or to influence the intended audience, or due to behavior attrition over time. The conservation framework for eagles cannot be grounded on highly uncertain and potentially ephemeral mitigation options.

We also caution against reliance on mitigation measures whose success relies upon outcomes and actors beyond the influence of either FWS or the wind industry. Such a framework, essentially unenforceable, introduces a new set of uncertainties and risk, and could create a false vision of take offsets that cannot be realized.

It is imperative that approved mitigation measures provide additionality of benefits specific to the regional eagle population. Proof of additionality will require evidence that "mitigation" activities are attributable to the actions of the wind project developer and not to extrinsic market forces. Reliance on mitigation options for which it will be impossible to document a net conservation benefit is unacceptable and insufficient for ensuring that obligations under BGEPA are met. This concern is relevant in circumstances where the mitigation option targets mortality sources extrinsic to the wind industry and the option merely provides funding to external programs. As an example, funding roadside carrion removal, which focuses on an important source of mortality, may provide little benefit

[18] Duerr A.E., T.A. Miller TA, M. Lanzone, D. Brandes, and J. Cooper J. 2012. Testing an emerging paradigm in migration ecology shows surprising differences in efficiency between flight modes. PLoS ONE 7(4): e35548. doi:10.1371/journal.pone.0035548.

additionality if no mechanisms are created to ensure that the funds do not merely displace comparable sources of funding for the same activity. Without such safeguards, it is likely that the mitigation strategy will accomplish more in shifting a cost burden to the wind industry than it achieves in reducing a known source of mortality to eagles.

While addressing additionality requirements could be handled by creating monitoring systems to track indicators of additionality, we are concerned at the prospect of the FWS, or the wind industry, needing to establish reliable new monitoring mechanisms for an expanded set of actors and actions when it is unclear that adequate resources exist for core administrative responsibilities for implementing the Draft Eagle Conservation Plan Guidance and the voluntary wind guidelines. It is important to keep the emphasis on mitigation actions controlled by the project developers, supplemented by a funding mechanism to drive mitigation dollars to habitat projects. In addition, we recommend that a portion of all eagle conservation mitigation funding should be dedicated to an eagle database to support the development of a robust decision support system useful to the FWS, industry, and other conservation biologists.

Need for Additional Research to Improve Mitigation Effectiveness

Based on the recognition of the limitations in current eagle population knowledge and the effectiveness of current mitigation tools, a period of mitigation testing lies ahead. Until we have amassed a body of information establishing actual performance in the field, it will be necessary to base decisions on preliminary estimates of effectiveness and then to continually reassess the actual effectiveness of the measures being piloted and adjust assumptions used in future rounds of planning. This holds true for measures classified as Advanced Conservation Practices (ACPs) as well as non-ACP mitigation actions. To facilitate rapid progress and greater certainty in allowing the use of new mitigation measures, rapidly shared information on field performance must be required, so that this adaptive management is feasible.

Population management requires full life cycle approach

To manage eagle populations, the FWS must understand and manage risks for migration, winter roosting, and foraging activities as well as breeding. Winter survival and/or condition upon completion of migration has direct consequences for fecundity, fitness, and thus demography. Hence, non-breeding behavior events are highly relevant to population success and management must encompass a full life cycle approach.

Scientific data are increasingly demonstrating that the demographic impacts of wind facilities differ depending upon the types of eagle activities impacted by a wind facility (foraging, nesting, migration, etc.). Juvenile birds have been found to be most at risk at sites where foraging use predominates. However, during migration the reverse can be true: breeding golden eagles appear more likely to use flight behavior that places the birds at greater collision risk than immature eagles. The risk differential arises from differences in flight patterns between mature and immature birds. The migration strategies of breeding adults make increased use of lower altitude, slope soaring behaviors that increase the likelihood of movement through rotor swept zones.[19]

More fundamentally, management of eagle populations requires monitoring more than the breeding population and their nesting success. Sub-adults and “floaters” that have not established territories are

[19] *Ibid.*

critical to buffer the loss of breeding adults. [20] This class of eagles also serves as an indicator of decreased productivity and incipient population declines.[21] Floaters are under-represented in current survey data, thus the age class of eagles whose status and trend is least well known and under-represented by traditional survey techniques and baseline data is also potentially the most important to buffer population changes. The accurate assessment of the floating segment is critical for assessing status of populations.

Given these findings, we believe it is imperative that the FWS:

- assess risks throughout the eagle life cycle in order to fully capture demographically linked risk profiles
- develop context-sensitive management plans that reflect expected differences in demographic risk based upon eagle use of the area in and surrounding the facility site
- evaluate and implement all management within the context of regional management plans.

Addressing areas of data insufficiency and providing funding mechanisms for essential science

It is not possible to determine how effectively the FWS is managing for stable or increasing populations without the essential information on status and trends. Impaired assessment, in turn, makes adaptive management infeasible. The FWS simply will not be able to demonstrate the adequacy of its actions in upholding BGEPA without the foundational scientific data to document population status and effectiveness of FWS actions.

The problem of data insufficiency is widely recognized and commented upon with respect to golden eagles. The nation's experts have identified data gaps with respect to population size, distribution, food and habitat availability impacts on reproductive output and survivorship, critical migration corridor areas, pre-adult dispersal, human disturbance impacts and critical habitat factors across all seasons and age classes (breeding, floaters, migration, and wintering), age-specific survival rates and causes of mortality, population sizes and trends, population demography, natal dispersal within and among regions.[22] Given that these fundamental data have not yet been developed, there are, at best, weak scientific justifications for management decisions made today regarding golden eagles. Furthermore, to manage populations over the long-term, post-construction monitoring is strongly recommended. The information gathered would guide more effective siting and mitigation strategies going forward.

New resources for eagle monitoring must be established and these resources must be sufficient to address both the sunsetting of bald eagle monitoring programs and to provide new funding for the understudied golden eagle. As the FWS is establishing a new fee structure for wind project permitting, we urge that it address the need for a national eagle research and monitoring fund to direct moneys to the most critical data gaps and research priorities, including topics such as post-construction mortality, and to ensure sufficient access to decision-relevant information to allow these data to be used to guide future wind facility siting and operations.

---

[20] Kochert, M.N., Steenhof, K.*, 2002, Golden eagles in the U.S. and Canada- Status, trends, and conservation challenges: Journal of Raptor Research, v.* 36, no. Supplement 1, p. 32-40

[21] Nielson, R. M., T. Rintz, L. McManus, and L. L. McDonald. 2012. A survey of golden eagles (Aquila chrysaetos) in the western U.S.: 2011 Annual Report. A report for the U.S. Fish & Wildlife Service. WEST, Inc., Laramie, Wyoming. U.S. Fish & Wildlife Service. 2011. Draft Eagle Conservation Plan Guidance. Available at http://www.fws.gov/windenergy/docs/ECP_draft_guidance_2_10_final_clean_omb.pdf

[22] Katzner et al, *Status, Biology, and Conservation Priorities for North America's Eastern Golden Eagle (Aquila chrysaetos), Auk* volume *129(1):1*, 2011, and North American Golden Eagle Science Meeting, 2010.

Conclusion
We appreciate the opportunity to comment on the regulations governing take permits for bald and golden eagles, and we urge the FWS to fully consider the issues with respect to the need for conservation management plans, strong assurances of mitigation effectiveness and management oversight of same, the importance of emphasizing avoidance and ACPs over compensatory options, and, above all, the need for a legally sound and scientifically credible framework. For the reasons described above, we believe the FWS must simultaneously consider, and resolve, the issues in this docket with those of Docket No. FWS-R9-MB-2011-0054 to ensure that obligations under BGEPA are met. The issues discussed herein are amplified in the context of a potential 30 year programmatic take permit framework, and the risks of adverse consequences to bald and golden eagles greatly amplified.

Our organizations are fully committed to working with FWS, industry, and other stakeholders to identify and incorporate a collaborative, legally sound and scientifically credible framework for addressing these issues.

Thank you for your thorough consideration of these comments.

Sincerely,

Mike Daulton
Vice President, Government Relations
National Audubon Society

Juliette Falkner
Senior Policy Analyst, Renewable Energy and
Wildlife
Defenders of Wildlife

Katie Umekubo
Western Renewable Energy Project Attorney
Natural Resources Defense Council

Liese Dart
Policy Advisor Wildlife and Clean Energy
The Wilderness Society

Barbara Boyle
Senior Representative, Beyond Coal Campaign
Sierra Club

Audubon Chapters and State Offices

AR
Audubon Arkansas
Audubon Society of Central Arkansas

AZ
Maricopa Audubon Society

CA
Audubon California
Ferncrest Audubon Society
Napa-Solano Audubon Society
Ohlone Audubon Society
Palomar Audubon Society
Peregrine Audubon Society
Sacramento Audubon Society
Santa Barbara Audubon Society
Sierra Foothills Audubon Society
Yosemite Area Audubon Society

CT
Audubon Connecticut

CO
Audubon Rockies
Arkansas Valley Audubon Society
Roaring Fork Audubon Society

ID
Golden Eagle Audubon Society
Portneuf Valley Audubon Society

FL
Bay County Audubon Society
Duval Audubon Society
Citrus County Audubon Society
Clearwater Audubon Society
Halifax River Audubon
Lake Region Audubon
Manatee County Audubon Society
South Florida Audubon Society
Space Coast Audubon Society
St. Lucie Audubon Society
St. Petersburg Audubon Society
Venice Area Audubon Society
West Pasco Audubon Society
West Volusia Audubon Society

IA
Quad City Audubon Society

IL
John Wesley Powell Audubon
South Bend-Elkhart Audubon Society
Thorn Creek Audubon Society

IN
Amos Butler Audubon
Evansville Audubon Society

KS
Smokey Hills Audubon Society

LA
Audubon Louisiana
Orleans Audubon Society

MD
Audubon Maryland
Audubon Society of Central Maryland
Chesapeake Audubon Society
Southern Maryland Audubon Society

MN
Audubon Minnesota
Central Minnesota Audubon Society
St. Paul Audubon Society

MO
Audubon Missouri
Ozark Gateway Audubon Society

MS
Audubon Mississippi

MT
Upper Missouri Breaks Audubon

NE
Audubon Nebraska
Wachiska Audubon Society

NC
Audubon North Carolina
Audubon Society of Forsyth County
New Hope Audubon Society
Elisha Mitchell Audubon
T. Gilbert Pearson Audubon Society

NJ
Monmouth County Audubon Society

NM
Audubon New Mexico
Sangre de Cristo Audubon Society

NY
Audubon New York
Adirondack Audubon Society
Buffalo Audubon Society
Genesee Valley Audubon Society
Great South Bay Audubon Society
Jamestown Audubon Society
Northern Catskills Audubon Society

OH
Audubon Society of Ohio

OR
Umpqua Valley Audubon Society

PA
Greater Wyoming Valley Audubon Society
Northeast Pennsylvania Audubon Society
Quittapahilla Audubon Society
Wyncote Audubon Society

SC
Audubon South Carolina

TX
Houston Audubon Society

VA
Audubon Society of Northern Virginia

VT
Ascutney Mountain Audubon Society

WA
Black Hills Audubon Society
Kitsap Audubon Society
Pilchuck Audubon Society
Vancouver Audubon Society

WI
Green Rock Audubon Society
Madison Audubon Society
Wisconsin Audubon Council

WY
Meadowlark Audubon Society

August 22, 2012

The Honorable Ken Salazar
Secretary, United States Department of the Interior
1849 C Street NW
Washington, DC 20240

Dear Secretary Salazar:

Thank you for your efforts and commitment to meeting our nation's renewable energy and conservation goals. Each of our organizations is deeply committed to responsibly sited renewable energy development opportunities that avoid and minimize the impacts on wildlife and their habitats. We write to suggest a path forward for needed fundamental improvements to the bald and golden eagle permit process by the United States Fish and Wildlife Service (Service). Recently, many of the undersigned submitted separate comments responding to the Service's notices proposing changes to the existing eagle permit regulations. We strongly believe that by working together and with the Service, we could find workable solutions to improve the permitting process and conservation of bald and golden eagles.

The conservation community, the wind industry, states, federally recognized Indian tribes and federal agencies have a long history of working with the Department of the Interior (Department) to develop workable policy recommendations for the responsible siting of wind energy projects. For example, the Wind Turbine Guidelines Federal Advisory Committee brought together scientists, industry, conservationists, federally recognized tribes and representatives from states, to provide recommendations to the Service, which were substantially adopted to help wind energy project developers avoid and minimize the impacts of land-based wind projects on wildlife and their habitats.

In that spirit, we urge the Service to supplement the current notice-and-comment proceedings through continued and collaborative interaction with key stakeholders with the express purpose of examining the issues identified in the two notices regarding eagle permits and the draft eagle conservation plan guidance. There are several potential processes ranging from a negotiated rulemaking, advisory committee, or policy dialogue to less formal interactive technical workshops, a technical conference, an agency task force, and/or a scientific panel. The important denominator is that the process includes a variety of experts on eagles, the permitting process, the regulatory process and energy development. Such a process could explore, for example: additional science and data on assessing eagle populations; further mitigation options; advanced conservation practices; short- and long-term resource needs and administrative priorities; implementation of effective risk criteria; how eagle information gaps should be addressed and how responsibly sited wind farms are allowed to move forward in the interim while this process is on-going; other causes of eagle mortality in addition to wind energy; and generally how to create more certainty for both the species and the wind industry under a regulatory process for eagle permits.

We appreciate this opportunity to share our thoughts with you and look forward to working with you to ensure the best possible outcome for the conservation of the iconic bald and golden eagles and the further development of needed renewable energy. While we understand that the Service will need time to analyze the comments submitted and to evaluate the appropriate next steps, the undersigned will continue to collaborate and discuss these issues. We sincerely hope that the Service will work with us, and other interested parties who are seeking reasonable solutions, to develop a

workable, comprehensive and transparent approach to eagle conservation that we will collectively be able to support.

Thank you for considering our request. We look forward to your reply.

Sincerely,

Jamie Clark
President and CEO
Defenders of Wildlife

David Yarnold
President and CEO
National Audubon Society

Frances Beinecke
President
Natural Resources Defense Council

Jonathan W. Gassett, Ph.D.
President, Association of Fish and Wildlife Agencies and Commissioner, Kentucky Department of Fish and Wildlife Resources

Larry Schweiger
President and CEO
National Wildlife Federation

Jamie Williams
President
The Wilderness Society

Robert Bendick
Director, U.S. Government Relations
The Nature Conservancy

Michael Brune
Executive Director
Sierra Club

Denise Bode
Chief Executive Officer
American Wind Energy Association

Jeff Clark
Executive Director
The Wind Coalition (TWC)

Carol Murphy
Executive Director
Alliance for Clean Energy New York (ACE NY)

Sarah Propst
Executive Director
Interwest Energy Alliance

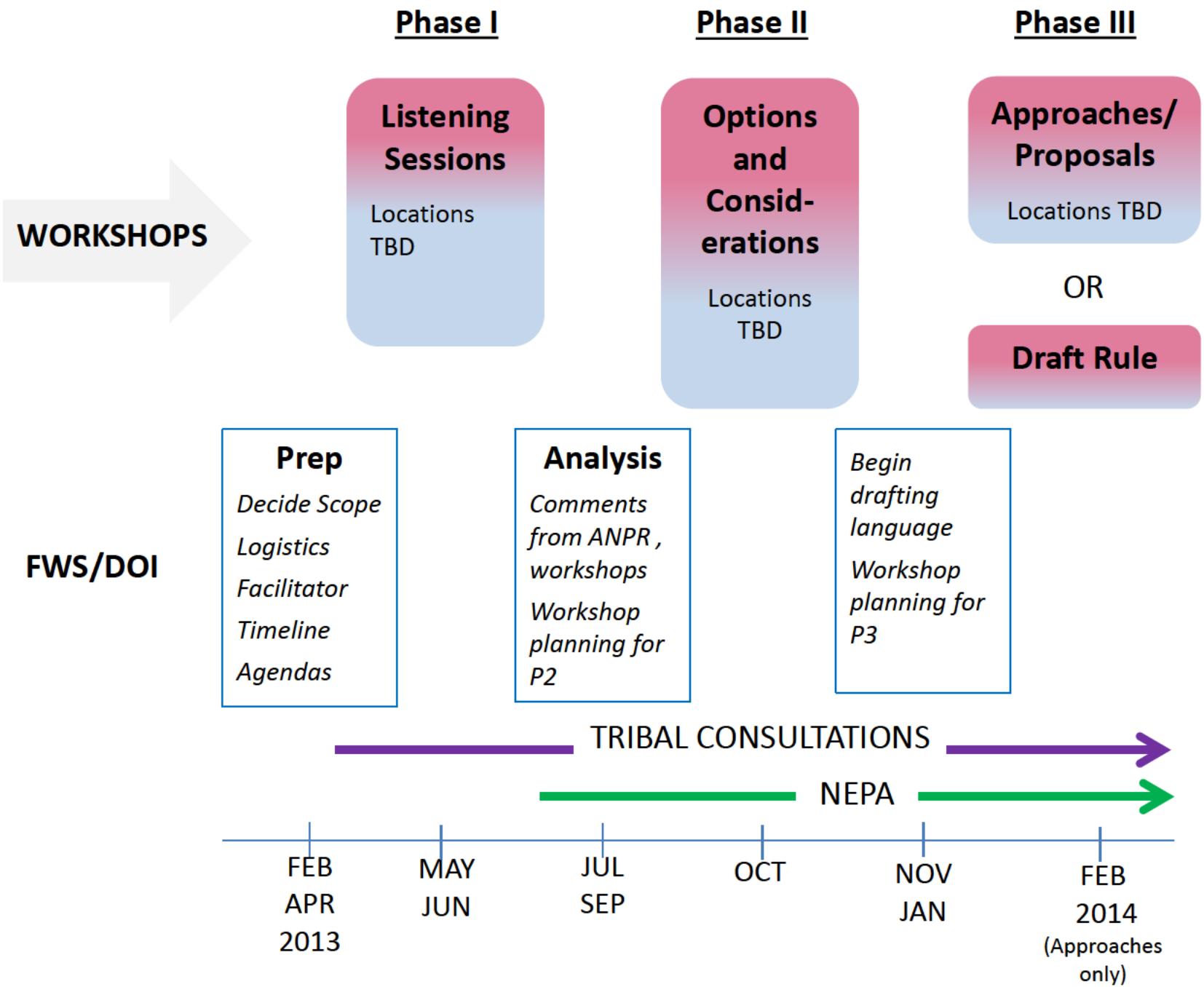
Francis Pullaro
Executive Director
RENEW New England

Nancy Rader
Executive Director
California Wind Energy Association (CalWEA)

Rachel Shimshak
Executive Director
Renewable Northwest Project (RNP)

Beth Soholt
Executive Director
Wind on the Wires (WOW)

CC: Daniel Ashe, Director, US Fish and Wildlife Service
David Hayes, Deputy Secretary, US Department of the Interior
Steve Black, Counselor to the Secretary of the Interior


Phase I
Phase II
Phase III
WORKSHOPS
Listening Sessions
Locations TBD
Options and Consid-erations
Locations TBD
Approaches/ Proposals
Locations TBD
OR
Draft Rule
FWS/DOI
Prep
Decide Scope
Logistics
Facilitator
Timeline
Agendas
Analysis
Comments from ANPR , workshops
Workshop planning for P2
Begin drafting language
Workshop planning for P3
TRIBAL CONSULTATIONS
NEPA
FEB APR 2013
MAY JUN
JUL SEP
OCT
NOV JAN
FEB 2014 (Approaches only)

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Washington, D.C. 20240

OCT 23 2012

Ms. Jamie Clark
President and CEO
Defenders of Wildlife
1130 17th Street, NW
Washington, DC 20036

Dear ~~Ms. Clark~~ Jamie:

Thank you for your letter of August 22, 2010 to Secretary of the Interior Ken Salazar, co-signed by several of your peers, suggesting a path forward regarding renewable energy development and impacts to bald and golden eagles. The Secretary asked the U.S. Fish and Wildlife Service (Service) to respond directly to you.

Because the 2009 eagle take regulations involve all activities that may affect eagle populations, the Service recognizes the importance of working with all interested parties in this era of increased renewable energy development. The Service would like to invite you or a designee to a one-to-two-day meeting during which you and other partners would work with Service staff to develop a collaborative process to ensure the long-term sustainability of eagle populations and responsible renewable energy development.

Please reply to Mr. Jerome Ford, Assistant Director, Migratory Birds, with your availability during the week of December 10, 2012. I look forward to this important conversation.

Sincerely,

DIRECTOR

Black, Steve <steve_black@ios.doi.gov>

Eagle letter

1 message

Scott, Janea <janea_scott@ios.doi.gov> Fri, Feb 8, 2013 at 3:50 PM
To: Steve Black <steve_black@ios.doi.gov>

---------- Forwarded message ----------
From: **Cottingham, David** <david_cottingham@fws.gov>
Date: Fri, Feb 8, 2013 at 11:40 AM
Subject: letter
To: Janea Scott <Janea_Scott@ios.doi.gov>

the joint letter and our response

--
David Cottingham
Senior Advisor to the Director
US Fish and Wildlife Service
Room 3341 Main Interior
Washington DC 20240

Office: 202-208-4331
Cell: 202-372-7578

2 attachments

Joint eagle process letter8 22 2012.pdf
65K

Ashe letter to Clark- Oct 23.pdf
137K

August 22, 2012

The Honorable Ken Salazar
Secretary, United States Department of the Interior
1849 C Street NW
Washington, DC 20240

Dear Secretary Salazar:

Thank you for your efforts and commitment to meeting our nation's renewable energy and conservation goals. Each of our organizations is deeply committed to responsibly sited renewable energy development opportunities that avoid and minimize the impacts on wildlife and their habitats. We write to suggest a path forward for needed fundamental improvements to the bald and golden eagle permit process by the United States Fish and Wildlife Service (Service). Recently, many of the undersigned submitted separate comments responding to the Service's notices proposing changes to the existing eagle permit regulations. We strongly believe that by working together and with the Service, we could find workable solutions to improve the permitting process and conservation of bald and golden eagles.

The conservation community, the wind industry, states, federally recognized Indian tribes and federal agencies have a long history of working with the Department of the Interior (Department) to develop workable policy recommendations for the responsible siting of wind energy projects. For example, the Wind Turbine Guidelines Federal Advisory Committee brought together scientists, industry, conservationists, federally recognized tribes and representatives from states, to provide recommendations to the Service, which were substantially adopted to help wind energy project developers avoid and minimize the impacts of land-based wind projects on wildlife and their habitats.

In that spirit, we urge the Service to supplement the current notice-and-comment proceedings through continued and collaborative interaction with key stakeholders with the express purpose of examining the issues identified in the two notices regarding eagle permits and the draft eagle conservation plan guidance. There are several potential processes ranging from a negotiated rulemaking, advisory committee, or policy dialogue to less formal interactive technical workshops, a technical conference, an agency task force, and/or a scientific panel. The important denominator is that the process includes a variety of experts on eagles, the permitting process, the regulatory process and energy development. Such a process could explore, for example: additional science and data on assessing eagle populations; further mitigation options; advanced conservation practices; short- and long-term resource needs and administrative priorities; implementation of effective risk criteria; how eagle information gaps should be addressed and how responsibly sited wind farms are allowed to move forward in the interim while this process is on-going; other causes of eagle mortality in addition to wind energy; and generally how to create more certainty for both the species and the wind industry under a regulatory process for eagle permits.

We appreciate this opportunity to share our thoughts with you and look forward to working with you to ensure the best possible outcome for the conservation of the iconic bald and golden eagles and the further development of needed renewable energy. While we understand that the Service will need time to analyze the comments submitted and to evaluate the appropriate next steps, the undersigned will continue to collaborate and discuss these issues. We sincerely hope that the Service will work with us, and other interested parties who are seeking reasonable solutions, to develop a

workable, comprehensive and transparent approach to eagle conservation that we will collectively be able to support.

Thank you for considering our request. We look forward to your reply.

Sincerely,

Jamie Clark
President and CEO
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President
Natural Resources Defense Council

Jonathan W. Gassett, Ph.D.
President, Association of Fish and Wildlife Agencies and Commissioner, Kentucky Department of Fish and Wildlife Resources

Larry Schweiger
President and CEO
National Wildlife Federation

Jamie Williams
President
The Wilderness Society

Robert Bendick
Director, U.S. Government Relations
The Nature Conservancy

Michael Brune
Executive Director
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Executive Director
The Wind Coalition (TWC)

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Executive Director
Alliance for Clean Energy New York (ACE NY)

Sarah Propst
Executive Director
Interwest Energy Alliance

Francis Pullaro
Executive Director
RENEW New England

Nancy Rader
Executive Director
California Wind Energy Association (CalWEA)

Rachel Shimshak
Executive Director
Renewable Northwest Project (RNP)

Beth Soholt
Executive Director
Wind on the Wires (WOW)

CC: Daniel Ashe, Director, US Fish and Wildlife Service
David Hayes, Deputy Secretary, US Department of the Interior
Steve Black, Counselor to the Secretary of the Interior

Black, Steve <steve_black@ios.doi.gov>

FW: Invitation for Meeting on Eagles

1 message

Greg Wetstone <gwetstone@terra-genpower.com> Sun, Feb 10, 2013 at 1:57 PM
To: "Rees, Gareth C." <Gareth_Rees@ios.doi.gov>, "Black, Steve" <steve_black@ios.doi.gov>

Thanks Steve. I will be there and look forward to seeing you.

And thank to you too Gareth.

From: Black, Steve [mailto:steve_black@ios.doi.gov]
Sent: Thursday, February 07, 2013 9:13 PM
To: Steve Black
Subject: Fwd: Invitation for Meeting on Eagles

FYI -- I trust you are aware of this meeting invitation. Call with any questions.

---------- Forwarded message ----------
From: **OS, DeputySecretaryoftheInterior** <deputysecretaryoftheinterior@ios.doi.gov>
Date: Mon, Feb 4, 2013 at 1:16 PM
Subject: Invitation for Meeting on Eagles
To: Gareth Rees <gareth_rees@ios.doi.gov>
Cc: Steve Black <steve_black@ios.doi.gov>, Janea Scott <janea_scott@ios.doi.gov>, Dan Ashe <d_m_ashe@fws.gov>, Betsy Hildebrandt <betsy_hildebrandt@fws.gov>, David Cottingham <david_cottingham@fws.gov>, Michael Bean <michael_bean@ios.doi.gov>, Elizabeth Klein <elizabeth_klein@ios.doi.gov>, David Hayes <david_hayes@ios.doi.gov>

Good afternoon,

As you know, over the course of the past year, the U.S. Fish & Wildlife Service has been engaged in an extensive and productive effort to improve implementation of the Bald & Golden Eagle Protection Act (BGEPA), including undertaking a full review of the current BGEPA regulations and developing guidance to help FWS staff, industry, and stakeholders better understand potential paths forward to obtaining a BGEPA permit.

I want to thank each of you for your ongoing interest in this process. Following your joint letter in August to Secretary Salazar, I know that many of you have provided constructive input to FWS and have expressed an interest in continued dialogue on these issues. To that end, I would like to invite you to a meeting that I will host on Monday, February 11, 2013 from 4:00pm-5:00pm to discuss how we can continue to work productively together on these issues. The meeting will be held at the Department of Interior, 1849 C Street NW, Washington DC, in Room 5160. A call-in will be available at (b) (5) [redacted], code (b) (5) [redacted] Please respond to Gareth Rees at Gareth_Rees@ios.doi.gov or 202-208-6291 if you are able to attend.

Thank you, and I look forward to seeing you on the 11th.

David J. Hayes

Deputy Secretary

Department of the Interior

--

Steve Black
Counselor to the Secretary
U.S. Department of the Interior
1849 C Street, N.W., MS 7229
Washington, D.C. 20240
Phone: 202-208-4123
Fax: 202-208-4561
e-mail: steve_black@ios.doi.gov

Weekly Report to the Secretary
Counselor to the Secretary
February 14, 2013

nonresponsive

[redacted]

(b) (5)

[redacted]

EAGLES

On Monday, David Hayes and I convened some members of the wind industry and the environmental and conservation community to (1) provide the FWS with an opportunity to outline their strategy on eagle permitting and research and (2) to hear the stakeholders' concerns. The wind industry remains highly skeptical of FWS's ability to permit golden eagles and believes the 2009 eagle rule is flawed. The environmental and conservation community does not think there is enough scientific information for the Service to issue either 5-year or 30-year eagle permits and does not support a discrete rulemaking that would increase the tenure of an eagle permit from 5 years to 30 years. Both sets of stakeholders agree, however, that there should be an interim path forward on eagles while the 2009 rule is revised and updated. They are going to work together on this interim solution and present it to the FWS within 30 days (around March 11th). David Hayes and the FWS agreed not to publish the tenure rule until after they have heard from the stakeholders on March 11th.

RENEWABLE ENERGY UPDATES

(b) (5)

[redacted]

Renewable Energy Priority & Active Projects

(b) (5)

[redacted]

nonresponsive

[redacted]

nonresponsive

[redacted]

nonresponsive

[redacted]

Black, Steve <steve_black@ios.doi.gov>

Draft weekly report for your review and additions

1 message

Scott, Janea <janea_scott@ios.doi.gov> Thu, Feb 14, 2013 at 10:52 AM
To: Steve Black <steve_black@ios.doi.gov>
Cc: "Sadhir, Ruchi" <Ruchi_Sadhir@ios.doi.gov>, Scott Haase <scott_haase@ios.doi.gov>, Neal Kemkar <Neal_Kemkar@ios.doi.gov>

Hi Steve,

Attached please find a draft of the weekly report for your review, edit, and additions.

Take care,
Janea

Janea A. Scott
Deputy Counselor for Renewable Energy
Office of the Secretary
U.S. Department of the Interior
1849 C Street NW, rm 6124
Washington, D.C. 20240
202.208.2977

130214 Report to KLS draft3.docx
35K

Black, Steve <steve_black@ios.doi.gov>

Re: 30 Year Eagle Take Permit

1 message

Dan Ashe <d_m_ashe@fws.gov> Tue, Feb 19, 2013 at 3:39 PM
To: "Hayes, David" <david_hayes@ios.doi.gov>
Cc: Martha Williams <martha.williams@sol.doi.gov>, David Cottingham <david_cottingham@fws.gov>, Steve Black <Steve_Black@ios.doi.gov>, Elizabeth Johnson Klein <Elizabeth_Klein@ios.doi.gov>, Lizzie Marsters <Lizzie_Marsters@ios.doi.gov>

(b) (5) [redacted].

Dan Ashe
Director, U.S. Fish and Wildlife Service

On Feb 19, 2013, at 2:17 PM, "Hayes, David" <david_hayes@ios.doi.gov> wrote:

(b) (5) [redacted]
>
>
> ---------- Forwarded message ----------
> From: Darin Schroeder <dschroeder@abcbirds.org>
> Date: Tue, Feb 19, 2013 at 1:11 PM
> Subject: 30 Year Eagle Take Permit
> To: "David_hayes@ios.doi.gov" <David_hayes@ios.doi.gov>
>
>
> Deputy Secretary Hayes,****
>
> ** **
>
> Please find attached a letter from American Bird Conservancy (ABC), asking
> that any further consideration of extending thirty-year eagle take permits
> to the wind industry be stayed until a new Secretary of Interior has
> adequate time to consider the issue. Further, we respectfully request any
> future consideration by Department of Interior officials of this issue be
> open to broad public input and any records, transcripts and notes from past
> meetings be made available to ABC for review.****
>
> ** **
>
> Please let me know if you have any questions.****
>
> ** **
>
> Sincerely,****
>
> ** **

>
> ** **
>
> *Darin C. Schroeder*****
>
> *Vice President of Conservation Advocacy*****
>
> *American Bird Conservancy*****
>
> *1731 Connecticut Avenue, NW*****
>
> *Washington, DC 20009*****
>
> *Tel: 202.234.7181 x209*****
>
> *Fax: 202.234.7182*****
>
> *www.abcbirds.org* <http://www.abcbirds.org/>* *
>
> [image: Final logo]****
>
> ** **
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> ** **
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>
>
> --
> *David J. Hayes*
> Deputy Secretary
> U.S. Department of the Interior
> 202-208-6291
> David_Hayes@ios.doi.gov
> <ABC_Hayes_eagle_2-19-13.pdf>

AMERICAN BIRD CONSERVANCY

Shaping the future for birds

February 19, 2013

David J. Hayes
Deputy Secretary
Department of the Interior
1849 C Street NW
Washington, DC 20240

Subject: Bald and Golden Eagle Decision Making

Dear Mr. Hayes:

ABC respectfully requests the U.S. Fish and Wildlife Service (FWS) and Department of the Interior (DOI) defer any further consideration as to whether to change the maximum duration of Bald and Golden eagle take permits to 30 years from the current five until a new Secretary of the Interior has been confirmed and has the opportunity to fully participate in the decision. FWS's proposal to make 30 year eagle take permits available has been highly controversial, with the National Park Service and more than 120 conservation, animal welfare, tribal, and local interest groups opposed to it.

As ABC pointed out in our previously-filed comments, there are several reasons to be concerned about the change to a 30 year eagle take permit system:

1. There is much uncertainty about the current U.S. population of Golden Eagles, which is suspected to be declining. The Bald and Golden Eagle Protection Act requires that no take permits be granted that are incompatible with the preservation of eagles.

2. Many factors that affect eagles and eagle populations will significantly vary over a 30-year period, and FWS's ability to predict and plan for those changes is highly limited.

3. A 30-year programmatic permit puts FWS at a disadvantage relative to the current system of periodic renewal of a five-term programmatic permit and may significantly affect eagle preservation.

4. FWS's framework and plans for adaptive management for administering eagle take permits are likely to be inadequate to justify issuing long-term programmatic take permits.

5. FWS's ability to avoid, minimize, or compensate for eagle take, once a facility is sited, is very limited and uncertain.

6. A 30-take permit will significantly decrease opportunities for public involvement in permitting compared to the current five-year permit.

7. If Golden Eagles are listed under the Endangered Species Act during the next 30 years, 30-year permits could interfere with their recovery and be otherwise ill advised.

8. Extending the maximum duration of programmatic take permits to 30 years is inconsistent with past statements and commitments made by FWS when it published the eagle take regulations.

9. The proposed revision to the maximum duration of programmatic permits is not strictly administrative in nature, but rather would significantly alter the process for permit application and review as well as significantly alter the take limit and substantive approach to eagle protection; therefore, the proposed revision does not fall within the NEPA categorical exclusion invoked by FWS.

As a result of all of these factors, this important and highly controversial decision should not be made without the full participation of the new Secretary of the Interior since the incoming Secretary will be responsible ultimately for the decision's implementation.

In addition, ABC notes with concern that U.S. Fish and Wildlife Service (FWS) has been conducting private, closed-to-the public meetings regarding eagle take permit regulatory and mitigation matters with the wind industry and some conservation groups.[1] These meetings were held in response to a letter sent to Secretary of the Interior last year, and they raise serious questions for FWS related to the Federal Advisory Committee Act and other federal law. In addition, the subject matter of these meetings potentially affects many other industries and many members of the public, including the timber and rail industries, Indian tribes, and other conservation and scientific organizations. It is unjust to the interests of these other affected parties to hold such important meetings without them.

Furthermore, these meetings constitute ex parte communications about two eagle regulation rulemakings currently in progress. In regard to ex parte communications, DOI's Departmental Manual advises, "you should avoid them wherever possible," when they occur "fairness to other participants may make reopening the comment period advisable," and "a willingness to accept ex

[1] During the National Wind Coordinating Collaborative's Wind Wildlife Research Meeting IX in Denver last November, the Senior Advisor to the Director of FWS publicly acknowledged that these meetings were taking place.

parte communications after the close of the comment period could result in significant delays in the rulemaking process."[2]

Therefore, ABC requests that FWS immediately cease holding these private meetings and publish full transcripts of the meetings that have already been held.

In summary, we ask that FWS and DOI defer the decision on whether to change the maximum duration of eagle take permits until a new Secretary of the Interior has been confirmed and can fully participate in the decision and that FWS immediately stop holding these closed-to-the-public eagle meetings and publish full transcripts of the meetings that have already been held.

Thank you for your consideration of our requests.

Sincerely yours,

Darin Schroeder
Vice President of Conservation Advocacy

cc:
Secretary Ken Salazar
Sen. Ron Wyden
Sen. Lisa Murkowski

[2] The meetings are ex parte communications because they have discussed matters related to the eagle regulation rulemakings, have included interested outside parties and agency staff with authority to make decisions or recommendations about rulemaking, and have taken place after the public comment periods closed. The rulemakings are FWS's proposed rule revision to extend the maximum term for programmatic eagle take permits from five years to 30 years (docket #FWS-R9-MB-2011-0054) and the Advanced Noticed of Proposed Rulemaking to Eagle Permits; Revisions to Regulations Governing Take Necessary To Protect Interests in Particular Localities (docket # FWS-R9-MB-2011-0094). See Chapter 5, Part 318, Administrative Procedure Series, of DOI's Departmental Manual, available at http://www.fws.gov/policy/library/rg318dm5.html.

Black, Steve <steve_black@ios.doi.gov>

Fwd: Meeting with wind-enviro coalition

1 message

Cottingham, David <david_cottingham@fws.gov> Tue, Feb 19, 2013 at 2:27 PM
To: Elizabeth Klein <Elizabeth_Klein@ios.doi.gov>, David Hayes <David.Hayes@ios.doi.gov>, Steve Black <steve_black@ios.doi.gov>, Janea Scott <Janea_Scott@ios.doi.gov>

In response to David's email.

How do you in the Department want to be involved in these conversations, if they occur?

David

---------- Forwarded message ----------
From: **Cottingham, David** <david_cottingham@fws.gov>
Date: Tue, Feb 19, 2013 at 2:25 PM
Subject: Meeting with wind-enviro coalition
To: Dan Ashe <d_m_ashe@fws.gov>, Rowan Gould <r_w_gould@fws.gov>, Stephen Guertin <stephen_guertin@fws.gov>, Jerome Ford <jerome_ford@fws.gov>, Michael Bean <Michael_Bean@ios.doi.gov>, Martha Williams <martha.williams@sol.doi.gov>, Mike Young <michael.young@sol.doi.gov>, Betsy Hildebrandt <betsy_hildebrandt@fws.gov>
Cc: Thomas Irwin <Thomas_Irwin@fws.gov>, Roslyn Sellars <Roslyn_Sellars@fws.gov>, David Cottingham <david_cottingham@fws.gov>

Dan and all --

I got a call this morning from Julie Faulkner at Defenders. She is working with wind energy people to schedule a follow-up meeting from the Feb 11 session. They are planning to hold a meeting Friday, Mar 1, somewhere in DC to develop their proposed solution(s).

Julie specifically asked:

1. who from the Service/Department should attend?
2. are appropriate people from the Service/Department available to attend?
3. What role does the Service/Department want to play in the meeting, i.e., technical advisor?

I'm including Martha and Mike Young on this email. We need to include General Law FACA lawyers in the conversation as well.

I'm also attaching a letter from ABC asking that we cease meeting with the wind-enviro coalition for your information.

I've tentatively scheduled a meeting (subject to confirmation) for us to discuss Service/Department participation in this and what are sure to be follow-up meetings at **1:30 on Wednesday Feb 20.**

Thanks

DC

--

David Cottingham
Senior Advisor to the Director
US Fish and Wildlife Service
Room 3341 Main Interior
Washington DC 20240

Office: 202-208-4331
Cell: 202-372-7578

--

David Cottingham
Senior Advisor to the Director
US Fish and Wildlife Service
Room 3341 Main Interior
Washington DC 20240

Office: 202-208-4331
Cell: 202-372-7578

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227K

AMERICAN BIRD CONSERVANCY

Shaping the future for birds

February 19, 2013

David J. Hayes
Deputy Secretary
Department of the Interior
1849 C Street NW
Washington, DC 20240

Subject: Bald and Golden Eagle Decision Making

Dear Mr. Hayes:

ABC respectfully requests the U.S. Fish and Wildlife Service (FWS) and Department of the Interior (DOI) defer any further consideration as to whether to change the maximum duration of Bald and Golden eagle take permits to 30 years from the current five until a new Secretary of the Interior has been confirmed and has the opportunity to fully participate in the decision. FWS's proposal to make 30 year eagle take permits available has been highly controversial, with the National Park Service and more than 120 conservation, animal welfare, tribal, and local interest groups opposed to it.

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As a result of all of these factors, this important and highly controversial decision should not be made without the full participation of the new Secretary of the Interior since the incoming Secretary will be responsible ultimately for the decision's implementation.

In addition, ABC notes with concern that U.S. Fish and Wildlife Service (FWS) has been conducting private, closed-to-the public meetings regarding eagle take permit regulatory and mitigation matters with the wind industry and some conservation groups.[1] These meetings were held in response to a letter sent to Secretary of the Interior last year, and they raise serious questions for FWS related to the Federal Advisory Committee Act and other federal law. In addition, the subject matter of these meetings potentially affects many other industries and many members of the public, including the timber and rail industries, Indian tribes, and other conservation and scientific organizations. It is unjust to the interests of these other affected parties to hold such important meetings without them.

Furthermore, these meetings constitute ex parte communications about two eagle regulation rulemakings currently in progress. In regard to ex parte communications, DOI's Departmental Manual advises, "you should avoid them wherever possible," when they occur "fairness to other participants may make reopening the comment period advisable," and "a willingness to accept ex

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Therefore, ABC requests that FWS immediately cease holding these private meetings and publish full transcripts of the meetings that have already been held.

In summary, we ask that FWS and DOI defer the decision on whether to change the maximum duration of eagle take permits until a new Secretary of the Interior has been confirmed and can fully participate in the decision and that FWS immediately stop holding these closed-to-the-public eagle meetings and publish full transcripts of the meetings that have already been held.

Thank you for your consideration of our requests.

Sincerely yours,

Darin Schroeder
Vice President of Conservation Advocacy

cc:
Secretary Ken Salazar
Sen. Ron Wyden
Sen. Lisa Murkowski

[2] The meetings are ex parte communications because they have discussed matters related to the eagle regulation rulemakings, have included interested outside parties and agency staff with authority to make decisions or recommendations about rulemaking, and have taken place after the public comment periods closed. The rulemakings are FWS's proposed rule revision to extend the maximum term for programmatic eagle take permits from five years to 30 years (docket #FWS-R9-MB-2011-0054) and the Advanced Noticed of Proposed Rulemaking to Eagle Permits; Revisions to Regulations Governing Take Necessary To Protect Interests in Particular Localities (docket # FWS-R9-MB-2011-0094). See Chapter 5, Part 318, Administrative Procedure Series, of DOI's Departmental Manual, available at http://www.fws.gov/policy/library/rg318dm5.html.

Black, Steve <steve_black@ios.doi.gov>

Fwd: 30 Year Eagle Take Permit

1 message

Hayes, David <david_hayes@ios.doi.gov> Tue, Feb 19, 2013 at 2:17 PM
To: Dan Ashe <d_m_ashe@fws.gov>, Martha Williams <martha.williams@sol.doi.gov>, David Cottingham <david_cottingham@fws.gov>, Steve Black <Steve_Black@ios.doi.gov>, Elizabeth Johnson Klein <Elizabeth_Klein@ios.doi.gov>, Lizzie Marsters <Lizzie_Marsters@ios.doi.gov>

(b) (5) [redacted]

---------- Forwarded message ----------
From: **Darin Schroeder** <dschroeder@abcbirds.org>
Date: Tue, Feb 19, 2013 at 1:11 PM
Subject: 30 Year Eagle Take Permit
To: "David_hayes@ios.doi.gov" <David_hayes@ios.doi.gov>

Deputy Secretary Hayes,

Please find attached a letter from American Bird Conservancy (ABC), asking that any further consideration of extending thirty-year eagle take permits to the wind industry be stayed until a new Secretary of Interior has adequate time to consider the issue. Further, we respectfully request any future consideration by Department of Interior officials of this issue be open to broad public input and any records, transcripts and notes from past meetings be made available to ABC for review.

Please let me know if you have any questions.

Sincerely,

Darin C. Schroeder

Vice President of Conservation Advocacy

American Bird Conservancy

1731 Connecticut Avenue, NW

Washington, DC 20009

Tel: 202.234.7181 x209

Fax: 202.234.7182

www.abcbirds.org

Final logo

--

David J. Hayes
Deputy Secretary
U.S. Department of the Interior
202-208-6291
David_Hayes@ios.doi.gov

ABC_Hayes_eagle_2-19-13.pdf
229K

Weekly Report to the Secretary
Counselor to the Secretary
February 15, 2013

nonresponsive

III. Expected Legislative, Legal, and Policy Issues

URGENT ISSUES REQUIRING HIGH-LEVEL ATTENTION OR RESOLUTION

(b) (5) [redacted]

(b) (5) [redacted]

[redacted]

EAGLES

On Monday, David Hayes and I convened several members of the wind industry and the environmental and conservation community to (1) provide the FWS with an opportunity to outline their strategy on eagle permitting and research and (2) to hear the stakeholders' concerns. The wind industry remains highly skeptical of FWS's ability to permit golden eagles and believes the 2009 eagle rule is flawed. The environmental and conservation community does not think there is enough scientific information for the Service to issue either 5-year or 30-year eagle permits and does not support a discrete rulemaking that would increase the tenure of an eagle

nonresponsive

nonresponsive

[redacted]

nonresponsive

nonresponsive

Black, Steve <steve_black@ios.doi.gov>

Weekly report

1 message

Black, Steve <steve_black@ios.doi.gov> Fri, Feb 15, 2013 at 10:12 AM
To: "Anderson, James E" <james_anderson@ios.doi.gov>
Cc: Janea Scott <Janea_Scott@ios.doi.gov>, Neal Kemkar <neal_kemkar@ios.doi.gov>, Ruchi Sadhir <Ruchi_Sadhir@ios.doi.gov>, Scott Haase <Scott_Haase@ios.doi.gov>

Jamey,

Attached is our weekly report. Thanks all for your great work this week. Another big week!

Have a good weekend!

--
Steve Black
Counselor to the Secretary
U.S. Department of the Interior
1849 C Street, N.W., MS 7229
Washington, D.C. 20240
Phone: 202-208-4123
Fax: 202-208-4561
e-mail: steve_black@ios.doi.gov

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39K

Weekly Report to the Secretary
Counselor to the Secretary
February 21, 2013

nonresponsive

Week Two: March 4th – March 8th

- I expect to be in the office Monday through Wednesday.
- (b) (5) [redacted]

III. Expected Legislative, Legal, and Policy Issues

URGENT ISSUES REQUIRING HIGH-LEVEL ATTENTION OR RESOLUTION

(b) (5) [redacted]

Eagles

Last week, the DRECP managers, Renewable Energy Action Team executives, Governor's Office and Janea and I met to discuss a proposed preferred alternative for analysis in the Draft EIS/EIR for the DRECP. At that meeting, the U.S. Fish and Wildlife Service presented an innovative idea for addressing eagles. Ren will brief Dan Ashe early next week, and assuming that Dan is supportive of this idea (b) (5) [redacted]

RENEWABLE ENERGY UPDATES

(b) (5) [redacted]

[redacted]

nonresponsive

nonresponsive

[redacted]

nonresponsive

[redacted]

Black, Steve <steve_black@ios.doi.gov>

Weekly report

1 message

Black, Steve <steve_black@ios.doi.gov> Thu, Feb 21, 2013 at 6:50 PM
To: "Anderson, James E" <james_anderson@ios.doi.gov>, Weekly Reports OS <WeeklyReports@ios.doi.gov>
Cc: Janea Scott <Janea_Scott@ios.doi.gov>, Ruchi Sadhir <Ruchi_Sadhir@ios.doi.gov>, Neal Kemkar <neal_kemkar@ios.doi.gov>, Scott Haase <Scott_Haase@ios.doi.gov>

Attached. Another impressive week! Thanks all for your good work.

Steve

--
Steve Black
Counselor to the Secretary
U.S. Department of the Interior
1849 C Street, N.W., MS 7229
Washington, D.C. 20240
Phone: 202-208-4123
Fax: 202-208-4561
e-mail: steve_black@ios.doi.gov

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34K

Eagle Activity Update
March 15, 2013

Eagle Conservation Plan Guidance

- FWS Migratory Bird staff revised the ECPG based on comments received. DOI sent it to OMB/OIRA.
- OMB/OIRA circulated ECPG to DOE, DOJ, and other agencies for review.
- Migratory Bird staff has responded to comments received to date.
- OMB/OIRA examiner has requested (b) (5) [redacted]
- NEXT STEPS:
  - (b) (5) [redacted]

Responding to the ANPR on the 2009 Eagle Permitting Rule

- On February 11, DOI officials met with representatives of wind industry and environmental groups who had written to Secretary Salazar about the ANPR and permit duration rule. Industry and environmental representatives at this meeting asked the Department to postpone a decision on moving forward with the permit duration rule for 30 days while they discuss options they would like to present to the Service to improve eagle conservation programs.
- Subsequent to this meeting the Deputy Secretary has received correspondence from other interested parties (73 organizations as signatories) requesting the Service and Department cease conducting these meetings (which the letter authors consider *ex parte* communications), and that any decisions on going forward with the permit duration rule be postponed until the new Secretary is confirmed.
- We understand the initial group of wind energy and environmental representatives have been meeting and will request another appointment with the Director and Deputy Secretary to present their ideas.
- FWS migratory bird program is summarizing comments/concerns generated from the ANPR, FWS staff, Solicitor's Office and the ASFWP. Issues/themes will be developed and utilize as the starting point for scoping meetings with all interested parties in revising the 2009 eagle rule.
- FWS migratory bird program has temporarily suspended planning public workshops on the eagle rule pending resolution of sequestration and finding the resources necessary to support this effort with anticipated reduced budgets.

- NEXT STEPS:
  - (b) (5) [redacted]

Permit Duration Rule

- FWS has drafted a final rule which has been cleared and surnamed throughout the Department.
- NEXT STEPS:
  - (b) (5) [redacted]

Desert Renewable Energy Conservation Plan Eagle Framework

- California Renewable Energy Action Team (REAT) agencies (BLM, FWS, CDF&G, CEC) met last week on DRECP and selected a tentative preferred alternative for consultants to use as they prepare environmental documents schedule for release in August 2013.
- FWS Region 8 (CA-NV) has proposed (b) (5) [redacted] FWS and CDFW staffs are evaluating whether this approach meets applicable statutory and regulatory standards.
- NEXT STEPS:
  - (b) (5) [redacted]

Eagle Research Coordination in Southern California

- FWS, BLM, USGS, CEC and other staffs discussed options for forming a consortium to coordinate eagle research related to DRECP on Mar 11.
- The group will prepare a summary memo and options to present at the April DRECP REAT agency meeting.

Eagle take permits

- As of January 31, the Service is processing 15 programmatic eagle take permits.
  - 10 are for wind projects.
  - 4 (all wind energy-related) are in the Western US (Regions 2 and 8).
- 27 companies have submitted draft or final Eagle Conservation Plans to the Service.
- (b) (5) [redacted]

Black, Steve <steve_black@ios.doi.gov>

Fw: eagle activity update

1 message

Steve Black <steve_black@ios.doi.gov> Thu, Mar 14, 2013 at 5:34 PM
To: ted.boling@sol.doi.gov

From: Cottingham, David [mailto:david_cottingham@fws.gov]
Sent: Thursday, March 14, 2013 01:30 PM
To: James E Anderson <James_Anderson@ios.doi.gov>; Betsy Hildebrandt <betsy_hildebrandt@fws.gov>; Dan Ashe <d_m_ashe@fws.gov>; Jerome Ford <jerome_ford@fws.gov>; David Cottingham <david_cottingham@fws.gov>; Steve Black <steve_black@ios.doi.gov>; Janea Scott <Janea_Scott@ios.doi.gov>; Elizabeth Klein <Elizabeth_Klein@ios.doi.gov>
Subject: eagle activity update

Please find attached an update of recent eagle activity for our discussion tomorrow (Friday) at 2:30

Let me know if you have questions.

David

--
David Cottingham
Senior Advisor to the Director
US Fish and Wildlife Service
Room 3341 Main Interior
Washington DC 20240

Office: 202-208-4331
Cell: 202-372-7578

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24K

Eagle Activity Update
March 15, 2013

Eagle Conservation Plan Guidance

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Black, Steve <steve_black@ios.doi.gov>

Fw: eagle activity update

1 message

Steve Black <steve_black@ios.doi.gov> Thu, Mar 14, 2013 at 4:42 PM
To: laura_davis@ios.doi.gov, kenneth_lane@ios.doi.gov

I hope can join us tomorrow.

From: Cottingham, David [mailto:david_cottingham@fws.gov]
Sent: Thursday, March 14, 2013 01:30 PM
To: James E Anderson <James_Anderson@ios.doi.gov>; Betsy Hildebrandt <betsy_hildebrandt@fws.gov>; Dan Ashe <d_m_ashe@fws.gov>; Jerome Ford <jerome_ford@fws.gov>; David Cottingham <david_cottingham@fws.gov>; Steve Black <steve_black@ios.doi.gov>; Janea Scott <Janea_Scott@ios.doi.gov>; Elizabeth Klein <Elizabeth_Klein@ios.doi.gov>
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David Cottingham
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Office: 202-208-4331
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2013 - 3- 15 version 2.docx
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March 15, 2013

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- NEXT STEPS:
  - (b) (5) [redacted]

Eagle Research Coordination in Southern California

- FWS, BLM, USGS, CEC and other staffs discussed options for forming a consortium to coordinate eagle research related to DRECP on Mar 11.
- The group will prepare a summary memo and options to present at the April DRECP REAT agency meeting.

Eagle take permits

- As of January 31, the Service is processing 15 programmatic eagle take permits.
  - 10 are for wind projects.
  - 4 (all wind energy-related) are in the Western US (Regions 2 and 8).
- 27 companies have submitted draft or final Eagle Conservation Plans to the Service.
- (b) (5) [redacted]

Black, Steve <steve_black@ios.doi.gov>

eagle activity update

1 message

Cottingham, David <david_cottingham@fws.gov> Thu, Mar 14, 2013 at 4:30 PM
To: James E Anderson <James_Anderson@ios.doi.gov>, Betsy Hildebrandt <betsy_hildebrandt@fws.gov>, Dan Ashe <d_m_ashe@fws.gov>, Jerome Ford <jerome_ford@fws.gov>, David Cottingham <david_cottingham@fws.gov>, Steve Black <steve_black@ios.doi.gov>, Janea Scott <Janea_Scott@ios.doi.gov>, Elizabeth Klein <Elizabeth_Klein@ios.doi.gov>

Please find attached an update of recent eagle activity for our discussion tomorrow (Friday) at 2:30

Let me know if you have questions.

David

--
David Cottingham
Senior Advisor to the Director
US Fish and Wildlife Service
Room 3341 Main Interior
Washington DC 20240

Office: 202-208-4331
Cell: 202-372-7578

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Black, Steve <steve_black@ios.doi.gov>

Eagles -- next steps

1 message

Cottingham, David <david_cottingham@fws.gov> Fri, Mar 15, 2013 at 4:43 PM
To: Betsy Hildebrandt <betsy_hildebrandt@fws.gov>, Elizabeth Klein <Elizabeth_Klein@ios.doi.gov>, Lizzie Marsters <lizzie_marsters@ios.doi.gov>, Steve Black <steve_black@ios.doi.gov>
Cc: Jerome Ford <jerome_ford@fws.gov>

All --

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Please let Jerome know when the right people have coordinated schedules of people who should attend.

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Eagle Activity Update
March 15, 2013

Eagle Conservation Plan Guidance

- FWS Migratory Bird staff revised the ECPG based on comments received. DOI sent it to OMB/OIRA.
- OMB/OIRA circulated ECPG to DOE, DOJ, and other agencies for review.
- Migratory Bird staff has responded to comments received to date.
- OMB/OIRA examiner has requested (b) (5) [redacted]
- NEXT STEPS:
  - (b) (5) [redacted]

Responding to the ANPR on the 2009 Eagle Permitting Rule

- On February 11, DOI officials met with representatives of wind industry and environmental groups who had written to Secretary Salazar about the ANPR and permit duration rule. Industry and environmental representatives at this meeting asked the Department to postpone a decision on moving forward with the permit duration rule for 30 days while they discuss options they would like to present to the Service to improve eagle conservation programs.
- Subsequent to this meeting the Deputy Secretary has received correspondence from other interested parties (73 organizations as signatories) requesting the Service and Department cease conducting these meetings (which the letter authors consider *ex parte* communications), and that any decisions on going forward with the permit duration rule be postponed until the new Secretary is confirmed.
- We understand the initial group of wind energy and environmental representatives have been meeting and will request another appointment with the Director and Deputy Secretary to present their ideas.
- FWS migratory bird program is summarizing comments/concerns generated from the ANPR, FWS staff, Solicitor's Office and the ASFWP. Issues/themes will be developed and utilize as the starting point for scoping meetings with all interested parties in revising the 2009 eagle rule.
- FWS migratory bird program has temporarily suspended planning public workshops on the eagle rule pending resolution of sequestration and finding the resources necessary to support this effort with anticipated reduced budgets.

- NEXT STEPS:
  - (b) (5) [redacted]

Permit Duration Rule

- FWS has drafted a final rule which has been cleared and surnamed throughout the Department.
- NEXT STEPS:
  - (b) (5) [redacted]

Desert Renewable Energy Conservation Plan Eagle Framework

- California Renewable Energy Action Team (REAT) agencies (BLM, FWS, CDF&G, CEC) met last week on DRECP and selected a tentative preferred alternative for consultants to use as they prepare environmental documents schedule for release in August 2013.
- FWS Region 8 (CA-NV) has proposed (b) (5) [redacted] FWS and CDFW staffs are evaluating whether this approach meets applicable statutory and regulatory standards.
- NEXT STEPS:
  - (b) (5) [redacted]

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Black, Steve <steve_black@ios.doi.gov>

Fwd: eagle activity update

1 message

Black, Steve <steve_black@ios.doi.gov> Fri, Mar 15, 2013 at 12:26 PM
To: Jim Kenna <jkenna@blm.gov>

FYI

---------- Forwarded message ----------
From: **Cottingham, David** <david_cottingham@fws.gov>
Date: Thu, Mar 14, 2013 at 4:30 PM
Subject: eagle activity update
To: James E Anderson <James_Anderson@ios.doi.gov>, Betsy Hildebrandt <betsy_hildebrandt@fws.gov>, Dan Ashe <d_m_ashe@fws.gov>, Jerome Ford <jerome_ford@fws.gov>, David Cottingham <david_cottingham@fws.gov>, Steve Black <steve_black@ios.doi.gov>, Janea Scott <Janea_Scott@ios.doi.gov>, Elizabeth Klein <Elizabeth_Klein@ios.doi.gov>

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e-mail: steve_black@ios.doi.gov

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Black, Steve <steve_black@ios.doi.gov>

Eagles meeting

1 message

Rees, Gareth <gareth_rees@ios.doi.gov> Mon, Mar 18, 2013 at 5:06 PM
To: Steve Black <steve_black@ios.doi.gov>, Elizabeth Klein <elizabeth_klein@ios.doi.gov>
Cc: Lizzie Marsters <Lizzie_Marsters@ios.doi.gov>

Hi

Below is the blurb from the previous invite which needs to be updated. I have just sent out an internal hold for Wednesday March 27 at 2pm. We can send the invite out again from the Dep Sec email account.

Thanks

Subject: Invitation for Meeting on Eagles

Good afternoon,

As you know, over the course of the past year, the U.S. Fish & Wildlife Service has been engaged in an extensive and productive effort to improve implementation of the Bald & GoldenEagle Protection Act (BGEPA), including undertaking a full review of the current BGEPA regulations and developing guidance to help FWS staff, industry, and stakeholders better understand potential paths forward to obtaining a BGEPA permit.

I want to thank each of you for your ongoing interest in this process. Following your joint letter in August to Secretary Salazar, I know that many of you have provided constructive input to FWS and have expressed an interest in continued dialogue on these issues. To that end, I would like to invite you to a meeting that I will host on Monday, February 11, 2013 from 4:00pm-5:00pm to discuss how we can continue to work productively together on these issues. The meeting will be held at the Department of Interior, 1849 C Street NW, Washington DC, in Room 5160. A call-in will be available at (b) (5) [redacted], code (b) (5) [redacted] Please respond to Gareth Rees at Gareth_Rees@ios.doi.gov or 202-208-6291 if you are able to attend.

Thank you, and I look forward to seeing you on the 11th.

David J. Hayes

Deputy Secretary

Department of the Interior

--

Gareth C. Rees

Executive Assistant to the Deputy Secretary

U.S. Department of the Interior

1849 C Street, NW

Washington, DC 20240

Tel: 202-208-6291

Fax: 202-208-1873

Cell: 202-957-8299

Black, Steve <steve_black@ios.doi.gov>

Re: Eagles -- next steps

1 message

Marsters, Lizzie <lizzie_marsters@ios.doi.gov> Mon, Mar 18, 2013 at 5:01 PM
To: "Black, Steve" <steve_black@ios.doi.gov>, "Gareth C. Rees" <Gareth_Rees@ios.doi.gov>
Cc: "Ford, Jerome" <jerome_ford@fws.gov>, "Cottingham, David" <david_cottingham@fws.gov>, Betsy Hildebrandt <betsy_hildebrandt@fws.gov>, Elizabeth Klein <Elizabeth_Klein@ios.doi.gov>

We'll handle sending out the invitations after identifying a time - most likely next Wednesday afternoon.

On Mon, Mar 18, 2013 at 2:42 PM, Black, Steve <steve_black@ios.doi.gov> wrote:

Thanks Jerome,

I think David's schedule is key. Pending some available dates from Gareth or Lizzie, I would send out a meeting invite to the same people who attended our meeting on Feb. 11 ASAP.

In terms of messaging, I think Dan and David hit the right points at our meeting on Feb. 11. The Service is taking (b) (5) [redacted]. In that regard, I would be very careful about what you say, if anything, about the impacts of the sequester and CR. We're already four years into this.

Thanks.

Steve

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Brian and I are working feverishly to articulate the concepts and thoughts of the Deputy Secretary:

- [redacted]
- [redacted]
- [redacted]
- [redacted]

(b) (5)

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Please check the availability of your managers and provide their availability to me at your earliest convenience.

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Jerome

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Fax: 202-208-4561
e-mail: steve_black@ios.doi.gov

--

Lizzie Marsters
Chief of Staff to the Deputy Secretary
Department of the Interior
1849 C Street NW
Washington, DC 20240
Office: 202-219-7499

Black, Steve <steve_black@ios.doi.gov>

Re: Fwd: Eagles -- next steps

1 message

Black, Steve <steve_black@ios.doi.gov> Mon, Mar 18, 2013 at 4:53 PM
To: Lizzie Marsters <lizzie_marsters@ios.doi.gov>

Sorry -- Hirut leaves at 4:30 so no one answers my phone(!). Want me to call you?

On Mon, Mar 18, 2013 at 4:31 PM, Lizzie Marsters <lizzie_marsters@ios.doi.gov> wrote:

> Steve - I just called you, hoping to get some more info in terms of timing. Are we looking at next week for an hour? Are people flying in - so is Monday easy? Too soon?
>
> Should we book 5160?
>
> ---
>
> **From**: Black, Steve [mailto:steve_black@ios.doi.gov]
> **Sent**: Monday, March 18, 2013 01:31 PM
> **To**: Gareth Rees <Gareth_Rees@ios.doi.gov>; Lizzie Marsters <lizzie_marsters@ios.doi.gov>; Elizabeth Klein <Elizabeth_Klein@ios.doi.gov>
> **Subject**: Fwd: Eagles -- next steps
>
> Gareth, I expect you have this by now. Thanks in advance for your help.
>
> Steve
>
> ---------- Forwarded message ----------
> From: **Ford, Jerome** <jerome_ford@fws.gov>
> Date: Mon, Mar 18, 2013 at 3:43 PM
> Subject: Re: Eagles -- next steps
> To: "Black, Steve" <steve_black@ios.doi.gov>
> Cc: "Cottingham, David" <david_cottingham@fws.gov>, Betsy Hildebrandt <betsy_hildebrandt@fws.gov>, Elizabeth Klein <Elizabeth_Klein@ios.doi.gov>, Lizzie Marsters <lizzie_marsters@ios.doi.gov>
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> We will be happy to send an invite as soon as we get some available dates.
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Black, Steve <steve_black@ios.doi.gov>

Re: Fwd: Eagles -- next steps

1 message

Lizzie Marsters <lizzie_marsters@ios.doi.gov> Mon, Mar 18, 2013 at 4:31 PM
To: steve_black@ios.doi.gov, Gareth_Rees@ios.doi.gov, Elizabeth_Klein@ios.doi.gov

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David

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David Cottingham
Senior Advisor to the Director
US Fish and Wildlife Service
Room 3341 Main Interior
Washington DC 20240

Office: 202-208-4331
Cell: 202-372-7578

--
Steve Black
Counselor to the Secretary
U.S. Department of the Interior
1849 C Street, N.W., MS 7229
Washington, D.C. 20240
Phone: 202-208-4123
Fax: 202-208-4561
e-mail: steve_black@ios.doi.gov

Black, Steve <steve_black@ios.doi.gov>

Re: Eagles -- next steps

1 message

Black, Steve <steve_black@ios.doi.gov> Mon, Mar 18, 2013 at 2:42 PM
To: "Ford, Jerome" <jerome_ford@fws.gov>
Cc: "Cottingham, David" <david_cottingham@fws.gov>, Betsy Hildebrandt <betsy_hildebrandt@fws.gov>, Elizabeth Klein <Elizabeth_Klein@ios.doi.gov>, Lizzie Marsters <lizzie_marsters@ios.doi.gov>

Thanks Jerome,

I think David's schedule is key. Pending some available dates from Gareth or Lizzie, I would send out a meeting invite to the same people who attended our meeting on Feb. 11 ASAP.

In terms of messaging, I think Dan and David hit the right points at our meeting on Feb. 11. The Service is taking (b) (5) [redacted] In that regard, I would be very careful about what you say, if anything, about the impacts of the sequester and CR. We're already four years into this.

Thanks.

Steve

On Mon, Mar 18, 2013 at 2:27 PM, Ford, Jerome <jerome_ford@fws.gov> wrote:

> Team,
>
> I am checking in to see if you have given any thought to David's email below asking for pertinent attendees to discuss the Department's way forward relative to eagles. At a minimum, I suspect those of that attended Friday's meeting are expected to attend the upcoming meeting as well. In order to give you all something to react to, I am proposing an afternoon meeting on Wednesday or Thursday. If you have an alternate time, then please provide for consideration.
>
> Brian and I are working feverishly to articulate the concepts and thoughts of the Deputy Secretary:
>
> - [redacted] (b) (5)
> - [redacted]
> - [redacted]
> - [redacted]
>
> Our plans are to have a draft to you for your review sometime tomorrow.
>
> Please check the availability of your managers and provide their availability to me at your earliest convenience.
>
> Thanks.
>
> Jerome
>
> On Fri, Mar 15, 2013 at 4:43 PM, Cottingham, David <david_cottingham@fws.gov> wrote:
>
> > All --

Jerome and I spoke w/ Julie and John and delivered our message on process and substance as best we could. Neither was particularly happy. Both reiterated concerns we've heard about the 30-yr rule and workability of the permit process

We told them we'd get an invitation to them early next week as soon as we could coordinate schedules. Jerome said he will touch base with them on Monday to let them know status of the meeting.

Please let Jerome know when the right people have coordinated schedules of people who should attend.

thanks

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(b) (5) [redacted]

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Jerome

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> **Washington DC 20240**
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> **Office: 202-208-4331**
> **Cell: 202-372-7578**

Black, Steve <steve_black@ios.doi.gov>

Re: Eagles meeting

1 message

Klein, Elizabeth <elizabeth_klein@ios.doi.gov> Tue, Mar 19, 2013 at 1:58 PM
To: "Black, Steve" <steve_black@ios.doi.gov>
Cc: "Marsters, Lizzie" <lizzie_marsters@ios.doi.gov>, "Rees, Gareth" <gareth_rees@ios.doi.gov>

ditto

On Tue, Mar 19, 2013 at 1:54 PM, Black, Steve <steve_black@ios.doi.gov> wrote:

Yes, this works for me. Thanks.

On Tue, Mar 19, 2013 at 1:51 PM, Marsters, Lizzie <lizzie_marsters@ios.doi.gov> wrote:

Steve/Liz: Can Gareth send this out today to the previous list?

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Good afternoon,

As you know, over the course of the past year, the U.S. Fish & Wildlife Service has been engaged in an extensive and productive effort to improve implementation of the Bald & GoldenEagle Protection Act (BGEPA), including undertaking a full review of the current BGEPA regulations and developing guidance to help FWS staff, industry, and stakeholders better understand potential paths forward to obtaining a BGEPA permit.

I want to thank each of you for your ongoing interest in this process. Following your joint letter in August to Secretary Salazar, I know that many of you have provided constructive input to FWS and have expressed an interest in continued dialogue on these issues. To that end, I would like to invite you to a meeting that I will host on Wednesday, March 27, 2013 from 2:00pm-3:00pm to discuss how we can continue to work productively together on these issues. The meeting will be held at the Department of Interior, 1849 C Street NW, Washington DC, in Room 5160. A call-in will be available at (b) (5) [redacted], code (b) (5) [redacted] Please respond to Gareth Rees at Gareth_Rees@ios.doi.gov or 202-208-6291 if you are able to attend.

On Mon, Mar 18, 2013 at 5:06 PM, Rees, Gareth <gareth_rees@ios.doi.gov> wrote:

Hi

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Thanks

Subject: Invitation for Meeting on Eagles

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Thank you, and I look forward to seeing you on the 11th.

David J. Hayes

Deputy Secretary

Department of the Interior

--

Gareth C. Rees

Executive Assistant to the Deputy Secretary

U.S. Department of the Interior

1849 C Street, NW

Washington, DC 20240

Tel: 202-208-6291

Fax: 202-208-1873

Cell: 202-957-8299

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Lizzie Marsters
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--
Elizabeth Klein
Associate Deputy Secretary
Department of the Interior
1849 C Street NW
Washington, D.C. 20240
ph: 202-513-0561

Black, Steve <steve_black@ios.doi.gov>

Re: Eagles meeting

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Cc: "Rees, Gareth" <gareth_rees@ios.doi.gov>, Elizabeth Klein <elizabeth_klein@ios.doi.gov>

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Black, Steve <steve_black@ios.doi.gov>

Fwd: briefing paper for eagle meeting

1 message

Black, Steve <steve_black@ios.doi.gov> Tue, Mar 26, 2013 at 6:00 PM
To: Neal Kemkar <Neal_Kemkar@ios.doi.gov>, Ruchi Sadhir <Ruchi_Sadhir@ios.doi.gov>

FYI

---------- Forwarded message ----------
From: **Cottingham, David** <david_cottingham@fws.gov>
Date: Tue, Mar 26, 2013 at 4:40 PM
Subject: briefing paper for eagle meeting
To: James E Anderson <James_Anderson@ios.doi.gov>, Elizabeth Klein <Elizabeth_Klein@ios.doi.gov>, Steve Black <steve_black@ios.doi.gov>, Dan Ashe <d_m_ashe@fws.gov>, Jerome Ford <jerome_ford@fws.gov>, "Johnson, Mike J" <Mike_J_Johnson@fws.gov>, David Downes <david.downes@sol.doi.gov>, Barry Roth <barry.roth@sol.doi.gov>, Mike Young <michael.young@sol.doi.gov>, Michael Bean <Michael_Bean@ios.doi.gov>, Stephen Guertin <stephen_guertin@fws.gov>, "Millsap, Brian A" <Brian_A_Millsap@fws.gov>, David Cottingham <david_cottingham@fws.gov>
Cc: "Randolph, Nikki" <Nikki_Randolph@fws.gov>

Jamey and all --

please see attached and provide to Dep Secy. Ask that he pay special attention to talking points on FACA. I'll be in the office in the morning if he has questions.

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Hayes Briefing 3-26-13 -- REV 3 -- FINAL.docx
36K

March 26, 2013

Briefing Memorandum for Deputy Secretary

From: Dan Ashe, Director

Subject: Meeting with environmental groups and wind industry, March 27, 2013

Background

You are meeting with representatives of wind industry and environmental groups that wrote to Secretary Salazar last summer regarding comments on the Service's ANPR to revise the 2009 eagle permitting rule and the proposed rule to extend the term of eagle take permits from 5 to up to 30 years.

At a meeting with many of these groups in February, they asked for an opportunity to collaborate on some ideas they were forming about how to improve the Service's eagle conservation programs. At this meeting, they will present the result of those discussions. They will likely ask that:

1. The Department/Service not promulgate a final rule extending the duration of eagle take permits up to 30 years.
2. The Department/Service create a science advisory committee to develop a research program at selected (a few) operating and proposed wind projects to test risk models, evaluate advanced conservation practices, and monitor projects for eagle behavior and mortality.
3. The Service and Justice provide assurances that project operators participating in the research program would not be prosecuted if they took an eagle.

You should also be aware that an environmental group who was not a signatory to the initial letter has asked that we not meet with this group again. They contend that doing so would violate the Federal Advisory Committee Act (see attached talking points).

Service Comprehensive Eagle Conservation Program

The Service appreciates the efforts of the wind industry and environmental groups to collaborate. However, we believe the time has come to move ahead with:

1. (b) (5)
2.
3.
4.
5.

Extend programmatic eagle take permits from 5 to 30 years – (b) (5) [redacted]

Eagle Conservation Plan Guidance (version 2) – (b) (5) [redacted]

Revising the 2009 Eagle Take Rule – In April 2012 FWS published an Advanced Notice of Public Rule Making (ANPR) stating our intent to revise the 2009 eagle take rule and requesting comments and suggestions. Major points of concern that have been identified included:

1. How FWS should interpret the BGEPA preservation standard;
2. How FWS approaches the idea of "advanced conservation practices";
3. Should assurances (i.e., cost caps, legal) can/should permittees receive;
4. Clarify the distinction between when Standard and Programmatic permits are needed/appropriate;
5. When should compensatory mitigation be required;
6. Are there ways to incentivize innovation in reducing take?

The Service has developed a plan to revise the 2009 rule. This strategy includes public input, tribal consultation, incorporating the products of our science and monitoring associated with the Eagle Conservation Plan Guidance, and the development of bald and golden eagle conservation plans. All of the above will provide a substantial and solid basis for the rule revision and the associated NEPA analysis. The anticipation of having a solid scientific basis for the substantive rule revision has been an integral part of the Service's strategy. The Service, USGS, and other partners are seeking the right balance between the dual national objectives of developing renewable energy resources and protecting bald and golden eagles. However, the issues are biologically and legally complex, collecting the needed information takes time, and the costs of errors are not insignificant. Eagles are long-lived, slow reproducing birds, and excessive mortality, especially of adults, can have dramatic and long-lasting population consequences. For the responsible developer, errors in assessing risk can mean a project that takes eagles and therefore requires an eagle take permit faces loss of that permit, either through rescission because of unexpected incompatibility with the preservation standard of the Act or third-party legal action. The strategy outlined here is the Service's best effort to make sure neither of these outcomes occurs.

Research on eagle populations – Much of the ongoing eagle research is specifically designed to decrease uncertainty as FWS revises the eagle take rule. For example:

1. Research aimed at improving estimates of golden eagle population size and trend will be directly incorporated into a re-assessment of sustainable take thresholds, and in setting revised numeric take thresholds.
2. Research aimed at re-assessing natal dispersal distance will provide more scientifically supportable boundaries for assessment of take at the local-area population scale, and for re-assessing geographic management units for both species of eagle.
3. Research into golden eagle survival rates will help improve estimates of survival that feed into the models that will be used to estimate sustainable take rates.
4. Developing an improved sustainable take model for eagles will be used in conjunction with revised population estimates for Golden Eagles and improved estimates of Golden Eagle Survival rates to set sustainable take limits at the scale of the eagle management unit and local-area population.
5. Research into eagle pre- and post-construction monitoring will help in the design of effective and efficient monitoring recommendations. This research is crucial to developing supportable, justifiable, and minimally burdensome monitoring protocols, which may be incorporated directly into regulation in the Eagle Permit rule revision.

Research on Advanced Conservation Practices -- Research to identify effective advanced conservation practices (ACPs) to reduce eagle fatalities at wind facilities is a high priority. One of the most expeditious and efficient ways to promote this research would be to develop and test experimental ACPs at operating wind facilities that have comparatively high eagle mortality rates. Because eagles would be taken as part of the research, facilities participating in such experiments should be operating under FWS permits that authorize eagle take. Research into experimental ACPs following such an approach is outlined and recommended in the draft ECPG. Wind facilities operating prior to 2009 could qualify for a programmatic eagle take permit if, among other things, they implemented measures that would reduce eagle takes from historic levels. Because of the requirement that take be reduced from historic, baseline levels, the take authorized by programmatic permits for activities that were ongoing prior to 2009 would not be subtracted from regional eagle take thresholds, and as such, they would not require compensatory mitigation to meet a no-net-loss standard (though mitigation may still be required under such permits). There are legal and law enforcement issues with this approach that need to be resolved.

National Eagle Conservation-Management Plans – The FWS will develop continental eagle conservation plans, including a re-assessment of the geographic boundaries of the regional eagle management units for both bald and golden eagles. These plans would recommend specific numeric population objectives for each management unit. The intent is that these population objectives would replace the current standard of maintaining stable numbers of breeding pairs of eagles. Depending on the geographic area and species, population objectives might be to maintain the current estimated population level, increase the population by a specific amount, or allow take that could decrease population size within constraints over time. The population objectives would need to be set so that existing or planned population monitoring programs could ascertain populations relative to objective levels.

Talking Points for Deputy Secretary Hayes

March 27 2013 Meeting with Wind Industry and Environmental Groups

- Thank you for all your efforts to work together and with the Service to improve our eagle conservation programs. We appreciate your efforts to share information among yourselves as you develop your thoughts in this important area.
- It's very important that we all work to learn more about and conserve eagle populations.
- When a number of us met in February, you asked for a little more time to develop your ideas about potential ways to move forward. We look forward to hearing from you on progress you've made. [John Anderson and/or Julie Falkner will likely speak for the group.]
- We also want to tell you where we are with regard to the Service's eagle conservation and research programs as well as modifying some of our eagle conservation and permitting processes.
- I should note that we are not in a position to request any consensus recommendations from you as a group, in light of the requirements of the Federal Advisory Committee Act – as we discussed in our last meeting. In fact, I understand that the Department has received one letter raising questions concerning these efforts and compliance with the Federal Advisory Committee Act.
- Of course, we are very interested in the information, expertise and perspectives that each of you brings individually to this important issue. We intend to give full consideration to all of your ideas as the Department moves ahead.
- Ask Dan Ashe [may be on the phone] or Steve Black if they want to add anything

Black, Steve <steve_black@ios.doi.gov>

briefing paper for eagle meeting

1 message

Cottingham, David <david_cottingham@fws.gov> Tue, Mar 26, 2013 at 4:40 PM
To: James E Anderson <James_Anderson@ios.doi.gov>, Elizabeth Klein <Elizabeth_Klein@ios.doi.gov>, Steve Black <steve_black@ios.doi.gov>, Dan Ashe <d_m_ashe@fws.gov>, Jerome Ford <jerome_ford@fws.gov>, "Johnson, Mike J" <Mike_J_Johnson@fws.gov>, David Downes <david.downes@sol.doi.gov>, Barry Roth <barry.roth@sol.doi.gov>, Mike Young <michael.young@sol.doi.gov>, Michael Bean <Michael_Bean@ios.doi.gov>, Stephen Guertin <stephen_guertin@fws.gov>, "Millsap, Brian A" <Brian_A_Millsap@fws.gov>, David Cottingham <david_cottingham@fws.gov>
Cc: "Randolph, Nikki" <Nikki_Randolph@fws.gov>

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You should also be aware that an environmental group who was not a signatory to the initial letter has asked that we not meet with this group again. They contend that doing so would violate the Federal Advisory Committee Act (see attached talking points).

Service Comprehensive Eagle Conservation Program

The Service appreciates the efforts of the wind industry and environmental groups to collaborate. However, we believe the time has come to move ahead with:

1. (b) (5)
2.
3.
4.
5.

Extend programmatic eagle take permits from 5 to 30 years – (b) (5) [redacted]

Eagle Conservation Plan Guidance (version 2) – (b) (5) [redacted]

Revising the 2009 Eagle Take Rule – In April 2012 FWS published an Advanced Notice of Public Rule Making (ANPR) stating our intent to revise the 2009 eagle take rule and requesting comments and suggestions. Major points of concern that have been identified included:

1. How FWS should interpret the BGEPA preservation standard;
2. How FWS approaches the idea of "advanced conservation practices";
3. Should assurances (i.e., cost caps, legal) can/should permittees receive;
4. Clarify the distinction between when Standard and Programmatic permits are needed/appropriate;
5. When should compensatory mitigation be required;
6. Are there ways to incentivize innovation in reducing take?

The Service has developed a plan to revise the 2009 rule. This strategy includes public input, tribal consultation, incorporating the products of our science and monitoring associated with the Eagle Conservation Plan Guidance, and the development of bald and golden eagle conservation plans. All of the above will provide a substantial and solid basis for the rule revision and the associated NEPA analysis. The anticipation of having a solid scientific basis for the substantive rule revision has been an integral part of the Service's strategy. The Service, USGS, and other partners are seeking the right balance between the dual national objectives of developing renewable energy resources and protecting bald and golden eagles. However, the issues are biologically and legally complex, collecting the needed information takes time, and the costs of errors are not insignificant. Eagles are long-lived, slow reproducing birds, and excessive mortality, especially of adults, can have dramatic and long-lasting population consequences. For the responsible developer, errors in assessing risk can mean a project that takes eagles and therefore requires an eagle take permit faces loss of that permit, either through rescission because of unexpected incompatibility with the preservation standard of the Act or third-party legal action. The strategy outlined here is the Service's best effort to make sure neither of these outcomes occurs.

Research on eagle populations – Much of the ongoing eagle research is specifically designed to decrease uncertainty as FWS revises the eagle take rule. For example:

1. Research aimed at improving estimates of golden eagle population size and trend will be directly incorporated into a re-assessment of sustainable take thresholds, and in setting revised numeric take thresholds.
2. Research aimed at re-assessing natal dispersal distance will provide more scientifically supportable boundaries for assessment of take at the local-area population scale, and for re-assessing geographic management units for both species of eagle.
3. Research into golden eagle survival rates will help improve estimates of survival that feed into the models that will be used to estimate sustainable take rates.
4. Developing an improved sustainable take model for eagles will be used in conjunction with revised population estimates for Golden Eagles and improved estimates of Golden Eagle Survival rates to set sustainable take limits at the scale of the eagle management unit and local-area population.
5. Research into eagle pre- and post-construction monitoring will help in the design of effective and efficient monitoring recommendations. This research is crucial to developing supportable, justifiable, and minimally burdensome monitoring protocols, which may be incorporated directly into regulation in the Eagle Permit rule revision.

Research on Advanced Conservation Practices -- Research to identify effective advanced conservation practices (ACPs) to reduce eagle fatalities at wind facilities is a high priority. One of the most expeditious and efficient ways to promote this research would be to develop and test experimental ACPs at operating wind facilities that have comparatively high eagle mortality rates. Because eagles would be taken as part of the research, facilities participating in such experiments should be operating under FWS permits that authorize eagle take. Research into experimental ACPs following such an approach is outlined and recommended in the draft ECPG. Wind facilities operating prior to 2009 could qualify for a programmatic eagle take permit if, among other things, they implemented measures that would reduce eagle takes from historic levels. Because of the requirement that take be reduced from historic, baseline levels, the take authorized by programmatic permits for activities that were ongoing prior to 2009 would not be subtracted from regional eagle take thresholds, and as such, they would not require compensatory mitigation to meet a no-net-loss standard (though mitigation may still be required under such permits). There are legal and law enforcement issues with this approach that need to be resolved.

National Eagle Conservation-Management Plans – The FWS will develop continental eagle conservation plans, including a re-assessment of the geographic boundaries of the regional eagle management units for both bald and golden eagles. These plans would recommend specific numeric population objectives for each management unit. The intent is that these population objectives would replace the current standard of maintaining stable numbers of breeding pairs of eagles. Depending on the geographic area and species, population objectives might be to maintain the current estimated population level, increase the population by a specific amount, or allow take that could decrease population size within constraints over time. The population objectives would need to be set so that existing or planned population monitoring programs could ascertain populations relative to objective levels.

Talking Points for Deputy Secretary Hayes

March 27 2013 Meeting with Wind Industry and Environmental Groups

- Thank you for all your efforts to work together and with the Service to improve our eagle conservation programs. We appreciate your efforts to share information among yourselves as you develop your thoughts in this important area.
- It's very important that we all work to learn more about and conserve eagle populations.
- When a number of us met in February, you asked for a little more time to develop your ideas about potential ways to move forward. We look forward to hearing from you on progress you've made. [John Anderson and/or Julie Falkner will likely speak for the group.]
- We also want to tell you where we are with regard to the Service's eagle conservation and research programs as well as modifying some of our eagle conservation and permitting processes.
- I should note that we are not in a position to request any consensus recommendations from you as a group, in light of the requirements of the Federal Advisory Committee Act – as we discussed in our last meeting. In fact, I understand that the Department has received one letter raising questions concerning these efforts and compliance with the Federal Advisory Committee Act.
- Of course, we are very interested in the information, expertise and perspectives that each of you brings individually to this important issue. We intend to give full consideration to all of your ideas as the Department moves ahead.
- Ask Dan Ashe [may be on the phone] or Steve Black if they want to add anything

Black, Steve <steve_black@ios.doi.gov>

eagle briefing document

1 message

Cottingham, David <david_cottingham@fws.gov> Tue, Mar 26, 2013 at 2:20 PM
To: Steve Black <steve_black@ios.doi.gov>

Steve --

see draft eagle briefing for tomorrow's meeting attached. Let me know if you have comments

thanks

cotton

--
David Cottingham
Senior Advisor to the Director
US Fish and Wildlife Service
Room 3341 Main Interior
Washington DC 20240

Office: 202-208-4331
Cell: 202-372-7578

Hayes Briefing 3-26-13 -- DC edits.docx
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Briefing Memorandum for Deputy Secretary
From: Dan Ashe, Director
Subject: Meeting with environmental groups and wind industry, March 27, 2013

Background

You are meeting with representatives of wind industry and environmental groups that wrote to Secretary Salazar last summer regarding comments on the Service's ANPR to revise the 2009 eagle permitting rule and the proposed rule to extend the term of eagle take permits from 5 to up to 30 years.

At a meeting with many of these groups in February, they asked for an opportunity to collaborate on some ideas they were forming about how to improve the Service's eagle conservation programs. At this meeting, they will present the result of those discussions. They will likely ask that:

1. The Department/Service not promulgate a final rule extending the duration of eagle take permits up to 30 years
2. The Department/Service create a science advisory committee to develop a research program at selected (a few) operating and proposed wind projects to test risk models, evaluate advanced conservation practices, and monitor projects for eagle behavior and mortality
3. The Service and Justice provide assurances that project operators participating in the research program would not be prosecuted if they took an eagle.

Service Comprehensive Eagle Conservation Program

The Service appreciates the efforts of the wind industry and environmental groups to collaborate. However, we believe the time has come to move ahead with:

1. [redacted]
2. [redacted]
3. [redacted]
4. [redacted]
5. [redacted]

Extend programmatic eagle take permits from 5 to 30 years – (b) (5) [redacted]

(b) (5) [redacted]

Eagle Conservation Plan Guidance (version 2) – (b) (5) [redacted]

Revising the 2009 Eagle Take Rule – In April 2012 FWS published an Advanced Notice of Public Rule Making (ANPR) stating our intent to revise the 2009 eagle take rule and requesting comments and suggestions. Major points of concern that have been identified included:

1. How FWS should interpret the BGEPA preservation standard;
2. How FWS approaches the idea of "advanced conservation practices";
3. Should assurances (i.e., cost caps, legal) can/should permittees receive;
4. Clarify the distinction between when Standard and Programmatic permits are needed/appropriate;
5. When should compensatory mitigation be required;
6. Are there ways to incentivize innovation in reducing take?

The Service has developed a plan to initiate a revision to the 2009 rule. This strategy includes public input, tribal consultation, incorporating the products of our science and monitoring associated with the Eagle Conservation Plan Guidance, and the development of bald and golden eagle conservation plans. All of the above will provide a substantial and solid basis for the Rule revision and the associated NEPA analysis. The anticipation of having a solid scientific basis for the substantive rule revision has been an integral part of the Service's strategy. The Service, USGS, and other partners have mobilized rapidly to seek out the right balance between the dual national objectives of developing renewable energy resources and protecting bald and golden eagles. To some, the response has not been swift, balanced, or effective enough. However, the issues are biologically and legally complex, collecting the needed information takes time, and the costs of errors are not insignificant. Eagles are long-lived, slow reproducing birds, and excessive mortality, especially of adults, can have dramatic and long-lasting population consequences. For the responsible developer, errors in assessing risk can mean a project that takes eagles and therefore requires an eagle take permit faces loss of that permit, either through rescission because of unexpected incompatibility with the preservation standard of the Act or third-party legal action. The strategy outlined here is the Service's best effort to make sure neither of these outcomes occurs.

Research and how that can or will assist us – Much of the ongoing eagle research is specifically designed to decrease uncertainty as FWS revises the Eagle Take rule. For example:

1. Research aimed at improving estimates of golden eagle population size and trend will be directly incorporated into a re-assessment of sustainable take thresholds, and in setting revised numeric take thresholds.

2. Research aimed at re-assessing natal dispersal distance will provide more scientifically supportable boundaries for assessment of take at the local-area population scale, and for re-assessing geographic management units for both species of eagle.
3. Research into golden eagle survival rates will help improve estimates of survival that feed into the models that will be used to estimate sustainable take rates.
4. Developing an improved sustainable take model for eagles will be used in conjunction with revised population estimates for Golden Eagles and improved estimates of Golden Eagle Survival rates to set sustainable take limits at the scale of the eagle management unit and local-area population.
5. Research into eagle pre- and post-construction monitoring will help in the design of effective and efficient monitoring recommendations. This research is crucial to developing supportable, justifiable, and minimally burdensome monitoring protocols, which may be incorporated directly into regulation in the Eagle Permit rule revision.

Research on Advanced Conservation Practices -- Research to identify effective advanced conservation practices (ACPs) to reduce eagle fatalities at wind facilities is a high priority. One of the most expeditious and efficient way to promote this research would be to develop and test experimental ACPs at operating wind facilities that have comparatively high eagle mortality rates. Because eagles would be taken as part of the research, facilities participating in such experiments should be operating under permits from the FWS that authorize eagle take. Research into experimental ACPs following such an approach is outlined and recommended in the draft ECPG. Wind facilities operating prior to 2009 could qualify for a programmatic eagle take permit if, among other things, they implemented measures that would reduce eagle takes from historic levels. Because of the requirement that take be reduced from historic, baseline levels, the take authorized by programmatic permits for activities that were ongoing prior to 2009 would not be subtracted from regional eagle take thresholds, and as such, they would not require compensatory mitigation to meet a no-net-loss standard (though mitigation may still be required under such permits). There are legal and law enforcement issues with this approach that still need to be resolved.

National Eagle Conservation-Management Plans – The FWS will develop continental eagle conservation plans, including a re-assessment of the geographic boundaries of the regional eagle management units for both bald and golden eagles. These plans would recommend specific numeric population objectives for each management unit. The intent is that these population objectives would replace the current standard of maintaining stable numbers of breeding pairs of eagles. Depending on the geographic area and species, population objectives might be to maintain the current estimated population level, increase the population by a specific amount, or allow take that could decrease population size within constraints over time. The population objectives would need to be set so that existing or planned population monitoring programs could ascertain.

Talking Points for Deputy Secretary Hayes

March 27 2013 Meeting with Wind Industry and Environmental Groups

- Thank you for all your efforts to work together and with the Service to improve our eagle conservation programs. To have a situation where an industry and environmental groups are collaborating demonstrates the significance of finding creative solutions to these issues
- It's very important that we learn more about and conserve eagle populations
- When we met in February, you collectively asked for a little more time to develop some ideas about potential ways to move forward. We look forward to hearing from you on progress you've made. [John Anderson and/or Julie Falkner will likely speak for the group.]
- We also want to tell you where we are with regard to the Service's eagle conservation and research programs as well as modifying some of our eagle conservation and permitting processes.
- Ask Dan Ashe [need to confirm attendance] or Steve Black if they want to add anything

Weekly Report to the Secretary
Counselor to the Secretary
March 29, 2013

nonresponsive

(b) (5)

Golden eagle and California condor issues (b) (5)

Renewable Energy Project Litigation
(b) (5)

Renewable Energy Policy Group
(b) (5)

TRANSMISSION

(b) (5)

nonresponsive

Black, Steve <steve_black@ios.doi.gov>

Weekly report

1 message

Black, Steve <steve_black@ios.doi.gov> Fri, Mar 29, 2013 at 10:37 AM
To: Weekly Reports OS <WeeklyReports@ios.doi.gov>, "Anderson, James E" <james_anderson@ios.doi.gov>
Cc: Ruchi Sadhir <Ruchi_Sadhir@ios.doi.gov>, Neal Kemkar <Neal_Kemkar@ios.doi.gov>, Scott Haase <Scott_Haase@ios.doi.gov>

Attached. Thanks all for your good work this week and for your help with this report.

--
Steve Black
Counselor to the Secretary
U.S. Department of the Interior
1849 C Street, N.W., MS 7229
Washington, D.C. 20240
Phone: 202-208-4123
Fax: 202-208-4561
e-mail: steve_black@ios.doi.gov

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Eagle Conservation Plan Guidance
Module 1 – Land-based Wind Energy
Version 2

U.S. Fish and Wildlife Service
Division of Migratory Bird Management

July 2012

Table of Contents

Disclaimer

This Eagle Conservation Plan Guidance is not intended to, nor shall it be construed to, limit or preclude the Service from exercising its authority under any law, statute, or regulation, or from taking enforcement action against any individual, company, or agency. This Guidance is not meant to relieve any individual, company, or agency of its obligations to comply with any applicable Federal, state, tribal, or local laws, statutes, or regulation. This Guidance by itself does not prevent the Service from referring cases for prosecution, whether a company has followed it or not.

EXECUTIVE SUMMARY

1. Overview

Of all America's wildlife, eagles hold perhaps the most revered place in our national history and culture. The United States has long imposed special protections for its bald and golden eagle populations. Now, as the nation seeks to increase its production of domestic energy, wind energy developers and wildlife agencies have recognized a need for specific guidance to help make wind energy facilities compatible with eagle conservation and the laws and regulations that protect eagles.

To meet this need, the U.S. Fish and Wildlife Service (Service) has developed the Eagle Conservation Plan Guidance (ECPG). This document provides specific in-depth guidance for conserving bald and golden eagles in the course of siting, constructing, and operating wind energy facilities. The ECPG guidance supplements the Service's Land-Based Wind Energy Guidelines (WEG). WEG provides a broad overview of wildlife considerations for siting and operating wind energy facilities, but does not address the in-depth guidance needed for the specific legal protections afforded to bald and golden eagles. The ECPG fills this gap.

Like the WEG, the ECPG recommends that wind project developers take a staged approach to siting new projects. Both recommend preliminary landscape-level assessments to assess potential wildlife interactions and proceed to site-specific surveys and risk assessments prior to construction. They also recommend for monitoring project operations and reporting eagle fatalities to the Service and state and tribal wildlife agencies.

While the provisions in the ECPG are voluntary, the Service believes that following the guidance will help project operators in complying with regulatory requirements and avoiding the unintentional "take" of eagles at wind energy facilities, and will also assist the wind energy industry in providing the biological data and risk assessments needed to support permit applications for facilities that may pose a risk to eagles.

2. The Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (BGEPA) is the primary law protecting eagles. BGEPA prohibits "take" of eagles without a permit (16 USC 668-668c). BGEPA defines "take" to include "pursue, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb," and prohibits take of individuals and their parts, nests, or eggs. The Service expanded this definition by regulation to include the term "destroy" to ensure that "take" includes destruction of eagle nests. The term "disturb" is further defined by regulation as "to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause,….injury to an eagle, a decrease in productivity, or nest abandonment" (50 CFR 22.3).

3. Risks to Eagles from Wind Energy Facilities

Wind energy development can affect eagles in a variety of ways. First, eagles can be killed by colliding with structures such as wind turbines. This is the primary threat to eagles from wind facilities, and the ECPG guidance is primarily aimed at this threat. Second, disturbance from pre-construction, construction, or operation and maintenance activities might disturb eagles at concentration sites or and result in loss of productivity at nearby nests. Third, serious disturbance or mortality effects could result in the permanent or long term loss of a nesting territory. (b) (5) [redacted] Additionally, disturbances near important eagle use areas or migration concentration sites might stress eagles so much that they suffer reproductive failure or mortality elsewhere, to a degree that could amount to prohibited take.

4. Eagle Take Permits

The Service recognizes that wind energy facilities, even those developed and operated with the utmost effort to conserve wildlife, may under some circumstances result in the "take" of eagles under BGEPA. However, in 2009, the Service promulgated new permit rules for eagles that address this issue (50 CFR 22.26 and 22.27).

Under these new rules the Service can issue permits that authorize individual instances of take of bald and golden eagles when the take is associated with, but not the purpose of, an otherwise lawful activity, and cannot practicably be avoided. The regulations also authorize permits for "programmatic" take, which means that instances of "take" may not be isolated, but may recur. The programmatic take permits are the most germane permits for wind energy facilities. However, under these regulations, any ongoing or programmatic take must be unavoidable even after the implementation of advanced conservation practices (ACPs).

5. Voluntary Nature of the ECPG

Wind project operators are not legally required to seek or obtain an eagle take permit. However, the unintentional take of an eagle without a permit is a violation of BGEPA, and could result in prosecution. The methods and approaches suggested in the ECPG are not mandatory to obtain an eagle take permit. The Service will accept other approaches that provide the information and data required by the regulations. However, Service employees who process eagle take permit applications are trained in the methods and approaches covered in the ECPG. Using other methodologies may result in longer application processing times.

6. Eagle Take Thresholds

Eagle take permits may be issued only in compliance with the conservation standards of BGEPA. This means that the take must be compatible with the preservation of each species, defined (in USFWS 2009a) as "consistent with the goal of stable or increasing breeding populations."

To ensure that any authorized "take" of eagles does not exceed this standard, the Service has set regional take thresholds for each species, using methodology contained in the National Environmental Policy Act (NEPA) Final Environmental Assessment (FEA) developed for the new eagle permit rules (USFWS 2009b). The Service looked at regional populations of eagles and set take thresholds for each species (upper limits on the number of eagle mortalities that can be allowed under permit each year in these regional management areas).

The analysis identified take thresholds greater than zero for bald eagles in most regional management areas. However, the Service determined that golden eagle populations might not be able to sustain any additional unmitigated mortality at that time, and set the thresholds for this species at zero for all regional populations. This means that any new authorized "take" of golden eagles must be at least equally offset by compensatory mitigation (specific conservation actions to replace or offset project-induced losses).

The Service also put in place measures to ensure that local eagle populations are not depleted by take that would be otherwise regionally acceptable. The Service specified that take rates must be carefully assessed, both for individual projects and for the cumulative effects of other activities causing take, at the scale of the local-area eagle population (a population within a distance of 43 miles for bald eagles and 140 miles for golden eagles). This distance is based on the median distance to which eagles disperse from the nest where they are hatched to where they settle to breed.

The Service identified take rates of between 1 and 5 percent of the total estimated local-area eagle population as significant, with 5 percent being at the upper end of what might be appropriate under the BGEPA preservation standard, whether offset by compensatory mitigation or not. Appendix F provides a full description of take thresholds and benchmarks, and provides suggested tools for evaluating how these apply to individual projects.

7. An Approach for Developing and Evaluating Eagle ACPs

Permits for eagle take at wind-energy facilities are programmatic in nature as they will authorize recurring take rather than isolated incidences of take. For programmatic take permits, the regulations require that any authorized take must be unavoidable after the implementation of advanced conservation practices (ACPs). ACPs are defined as "scientifically supportable measures that are approved by the Service and represent the best available techniques to reduce eagle disturbance and ongoing mortalities to a level where remaining take is unavoidable" (50 CFR 22.3).

The best information currently available indicates there are no conservation measures that have been scientifically shown to reduce eagle disturbance and blade-strike mortality at wind projects. Therefore, the Service has not currently approved any ACPs for wind energy projects. Despite the current lack of formally approved ACPs, there may be other conservation measures based on the best available scientific information that should be

applied as a condition on programmatic eagle take permits for wind-energy facilities. (b) (5) [redacted]

The process of developing ACPs for wind energy facilities has been hampered by the lack of standardized scientific study of potential ACPs. The Service has determined that the best way to obtain the needed scientific information is to work with industry to develop ACPs for wind projects as part of an adaptive-management regime and comprehensive research program tied to the programmatic-take-permit process. In this scenario, ACPs will be implemented at operating wind facilities with an eagle take permit on an "experimental" basis (the ACPs are considered experimental because they would not meet the definition of an ACP in the eagle permit regulation). The experimental ACPs would be scientifically evaluated for their effectiveness, as described in detail in this document, and based on the results of these studies, could be modified in an adaptive management regime. This approach should provide the needed scientific information for the future establishment of formal ACPs, while enabling wind energy facilities to move forward in the interim.

(b) (5) [redacted] a project developer or operator will be expected to implement any reasonable avoidance and minimization measures that may reduce take of eagles at a project. In addition, the Service and the project developer or operator would identify other site-specific and possibly turbine-specific factors that may pose risks to eagles, and agree on the potential future experimental ACPs to avoid and minimize those risks. Unless the Service determines that there is a reasonable scientific basis to implement prospective ACPs up front (or it is otherwise advantageous to the developer to do so), we recommend that such potentially costly measures be deferred until such time as there is eagle take at the facility and the circumstances and evidence suggest the prospective ACPs might be warranted. (b) (5) [redacted]

Because the ACPs would be experimental, the Service recommends that they be subject to a cost cap that the Service and the project developer or operator would establish as part of the initial agreement before issuance of an eagle permit. This would provide a degree of financial certainty as to what the costs of such measures might be. The amount of the cap should be proportional to overall risk.

As the results from monitoring experimental ACPs across a number of facilities accumulate and are analyzed, scientific information in support of certain experimental ACPs may accrue, whereas other ACPs may show little value in reducing take. If the Service determines that the available science demonstrates an experimental ACP is effective in reducing eagle take, the Service will approve that ACP and require its implementation up front on new applications when and where warranted.

As the ECPG evolves, the Service would not expect project developers or operators to retroactively redo analyses or surveys using the new approaches. The adaptive approach

to the ECPG should not deter project developers or operators from using the ECPG immediately.

8. Mitigation Actions to Reduce Effects on Eagle Populations

(b) (5) [redacted] where wind energy facilities cannot avoid taking eagles and eagle populations are not healthy enough to sustain additional mortality, applicants must reduce the unavoidable mortality to a no-net-loss standard for the duration of the permitted activity. No-net-loss means that these actions either reduce another ongoing form of mortality to a level equal to or greater than the unavoidable mortality, or lead to an increase in carrying capacity that allows the eagle population to grow by an equal or greater amount. Actions to reduce eagle mortality or increase carrying capacity to this no-net-loss standard are known as "compensatory mitigation" in the ECPG. Examples of compensatory mitigation activities might include retrofitting power lines to reduce eagle electrocutions, removing road-killed animals along roads where vehicles hit and kill scavenging eagles, or increasing prey availability.

Additional types of mitigation such as preserving habitat – actions that would not by themselves lead to increased numbers of eagles but would assist eagle conservation – may also be advised to offset other detrimental effects of permits on eagles. Compensatory mitigation is further discussed below (Stage 4 – Avoidance and Minimization of Risk and Compensatory Mitigation).

9. Relationship of Eagle Guidelines (ECPG) to the Wind Energy Guidelines (WEG)

The ECPG is intended to be implemented in conjunction with other actions recommended in the WEG that assess impacts to wildlife species and their habitats. The WEG recommends a five-tier process for such assessments, and the ECPG fits within that framework. The ECPG focuses on eagles to facilitate collection of information that could support an eagle take permit decision. The ECPG uses a five-stage approach like the WEG; the relationship between the ECPG stages and the WEG tiers is shown in Fig. 1.

Tiers 1 and 2 of the WEG (Stage 1 of the ECPG) could provide sufficient evidence to demonstrate that a project poses very low risk to eagles. Provided this assessment is robust, eagles may not warrant further consideration in subsequent WEG tiers, and Stages 2 through 5 of the ECPG and pursuit of an eagle take permit might be unnecessary. A similar conclusion could be reached at the end of Stage 2, 3, or 4.

The following sections describe the general approach envisioned for assessing wind project impacts to eagles (also see the Stage Overview Table at the end of the Executive Summary).

Tiers 1 and 2 of the WEG, Stage 1 of the ECPG

Tier 1 of the WEG is the preliminary site evaluation (landscape-scale screening of possible project sites). Tier 2 is site characterization (broad characterization of one or

more potential project sites). These correspond with Stage 1 of the ECPG, the site-assessment stage. As part of the Tiers 1 and 2 process, project developers should carry out Stage 1 of the ECPG and evaluate broad geographic areas to assess the relative importance of various areas to resident breeding and non-breeding eagles, and to migrant and wintering eagles. During Stage 1, the project developer or operator should gather existing information from publicly available literature, databases, and other sources, and use those data to judge the appropriateness of various potential project sites, balancing suitability for development with potential risk to eagles.

To increase the probability of meeting the regulatory requirements for a programmatic take permit, biological advice from the Service and other jurisdictional wildlife agencies should be requested as early as possible in the developer's planning process and should be as inclusive as possible to ensure all issues are being addressed at the same time and in a coordinated manner. Ideally, consultation with the Service, and state and tribal wildlife agencies is done before wind developers make any substantial financial commitment or finalize lease agreements.

Tier 3 of the WEG, Stages 2, 3, and 4 of the ECPG

During Tier 3 of the WEG, a developer conducts field studies to document wildlife use and habitat at the project site and predict project impacts. These site-specific studies are critical to evaluating potential impacts to all wildlife including eagles. The developer and the Service would use the information collected to support an eagle take permit application, should the developer seek a permit. As part of Tier 3, the ECPG recommends project developers or operators implement three stages of assessment for eagles:

- Stage 2 - site-specific surveys and assessments;
- Stage 3 - predicting eagle fatalities; and
- Stage 4 – avoidance and minimization of risk and compensatory mitigation.

Stage 2 – Site Specific Surveys and Assessments

During Stage 2 the Service recommends the project developer collect quantitative data through scientifically rigorous surveys designed to assess the potential risk of the proposed project to eagles. The Service recommends collecting information that will allow estimation of the eagle exposure rate (eagle-minutes flying within the project footprint per hour per kilometer^2), as well as surveys sufficient to determine if important eagle use areas or migration concentration sites are within or in close proximity to the project footprint (see Appendix C). In the case of small wind projects (one utility-scale turbine or a few small turbines), the project developer should consider the proximity of eagle nesting and roosting sites to a proposed project and discuss the results of the Stage 1 assessment with the Service to determine if Stage 2 surveys are necessary. In many cases the hazardous area associated with such projects will be small enough that Stage 2 surveys will not be necessary.

Stage 3 – Predicting Eagle Fatalities

In Stage 3, the Service and project developers or operators use data from Stage 2 in models to predict eagle risk expressed as the average number of fatalities per year extrapolated to the tenure of the permit. These models can compare alternative siting, construction, and operational scenarios, a useful feature in constructing hypotheses regarding predicted effects of conservation measures and experimental ACPs. The Service encourages project developers or operators to use the recommended pre-construction survey protocol in this ECPG in Stage 2 to help inform our predictive models in Stage 3. If Service-recommended survey protocols are used, this risk assessment can be greatly facilitated using model tools available from the Service. If project developers or operators use other forms of information for the Stage 2 assessment, they would need to fully describe those methods and the analysis used for the eagle risk assessment. The Service would require more time to evaluate and review the data because, for example, the Service would need to compare the results of the project developer or operator's eagle risk assessment with predictions from our models. If the results differ, we would work with the project developers or operators to determine which model results are most appropriate for the Service's eventual permitting decisions.

The Service and project developers or operators also evaluate Stage 2 data to determine whether disturbance take is likely, and if so, at what level. Any loss of production that may stem from disturbance should be added to the fatality rate prediction for the project. The risk assessments at Stage 2 and Stage 3 are consistent with developing the information necessary to assess the efficacy of conservation measures, and to develop the monitoring required by the permit regulations at 50 CFR 22.26(c)(2).

Stage 4 - Avoidance and Minimization of Risk and Compensatory Mitigation.

In Stage 4 the information gathered should be used by the project developer or operator and the Service to determine potential conservation measures and ACPs (if available) to avoid or minimize predicted risks at a given site (see Appendix E). The Service will compare the initial predictions of eagle mortality and disturbance for the project with predictions that take into account proposed and potential conservation measures and ACPs, once developed and approved, to determine if the project developer or operator has avoided and minimized risks to the maximum degree achievable, thereby meeting the requirements for programmatic permits that remaining take is unavoidable. Additionally, the Service will use the information provided along with other data to conduct a cumulative effects analysis to determine if the project's impacts, in combination with other permitted take and other known factors, are at a level that exceed the established thresholds or benchmarks for eagle take at the regional and local-area scales. This final eagle risk assessment is completed at the end of Stage 4 after application of conservation measures and ACPs (if available) along with a plan for compensatory mitigation if required.

The eagle permit process requires compensatory mitigation if conservation measures do not remove the potential for take, and the projected take exceeds calculated thresholds for

the eagle management unit in which the project is located. However, there may also be other situations in which compensatory mitigation is necessary. The following guidance applies to those situations as well.

Compensatory mitigation can address pre-existing causes of eagle mortality (such as eagle electrocutions from power poles) or it can address increasing the carrying capacity of the eagle population in the affected eagle management unit. However, there needs to be a credible analysis that supports the conclusion that implementing the compensatory mitigation action will achieve the desired beneficial offset in mortality or carrying capacity.

For new wind development projects, if compensatory mitigation is necessary, the compensatory mitigation action (or a verifiable, legal commitment to such mitigation) will be required up front before project operations begin because projects must meet the statutory eagle preservation standard before the Service may issue a permit. For operating projects, compensatory mitigation should be applied from the start of the permit period, not retroactively from the time the project began. The initial compensatory mitigation effort should be sufficient to offset the predicted number of eagle fatalities per year for five years. No later than at the end of the five year period, the Service and the project operator will compare the predicted annual take estimate to the realized take based on post-construction monitoring. (b) (5) [redacted] f the observed take was less than estimated, the permittee will receive a credit for the excess compensation (the difference between the actual mean and the number compensated for) that can be applied to other take (either by the permittee or other permitted individuals at his/her discretion) within the same eagle management unit. The Service, in consultation with the permittee, will determine compensatory mitigation for future years for the project at this point, taking into account the observed levels of mortality and any reduction in that mortality that is expected based on implementation of additional experimental conservation measures and ACPs. Monitoring using the best scientific and practicable methods available should be included to determine the effectiveness of the resulting compensatory mitigation efforts. The Service would modify the compensatory mitigation process to adapt to any improvements in our knowledge base as new data become available.

At the end of Stage 4, all the materials necessary to satisfy the regulatory requirements to support a permit application should be available. While a project operator can submit a permit application at any time, the Service recommends that Stage 4 be completed before initiating the formal process to determine whether a programmatic eagle take permit can be issued. Ideally, National Environmental Policy Act (NEPA) and National Historic Preservation Act (NHPA) analyses and assessments will already be underway, but if not, Stage 4 should include necessary NEPA analysis, NHPA compliance, coordination with other jurisdictional agencies, and tribal consultation.

Tier 4 and 5 of the WEG, Stage 5 of the ECPG

If the Service issues an eagle take permit and the project goes forward, project operators will conduct post-construction surveys to collect data that can be compared with the pre-construction risk-assessment predictions for eagle fatalities and disturbance. The monitoring protocol should include validated techniques for assessing both mortality and disturbance effects, and they must meet the permit-condition requirements at 50 CFR 22.26(c)(2). In most cases, intensive monitoring will be conducted for at least the first two years after permit issuance, followed by less intense monitoring for up to three years after the expiration date of the permit. Project developers or operators should use the post-construction survey protocols included or referenced in this ECPG, but we will consider other monitoring protocols provided by permit applicants though the process will likely take longer than if familiar approaches were used. The Service will use the information from post-construction monitoring in a meta-analysis framework to weight and improve pre-construction predictive models.

Additionally in Stage 5, the Service and project developers or operators should use the post-construction monitoring data to (1) assess whether compensatory mitigation is adequate, excessive, or deficient to offset observed mortality, and make adjustments accordingly; and (2) explore operational changes that might be warranted at a project after permitting to reduce observed mortality and meet permit requirements.

9. Site Categorization Based on Mortality Risk to Eagles

Beginning at the end of Stage 1, and continuing at the end of Stages 2, 3, and 4, we recommend the approach outlined below be used to assess the likelihood that a wind project will likely take eagles, and if so, that the project will meet standards in 50 CFR 22.26 for issuance of a programmatic eagle take permit.

Category 1 – High risk to eagles, potential to avoid or mitigate impacts is low

A project is in this category if it:
(1) has an important eagle-use area or migration concentration site within the project footprint; or
(2) has an annual eagle fatality estimate (average number of eagles predicted to be taken annually) > 5% of the estimated local-area population size; or
(3) causes the cumulative annual take for the local-area population to exceed 5% of the estimated local-area population size.

In addition, projects that have eagle nests within ½ of the mean project-area inter-nest distance of the project footprint should be carefully evaluated. If it is likely eagles occupying these territories use or pass through the project footprint, category 1 designation may be appropriate.

Projects or alternatives in category 1 should be substantially redesigned to at least meet the category 2 criteria. The Service recommends that project developers not build projects at sites in category 1 because the project would likely not meet the regulatory

requirements. The recommended approach for assessing the percentage of the local-area population predicted to be taken is described in Appendix F.

Category 2 – High or moderate risk to eagles, opportunity to mitigate impacts

A project is in this category if it:

(1) has an important eagle-use area or migration concentration site within the project area but not in the project footprint; or
(2) has an annual eagle fatality estimate between 0.03 eagles per year and 5% of the estimated local-area population size; or
(3) causes cumulative annual take of the local-area population of less than 5% of the estimated local-area population size.

Projects in this category will potentially take eagles at a rate greater than is consistent with maintaining stable or increasing populations, but the risk might be reduced to an acceptable level through a combination of conservation measures and reasonable compensatory mitigation. These projects have a risk of ongoing take of eagles, but this risk can be minimized. For projects in this category the project developer or operator should prepare an Eagle Conservation Plan (ECP) or similar plan to document meeting the regulatory requirements for a programmatic permit. The ECP or similar document can be a stand-alone document, or part of a larger bird and bat strategy as described in the WEG, so long as it adequately meets the regulatory requirements at 50 CFR 22.26 to support a permit decision. For eagle management populations where take thresholds are set at zero, the conservation measures in the ECP should include compensatory mitigation and must result in no-net-loss to the breeding population to be compatible with the permit regulations. This does not apply to golden eagles east of the 100th meridian, for which no non-emergency take can presently be authorized (USFWS 2009b).

Category 3 – Minimal risk to eagles

A project is in this category if it:
(1) has no important eagle use areas or migration concentration sites within the project area; and
(2) has an annual eagle fatality rate estimate of less than 0.03; and
(3) causes cumulative annual take of the local-area population of less than 5% of the estimated local-area population size.

Projects in category 3 pose little risk to eagles and may not require or warrant eagle take permits, but that decision should be made in coordination with the Service. Still, a project developer or operator may wish to create an ECP or similar document or strategy that documents the project's low risk to eagles, and outlines mortality monitoring for eagles and a plan of action if eagles are taken during project construction or operation. (b)(5)
[redacted]

The risk category of a project can potentially change as a result of additional site-specific analyses and application of measures to reduce the risk. For example, a project may appear to be in category 2 as a result of Stage 1 analyses, but after collection of site-specific information in Stage 2 it might become clear it is a category 1 project. If a project cannot practically be placed in one of these categories, the project developer or operator and the Service should work together to determine if the project can meet programmatic eagle take permitting requirements in 50 CFR 22.26 and 22.27. Projects should be placed in the highest category (with category 1 being the highest) in which one or more of the criteria are met.

10. Addressing Uncertainty

> There is substantial uncertainty surrounding the risk of wind projects to eagles, and of ways to minimize that risk. For this reason, the Service stresses that it is very important not to underestimate eagle fatality rates at wind facilities. Overestimates, once confirmed, can be adjusted downward based on post-construction monitoring information with no consequence to eagle populations. Project developers or operators can trade or be credited for excess compensatory mitigation, and debits to regional and local-area eagle-take thresholds and benchmarks can be adjusted downwards to reflect actual fatality rates. However, the options for addressing underestimated fatality rates are extremely limited, and pose either potential hardships for wind developers (curtailment of operations, requiring additional compensatory mitigation, or rescinding the permit) or significant risks to eagle populations (excessive mortality over the 20- to 30-year life of a wind project).

(b) (5)

Our long-term approach for moving forward in the face of this uncertainty is to implement eagle take permitting in a formal adaptive management framework. The Service anticipates four specific sets of adaptive management decisions: (1) adaptive management of wind project siting and design recommendations; (2) adaptive management of wind project operations; (3) adaptive management of compensatory mitigation; and (4) adaptive management of population-level take thresholds. These are discussed in more detail in Appendix A. The adaptive management process will depend heavily on pre- and post-construction data from individual projects, but analyses, assessment, and model evaluation will rely on data pooled over many individual wind projects. Learning accomplished through adaptive management will be rapidly incorporated into the permitting process so that the regulatory process adjusts in proportion to actual risk.

11. Interaction with the Service

The Service encourages early, frequent and thorough coordination between project developers or operators and Service and other jurisdictional-agency employees as they implement the tiers of the WEG, and the related Stages of the ECPG. Close coordination will aid the refinement of the modeling process used to predict fatalities, as well as the post-construction monitoring to evaluate those models. We anticipate the ECPG and the

recommended methods and metrics will evolve as the Service and project developers or operators learn together. The Service has created a cross-program, cross-regional team of biologists who will work jointly on eagle-programmatic-take permit applications to help ensure consistency in administration and application of the Eagle Permit Rule. This close coordination and interaction is especially important as the Service processes the first group of programmatic eagle take permit applications.

The Service will continue to refine this ECPG with input from all stakeholders with the objective of maintaining stable or increasing breeding populations of both bald and golden eagles while simultaneously developing science-based eagle-take regulations and procedures that are appropriate to the risk associated with each wind energy project.

Stage Overview Table - Overview of staged approach to developing an Eagle Conservation Plan as described in the ECPG. Stages are in chronological order. Stage 5 would only be applicable in cases where a permit was issued at the end of Stage 4.

Stage	Objective	Actions	Data Sources
1	At the landscape level, identify potential wind facility locations with manageable risk to eagles.	Broad, landscape-scale evaluation.	Technical literature, agency files, on-line biological databases, data from nearby projects, industry reports, geodatabases, experts.
2	Obtain site-specific data to predict eagle fatality rates and disturbance take at wind-facility sites that pass Stage 1 assessment. Investigate other aspects of eagle use to consider assessing distribution of occupied nests in the project area, migration, areas of seasonal concentration, and intensity of use across the project footprint.	Site-specific surveys and intensive observation to determine eagle exposure rate and distribution of use in the project footprint, plus locations of occupied eagle nests, migration corridors and stopover sites, foraging concentration areas, and communal roosts in the project area.	Project footprint: 800-m radius point count surveys and utilization distribution studies. Project area: nest surveys, migration counts at likely topographic features, investigation of use of potential roost sites and of areas of high prey availability. Ideally conducted for no less than 2 years pre-construction.
3	As part of pre-construction monitoring and assessment, estimate the fatality rate of eagles for the facility evaluated in Stage 2, excluding possible additions of conservation measures and advanced conservation practices (ACPs). Consider possible disturbance effects.	Use the exposure rate derived from Stage 2 data in Service-provided models to predict the annual eagle fatality rate for the project. Determine if disturbance effects are likely and what they might be.	Point count, nest, and eagle concentration area data from Stage 2.
4	As part of the pre-construction assessment, identify and evaluate conservation measures and ACPs that might avoid or	Re-run fatality prediction models with risk adjusted to reflect application of conservation measures and	Fatality estimates before and after application of conservation measures and ACPs, using point count data

	minimize fatalities and disturbance effects identified in Stage 3. When necessary, identify compensatory mitigation to reduce predicted take to a no-net-loss standard.	ACPs to determine fatality estimate (80% upper confidence limit or equivalent). Calculate required compensatory mitigation amount where necessary, considering disturbance effects, if any. Identify actions needed to accomplish compensatory mitigation.	from Stage 2. Estimates of disturbance effects from Stage 3.
Permit Decision	Determine if regulatory requirements for issuance of a permit have been met.	The Service will issue or deny the permit request based on an evaluation of the ECP or other form of application.	Data from Stages 1, 2, 3 and 4; results of NEPA analysis; and considering information obtained during tribal consultation and through coordination with the states and other jurisdictional agencies.
5	During post-construction monitoring, document mean annual eagle fatality rate and effects of disturbance. Determine if initial conservation measures and ACPs are working and should be continued, and if additional conservation measures might reduce observed fatalities. Monitor effectiveness of compensatory mitigation. Ideally, assess use of area by eagles for comparison to pre-construction levels.	Conduct fatality monitoring in project footprint. Monitor activity of eagles that may be disturbed at nest sites, communal roosts, and/or major foraging sites. Ideally, monitor eagle use of project footprint via point counts, migration counts, and/or intensive observation of use distribution.	Post-construction survey database for fatality monitoring, Comparable pre- and post-construction data for selected aspect of eagle use of the project footprint and adjoining areas. All post-construction surveys should be conducted for at least 2 years, and targeted thereafter to assess effectiveness of any experimental conservation measures or ACPs.

INTRODUCTION AND PURPOSE

The mission of the Service is working with others to conserve, protect and enhance fish, wildlife, plants and their habitats for the continuing benefit of the American people. As part of this, we are charged with implementing statutes including the BGEPA, MBTA, and ESA. BGEPA prohibits all take of eagles unless otherwise authorized by the Service. A goal of BGEPA is to ensure that any authorized take of bald and golden eagles is compatible with their preservation, which the Service has interpreted to mean allowing take that is consistent with the goal of stable or increasing breeding populations. In 2009, the Service promulgated regulations authorizing issuance of permits for non-purposeful take of eagles; the ECPG is intended to promote compliance with BGEPA with respect to such permits by providing recommended procedures for:

(1) conducting early pre-construction assessments to identify important eagle use areas;
(2) analyzing pre-construction information to estimate potential impacts on eagles;
(3) avoiding, minimizing, and/or compensating for potential adverse effects to eagles; and
(4) monitoring for impacts to eagles during construction and operation.

The ECPG calls for scientifically rigorous surveys, monitoring, risk assessment, and research designs proportionate to the risk to both bald and golden eagles. The ECPG describes a process by which wind energy developers, operators, and their consultants can collect and analyze information that could lead to a programmatic permit to authorize unintentional take of eagles at wind energy facilities. The processes described here is not required, but project developers or operators should coordinate closely with the Service if they plan to use an alternative approach to meet the regulatory requirements for a permit.

1. Purpose

The Service published a final rule (Eagle Permit Rule) on September 11, 2009 under BGEPA (50 CFR 22.26) authorizing limited issuance of permits to take bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*) ‘‘for the protection of . . . other interests in any particular locality’’ where the take is compatible with the preservation of the bald eagle and the golden eagle, is associated with and not the purpose of an otherwise lawful activity, and cannot practicably be avoided (USFWS 2009a). The ECPG explains the Service’s approach to issuing programmatic eagle take permits for wind energy projects under this authority, and provides guidance to permit applicants (project developers or operators), Service biologists, and biologists with other jurisdictional agencies (state and tribal fish and wildlife agencies, in particular) on the development of *Eagle Conservation Plans* (ECPs) to support permit issuance.

Since finalization of the Eagle Permit Rule, the development and planned development of wind facilities (developments for the generation of electricity from wind turbines) have increased in the range of the golden eagle in the western United States. Golden eagles are vulnerable to collisions with wind turbines (Hunt 2002), and in some areas such collisions could be a major source of mortality (Hunt *et al.* 1999, 2002; USFWS unpublished data). Although significant numbers of bald eagle mortalities have not yet been reported at North American wind facilities, deaths have occurred at more than one location (USFWS, unpublished data), and the closely related and behaviorally similar

white-tailed eagle (*Haliaeetus albicilla*) has been killed regularly at wind facilities in Europe (Krone 2003, Cole 2009, Nygård *et al.* 2010). Because of this risk to eagles, many of the current and planned wind facilities require permits under the Eagle Permit Rule to be in compliance with the law if and when an eagle is taken at that facility. In addition to being legally necessary to comply with BGEPA and 50 CFR 22.26, the conservation practices necessary to meet standards required for issuance of these permits should offset the short- and long-term negative effects of wind energy facilities on eagle populations. Because of the urgent need for guidance on permitting eagle take at wind facilities, this initial module focuses on this issue. Many of the concepts and approaches outlined in this module can be readily exported to other situations (*e.g.*, solar facilities, electric power lines), and the Service expects to release other modules in the future specifically addressing other sources of eagle take.

The ECPG is intended to provide interpretive guidance to Service biologists and others in applying the regulatory permit standards as specified in the rule. They do not in-and-of themselves impose additional regulatory or generally-binding requirements. An ECP *per se* is not required, even to obtain a programmatic eagle take permit. As long as the permit application is complete and includes the information necessary to evaluate a permit application under 50 CFR 22.26 or 22.27, the Service will review the application and make a determination if a permit will be issued. However, Service personnel will be trained in the application of the procedures and approaches outlined in the ECPG, and developers who choose to use other approaches should expect the review time on the part of the Service to be longer. The Service recommends that the basic format for the ECP be followed to allow for expeditious consideration of the application materials.

Preparation of an ECP and consultation with the Service are voluntary actions on the part of the developer. There is no legal requirement that wind developers apply for or obtain an eagle take permit, so long as the project does not result in take of eagles. However, take of an eagle without an eagle take permit is a violation of BGEPA, so the developer or operator must weigh the risks in his/her decision. The Service is available to consult with the developer or operator as he/she makes that decision.

The ECPG is written to guide wind-facility projects starting from the earliest conceptual planning phase. For projects already in the development or operational phase, implementation of all stages of the recommended approach in the ECPG may not be applicable or possible. Project developers or operators with operating or soon-to-be operating facilities and who are interested in obtaining a programmatic eagle take permit should coordinate with the Service. The Service will work with project developers or operators to determine if the project might be able to meet the permit requirements in 50 CFR 22.26 by conducting eagle fatality and disturbance monitoring, by agreeing to adopt reasonable operational avoidance and minimization measures that might reduce the eagle fatalities detected through monitoring, and by implementing any necessary compensatory mitigation. Sections of the ECPG that address these topics are relevant to both planned and operating wind facilities.

The ECPG is designed to be compatible with the more general guidelines provided in the *U.S. Fish and Wildlife Service Land-based Wind Energy Guidelines* (WEG) http://www fws.gov/habitatconservation/windpower/wind_turbine_advisory_committee.html. However, because the ECPG describes actions which help to comply with the regulatory requirements in BGEPA for an eagle take permit as described in 50 CFR 22.26 and 22.27, they are more specific. The Service will make every effort to ensure the work and timelines for both processes are as congruent as possible.

2. Legal Authorities and Relationship to Other Statutes and Guidelines

There are several laws that must be considered for compliance during eagle take permit application review under the 50 CFR 22.26 and 22.27 regulations: BGEPA, MBTA, ESA, the National Environmental Policy Act (NEPA) (42 U.S.C. 4321 *et. seq.*), and the National Historic Preservation Act (NHPA) (16 U.S.C. 470 *et seq.*). BGEPA is the primary law protecting eagles. BGEPA defines "take" to include "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb" and prohibits take of individuals, and their parts, nests, or eggs (16 USC 668 & 668c). The Service expanded this definition by regulation to include the term "destroy" to ensure that "take" includes destruction of eagle nests (50 CFR 22.3). The term "disturb" is defined by regulation at 50 CFR 22.3 as "to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, …injury to an eagle, a decrease in productivity, or nest abandonment…" (USFWS 2007). A goal of BGEPA is to ensure that any authorized take is compatible with eagle preservation, which the Service has interpreted to mean it can authorize take that is consistent with the goal of stable or increasing breeding populations of bald and golden eagles (USFWS 2009b).

In 2009, two new permit rules were created for eagles. Under 50 CFR 22.26, the Service can issue permits that authorize individual instances of take of bald and golden eagles when the take is associated with, but not the purpose of an otherwise lawful activity, and cannot practicably be avoided. The regulation also authorizes ongoing or programmatic take, but requires that any authorized programmatic take be unavoidable after implementation of advanced conservation practices. Under 50 CFR 22.27, the Service can issue permits that allow the intentional take of eagle nests where necessary to alleviate a safety emergency to people or eagles, to ensure public health and safety, where a nest prevents use of a human-engineered structure, and to protect an interest in a particular locality where the activity or mitigation for the activity will provide a net benefit to eagles. Only inactive nests are allowed to be taken except in cases of safety emergencies.

The new Eagle Permit Rule provides a mechanism where the Service may legally authorize the non-purposeful take of eagles. However, BGEPA provides the Secretary of the Interior with the authority to issue eagle take permits only when the take is compatible with the preservation of each species, defined in USFWS (2009a) as "…consistent with the goal of stable or increasing breeding populations." The Service ensures that any take it authorizes under 50 CFR 22.26 does not exceed this preservation standard by setting regional take thresholds for each species determined using the methodology contained in the NEPA Final Environmental Assessment (FEA) developed

for the new permit rules (USFWS 2009b). The details and background of the process used to calculate these take thresholds are presented in the FEA (USFWS 2009b). It is important to note that the take thresholds for regional eagle management populations (eagle management units) and the process by which they are determined are derived independent from this or any other ECPG module.

Many states and tribes have regulations that protect eagles, and may require permits for purposeful and non-purposeful take. Project developers or operators should contact all pertinent state and tribal fish and wildlife agencies at the earliest possible stage of project development to ensure proper coordination and permitting. The Service will coordinate our programmatic take permits with all such jurisdictional agencies.

Wind projects that are expected to cause take of endangered or threatened wildlife species should still receive incidental take authorizations under sections 7 or 10 of ESA in order to ensure compliance with Federal law. A project developer or operator seeking an Incidental Take Permit (ITP) through the ESA section 10 Habitat Conservation Plan (HCP) process may be issued an ITP only if the permitted activity is otherwise lawful (section 10(a)(1)(B)). If the project and covered activities in the HCP are likely to take bald or golden eagles, the project proponent should obtain a BGEPA permit or include the bald or golden eagle as a covered species in the HCP in order for the activity to be lawful in the event that eagles are taken. When bald or golden eagles are covered in an HCP and ITP, the take is authorized under BGEPA even if the eagle species is not listed under the ESA (see 50 CFR 22.11(a)).

If bald or golden eagles are included as covered species in an HCP, the avoidance, minimization, and other mitigation measures in the HCP must meet the BGEPA permit issuance criteria of 50 CFR 22.26, and include flexibility for adaptive management. If take of bald or golden eagles is likely but the project developer or operator does not qualify for eagle take authorization (or chooses not to request such authorization), an ITP may be issued in association with the proposed HCP. The project proponent must be advised, in writing, that bald or golden eagles would not be included as covered species and take of bald eagles or golden eagles would not, therefore, be authorized under the incidental take permit. The project developer or operator must also be advised that the incidental take permit would be subject to suspension or revocation if take of bald eagles or golden eagles should occur.

In addition to ESA, wind project developers or operators need to address take under MBTA. MBTA prohibits the taking, hunting, killing, pursuit, capture, possession, sale, barter, purchase, transport, and export of migratory birds, their eggs, parts, and nests, except when authorized by the Department of the Interior. For eagles, the BGEPA take authorization serves as authorization under MBTA per 50 CFR 22.11(b). For other MBTA-protected birds, because neither the MBTA nor its permit regulations at 50 CFR Part 21 currently provide a specific mechanism to permit "unintentional" take, it is important for project developers or operators to work proactively with the Service to avoid and minimize take of migratory birds. The Service, with assistance from a Federal Advisory Committee, developed the WEG to provide a structured system to evaluate and

address potential negative impacts of wind energy projects on species of concern. Because the Service has the authority to issue a permit for non-purposeful take of eagles, our legal and procedural obligations are significantly greater, and therefore the ECPG is more focused and detailed than the WEG. We have modeled as much of the ECPG as possible after the WEG, but there are important and necessary differences.

NEPA applies to issuance of eagle take permits because issuing a permit is a federal action. While providing technical assistance to agencies conducting NEPA analyses, the Service will participate in the other agencies' NEPA to the extent feasible in order to streamline subsequent NEPA analyses related to a project. For actions that may result in applications for development of programmatic permits, the Service may participate as a cooperating agency to streamline the permitting process.

If no other federal nexus exists or if the existing NEPA of another agency is not adequate, the Service must complete a NEPA analysis before it can issue a permit. The Service will work with the project developer or operator to conduct a complete NEPA analysis, including assisting with data needs and determining the scope of analysis. Project developers or operators may provide assistance that can expedite the NEPA process in accordance with 40 CFR §1506.5. Additionally, there are opportunities to "batch" NEPA analyses for proposed projects in the same geographic area. In these cases, project developers or operators and the Service could pool resources and data, likely increasing the quality of the product and the efficiency of the process. Developers should coordinate closely with the Service for projects with no federal nexus other than the eagle permit. Close coordination between project developers or operators and the Service regarding the data needs and scope of the analysis required for a permit will reduce delays.

Through 50 CFR 22.26 and the associated FEA, the Service defined "mitigation" as per the Service Mitigation Policy (46 FR 7644, Jan. 23, 1981), and the President's Council on Environmental Quality (40 CFR 1508.20 (a–e)), to sequentially include the following:

(1) Avoiding the impact on eagles altogether by not taking a certain action or parts of an action;
(2) Minimizing impacts by limiting the degree or magnitude of the action and its implementation;
(3) Rectifying the impact by repairing, rehabilitating, or restoring the affected environment;
(4) Reducing or eliminating the impact over time by implementing preservation and maintenance operation during the lifetime of the action; and
(5) Compensating for the impact by replacing or providing substitute resources or environments.

Throughout this document we differentiate between mitigation, which covers all of the components listed above, and compensatory mitigation, which is a subset of (5) above and directly targets offsetting permitted disturbance and mortality to accomplish a no-net-loss objective at the scale of the eagle management unit. The Service requires

compensatory mitigation (potentially in addition to other mitigation) where it has not been determined that eagle populations can sustain additional mortality. The NEPA analysis on our permits and the discussion of mitigation in this document follow this system, and in this ECPG we refer to (1) – (4) as conservation measures to avoid and minimize take, of which ACPs are a subset, and to (5) as compensatory mitigation.

Eagles are significant species in Native American culture and religion (Palmer 1988) and may be considered contributing elements to a "traditional cultural property" under Section 106 of the NHPA. Some locations where eagles would be taken have traditional religious and cultural importance to Native American tribes and thus have the potential of being regarded as traditional cultural properties under NHPA. Permitted take of one or more eagles from these areas, for any purpose, could be considered an adverse effect to the traditional cultural property. These considerations will be incorporated into any NEPA analysis associated with an eagle take permit.

Federally-recognized Indian tribes enjoy a unique government-to-government relationship with the United States. The Service recognizes Indian tribal governments as the authoritative voice regarding the management of tribal lands and resources within the framework of applicable laws. It is important to recall that many tribal traditional lands and tribal rights extend beyond reservation lands. The Service consults with Indian tribal governments under the authorities of Executive Order 13175 "Consultation and Coordination with Indian Tribal Governments" and supporting DOI and Service policies. To this end, when it is determined that federal actions and activities may affect a tribe's resources (including cultural resources), lands, rights, or ability to provide services to its members, the Service must, to the extent practicable, seek to engage the affected tribe(s) in consultation and coordination.

3. Background and Overview of Process

Increased energy demands and the nationwide goal to increase energy production from renewable sources have intensified the development of energy facilities, including wind energy. The Service supports renewable energy development that is compatible with fish and wildlife conservation. The Service closely coordinates with state, tribal, and other federal agencies in the review and permitting of wind energy projects to address potential resource effects, including effects to bald and golden eagles. However, our knowledge of these effects and how to address them at this time is limited. Given this and the Service's regulatory mandate to only authorize actions that are "compatible with the goal of stable or increasing breeding populations" of eagles has led us to adopt an adaptive management framework predicated, in part, on the precautionary approach for consideration and issuance of programmatic eagle take permits. This framework consists of case-specific considerations applied within a national framework, and with the outcomes carefully monitored so that we maximize learning from each case. The knowledge gained through monitoring can then be used to update and refine the process for making future permitting decisions such that our ultimate conservation objectives are attained, as well as to consider operational adjustments at individual projects at regular intervals where deemed necessary and appropriate. The ECPG provides the background and information necessary for wind project developers or operators to prepare an ECP

that assesses the risk of a prospective or operating project to eagles, and how siting, design, and operational modifications can mitigate that risk. Implementation of the final ECP must reduce predicted eagle take, and the population level effect of that take, to a degree compatible with regulatory standards to justify issuance of a programmatic take permit by the Service.

a. Risks to Eagles

Energy development can affect eagles in a variety of ways. First, structures such as wind turbines can cause direct mortality through collision (Hunt 2002, Nygård *et al.* 2010). This is the primary threat to eagles from wind facilities, and the monitoring and avoidance and minimization measures advocated in the ECPG primarily are aimed at this threat. Second, activities associated with pre-construction, construction, or operation and maintenance of a project might cause disturbance and result in loss of productivity at nearby nests or disturbance to nearby concentrations of eagles. Third, if disturbance or mortality effects are permanent, they could result in the permanent or long term loss of a nesting territory. All of these impacts, unless properly permitted, are violations of BGEPA (USFWS 2009a). Additionally, disturbances near important eagle use areas or migration concentration sites might stress eagles to a degree that leads to reproductive failure or mortality elsewhere; these impacts are of concern as well, and they could amount to prohibited take, though such effects are difficult to predict and quantify. Thus, the ECPG addresses both direct mortality and disturbance. Many new wind projects are located in remote areas that have few, if any, transmission lines. The Service considers new transmission lines and other infrastructure associated with renewable energy projects to be part of a project. Accordingly, assessments of project impacts should include transmission lines and other facilities, not merely wind turbines.

b. General Approach to Address Risk

Applicants for permits under 50 CFR 22.26, non-purposeful eagle take, are required to avoid and minimize the potential for take of eagles to the extent practicable. Permits for wind-energy development are programmatic as they will authorize recurring take, rather than isolated incidences of take. For programmatic take permits, the regulations at 50 CFR 22.26 require that any authorized take is unavoidable after implementation of ACPs. 50 CFR 22.3 defines "advanced conservation practices" as "scientifically supportable measures that are approved by the Service and represent the best available techniques to reduce eagle disturbance and ongoing mortalities to a level where remaining take is unavoidable."

(b) (5) [redacted] the best information indicates that there are currently no available scientifically supportable measures that will reduce eagle disturbance and blade-strike mortality at wind projects. (b) (5) the Service has not currently approved any ACPs for wind-energy projects. Despite the current lack of available ACPs, the best available scientific information may demonstrate that a particular avoidance, minimization, or other mitigation action should be applied as a condition on an eagle programmatic take permit for wind-energy facilities. (b) (5) [redacted]

(b) (5) [redacted]

(b) (5) [redacted] a project developer or operator will still be expected to implement any reasonable avoidance and minimization measures that may reduce take of eagles at a project. However, the Service and the project developer or operator will discuss and agree on other site-specific and possibly turbine-specific factors that may pose risks to eagles and potential future ACPs that might reduce or eliminate those risks if the risks are substantiated by the best available science. Unless the Service determines that there is a reasonable scientific basis to implement prospective ACPs up front, we recommend that such potentially costly measures be deferred until such time as there is eagle take at the facility and the circumstances and evidence surrounding instances of take suggest the prospective ACPs might be warranted. This agreement would be specified as a condition of the programmatic eagle take permit.

Because ACPs would be considered experimental in these situations (b) (5) [redacted] we recommend that they be subject to a cost cap that the Service and the project developer or operator establish as part of the initial agreement before issuance of a permit, thereby providing financial certainty to the project operator or developer as to what maximum costs of such measures might be. The amount of the cap should be relevant to the theorized risk factors identified for the project, and proportional to overall risk. (b) (5) [redacted]

If eagle take is confirmed through post-construction monitoring, developers or operators would be expected to implement the potentially effective experimental ACP(s) and to monitor future eagle take relative to the ACP(s) as part of the adaptive management process specified in Appendix A, but all within the limits of the pre-determined financial cap. As the results from monitoring experimental ACPs across a number of facilities accumulates and is analyzed as part of the adaptive management process, scientific information in support of certain ACPs may accrue, whereas other ACPs may show little value in reducing take. If the Service determines that the available science demonstrates an experimental ACP is effective in reducing eagle take, the Service will approve that ACP and require its implementation up front on new projects when and where warranted.

Where take is unavoidable and when eagle populations at the scale of the eagle management unit (as defined in USFWS 2009b) are not estimated to be healthy enough to sustain additional mortality over existing levels, applicants must reduce the effect of

permitted unavoidable mortality to a no-net-loss standard through compensatory mitigation for the duration of the permitted activity. No-net-loss means that unavoidable mortality caused by the permitted activities is offset by compensatory mitigation that reduces another, ongoing form of mortality by an equal or greater amount, or which leads to an increase in carrying capacity that allows the eagle population to grow by an equal or greater amount. Compensatory mitigation may also be necessary to offset substantial effects in other situations (USFWS 2009a), and mitigation designed to offset other detrimental effects of permits on eagles may be advised in addition to compensatory mitigation in some cases. The approach described in the ECPG is applicable for all land-based wind energy projects within the range of the bald and golden eagle where interactions with wind project infrastructure have been documented or are reasonably expected to occur. The ECPG is intended to provide a national framework for assessing and mitigating risk.

As part of the application process for a programmatic eagle take permit, the Service recommends that project developers or operators prepare an ECP that outlines the project development process and includes conservation and monitoring plans as recommended in this ECPG. The ECPG provides examples of ways that applicants can meet the regulatory standards in the rule, and while other approaches may be acceptable, the Service will determine their adequacy on a case-by-case basis. As noted previously, an ECP is not required, but if one is developed following the approach recommended here, it will expedite Service review of the project.

There is substantial uncertainty surrounding the risk of wind projects to eagles, and of ways to minimize that risk. For this reason, the Service strongly recommends that care be taken to protect against the consequences of underestimating eagle fatality rates at wind facilities. Overestimates, once confirmed, can be adjusted downward based on post-construction monitoring information with no consequence to eagle populations, and project developers or operators can trade or be credited for excess compensatory mitigation. However, the options for addressing underestimated fatality rates are extremely limited, and pose either potential hardships for wind developers (b) (5) [redacted] or significant risks to eagle populations (b) (5) [redacted]

ASSESSING RISK AND EFFECTS

1. Considerations When Assessing Eagle Use Risk

Bald eagles and golden eagles associate with distinct geographic areas and landscape features throughout their respective ranges. The Service defines these "important eagle-use areas" as "an eagle nest, foraging area, or communal roost site that eagles rely on for breeding, sheltering, or feeding, and the landscape features surrounding such nest, foraging area, or roost site that are essential for the continued viability of the site for breeding, feeding, or sheltering eagles" (USFWS 2009a; 50 CFR 22.3). Migration corridors and migration stopover sites also provide important foraging areas for eagles

during migration (*e.g.*, Restani *et al.* 2001, Mojica 2008) and result in seasonal concentrations of eagles. As a result, the presence of a migration corridor or stopover site on or near a proposed wind development project could increase the probability of encounters between eagles and wind turbines. Although these sites are not specifically included within the regulatory definition of an important eagle-use area at 50 CFR 22.3, the presence of such a site on or near a proposed wind project could increase the likelihood of collisions.

Wind energy projects that overlap, or are proximate to, important eagle use areas or migration concentration sites may pose risks to the eagles for reasons described earlier. Project developers or operators should identify the location and type of all important eagle use areas or migration concentration sites that might be affected by a proposed wind project (*e.g.*, within the project area). If recent (within the previous 5 years) local data are available on the spacing of eagle nests for the project-area nesting population, those data can be used to determine an appropriate boundary for such surveys (as described in Appendix H). Otherwise, for both species we suggest initial surveys be conducted on and within 10 miles of a project's footprint to establish the project-area mean inter-nest distance. The project footprint is the minimum convex polygon (*e.g.*, Mohr 1947) that encompasses the wind project area inclusive of the hazardous area around all turbines and any associated infrastructure, including utility lines, out-buildings, roads, etc. We suggest 10 miles because this is ½ the largest recorded spacing between nearest simultaneously occupied nests for either species (golden eagles in the Mojave/Sonoran deserts of western Arizona; Millsap 1981). For subsequent monitoring (*e.g.*, post-construction monitoring of occupancy and productivity of pairs potentially disturbed by the project), the project-area mean inter-nest distance can be used to define a more relevant project-area boundary. The 10-mile perimeter may seem (b) (5) for bald eagles in some areas, and the Service acknowledges there needs to be flexibility in the application of this approach to accommodate specific situations.

Evaluating the spatial area described above for each wind project is a key part of the programmatic take permitting process. As described later, surveys should be conducted initially to obtain data to predict effects of wind projects on eagles. After the project begins operating, studies should again be conducted to determine the actual effects. The following sections include descriptions and criteria for identifying important eagle use areas or migration concentration sites in these assessments.

a. General Background and Rationale for Assessing Project Effects on Eagles

A synthesis of publicly available databases and technical literature are fundamental to the pre-construction assessment component of an ECP. In some instances, this work may reveal information on use of a proposed project area by eagles that is strong enough to support a decision on whether to proceed with the project. In most cases, if available information warrants further consideration of a potential wind project site, on-site surveys should be implemented to further document use of the project area by eagles. The goal of such surveys should be to quantify and describe use of the project area by breeding (territorial) and non-breeding eagles across seasons and years. A variety of survey approaches may be needed to accomplish this goal.

Although potential for presence of all types of important eagle use areas or migration concentration sites should be considered when beginning to assess a potential project site, special attention is typically given to nests and nesting pairs. An eagle territory is defined in 50 CFR 22.3 as an area that contains, or historically contained, one or more nests within the home range of a mated pair of eagles. We recognize that usage conflicts with the true biological meaning of the term territory, but we use it herein in its regulatory context. Newton (1979) considered the nesting territory of a raptor as the defended area around a pair's nest site and defined the home range as "...the area traveled by the individual in its normal activities of food gathering, mating, and caring for the young." For golden eagles at least, the extent of the home range and territory during nesting season generally are similar; the eagle defends its territory by undulating flight displays near the home range boundaries and adjoining territories barely overlap (Harmata 1982, Collopy and Edwards 1989, Marzluff *et al.* 1997).

Avoidance zones, often distinguished by specific "buffer" distances, have been prescribed to protect nests and other types of eagle use areas from disturbance. Recommendations for the size of avoidance zones for nests of bald eagles and golden eagles have sometimes been based on documented distances between nests and territory boundaries. For example, McGrady *et al.* (2002) and Watson and Davies (2009) indicated nesting territories of golden eagles extend to at least 4 miles from their nests. Garrett *et al.* (1993) found that bald eagle territories extend at least 2 miles from nests, though studies in areas of densely packed breeding territories of bald eagles suggest much smaller distances (Sherrod *et al.* 1976, Hodges and Robards 1982, Anthony 2001). A recommendation for a spatial buffer to avoid disturbance of eagle nests can hardly be applied throughout the entire range of either species due to marked variation in the size and configuration of nesting territories. As such, these avoidance prescriptions have been conservative because there are few site-specific data on spatial extent of territories in the published and unpublished literature. For bald eagles, minimum-distance buffers are prescribed by the Service to protect nests, foraging areas, and communal roosts against disturbance from a variety of activities (USFWS 2007b).

The approach we recommend in the ECPG for evaluating siting options and assessing potential mortality and disturbance effects of wind facilities on eagles is to conduct standardized surveys (*e.g.*, point counts) to estimate eagle exposure within the project footprint. We further suggest augmenting these with surveys to determine locations of important eagle use areas or migration concentration sites for the project-area eagle population. The project-area eagle population is the population of breeding, resident non-breeding, migrating, and wintering eagles within the project area. As described previously and in Appendix H, if recent data on the spacing of eagle nests in the project area are available, it may be appropriate to use the mean species-specific inter-nest distance (assuming there is no reason to suspect eagle territories in the project area are configured such that the mean inter-nest distance would be misleading) as the outer boundary of the project area. Such a choice, however, also increases the importance of having adequate eagle exposure information from the project footprint for all seasons. For example, a winter communal night roost of eagles further than one mean inter-nest

distance from the project boundary could produce a large influx of eagles into the footprint in winter. Inadequate winter eagle exposure sampling (or sampling in only one year, if the night roost is not used annually) in combination with selection of a project area based on nest spacing alone, could result in a failure to detect this increased risk to eagles in winter. Unpredicted fatalities that result from such an oversight will have to be addressed by the project developers or operators eventually through increased compensatory mitigation, operational adjustments, or both to continue operating under the authority of a valid eagle permit. Thus, it is important that the combination of exposure and project-area surveys adequately capture all risks to eagles.

One-half the mean inter-nest distance has been used as a coarse approximation for the territory boundary in a number of raptor studies (*e.g.*, Thorstrom 2001, Wichmann *et al.* 2003, Soutullo *et al.* 2006). Eagle pairs at nests within ½ the mean project-area inter-nest distance of the project footprint are potentially susceptible to disturbance take and blade-strike mortality, as these pairs and offspring may use the project footprint. We recommend using this distance to delineate territories and associated breeding eagles at risk of mortality or disturbance. Exposure surveys should adequately sample the parts of the project footprint potentially used by these eagle pairs so they are captured in the fatality estimates, and these nests should be included in post-construction occupancy and productivity monitoring (see Appendix H). This information is useful in decisions on whether a wind project might meet permit requirements at 50 CFR 22.26 considering both predicted take through fatalities and likely take from disturbance; for evaluating various siting and project-configuration alternatives; and in monitoring for disturbance effects during the post-construction period. In some situations, as where nests are concentrated on linear features (such as cliffs for golden eagles or along rivers for bald eagles), ½ the mean inter-nest distance may not encompass all important parts of the territory. In these situations inferences based on nest spacing should be used cautiously. The overall effectiveness of this approach will be evaluated through post-construction monitoring and the adaptive management framework described later in this ECPG.

b. Additional Considerations for Assessing Project Effects: Migration Corridors and Stopover Sites

Bald eagles and golden eagles tend to migrate along north-south oriented cliff lines, ridges, and escarpments, where they are buoyed by uplift from deflected winds (Kerlinger 1989, Mojica *et al.* 2008). Bald eagles typically migrate during midday by soaring on thermal uplift or on winds aloft, the onset of dally movements migration being influenced by rising temperatures and favorable winds (Harmata 2002). Both species will forage during migration flights, though for bald eagles foraging often is limited to lakes, rivers, streams, and other wetland systems (Mojica *et al.* 2008). Both species use lift from heated air from open landscapes to move efficiently during migration and seasonal movements, gliding from one thermal to the next and sometimes moving in groups with other raptor species.

Passage rates and altitude of migrant eagles can be influenced by temperature, barometric pressure, winds aloft, storm systems, weather patterns at the site of origin, and wind speed (Yates *et al.* 2001). Both species avoid large water bodies during migration and

funnel along the shoreline, often becoming concentrated at the tips of peninsulas or in other situations where movement requires water crossings (Newton 1979). Eagles annually use stopover sites with predictably ample food supplies (*e.g.*, Restani *et al.* 2000, Mojica *et al.* 2008), although some stopovers may be brief and infrequent, such as when optimal migration conditions suddenly become unfavorable and eagles are forced to land and seek roosts. Presence of a migration corridor or stopover site in the project area is best documented and delineated by using a standard "hawk watch" migration count as recommended in this ECPG as part of site-specific surveys or, in some cases, by simply expanding point count surveys to account for migration incidence during what normally would be the peak migration period (Appendix C).

Much eagle mortality could occur if communal night roosts or communal foraging areas of eagles are separated by strings of wind turbines from other areas used by eagles. Outside the breeding season, both bald eagles and golden eagles can roost communally. Such roosts can include individuals of all ages and residency status (Platt 1976, Craig and Craig 1984, Mojica *et al.* 2008). During the breeding season, non-breeding bald eagles also may roost communally. Large roosts of eagles tend to be associated with nearby foraging areas. Conversely, eagles also may congregate to forage at sites of unusually high prey or carcass availability; such concentrations of bald eagles may number in the hundreds (Buehler 2000). Methods for documenting concentrations of eagles, and movements to and from such areas in relation to the project footprint are provided in Appendix C.

2. Eagle Risk Factors

Factors that influence vulnerability of eagles to collisions with wind turbines are poorly known. Theoretically, two major elements are likely involved: (1) eagle abundance, and (2) the presence of features or circumstances that decrease an eagle's ability to perceive and avoid collision. However, the relative importance of these factors, and how they interrelate, remains poorly understood for eagles and birds in general (Strickland *et al.* 2011). Table 1 lists some of the factors known or postulated to be associated with turbine blade-strike risk in raptors, but evidence for or against these is equivocal, and may well vary between sites. While some of these factors are not known to affect eagles, because of the similarity of flight behavior between eagles and some other soaring raptors, we include them here because they may apply to eagles. Evidence across multiple studies suggests that in addition to eagle abundance, two main factors contribute to increased risk of collision by eagles: (1) the interaction of topographic features, season, and wind currents that create conditions for high-risk flight behavior near turbines; and (2) behavior that distracts eagles and presumably makes them less vigilant (*e.g.*, active foraging or inter- and intra-specific interactions).

Table 1. Factors potentially associated with wind turbine collision risk in raptors. Not all factors apply to eagles, and the influence of these factors may vary in association with other covariates on a case-by-case basis.

Risk Factor	Status of Knowledge from Literature	Citations
Bird Density	Mixed findings; likely some relationship but other factors have overriding influence across a range of species.	Barrios and Rodriguez (2004), De Lucas *et al.* (2008), Hunt (2002), Smallwood *et al.* (2009), Ferrer *et al.* (2011)
Bird Age	Mixed findings. Higher number of fatalities among subadult and adult golden eagles in one area. Higher fatalities among adult white-tailed eagles in another.	Hunt (2002), Nygård et al (2010)
Proximity to Nests	White-tailed eagle nesting areas close to turbines have been observed to have low nest success and be abandoned over time.	Nygård et al (2010)
Bird Residency Status	Mixed findings. Higher risk to resident adults in Egyptian vultures (*Neophron percnopterus*). High number of mortalities among subadults and floating adults in golden eagles in one other study.	Barrios and Rodriguez (2004), Hunt (2002)
Season	Mixed findings. In some cases for some species, risk appears higher in seasons with greater propensity to use slope soaring (fewer thermals) or kiting flight (windy weather) while hunting.	Barrios and Rodriguez (2004), De Lucas *et al.* (2008), Hoover and Morrision (2005), Smallwood *et al.* (2009)
Flight Style	Species most at risk perform more frequent flights that can be described as kiting, hovering, and diving for prey.	Smallwood *et al.* (2009)
Interaction with Other Birds	Higher risk when interactive behavior is occurring.	Smallwood *et al.* (2009)
Active Hunting/ Prey Availability	High risk when hunting close to turbines, across a range of species.	Barrios and Rodriguez (2004), De Lucas *et al.* (2008), Hoover and Morrision (2005), Hunt (2002), Smallwood *et al.* (2009)
Turbine Height	Mixed, contradictory findings across a range of species.	Barclay *et al.* (2007), De Lucas *et al.* (2008)
Rotor Speed	Higher risk associated with higher blade-tip speed for golden eagles in one study, but this finding may not be generally applicable.	Chamberlain *et al.* (2006)
Rotor-swept Area	Meta-analysis found no effect, but variation among studies clouds interpretation.	Barclay *et al.* (2007)
Topography	Several studies show higher risk of collisions with turbines on ridge lines and on slopes. Also a higher risk in saddles that present low-energy ridge crossing points.	Barrios and Rodriguez (2004), De Lucas *et al.* (2008), Hoover and Morrission (2005), Smallwood and Thelander (2004)
Wind Speed	Mixed findings, probably locality dependent.	Barrios and Rodriguez (2004), Hoover and Morrision (2005), Smallwood *et al.* (2009)

3. Overview of Process to Assess Risk

This ECPG, and in particular the eagle fatality prediction model described in Appendix D, relies on the assumption that there is predictable relationship between pre-construction eagle occurrence and abundance in the project footprint and subsequent fatalities. Assessing the veracity of this operating hypothesis is a key element of the adaptive management component of the ECPG. The ECPG outlines a decision-making process that gathers information at each stage of project development, with an increasing level of detail. This approach provides a framework for making decisions sequentially at three critical phases in project development: (1) siting, (2) construction, and (3) operations. The greatest potential to avoid and minimize impacts to eagles occurs if eagle risk factors are taken into account at the earliest phase of project development. If siting and construction have proceeded without consideration of risks to eagles, significant opportunities to avoid and minimize risk may have been lost. This can potentially result in greater compensatory mitigation requirements or, in the worst case, an unacceptable level of mortality for eagles.

The related, but more general, WEG advocates using a five-tiered approach for iterative decision making relative to assessing and addressing wildlife effects from wind facilities. Elements of all of those tiers apply here, but the process for eagles is more specifically defined and falls into five broadly overlapping, iterative stages that largely do not parallel the WEG's five tiers (Figure 1).

Stage 1 for eagles (Appendix B) combines Tiers 1 and 2 from the WEG, and consists of an initial **site assessment**. In this stage project developers or operators evaluate broad geographic areas to assess the relative importance of various areas to resident breeding and non-breeding eagles, and to migrant and wintering eagles. The Service is available to assist project developers or operators in beginning to identify important eagle use areas or migration concentration sites and potential eagle habitat at this stage. To increase the probability of meeting the regulatory requirements for a programmatic take permit, biological advice from the Service and other jurisdictional wildlife agencies should be requested as early as possible in the developer's planning process and should be as inclusive as possible to ensure all issues are being address at the same time and in a coordinated manner. Ideally, consultation with the Service, and state and tribal wildlife agencies is done prior to any substantial financial commitment or finalization of lease agreements. During Stage 1 the project developer or operator should gather existing information from publicly available literature, databases, and other sources, and use those data to judge the appropriateness of various potential project sites, balancing suitability for development with potential risk to eagles.

Once a site has been selected, the next stage, **Stage 2**, is **site-specific surveys and assessments** (this is the first component of Tier 3 in the WEG; Appendix C). During Stage 2 the project developer or operator should collect quantitative data through scientifically rigorous surveys designed to assess the potential risk of the proposed project to eagles. In the case of small wind projects (one or a few small turbines), the project developer or operator should apply the predictive model described in Stage 3 (below) to determine if stage 2 surveys are necessary. In many cases, the hazardous area

associated with such projects will be small enough that Stage 2 surveys will not be necessary to demonstrate that the project will likely not take eagles.

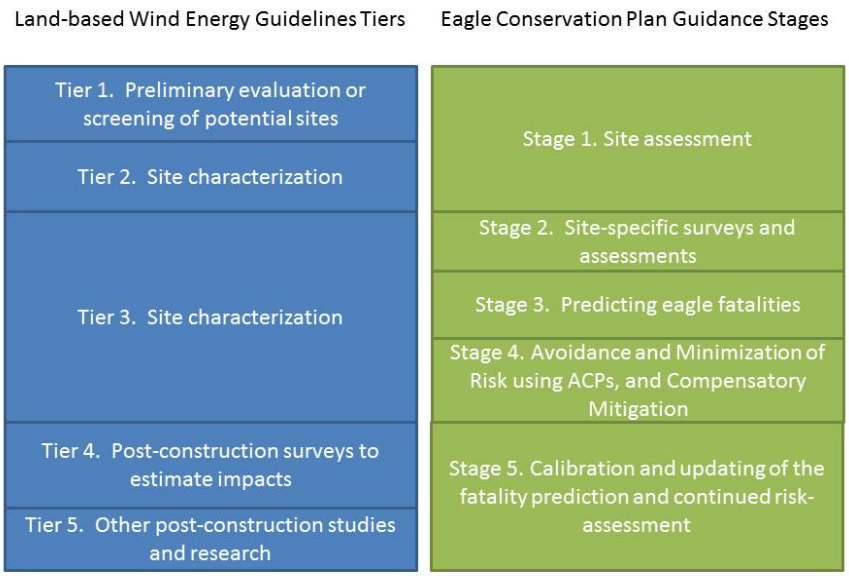

Figure 1. Chart comparing Land-based Wind Energy Guideline tiers with Eagle Conservation Plan Guidance stages.

In **Stage 3**, **the predicting eagle fatalities stage**, the Service and project developers or operators use data from Stage 2 in standardized models linked to the Service's adaptive management process to generate predictions of eagle risk in the form of average number of fatalities per year extrapolated to the tenure of the permit (see Appendix D). These models can be used to comparatively evaluate alternative siting, construction, and operational scenarios, a useful feature in constructing hypotheses regarding predicted effects of conservation measures and ACPs. We encourage project developers or operators to use the recommended pre-construction survey protocol in this ECPG in Stage 2 to help inform our predictive models in Stage 3. If Service-recommended survey protocols are used, this risk assessment can be greatly facilitated using model tools available from the Service. If project developers or operators use other forms of information for the Stage 2 assessment, they will need to fully describe those methods and the analysis used for the eagle risk assessment, and more time will be required for Service biologists to evaluate and review the data. For example, the Service will compare the results of the project developer or operator's eagle risk assessment with

predictions from our models, and if the results differ, we will work with the project developers or operators to determine which model results are most appropriate for the Service's eventual permitting decisions. The Service and project developers or operators also evaluate Stage 2 data to determine whether disturbance take is likely, and if so, at what level. Any loss of production that may stem from disturbance should be added to the fatality rate prediction for the project. The risk assessments at Stage 2 and Stage 3 are consistent with developing the information necessary to assess the efficacy of conservation measures, and to develop the monitoring required by the permit regulations at 50 CFR 22.26(c)(2).

Stage 4 is the **avoidance and minimization of risk using conservation measures and ACPs and compensatory mitigation** (if required).

Conservation measures and *ACPs*. Regardless of which approach is employed in the Stage 3 assessment, in Stage 4 the information gathered should be used by the project developer or operator and the Service to determine potential conservation measures and ACPs (if available) that can be employed to avoid and/or minimize the predicted risks at a given site (see Appendix E). The Service will compare the initial predictions of eagle mortality and disturbance for the project with predictions that take into account proposed and potential conservation measures and ACPs to determine if the project developer or operator has avoided and minimized risks to the maximum degree achievable, thereby meeting the requirements for programmatic permits in 50 CFR 22.26 that remaining take is unavoidable. Additionally, the Service will use the information provided along with other data to conduct a cumulative effects analysis to determine if the project's impacts, in combination with other permitted take and other known factors affecting the local-area and eagle management unit population(s), are at a level that exceed established thresholds or benchmarks (see Appendix F). This final eagle risk assessment is completed at the end of Stage 4 after application of conservation measures and ACPs along with a plan for compensatory mitigation if required.

Compensatory Mitigation. Compensatory mitigation occurs in the eagle permitting process if conservation measures and ACPs do not remove the potential for take, and the projected take exceeds calculated thresholds for the species-specific eagle management unit in which the project is located. Compensatory mitigation may also be necessary in other situations as described in the preamble to 50 CFR 22.26 (USFWS 2009a), and the following guidance applies to those situations as well.

Compensatory mitigation can address any pre-existing mortality source affecting the species-specific eagle management unit impacted by the project (*e.g.* environmental lead abatement, addressing eagle electrocutions due to high risk power poles, etc.) that was in effect at the time of the FEA in 2009 (USFWS 2009b), or it can address increasing the carrying capacity of the eagle population in the affected eagle management unit. However, there needs to be a credible analysis that supports the conclusion that implementing the compensatory mitigation action will achieve the desired beneficial offset in mortality or carrying capacity. All compensatory mitigation projects will be

subjected to random inspections by the Service or appointed subcontractors to examine efficacy, accuracy, and reporting rigor.

For new wind development projects, if compensatory mitigation is necessary, the compensatory mitigation action (or a verifiable, legal commitment to such mitigation) will be required up front before project operations commence because projects must meet the statutory and regulatory eagle preservation standard before the Service may issue a permit. For operating projects that may meet permitting requirements, compensatory mitigation should be applied from the start of the permit period, not retroactively from the initiation of project operations. The initial compensatory mitigation contribution effort should be sufficient to offset take at the upper 80% confidence limit (or equivalent) of the predicted number of eagle fatalities per year for a five-year period starting with the date the project becomes operational (or, for operating projects, the date the permit is signed). No later than at the end of the five year period, the predicted annual take estimate will be compared to the realized take as estimated by post-construction monitoring. If the observed and predicted take is different, either (1) additional compensatory mitigation will be required retroactively to offset higher-than-predicted levels of take to ensure continued compliance with regulatory requirements (assuming the estimated number of eagles taken was greater than the number actually compensated for), or (2) the permittee will receive a credit for the excess compensation (the difference between the actual mean and the number compensated for) that can be applied to other take (either by the permittee or other permitted individuals at his/her discretion) within the same eagle management unit. Compensatory mitigation for future years for the project will be determined at this point, taking into account the observed levels of mortality and any reduction in that mortality that is expected based on implementation of additional experimental conservation measures and ACPs that might reduce fatalities.

To illustrate an acceptable process for calculating compensatory mitigation, the Service has prepared an example of a strategy using Resource Equivalency Analysis (REA) to quantify the number of power pole retrofits needed to offset the take of golden eagles at a wind project (see Appendix G). The Service used the example of eliminating electrocutions because: (1) high-risk power poles cause quantifiable adverse impacts to eagles; (2) the 'per eagle' effects of high-risk power pole retrofitting are quantifiable and verifiable through accepted practices; (3) success of and subsequent maintenance of retrofitting can be monitored; and (4) electrocution from high-risk power poles is known to cause eagle mortality and this can be corrected. The potential for take of eagles is estimated using informed modeling, as described in Stage 3 of the ECPG (Appendix D). This fatality prediction is one of several fundamental variables that are used to populate the REA (see REA Inputs, Appendix G). The REA generates a project-area eagle impact calculation (debit), expressed in bird-years, and an estimate of the quantity of compensatory mitigation (credit) (*e.g.*, power pole retrofits) necessary to offset this impact. Compensatory mitigation would then be implemented either directly by the project developer or operator or through a formal, binding agreement with a third party to implement the required actions.

Effectiveness monitoring of the resulting compensatory mitigation projects should be included within the above options using the best scientific and practicable method available. The Service will modify the compensatory mitigation process to adapt to any improvements in our knowledge base as new data become available.

At the end of Stage 4, all the materials necessary to satisfy the regulatory requirements to support a permit application should be available. While the application can be submitted at any time, it is only after completion of Stage 4 that the Service can begin the formal process to determine whether a programmatic eagle take permit can be issued or not. Ideally, NEPA and NHPA analyses and assessments will already be underway, but if not, Stage 4 should include necessary NEPA analysis, NHPA compliance, coordination with other jurisdictional agencies, and tribal consultation.

If a permit is issued and the project goes forward, **Stage 5** of the process is **calibration and updating of the fatality prediction and continued risk assessment**, equivalent to Tier 4 and, in part, Tier 5 in the WEG**.** During this stage, post-construction surveys are conducted to generate empirical data for comparison with the pre-construction risk-assessment fatality and disturbance predictions. The monitoring protocol should include both validated techniques for assessing mortality, and for estimating effects of disturbance to eagles, and they must meet the permit-condition requirements at 50 CFR 22.26(c)(2). We anticipate that in most cases, intensive monitoring to estimate the true annual fatality rate and to assess possible disturbance effects will be conducted for at least the first two years after permit issuance, followed by less intense monitoring for up to three years after the expiration date of the permit, in accordance with monitoring requirements at 50 CFR 22.26(c)(2). We recommend project developers or operators use the post-construction survey protocols included or referenced in this ECPG, but we will consider other monitoring protocols provided by permit applicants. We will use the information from post-construction monitoring in a meta-analysis framework to weight and improve pre-construction predictive models. Additionally in Stage 5 the Service and project developers or operators should use the post-construction monitoring data to (1) assess whether compensatory mitigation is adequate, excessive, or deficient to offset observed mortality, and make adjustments accordingly; and (2) explore operational changes that might be warranted at a project after permitting to reduce observed mortality and ensure that permit condition requirements at 50 CFR 22.26(c)(7) are met.

Table 2 provides a summary of the roles of the project developer or operator and the Service, responsibilities, and decision points at each stage.

Table 2. Roles, responsibilities of the project developers and operators and the Service, and decision points at each stage of the ECP process.

Stage	Project developer/operator role	Service role
1	• Conduct a desktop landscape-level assessment for known or likely occurrence of eagles, including reconnaissance visits to prospective sites	• Recommend and help provide existing data and input if requested • Provide preliminary consultation on appropriateness of application for eagle

	• Consult with the Service on potential for any obvious negative impacts on eagles in at least general locale of prospective sites • Decision point: select site(s) for Stage 2 study, if appropriate	take permits for sites considered and the likelihood permits could be issued • Review available Stage 1 data and advise what Stage 2 data are recommended • Decision point: none
2	• Conduct detailed, site-specific field studies in the project area to inform eagle fatality prediction model, document important eagle use areas or migration concentration sites, and identify possible eagle disturbance issues • Coordinate in advance with the Service and other jurisdictional agencies to ensure studies will satisfy regulatory requirements for permitting • Decision point: choose whether to move to Stage 3	• Consult on field study design and approach in coordination with other jurisdictional agencies • Decision point: None
3	• Optionally generate an estimated annual eagle fatality prediction for the site(s) and an assessment of eagle disturbance risk using data from Stage 2 and model(s) of choice • Report on all other germane aspects of eagle use such as communal roosts and nest or territory locations • Decision point: choose whether to move to Stage 4	• Generate an initial eagle fatality estimate for site(s), using the Service model and survey data from Stage 2 • Assess likelihood of disturbance to eagles; quantify extent and impact of disturbance, if any likely • Make preliminary recommendation on risk category • Consult with developer/operator to interpret and resolve discrepancies in conclusions and risk category recommendation • Decision point: None
4	• Identify conservation measures and ACP s that can be used to avoid and minimize take identified in Stage 3 • Optionally generate revised fatality and disturbance estimates, taking into account conservation measures and ACPs • Identify and develop necessary agreements for compensatory mitigation to offset take, if required • Decision point: choose whether to submit eagle take permit application	• Re-run Service fatality model to predict fatalities with conservation measures and ACPs • Re-assess potential for disturbance take with conservation measures and ACPs • Coordinate with developer/operator to reach agreement on predicted take and risk category • Coordinate with developer/operator on compensatory mitigation, if requested • Provide revised preliminary assessment of likelihood site(s) will be permittable if requested • Decision point: None
Permit Decision	• Draft ECP or equivalent, including a plan for post-construction monitoring of eagle fatality and disturbance • Submit a permit application that meets requirements at 50 CFR 22 26 or 22 27, including ECP or equivalent information as part of application package • Choose whether to assist Service in conducting NEPA	• Coordinate and consult on writing of ECP or equivalent, including proposed plan for post-construction • Convey adequacy of ECP or equivalent to developer/operator • Evaluate permit application for regulatory sufficiency • Draft permit conditions drawing on relevant components of ECP or equivalent

	• Decision point: None	• Conduct cumulative effects analysis • Conduct NEPA review • Conduct NHPA evaluation • Coordinate with other jurisdictional agencies • Consult with Tribes • Establish limits on future operational adjustments proportionate to risk, in coordination with applicant • Decision point: whether permit can be issued
5	• Implement post-construction monitoring in accordance with permit conditions, including immediate reporting of any eagle take • Participate in scheduled reviews of post-construction monitoring results • Effect additional compensatory mitigation if necessary • Implement and monitor additional conservation measures and ACPS, if warranted, within scope of permit sideboards • Decision point: choose whether to apply for permit renewal near the end of permit term	• Monitor compliance with permit conditions • Review post-construction monitoring data, including comparison of predicted and observed annual fatality rate and disturbance • At no more than 5-year intervals, determine whether revision of the estimated fatality rate, adjustments to monitoring, implementation of additional experimental conservation measures and ACPs, and compensatory mitigation are warranted • Effect any necessary adjustments by crediting back excess compensatory mitigation, or by assessing additional compensatory mitigation for fatalities in excess of predictions • Combine monitoring data with that from other projects for meta-analysis within adaptive management framework • Decision point: determine what adjustments need to be made to compensatory mitigation level, and whether additional conservation measures and ACPs are warranted or not

4. Site Categorization Based on Mortality Risk to Eagles

We recommend the approach outlined below be used to categorize the likelihood that a site or operational alternative will meet standards in 50 CFR 22.26 for issuance of a programmatic eagle take permit.

a. Category 1 – High risk to eagles, potential to avoid or mitigate impacts is low

A project is in this category if it:

(1) has an important eagle-use area or migration concentration site within the project footprint; or
(2) has a species-specific uncertainty-adjusted annual fatality estimate (average number of eagles predicted to be taken annually) > 5% of the estimated species-specific local-area population size; or
(3) causes the cumulative annual take for the local-area population to exceed 5% of the estimated species-specific local-area population size.

In addition, projects that have eagle nests within ½ the mean project-area inter-nest distance of the project footprint should be carefully evaluated. If it is likely eagles occupying these territories use or pass through the project footprint, category 1 designation may be appropriate.

Projects or alternatives in category 1 should be substantially redesigned if they are to at least meet the category 2 criteria. Construction of projects at sites in category 1 is not recommended because the project would likely not meet the regulatory requirements for permit issuance and may place the project developer or operator at risk of violating the BGEPA. The recommended approach for assessing the percentage of the local-area population predicted to be taken is described in Appendix F.

b. Category 2 – High or moderate risk to eagles, opportunity to mitigate impacts
A project is in this category if it:

(1) has an important eagle-use area or migration concentration site within the project area but not in the project footprint; or
(2) has a species-specific uncertainty-adjusted fatality estimate between 0.03 eagles per year and 5% of the estimated species-specific local-area population size; or
(3) causes cumulative annual take of the species-specific local-area population of less than 5% of the estimated local-area population size.

Projects in this category will potentially take eagles at a rate greater than is consistent with maintaining stable or increasing populations, but the risk might be reduced to an acceptable level through a combination of conservation measures and reasonable compensatory mitigation. These projects have a risk of ongoing take of eagles, but this risk can be minimized. For projects in this category the project developer or operator should prepare an ECP or similar plan to document meeting the regulatory requirements for a programmatic permit. For eagle management populations where take thresholds are set at zero, the conservation measures in the ECP should include compensatory mitigation and must result in no-net-loss to the breeding population to be compatible with the permit regulations. This does not apply to golden eagles east of the 100th meridian, for which no non-emergency take can presently be authorized (USFWS 2009b).

c. Category 3 – Minimal risk to eagles
A project is in this category if it:

(1) has no important eagle use areas or migration concentration sites within the project area; and
(2) has a species-specific uncertainty-adjusted annual fatality rate estimate of less than 0.03 for both species of eagle; and
(3) causes cumulative annual take of the local-area population of less than 5% of the estimated species-specific local-area population size.

Projects in category 3 pose little risk to eagles and may not require or warrant eagle take permits, but that decision should be made in coordination with the Service. Still, a

project developer or operator may wish to create an ECP that documents the project's low risk to eagles, and outlines mortality monitoring for eagles and a plan of action if eagles are taken during project construction or operation. If take should occur, the developer or operator should contact the Service to discuss ways to avoid take in the future.

The risk category of a project has the potential to change from one of higher risk to one of lower risk or one of lower risk to one of higher risk through additional site-specific analyses and application of measures to reduce the risk. For example, a project may appear to be in category 2 as a result of Stage 1 analyses, but after collection of site-specific information in Stage 2 it might become clear it is a category 1 project. If a project cannot practically be placed in one of these categories, the project developer or operator and the Service should work together to determine if the project can meet programmatic eagle take permitting requirements in 50 CFR 22.26 and 22.27. Projects should be placed in the highest category (with category 1 being the highest) in which one or more of the criteria are met.

5. Cumulative Effects Considerations

a. Early Planning

Regulations at 50 CFR 22.26 require the Service to consider the cumulative effects of programmatic eagle take permits. Cumulative effects are defined as: "the incremental environmental impact or effect of the proposed action, together with impacts of past, present, and reasonably foreseeable future actions" (50 CFR 22.3). Thorough cumulative effects analysis will depend on effective analysis during the NEPA process associated with an eagle permit. Scoping and other types of preliminary analyses can help identify important cumulative-effects factors and identify applicable past, present, and future actions. Comprehensive evaluation during early planning may identify measures that would avoid and minimize the effects to the degree that take of eagles is not likely to occur. In that case, there may be no permit, and thus no need for NEPA associated with an eagle take permit. When a wind project developer or operator seeks an eagle take permit, a comprehensive cumulative effects analysis at the early planning stage will serve to streamline subsequent steps, including the NEPA process.

The Service recommends that cumulative effects analyses be consistent with the principles of cumulative effects outlined in the Council on Environmental Quality (CEQ) handbook, "Considering Cumulative Effects under the National Environmental Policy Act (1997) (CEQ handbook). The Service recommends consideration of the following examples from the CEQ handbook that may apply to cumulative effects to eagles and the ecosystems they depend upon:

(1) Time crowding - frequent and repetitive effects on an environmental system;
(2) Time lags - delayed effects;
(3) Space crowding - High spatial density of effects on an environmental system;
(4) Cross- boundary - Effects occur away from the source;
(5) Fragmentation - change in landscape pattern;
(6) Compounding effects - Effects arising from multiple sources or pathways;
(7) Indirect effects - secondary effects; and
(8) Triggers and thresholds - fundamental changes in system behavior or structure.

b. Analysis Associated with Permits

The cumulative effects analysis for a wind project and a permit authorization should include whether the anticipated take of eagles is compatible with eagle preservation as required at 50 CFR 22.26, including indirect impacts associated with the take that may affect eagle populations. It should also include consideration of the cumulative effects of other permitted take and additional factors affecting eagle populations.

Whether or not a permit authorization is compatible with eagle preservation was analyzed in the FEA that established the thresholds for take (USFWS 2009b). The scale of that analysis was based upon eagle management units as defined in USFWS (2009b). However, the scale for cumulative effects analysis of wind projects and associated permits should include consideration of the effects at the local-population scale as well.

The cumulative effects analyses for programmatic permits should cover the time period over which the take will occur, not just the period the permit will cover, including the effect of the proposed action, other actions affecting eagles, predicted climate change impacts, and predicted changes in number and distribution of affected eagle populations. Effects analyses should note whether the project is located in areas where eagle populations are increasing or predicted to increase based on available data, over the lifetime of the project, even if take is not anticipated in the immediate future. In addition, conditions where populations are saturated should be considered in cumulative effects analyses. Numerous relatively minor disruptions to eagle behavior from multiple activities, even if spatially or temporally distributed, may lead to disturbance that would not have resulted from fewer or more carefully sited activities (*e.g.*, Whitfield *et al.* 2007). Additional detailed guidance for cumulative impacts analyses can be found on the Council on Environmental Quality website at http://ceq.hss.doe.gov/nepa/ccenepa/ccenepa.htm.

Specific recommendations for conducting cumulative effects analysis of the authorized take under eagle programmatic take permits is provided in Appendix F.

ADAPTIVE MANAGEMENT

Management of wind facilities to minimize eagle take, through decisions about siting, design, operation, and compensatory mitigation, is a set of recurrent decisions made in the face of uncertainty. The Department of the Interior has a long history of approaching such decisions through a process of adaptive management (Williams *et al.* 2007). The purpose of adaptive management is to improve long-term management outcomes, by recognizing where key uncertainties impede decision making, seeking to reduce those uncertainties over time, and applying that learning to subsequent decisions (Walters 1986).

In the case of managing eagle populations in the face of energy development there is considerable uncertainty to be reduced. For example, evidence shows that in some areas

or specific situations, large soaring birds, specifically raptors, are vulnerable to colliding with wind turbines (Barrios and Rodriguez 2004, Kuvlesky *et al.* 2007). However, we are uncertain about the relative importance of factors that influence that risk. We are also uncertain about the best way to mitigate the effects of wind turbine developments on raptors; we suspect some strategies might be effective, others are worth trying. We also suspect that a few species, including golden eagles (USFWS 2009b), may be susceptible enough to collisions with wind turbines that populations may be negatively affected. Thus, there are uncertainties at several levels that challenge our attempts to manage eagle populations: (1) at the level of understanding factors that affect collision risk, (2) at the level that influences population trends, and (3) about the efficacy of various mitigation options. The Service, our conservation partners, and industry will never have the luxury of perfect information before needing to act to manage eagles. Our goal is to reduce that uncertainty through use of formal adaptive management, thereby improving our predictive capability over time. Applying a systematic, cohesive, nationally-consistent strategy of management and monitoring is necessary to accomplish this goal.

In the context of wind energy development and eagle management under the ECPG, there are four specific sets of decisions that will be approached through adaptive management: (1) adaptive management of wind project operations; (2) adaptive management of wind project siting and design recommendations; (3) adaptive management of compensatory mitigation; and (4) adaptive management of population-level take thresholds. These are discussed in more detail in Appendix A. The adaptive management process will depend heavily on pre- and post-construction data from individual projects, but analyses, assessment, and model evaluation will rely on data pooled over many individual wind projects. Therefore, individual project developers or operators will have limited direct responsibilities for conducting adaptive management analyses, other than to provide data through post-construction monitoring.

EAGLE CONSERVATION PLAN DEVELOPMENT PROCESS

The following sections of the ECPG, including attached appendices, provide a descriptive instructional template for developing an ECP. Throughout this section, we use the term ECP to include any other document or collection of documents that could be considered equivalent to an ECP. The ECP is an integral part of the permit process, and the following chronological step-by-step outline shows how the pieces fit together:
The ECPG provides guidance and serves as a reference for project developers or operators, the Service, and other jurisdictional agency biologists when developing and evaluating ECPs. Using the ECPG as a non-binding reference, the Service will work with project developers or operators to develop an ECP. The ECP documents how the project developer or operator intends to comply with the regulatory requirements for programmatic permits and the associated NEPA process by avoiding and minimizing the risk of taking eagles up-front, and formally evaluating possible alternatives in (ideally) siting, configuration, and operation of wind projects. The Service's ability to influence siting and configuration factors depends on the stage of development of the project at the time the project developer or operator comes to us.

The Service recommends that project developers or operators develop an ECP following the five-staged approach described earlier. During Stages 1 through 4, projects or alternatives should be placed in one of the three risk categories, with increasing certainty by Stage 4. The ECP should provide detailed information on siting, configuration, and operational alternatives that avoid and minimize eagle take to the point any remaining take is unavoidable and, if required, mitigates that remaining take to meet the statutory preservation standard. The Service will use the ECP and other application materials to either develop an eagle take permit for the project, or to determine that the project cannot be permitted because risk to eagles is too high to meet the regulatory permit requirements.

For permitted projects, the Service will use the 80% upper confidence limit or similar risk-averse estimate (*e.g.*, the upper limit of the 80% credible interval is used in the Service's predictive model described in Appendix D) of the mean annual predicted unavoidable eagle take to determine likely population-level effects of the permit and compensatory mitigation levels, if required. For predicted recurring eagle take that is in excess of calculated eagle management unit take thresholds, the Service will either (a) approve a compensatory mitigation proposal from the project developer or operator; or (b) accept, if sufficient, a commitment of funds to an appropriate independent third party that is formally obligated (via contract or other agreement with the project developer or operator) to perform the approved mitigation work. Under either (a) or (b), the compensatory mitigation cost and actions will be calibrated so as to offset the predicted unavoidable take, such that we bring the individual permit's (and cumulatively over all such permits') predicted mortality effect to a no-net-loss standard. Compensatory mitigation will initially be based on the upper 80% confidence limit of the predicted mean annual fatality rate (or similar risk-averse estimate) over a five year period, and it will be adjusted for future years based on the observed fatality rate over the initial period of intensive post-construction monitoring (no less than 2 years). Compensatory mitigation, as well as other forms of mitigation aimed at reducing other detrimental effects of permits on eagles, may also be necessary in other situations where predicted effects to eagle populations are substantial and not consistent with stable or increasing breeding populations of eagles.
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Post-construction monitoring may be required as a condition of an eagle programmatic take permit and will be required for wind-energy projects that may potentially take eagles. This monitoring should be systematic and standardized to be suitable for use in a formal adaptive management framework to evaluate and improve the predictive accuracy of our models. In addition, the information will be used by the Service and the project developer or operator to determine if, after no more than five years of post-construction monitoring, the 80% upper confidence limit on the predicted mean number of annual fatalities adequately captured the observed estimated mean number of fatalities annually. If the observed and predicted estimates of annual fatalities are different, either additional compensatory mitigation will be required retroactively to offset higher-than-predicted levels of take (assuming the actual number of eagles taken was greater than the number

actually compensated for), or the permittee will receive a credit for the excess compensation (the difference between the actual mean and the number compensated for) that can be applied to other take (either by the permittee or other permitted individuals at his/her discretion) within the same eagle management unit at any time in the future.

At no more than five-years from the date a permit is issued, the permittee will compile and the Service and the permittee will review fatality information for the project to determine if experimental ACPs should be implemented to potentially reduce eagle mortalities based on the observed, specific situation at each site. As discussed previously, at the time of permit issuance the Service and the project developer or operator will agree to an upper limit on the cost of such future experimental ACPs, which will only be implemented if warranted by eagle disturbance or mortality data. If these experimental ACPs are likely to reduce mortalities at the project in the future, the amount of future compensatory mitigation will be decreased accordingly (*e.g.* if ACPs are predicted to reduce the fatality rate from three to two eagles annually, compensatory mitigation would only be required to offset the future predicted take of two eagles per year). In such cases, additional post-implementation monitoring should be conducted to determine the effectiveness of the experimental ACPs. In cases where observed fatalities exceed predicted to the degree category 1 fatality-rate criteria are confirmed to have been met or exceeded by a permitted project, and for whatever reason experimental ACPs or additional conservation measures cannot be implemented to reduce fatalities to category 2 levels or below, the Service may have to rescind the permit for that project to remain in compliance with regulatory criteria.

Programmatic eagle take permits will be conditioned to require access to the areas where take is possible and where compensatory mitigation is being implemented by Service personnel, or other qualified persons designated by the Service, within reasonable hours and with reasonable notice from the Service, for purposes of monitoring the site(s). The regulations provide, and a condition of any permit issued will require, that the Service may conduct such monitoring while the permit is valid, and for up to three years after it expires (50 CFR 22.26(c)(4)). In general, verifying compliance with permit conditions is a secondary purpose of site visits; the primary purpose is to monitor the effects and effectiveness of the permitted action and mitigation measures. This may be done if a project developer or operator is unable to observe or report to the Service the information required by the annual report—or it may serve as a "quality control" measure the Service can use to verify the accuracy of reported information and/or adjust monitoring and reporting requirements to provide better information for purposes of adaptive management.

1. Contents of the Eagle Conservation Plan

This section provides a recommended outline for an ECP, with a short description of what should be contained in each section. See previous sections and referenced appendices for details on the stages and categories.

a. Stage 1
Data from Stage 1 should be presented and summarized in this section of the ECP. The project developer or operator should work with the Service to place potential wind–facility site in a category based on the Stage 1 information. For detailed recommendations on the Stage 1 process, see Appendix B.

b. Stage 2
Data from Stage 2 should be presented and summarized in this section of the ECP. For detailed recommendations on the Stage 2 methods and metrics, see Appendix C. The risk categorization should be re-assessed in this section, taking into account Stage 2 results.

c. Stage 3
In this section of the ECP, project developers or operators should work in coordination with the Service to calculate a prediction of the annual eagle fatality rate and confidence interval for the project using data generated from the Stage 2 assessment. The initial estimate of the fatality rate should not take into account possible conservation measures and ACPs; these will be factored in as part of Stage 4. For detailed recommendations on Stage 3 methods and metrics, see Appendix D. The risk categorization should be re-assessed in this section, taking into account Stage 3 results.

d. Stage 4
This section of the ECP should describe how proposed conservation measures and ACPs should reduce the fatality rate generated in stage 3, and what compensatory mitigation measures will be employed to offset unavoidable take, if required. This section facilitates demonstrating how conservation measures and ACPs have reduced the raw predicted fatality rate to the unavoidable standard. For detailed recommendations on considerations for the development of conservation measures and ACPs see Appendix E. The risk categorization should be re-assessed in this section, taking into account Stage 4 results. This should be the final pre-construction risk categorization for the proposed project. This section should also fully describe the proposed compensatory mitigation approach (if required). For detailed recommendations regarding compensatory mitigation, see Appendix G.

e. Stage 5 – Post-construction Monitoring
In this section of the ECP, the project developer or operator should describe the proposed post-construction survey methodology for the project. Detailed recommendations for post-construction monitoring are in Appendix H. The Stage 5 post-construction monitoring plan is the final section of the ECP.

INTERACTION WITH THE SERVICE

As noted throughout this ECPG, frequent and thorough coordination between project developers or operators and Service and other jurisdictional-agency employees is crucial to the development of an effective and successful ECP. Close coordination will also be necessary in the refinement of the modeling process used to predict fatalities, as well as

in post-construction monitoring to evaluate those models. We anticipate the ECPG and the recommended methods and metrics will evolve rapidly as the Service and project developers or operators learn together. The Service has created a cross-program, cross-regional team of biologists who will work jointly on eagle-programmatic-take permit applications to help ensure consistency in administration and application of the Eagle Permit Rule. This close coordination and interaction is especially important as the Service processes the first few programmatic eagle take permit applications.

The Service will continue to refine this ECPG with input from all stakeholders with the objective of maintaining stable or increasing breeding populations of both bald and golden eagles while simultaneously developing science-based eagle-take regulations and procedures that are appropriate to the risk associated with each wind energy project. As the ECPG evolves, the Service will not expect project developers or operators to retroactively redo analyses or surveys using the new approaches. The adaptive approach to the ECPG should not deter project developers or operators from using it immediately.

INFORMATION COLLECTION

(b) (5)

[redacted]

GLOSSARY

Active nest – see occupied nest.

Adaptive resource management – an iterative decision process that promotes flexible decision-making that can be adjusted in the face of uncertainties as outcomes from management actions and other events become better understood.

Advanced conservation practices (ACP) — means scientifically supportable measures that are approved by the Service and represent the best available techniques to reduce eagle disturbance and ongoing mortalities to a level where remaining take is unavoidable. ACPs are a special subset of conservation measures that must be implemented where they are applicable.

Adult – an eagle five or more years of age.

Alternate nests – additional sites within a nesting territory that are available to be used.

Avoidance and minimization measures – conservation actions targeted to remove or reduce specific risk factors (*e.g.*, avoiding important eagle use areas and migration concentration sites, placing turbines away from ridgelines). A subset of conservation measures.

Benchmark –an eagle harvest rate at the local-area population scale that should trigger heightened scrutiny.

Breeding territory – equivalent to eagle territory.

Calculated take thresholds – annual allowable eagle take limits established in USFWS (2009b).

Collision probability (risk) – the probability that an eagle will collide with a turbine given exposure.

Compensatory mitigation – replacement of project-induced losses to fish and wildlife resources. Substitution or offsetting of fish and wildlife resource losses with resources considered to be of equivalent biological value. In the case of an the ECPG, an action in the eagle permitting process that offsets the predicted take of eagles if ACPs and other conservation measures do not completely remove the potential for take, and projected take exceeds calculated take thresholds for the species or the eagle management unit affected (or in some cases, under other circumstances as described in USFWS 2009a).

Conservation measures – actions that avoid (this is best achieved at the siting stage), minimize, rectify, reduce, eliminate, or mitigate an effect over time. ACPs are conservation measures that have scientific support and which must be implemented where they are applicable.

Discount rate – the interest rate used in calculating the present value of expected yearly benefits and costs.

Disturb - means 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.

Eagle Conservation Plans (ECP) – a document produced by the project developer or operator in coordination with the Service that supports issuance of an eagle take permit under 50 CFR 22.26 and potentially 22.27 (or demonstrates that such a permit is unnecessary).

Eagle Management Unit - regional eagle populations defined in the FEA (USFWS 2009b). For golden eagles, eagle management units follow Bird Conservation Regions (Figure 2), whereas bald eagle management units largely follow Service regional boundaries (Figure 3).

Eagle exposure rate – Eagle-minutes flying within the project footprint (in proximity to turbine hazards) per hour (hr) per kilometer^2 (km^2).

Eagle nest (or nest) -- any readily identifiable structure built, maintained or used by bald eagles or golden eagles for the purposes of reproduction (as defined in 50 CFR 22.3).

Eagle territory – an area that contains, or historically contained, one or more nests within the home range of a mated pair of eagles (from the regulatory definition of "territory" at 50 CFR 22.3).

Experimental ACPs – prospective conservation measures identified at the start of a programmatic eagle take permit that are not implemented immediately, but are deferred pending the results of post-construction monitoring. If such monitoring indicates the measures might reduce observed eagle fatalities, they should be implemented and monitored for a sufficient period of time to determine their effectiveness.

Fatality monitoring – searching for eagle carcasses beneath turbines and other facilities to estimate the number of fatalities.

Fatality rate. – (1) in fatality prediction models, the fatality rate is the number of eagle fatalities per hr per km^2 **;** (2) elsewhere in the ECPG it is the number of eagles taken or predicted to be taken per year.

Floater (floating adult) – an adult eagle that has not settled on a breeding territory.

Hazardous area – Rotor-swept area around a turbine or proposed turbine (km^2).

Home range - the area traveled by and eagle in its normal activities of food gathering, mating, and caring for young. Breeding home range is the home range during the breeding season, and the non-breeding home range is the home range outside the breeding season.

Important eagle-use area - an eagle nest, foraging area, or communal roost site that eagles rely on for breeding, sheltering, or feeding, and the landscape features surrounding such nest, foraging area, or roost site that are essential for the continued viability of the site for breeding, feeding, or sheltering eagles (as defined at 50 CFR 22.26).

Inactive nest ─ a bald eagle or golden eagle nest that is not currently being used by eagles as determined by the continuing absence of any adult, egg, or dependent young at the nest for at least 10 consecutive days immediately prior to, and including, at present. An inactive nest may become active again and remains protected under the Eagle Act.

Inventory –systematic observations of the numbers, locations, and distribution of eagles and eagle resources such as suitable habitat and prey in an area.

Jurisdictional agency – a government agency with jurisdictional authority to regulate an activity (*e.g.*, a state or tribal fish and wildlife agency, a state or federal natural resource agency, etc.).

Juvenile – an eagle less than one year old.

Kiting – stationary or near-stationary hovering by a raptor, usually while searching for prey.

Local-area population – is as defined in USFWS (2009b), and refers to the eagle population within a distance from the project footprint equal to the species median natal-dispersal distance (43 miles for bald eagles and 140 miles for golden eagles).

Mean inter-nest distance – the mean nearest-neighbor distance between simultaneously occupied eagle nests.

Meteorological towers (met towers) – towers erected to measure meteorological events such as wind speed, direction, air temperature, etc.

Migration concentration sites – places where geographic features (e.g., north-south oriented ridgelines, peninsulas) funnel migrating eagles, resulting in concentrated use during migration periods.

Migration corridors - the routes or areas where eagles may concentrate during migration (*e.g.*, funneling areas along ridgetops, at tips of peninsulas) as a result of the interplay between weather variables and topography.

Migration counts – standardized counts that can be used to determine relative numbers of diurnal raptors passing over an established point during fall or spring migration.

Mitigation – avoidance, minimization, rectification, reduction over time, and compensation for negative impacts to bald eagles and golden eagles from the permitted actions. In the ECPG, we use the term compensatory mitigation to describe

the subset of mitigation actions designed to offset take to achieve the no-net-loss standard.

Monitoring – (1) a process of project oversight such as checking to see if activities were conducted as agreed or required; (2) making measurements of uncontrolled events at one or more points in space or time with space and time being the only experimental variable or treatment; (3) making measurements and evaluations through time that are done for a specific purpose, such as to check status and/or trends or the progress towards a management objective.

No-net-loss – no net change in the overall eagle population mortality or natality rate after issuance of a permit that authorizes take, because compensatory mitigation reduces another form of mortality, or increases natality, by a comparable amount.

Occupied nest – a nest used for breeding in the current year by a pair of eagles. Presence of an adult, eggs, or young, freshly molted feathers or plucked down, or current year's mutes (whitewash) suggest site occupancy. In years when food resources are scarce, it is not uncommon for a pair of eagles to occupy a nest yet never lay eggs; such nests are considered occupied.

Occupied territory – an area that encompasses a nest or nests or potential nest sites and is defended by a mated pair of eagles.

Operational adjustments – modifications made to an existing wind project that changes how that project operates (*e.g.*, increasing turbine cut in speeds, implementing curtailment of turbines during periods of high eagle use).

Posterior distribution (Bayesian) – a distribution that quantifies the uncertainty in the model parameters after incorporating the observed data. The distributions are usually summarized by intervals around the median.

Present value – within the context of a Resource Equivalency Analysis (REA), refers to the value of debits and credits based on an assumed annual discount rate (3%). This term is commonly used in economics and implies that resources lost or gained in the future are of less value to us today.

Prior distribution (Bayesian) – a distribution that quantifies the uncertainty in the model parameters from previous data or past knowledge. A non-informative prior can be used to imply that little or nothing is known about the parameters.

Programmatic take – take that is recurring, is not caused solely by indirect effects, and that occurs over the long term or in a location or locations that cannot be specifically identified (as defined in 50 CFR 22.3).

Project area – the area that includes the project footprint as well as contiguous land that shares relevant characteristics. For eagle-take considerations, the Service recommends the project area be either project footprint and a surrounding perimeter equal to the mean species-specific inter-nest distance for eagles locally, or the project footprint and a 10-mile perimeter.

Project-area inter-nest distance – the mean nearest-neighbor distance between simultaneously occupied eagle nests of a species (including occupied nests in years where no eggs are laid). We recommend calculating this metric from the nesting territory survey in Stage 2, using all nesting territories within the project area, ideally over multiple years.

Project-area nesting population – number of pairs of eagles nesting within the project area.

Project-area eagle population – the population of eagles, considering breeding, migrating, and wintering eagles, within the project area.

Project footprint - the minimum-convex polygon that encompasses the wind-project area inclusive of the hazardous area around all turbines and any associated utility infrastructure, roads, etc.

Project developer or operator – any developer or operator that proposes to construct a wind project.

Productivity ─ the number of juveniles fledged from an occupied nest, often reported as a mean over a sample of nests.

Renewable energy – energy produced by solar, wind, geothermal or any other methods that do not require fossil fuels.

Resource Equivalency Analysis (REA) – in the context of the ECPG, a methodology used to compare the injury to or loss of eagles caused by wind facilities (debit) to the benefits from projects designed to improve eagle survival or increase productivity (credits). Compensation is evaluated in terms of eagles and their associated services instead of by monetary valuation methods.

Retrofit – any activity that results in the modification of an existing power line structure to make it bird safe.

Risk-averse – a conservative estimate in the face of considerable uncertainty. For example, the Service typically will use the upper 80% credible interval of the median estimated number of annual eagle fatalities for permit decisions in an effort to avoid underestimating fatality rates at wind projects.

Risk validation – as part of Stage 5 assessment, where post-construction surveys are conducted to generate empirical data for comparison with the pre-construction risk assessment predictions to validate if the initial assumptions were correct.

Roosting – activity where eagles seek cover, usually during night or periods of severe weather (*e.g.*, cold, wind, snow). Roosts are usually found in protected areas, typically tree rows or trees along a river corridor.

Seasonal concentration areas – areas used by concentrations of eagles seasonally, usually proximate to a rich prey source.

Site categorization – a standardized approach to categorize the likelihood that a site or operational alternative will meet standards in 50 CFR 22.26 for issuance of a programmatic eagle take permit.

Stopover sites – areas temporarily used by eagles to rest, seek forage, or cover on their migration routes.

Subadult – an eagle between 1 and 4 years old, typically not of reproductive age.

Survey –combined inventory and monitoring.

Take threshold – an upper limit on the annual eagle harvest rate for each species-specific eagle management unit. Thresholds were set in the Final Environmental Assessment on the Eagle Permit Rule (USFWS 2009b).

Territory – area that contains, or historically contained, one or more nests within the home range of a mated pair of eagles (from 50 CFR 22.3).

Unoccupied nest - those nests not selected by raptors for use in the current nesting season. See also inactive nest.

U.S. Fish and Wildlife Service Draft Land-based Wind Energy Guidelines (WEG) – a document that describes a multi-tiered process to site, construct, operate and monitor wind facilities in ways that avoid, minimize, and mitigate impacts to wildlife.

Wind facilities – developments for the generation of electricity from wind turbines.

Wind project – developments for the generation of electricity from wind turbines.

Wind turbine – a machine for converting the kinetic energy in wind into mechanical energy, which is then converted to electricity.

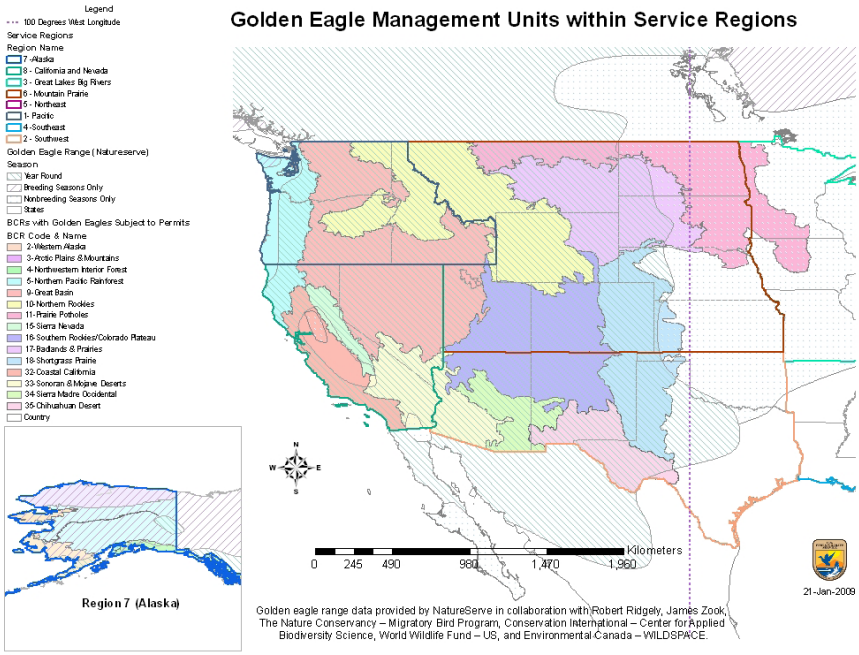

Figure 2. Map of golden eagle management units, from USFWS (2009b).

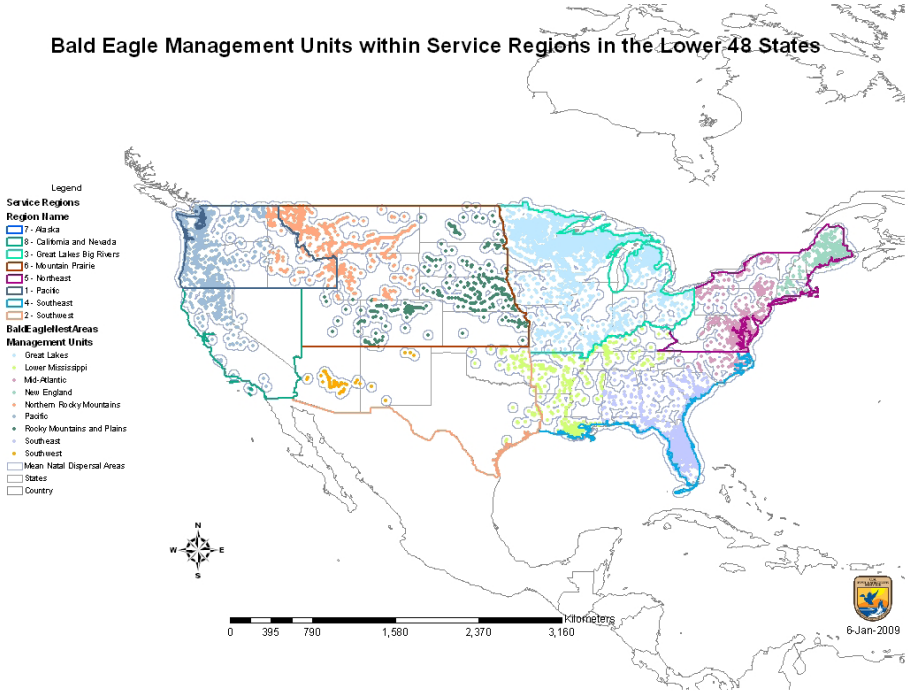

Figure 3. Map of bald eagle management units, from USFWS (2009b).

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APPENDIX A: ADAPTIVE MANAGEMENT

Management of wind facilities to minimize eagle take through decisions about siting, design, operation, and compensatory mitigation, is a set of recurrent decisions made in the face of uncertainty. The Department of the Interior has a long history of approaching such decisions through a process of adaptive management (Williams *et al.* 2007). The purpose of adaptive management is to improve long-term management outcomes, by recognizing where key uncertainties impede decision making, seeking to reduce those uncertainties over time, and applying that learning to subsequent decisions (Walters 1986).

Adaptive management is a special case of decision analysis applied to recurrent decisions (Lyons *et al.* 2008). Like all formal decision analysis, it begins with the identification of fundamental objectives—the long-term ends sought through the decision (step 2, Fig. A-1). These objectives are the primary concern, and all the other elements are designed around them. With these objectives in mind, alternative actions are considered, and the consequences of these alternatives are evaluated with regard to how well they might achieve the objectives. But in many decisions, there is critical uncertainty that impedes the decision (step 6, Fig. A-1), that is, the decision-maker is missing knowledge that affects which alternative might be best. In recurrent decisions, there exists the opportunity to reduce that uncertainty, by monitoring the outcomes of early actions, and apply that learning to later actions. It is valuable to note that learning is not pursued for its own sake, but only insofar as it helps improve long-term management by reducing these uncertainties.

There are two hallmarks of a formal interpretation of adaptive management, like that described above. The first hallmark is the *a priori* identification of the critical uncertainty. In this way, adaptive management is not a blind search for some unspecified new insights, but a focused effort to reduce the uncertainty that stands in the way of better decision-making. The second hallmark is that the means of adaptation is clear, that is, the way in which new information will be applied to subsequent decisions is articulated.

There is, however, recognition that unanticipated learning does occur in any real system, and this learning can sometimes lead to valuable insights. In so-called "double-loop learning" (Argyris and Shon 1978), the learning might even lead to a re-framing of the decision, a re-examination of the objectives, or consideration of new alternatives (this could be represented by a loop from step 7 to step 1 in Fig. A-1). In the context of eagle management at wind facilities, the Service's focus is on the inner-loop learning (represented by the feedback from step 7 to 8 to 4 in Fig. A-1), but unanticipated learning will not be ignored.

In the case of managing eagle populations in the face of energy development, there is considerable uncertainty to be reduced. For example, we believe that in some areas or specific situations, large soaring birds, specifically raptors, might be especially vulnerable to colliding with wind turbines (Barrios and Rodriguez 2004, Kuvlesky *et al.*

2007), but we are uncertain about the relative importance of factors that influence that risk. We are also uncertain about the best way to mitigate the effects of wind turbine developments on raptors; we suspect some

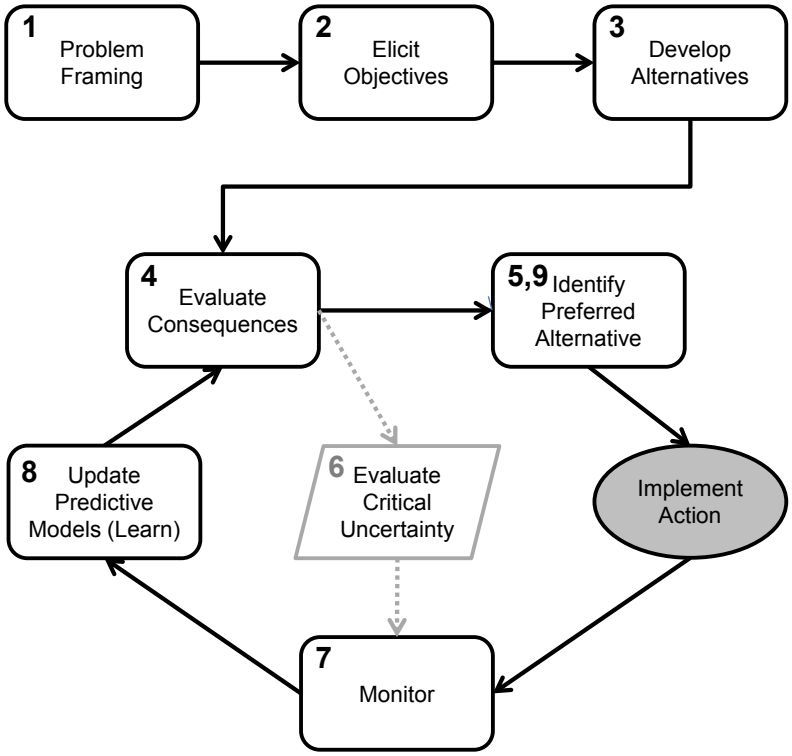

Figure A-1: A framework for adaptive resource management (ARM). At the core of adaptive management is critical uncertainty that impedes the identification of a preferred alternative. When decisions are recurrent, implementation coupled with monitoring can resolve uncertainty, and allow future decisions to reflect that learning. (Figure from Runge 2011).

strategies might be effective, others are worth trying. We also suspect that a few species, including golden eagles (USFWS 2009), may be susceptible enough to collisions with wind turbines that populations may be negatively affected. Thus, there are uncertainties at several levels that challenge our attempts to manage eagle populations: (1) at the level of understanding factors that affect collision risk, (2) at the level that influences population trends, and (3) about the efficacy of various mitigation options. The Service, our conservation partners, and industry will never have the luxury of perfect information before needing to act to manage eagles. We are therefore left to make management decisions based on the best available information with some inherent degree of

uncertainty about the outcomes of those decisions. Our goal is to reduce that uncertainty through use of formal adaptive management, thereby improving our predictive capability over time. Applying a systematic, cohesive, nationally-consistent strategy of management and monitoring is necessary to accomplish this goal.

1. Adaptive Management as a Tool

Using adaptive management as a tool to manage wildlife populations is not new to the Service. We and other agencies are increasingly using the principles of adaptive management across a range of programs, including waterfowl harvest management (Johnson *et al.* 1997), endangered species (Runge 2011), and habitat management at local and landscape scales (Lyons *et al.* 2008). Applying adaptive management to complex resource management issues is promoted throughout the Department of the Interior (Williams *et al.* 2007).

Waterfowl harvest management is the classic example of adaptive resource management. Hunting regulations are reset each year in the United States and Canada through the application of adaptive management principles (Johnson *et al.* 1997). A key uncertainty in waterfowl management is the extent to which harvest mortality is compensated by reductions in non-harvest mortality or by increases in productivity (Williams *et al.* 1996). Various population models have been built based on competing hypotheses to answer this question; these competing models make different predictions about how the population will respond to hunting. Every year the Service and the Canadian Wildlife Service monitor waterfowl and environmental conditions to estimate population size, survival rates, productivity, and hunting rates. These data feed into the various competing models, and the models are evaluated annually based on how well they predict changes in waterfowl populations. Models that perform best year-after-year accrue increasing weight (*i.e.*, evidence in support of the underlying hypothesis). Weighted model outputs directly lead to recommended sets of hunting regulations (*e.g.*, bag limits and season lengths) for the subsequent year. Over time, by monitoring the population effects of various harvest rates on survivorship, and environmental conditions on productivity, our uncertainty about the degree to which harvest is compensated by other factors has been reduced, allowing for the setting of harvest rates with greater confidence every year. The application of adaptive management principles to waterfowl harvest regulation has helped the Service and its partners achieve or exceed population goals for most species of waterfowl (NAWMP 2004).

Adaptive management is a central component of the Service's approach to collaborative management at the landscape scale, through strategic habitat conservation (NEAT 2006). The principles of adaptive management are also embedded in endangered species management (Ruhl 2004, Runge 2011), including in recovery planning (Smith 2011) and habitat conservation planning (Wilhere 2002). Indeed, the Service recognizes that adaptive management is a normative concept in modern ecological decision-making (Callicott *et al.* 1999), and embraces it as a fundamental tool.

2. Applying Adaptive Management to Eagle Take Permitting

In the context of wind energy development and eagle management under the ECPG, there are four specific sets of decisions that are suitable for an adaptive management approach.

a. Adaptive Management of Wind Project Operations

The most immediate and direct opportunity for adaptive management is at the site-level for wind facilities after construction. The relevant uncertainty is in the predictions of eagle take at the project, and the operational factors that influence the level of take. The role of adaptive management at this scale will be analyzed and evaluated in the NEPA associated with each permit. Under the ECPG, a wind project would initially work with the Service to generate predictions of take, given the siting, design, and operational parameters of the project. These predictions are made under uncertainty, and the risk to eagles associated with this uncertainty is factored into the compensatory mitigation terms of the permit under BGEPA. After a site becomes operational, ongoing surveys of realized take can be compared to the predictions of take. At the review points of the permit (typically, every five years), the Service and the operator will review the observed take. If the observed take exceeds the predicted and permitted take, the Service will work with the operator to identify measures that could be taken to reduce the take below the permitted threshold (within the limits jointly agreed to at the outset of the permit period). The monitoring data may provide clues about how this could be done, for example, by identifying where and when most of the take is occurring. On the other hand, if the observed take is significantly less than the predicted take, the Service can work with the operator to update the predictions of take for the next review period, adjust the conditions for compensatory mitigation, and return credits to the operator for any excess compensatory mitigation.

In a related manner, for both new and existing facilities, ongoing monitoring can provide information to reduce uncertainty about the effectiveness of conservation measures and ACPs. In particular, experimental conservation measures and ACPs are actions taken by the operator that are thought to reduce mortality risk, but there is uncertainty about how effective some of these measures can be. In the end, the purpose of adaptive management of operations is to reduce mortality of eagles while also reducing the impact of conservation measures and ACPs on power generation at wind facilities.

b. Adaptive Management of Wind Project Siting and Design Recommendations

Through the ECPG and the permit review process, the Service makes recommendations to operators about how to site and design wind facilities to reduce eagle disturbance and mortality. These recommendations are based on the best available science, but acknowledge that our understanding of the interaction between eagles and wind facilities is incomplete. Adaptive management provides the opportunity to respond to increasing understanding about this interaction.

The particular focus of this layer of adaptive management is the predictions of take that are made by considering pre-construction surveys and risk factors (see APPENDIX D). The proposed models are initially quite coarse in their ability to make predictions, but the Service, in partnership with the U.S. Geological Survey (USGS), plans to refine these

models. The key uncertainties concern the risk factors that are important in predicting eagle take. For example, how important is the proximity to nesting sites, prey concentrations, or ridgelines in determining the risk posed by any wind turbine? Multiple models will be developed to express uncertainty in these risk factors, and the predictions from these multiple models will be compared to the patterns of observed take at existing facilities. Using multiple models to express uncertainty allows inclusion and evaluation of alternative models from different sources. The learning that emerges will be used to improve the predictions from the models, which in turn, will allow future recommendations about siting and design to be enhanced. In this case, the benefit of the monitoring at individual sites accrues to the wind industry as a whole.

c. Adaptive Management of Compensatory Mitigation

The determination of appropriate levels of compensatory mitigation, such as through a resource equivalency analysis (REA, see APPENDIX F), is based on two predictions: the level of take expected at a project; and the amount of mitigation required to offset that take. As noted above, site-level learning, through observation of realized take, can be used to update predictions of take, and compensatory mitigation can be adjusted accordingly. In addition, the accrued experience across sites, through monitoring of the effectiveness of compensatory mitigation projects and eagle population responses, can be used to update the methods and parameters in the REA methods used to determine the appropriate level of compensatory mitigation.

d. Adaptive Management of Population-Level Take Thresholds

Healthy, robust populations of animals can sustain some degree of incidental take, without long-term adverse impacts to the population or the ecosystem. The amount of take that is sustainable and that can be authorized is a function of both scientific factors (*e.g.*, the intrinsic growth rate and carrying capacity of the population) and policy interpretation (*e.g.*, the amount of potential growth that can be allocated to take, and the risk tolerance for excessive take) (Runge *et al.* 2009). The capacity to sustain incidental take arises from the resilience in populations due to the ability to compensate for that take by increasing survival or reproductive rates.

At the scale of regional populations (*e.g.*, bird conservation regions for golden eagles), the central question for eagles is not altogether different than it is for waterfowl: to what extent is mortality from energy development, or any other anthropogenic source, compensated by reductions in mortality from other sources, or by increases in productivity? These questions are best answered by building population models founded on competing hypotheses that incorporate estimates of mortality, productivity, and the variation around those vital rates. What is needed is a systematic effort to collect information on mortality, breeding, and population status to feed those models. Similar to waterfowl management, reducing uncertainty in population-level models for eagle management will require rolling up the results of local monitoring and research across the distribution of eagles. The results will allow the Service to make more informed management recommendations to reach the Service's population goal of stable or increasing breeding populations for both eagle species.

At present, the Service's regulations call for no increase in net take of golden eagles, under a protective concern that the current level of take exceeds a sustainable threshold. As our understanding of golden eagle population size and status increases, and our knowledge of vital rates and potential resilience improves, the Service and USGS will reanalyze the potential for instituting take thresholds for golden eagles. Take thresholds for bald eagles will also be re-assed no less frequently than every five years (USFWS 2009). If thresholds for either species are increased and additional take is authorized, continued population monitoring will be critical in providing feedback on population response (*i.e.*, step 4 to 8 in Fig. A-1).

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APPENDIX B: STAGE 1 – SITE ASSESSMENT

Occurrence of eagles and their use of landscapes vary across broad spatial scales. The first step in project development is to conduct a landscape-scale assessment, based mainly on publicly available information, to identify sites within a large geographic area that have both high potential for wind energy and low potential for negative impacts on eagles if a project is developed. Stage 1 corresponds to Tiers 1 and 2 of the WEG and, along with Stage 2 herein and Tier 3 in the WEG, comprise the pre-construction evaluation of wind energy projects. Depending on the outcome of Stage 1, developers decide whether to proceed to the next stage, "... requiring a greater investment in data collection to answer certain questions" (referring to Tier 3, in the WEG; see also Table B-1). The WEG should be examined for general considerations relevant to Stage 1; this appendix and the following APPENDIX C focus on considerations specific to eagles.

The Stage 1 assessment should evaluate wind energy potential within the ecological context of eagles, including considerations for the eagle's annual life-cycle, *i.e.*, breeding, dispersal, migration, and wintering. The goal at this stage is to determine whether prospective wind project sites are within areas known or likely to be used by eagles and, if so, begin to determine the relative spatiotemporal extent and type of eagle use of the sites. Areas used heavily by eagles are likely to fall into category 1; development in these areas should be avoided because the Service probably could not issue project developers or operators a programmatic permit for take that complies with all regulatory requirements. Stage 1 assessment is a relatively straightforward "desktop" process that probably should conduct before significant financial resources have been committed to developing a particular project.

Multiple data sources can be consulted when evaluating a prospective site's value to eagles. Wildlife biologists and other natural resource professionals from federal agencies including the Service, and tribal, state, and county agencies should be consulted early in the Stage 1 process to help ensure all relevant information is being considered. Information mainly encompasses physiographic and biological factors that could affect eagle risk associated with wind energy development. Questions generally focus on: (1) recent or historical nesting and seasonal occurrence data for eagles at the prospective area; (2) migration or other regular movement by eagles through the area or surrounding landscape; (3) seasonal concentration areas such as a communal roost site in a mature riparian woodland or a prairie dog (*Cynomys* spp.) town serving as a major forage base; and (4) physical features of the landscape, especially topography, that may attract or concentrate eagles. "Historical" is defined here as 5 or more years; a search for historical data should encompass at least the previous 5 years. Data from far longer time periods may be available but should be cautiously scrutinized for confounding factors such as land use change that diminish the data's relevance.

Preliminary site evaluation could begin with a review of publically available information, including resource databases such as NatureServe (http://www natureserve.org/) and the American Wind Wildlife Institute's Landscape Assessment Tool (LAT; http://www.awwi.org/initiatives/landscape.aspx); information from relevant tribal, state,

and federal agencies, including the Service; state natural heritage databases; state Wildlife Action Plans; raptor migration databases such as those available through Hawk Migration Association of North America (http://www.hmana.org) or HawkWatch International (http://www.hawkwatch.org); peer-reviewed literature and published technical reports; and geodatabases of land cover, land use, and topography (*e.g.*, the LAT integrates several key geodatabases). Additional information on a site's known or potential value to eagles can be garnered by directly contacting persons with eagle expertise from universities, conservation organizations, and professional or state ornithological or natural history societies. Some of this wide assortment of desktop information and certain knowledge gaps identified probably will necessitate validation through site-level reconnaissance, as suggested in the WEG.

Using these and other data sources, a series of questions should be considered to help place the prospective project site or alternate sites into an appropriate risk category. Relevant questions include (modified from the WEG):

1. Does existing or historical information indicate that eagles or eagle habitat (including breeding, migration, dispersal, and wintering habitats) may be present within the geographic region under development consideration?
2. Within a prospective project site, are there areas of habitat known to be or potentially valuable to eagles that would be destroyed or degraded due to the project?
3. Are there important eagle use areas or migration concentration sites documented or thought to occur in the project area?
4. Does existing or historical information indicate that habitat supporting abundant prey for eagles may be present within the geographic region under development consideration (acknowledging, wherever appropriate, that population levels of some prey species such as black-tailed jackrabbits (*Lepus californicus*) cycle dramatically [Gross *et al.* 1974] such that they are abundant and attract eagles only in certain years [*e.g.*, Craig *et al.* 1984])?
5. For a given prospective site, is there potential for significant adverse impacts to eagles based on answers to above questions and considering the design of the proposed project?

We recommend development of a map that, based on answers to the above questions, indicates areas that fall under site category 1, *i.e.*, areas where wind energy development would pose obvious, substantially high risks to eagle populations. Remaining areas could be tentatively categorized as either moderate to high but mitigable risk or minimal risk to eagle populations (category 2 or category 3). Prospective sites that fall into category 1 at this point are unlikely candidates for a programmatic permit for take of eagles, although classification of a site at Stage 1 might be regarded as tentative (see "Assessing Risk and Effects; 4. Site Categorization Based on Mortality Risk to Eagles" in the ECPG. If a site appears to be a category 1 site based on the outcome of Stage 1, the developer can decide whether information at that stage adequately supports a category decision or whether to invest in Stage 2 assessment to clarify preliminary indications of Stage 1 (Table B-1). Sites that tentatively fall into categories 2 or 3 at Stage 1 can move on to Stage 2

assessment, but could ultimately be excluded as permit candidates after more site-specific data are collected in Stage 2.

Again, the goal of Stage 1 site assessment in this ECPG is to determine whether prospective wind project sites are within areas known or likely to be used by eagles and, if so, begin to assess the spatiotemporal extent and type of eagle use the sites receive or are likely to receive. Thus, the ultimate goal of Stage 1 is to determine whether sites exhibit any obvious substantial risk for eagles. For those that do not, the Stage 1 site assessment will provide fundamental support for the design of detailed surveys in Stage 2, decisions which influence optimal allocation of the financial investment in surveys and quality of data collected. In some situations, the Stage 1 site assessment may provide enough information to adequately estimate impacts and support decisions on site categorization (and, where relevant, potential conservation measures and appropriate levels of compensatory mitigation), rendering Stage 2 assessment unnecessary (Table B-1).

Literature Cited

Craig, T. H., E. H. Craig, and L. R. Powers. 1984. Recent changes in eagle and buteo abundance in southeastern Idaho. Murrelet 65:91-93.

Gross, J. E., L. C. Stoddart, and F. H. Wagner. 1974. Demographic analysis of a northern Utah jackrabbit population. Wildlife Monograph 40.

Table B-1. Framework for decisions on investment at Stage 2 level to address chief information needs. A bidirectional arrow represents a continuum of conditions.

	Strength of Stage 1 Information Base for Assessing Risk to Eagles		
Area of Information Need	**Robust:** well investigated and supported, at least semi-quantitative documentation from most recent 2-5 years, encompassing potential site(s) or adjoining areas from which reliable inferences can be made	↔	**Weak:** characterized by little supportive information and marginal certainty overall, at best only general descriptions, conjecture, or limited inferences from other areas or regions
Seasonal abundance		↔	
Nesting records		↔	
Migration corridors		↔	
Communal roosts		↔	
Prey availability or foraging hotspots		↔	
Outcome and implications for additional assessment needs at Stage 2 level:	Relevant areas of information need are well-addressed and risk level is clearly low – Stage 2 may not be warranted or else modest or limited-focus survey effort at Stage 2 level recommended Relevant areas of information need are well-addressed and risk level is moderate or high – strong effort at Stage 2 level advised	↔	Uncertain risk level – strong survey effort at Stage 2 level advised

APPENDIX C: STAGE 2 – SITE-SPECIFIC SURVEYS AND ASSESSMENT

1. Surveys of Eagle Use

Information collected in Stage 2 is used mainly to generate predictions of the mean annual number of eagle fatalities for a prospective wind energy project and to identify important eagle use areas or migration concentration sites that could be affected by the project. Information from Stage 2 is also used to assess the likelihood of disturbance take of eagles. An array of survey types could be used to quantify use by eagles of a proposed project area. This section focuses on four types of surveys recommended for assessing risk to eagles at proposed wind projects. The first three are surveys of eagle use within the proposed project footprint. These include: (1) point count surveys, which mainly generate occurrence data that form underpinnings of the risk assessment model recommended herein; (2) migration ("hawk watch") counts, documenting hourly passage rates of eagles; and (3) utilization distribution (UD) assessment, an accounting of the intensity of use of various parts of the home range within the project footprint; and (4) surveys of nesting territory occupancy in the project area. Where uncertainties exist regarding survey methods, our recommendations tend to be conservative such that biases in survey data, if any, are more likely to favor greater rather than lower estimates of use and ultimately more rather than less protection for eagles. This approach is consistent with the Service's policy of taking a risk-averse stance in the face of existing uncertainty with respect to eagle programmatic take permits.

In addition to fatality estimation and informing a site categorization decision, Stage 2 studies of eagles should help answer the following questions (modified from the WEG):

1. What is the distribution, relative abundance, behavior, and site use of eagles and to what extent do these factors expose eagles to risk from the proposed wind energy project?
2. What are the potential risks of adverse impacts of the proposed wind energy project to individual and local populations of eagles and their habitats?
3. How can developers avoid, minimize, and mitigate identified adverse impacts?
4. Are there studies that should be initiated at this stage that would be continued in post-construction?

a. Point Count Surveys

Point counts (*i.e.*, circular-plot surveys) often are used to assess relative abundance, population trends, and habitat preferences of birds (Johnson 1995). The Service advocates use of point count surveys as the means of providing primary input for models predicting fatality rate of eagles associated with wind turbines. However, we acknowledge the term point count survey does not accurately describe the approach we advocate for collecting data to support fatality rate estimation at wind energy projects. The Service's approach in this regard is point-based recording of activity duration (minutes of flight) within a three-dimensional plot. In contrast, point count surveys, as typically conducted, yield indices of relative abundance or frequency of occurrence (in addition to trend, density estimation, and habitat association, depending on how data are collected; Ralph *et al.* 1993). With that said, most records of eagle flight duration are likely to be classified as 1 minute, per the approach recommended in this section, and as

such resemble records of occurrence for data from point count surveys. Although a bit of a misnomer in this regard, "point count survey" is applied broadly herein to include both point-based records of flight time and traditional point count surveys because sampling frameworks for each so closely overlap and both data types can be gathered simultaneously, along with other information described in this appendix. There may be other means of generating count data to support the fatality model described in this document. Consideration of alternative approaches for predicting fatality at such projects may require greater time and additional reviews.

The general approach for conducting a fixed-radius point count survey is to travel to a pre-determined point on the landscape and record individual birds detected – whether observed, only heard, or both observed and heard – within a circular plot, the boundary of which is at a fixed distance from the point and is marked in the field in several places (Hutto *et al.* 1986, Ralph *et al.* 1993). In addition to plot radius, the survey is standardized by count duration. Sometimes a variable-radius plot method (Reynolds *et al.* 1980) is used, yielding species-by-species detectability coefficients to appropriately bound the plot radius (*i.e.*, sampling area) for each species. A variety of point count survey methods have been used specifically for raptors (reviewed in Anderson [2007]; the North American Breeding Bird Survey [Sauer *et al.* 2009] is a random-systematic, continent-wide point count survey of bird population trends, including those of many raptor species). However, a fixed-radius approach with circular plots of 800-m radius typically is used for surveying eagles and other large (greater than crow [*Corvus* spp.]-size) diurnal species of raptors at proposed wind energy projects in the United States (Strickland *et al.* 2011).

The optimal duration of point count survey for eagles is a focus of current research. For now, for point count surveys of eagles at proposed wind energy projects, the Service recommends counts of 1, 2, or more hours duration instead of 20- to 40-minute counts typically used (Strickland *et al.* 2011). Longer counts also facilitate integration of other survey types (e.g., development of utilization distribution profiles). Many raptor biologists have suggested that the likelihood of detecting an eagle during a 20- to 40-minute point count survey is extremely low in all but locales of greatest eagle activity and datasets generated by pre-construction point count surveys of this duration typically are replete with counts of zero eagles, resulting in unwieldy confidence intervals and much uncertainty. Moreover, time spent traveling to and accessing points for 20-minute surveys may exceed time spent conducting the observations. For example, 250 1-hour surveys conducted annually at a project of average size (*e.g.*, 15 sampling points, 1 to 3 km apart) and travel conditions require roughly the same total field time as needed for 500 20-minute surveys, yet yield 50% more observation hours (250 versus 167), with correspondingly greater probability of detecting eagles. Another advantage of longer counts is that they reduce biases created if some eagles avoid conspicuous observers as they approach their points and begin surveys, although some observers may become fatigued and overlook eagles during longer counts. A potential trade off of fewer visits, of course, is diminished accounting of temporal variation (*e.g.*, variable weather conditions or an abrupt migration event). While counting at fewer points for longer periods might also reduce the ability to sample more area, we advocate maintain the

minimum spatial coverage of at least 30% of the project footprint. Until there is more evidence that shorter count intervals are adequate to estimate eagle exposure, we believe that a sampling strategy including counts of longer duration, albeit fewer total counts, may in the end improve sampling efficiency and data quality.

A key assumption of fatality prediction models based on data from point count surveys is that occurrence of eagles at a proposed project footprint before construction bears a positive relationship with turbine-collision mortality after the project becomes operational (Strickland *et al.* 2011). Support for this assumption from published literature is limited for eagles and other diurnal raptors at this time, however. In a recent study of raptors at 20 projects in Europe, no overall relationship was evident between either of two pre-construction risk indices and post-construction mortality (Ferrer *et al.* 2011). However, the authors based risk indices only in part on data from pre-construction point counts; factors incorporated into risk indices included a somewhat subjective decision on species-specific sensitivity to collision and conservation status. Despite this, a weak relationship between pre-construction flight activity and post-construction mortality was suggested for the most common species, griffon vulture (*Gyps fulvus*) and kestrels (*Falco* spp.). Neither *Aquila* nor *Haliaeetus* eagles occurred in the study. On coastal Norway, however, a high density, local population of the white-tailed eagle, a species closely related and ecologically similar to the bald eagle, experienced substantial turbine-collision fatality and loss of nesting territories after development of a wind energy project (Nygård *et al.* 2010). The relationship between pre-construction occurrence and post-construction mortality might be less clear if eagles and other raptor species avoided areas after wind energy projects were constructed (*e.g.*, Garvin *et al.* 2011), but in general such displacement seems negligible (Madders and Whitfield 2006).

Precision, consistency, and utility of data derived from point count surveys depend greatly on the sampling framework and field approach for conducting the counts, which in turn depend somewhat on study objectives and the array of species under consideration. Precision and reliability of data from point count surveys for eagles can be much improved upon – and need for a risk-averse approach lessened – by incorporating some basic, common-sense sideboards into the survey design. One of these, longer count duration, is discussed above. Below are examples of ideal design features for point count surveys of eagle use of proposed wind energy projects, particularly when fatality rate prediction is a primary objective. Some of these extend from Strickland *et al.* (2011) and references therein, although the first is not in accord with corresponding guidance in that document.

- Surveys of eagles and other large birds are exclusive of those for small birds, to avoid overlooking large birds while searching at a much smaller scale for a much different suite of birds. The relatively brief (*e.g.*, 10-minute) point counts for small birds could be conducted during the same visit, but before or after the count of large birds.

- In open areas where observers may be conspicuous, counts are conducted from a portable blind or from a blind incorporated into a vehicle to reduce the possibility

that some individual eagles avoid observers, ,thus reducing likelihood of detection. Blinds are designed to mask conspicuous observer movement while not impeding views of surroundings.

- Point locations may be shifted slightly to capitalize on whatever vantage points may be available to enhance the observer's view of surroundings.

- Elevated platforms (*e.g.*, blinds on scaffolding or high in trees, truck-mounted lifts) are used to facilitate observation in vistas obstructed by tall vegetation, topographic features, or anthropogenic structures.

- The observer's visual field at a point count plot, if less than 800 m (*e.g.*, due to obstruction by forest cover), is mapped. The percentage of the plot area that is visible is factored into the calculation of area surveyed.

- Observers use the most efficient, logical route to move among points, changing the starting point with the beginning of each survey cycle such that each point is surveyed during a range of daylight hours.

- Systematic scans of the point count plot using binoculars alternating with scans via the unaided eye to detect close and distant eagles, and with overhead checks for eagles that may have been overlooked during peripheral scanning (Bildstein *et al.* 2007).

- Observers are trained and their skills are tested, including accurate identification and distance estimation (both horizontal and vertical; *e.g.*, eagles greater than 600 m horizontal distance may not be detected by some observers and correction for differences among individual observers may be warranted).

- The boundary of each point count plot is identified via distinct natural or anthropogenic features or marked conspicuously (*e.g.*, flagging on poles) at several points for distance reference. Distance intervals within the plot also are marked if observations are to be categorized accordingly; rangefinder instruments are useful in this regard.

- Surveys are distributed across daylight hours (*e.g.*, morning – sunrise to 1100 hours; midday – 1101-1600; evening 1601 to sunset). In areas or during seasons where eagle flight is more likely during midday than in early morning or evening (*e.g.*, migration [Heintzelman 1986]), sampling efficiency could be increased by temporally stratifying surveys to more intensively cover the midday period.

- A map (*e.g.*, 1:24,000 scale topographic quadrangle) or aerial photographs indicating topographic and other reference features plus locations of point count plots is used as the primary recording instrument in the field. A GPS with GIS interface may serve in this regard.

- Time and position of each individual eagle is recorded on the map, *e.g.*, at the beginning of each minute of observation, if not more frequently.

The following examples of suggested sideboards pertain especially to point count surveys supplying data for the fatality prediction method recommended in this document:

- Following a point count survey, the duration of observation of each eagle flying within the plot is summarized in number of minutes, rounded to the next highest integer (*e.g.*, an eagle observed flying within the plot for about 15 seconds is 1 eagle-minute, another observed within for about 1 minute 10 seconds is 2 eagle-minutes, and so on; most observations likely will equal 1 eagle-minute).

- Eagles are mapped when perched or when otherwise not flying, but the summary of eagle-minutes for a count excludes these observations and includes only eagles in flight.

- Horizontal distance of each eagle-minute is estimated and recorded as ≤ 800 m or > 800 m. Vertical distance of each eagle-minute is estimated and recorded as ≤ 200 m (at or below conservative approximation of maximum height of blade tip of tallest turbine) or > 200 m. Thus, the point count "plot" is a 200-m high cylinder with a radius of 800 m.

- Surveys are done under all weather conditions except that surveys are not conducted when visibility is less than 800 m horizontally and 200 m vertically.

- Data from point count surveys are archived in their rawest form to be available when fatality is estimated as detailed in this document (APPENDIX D).

Other information recorded during point counts may prove useful in project assessment and planning, or in additional data analyses (some requiring data pooled from many projects), *e.g.*:

- Flight paths of eagles, including those outside the plot, are recorded on reference maps, using topographic features or markers placed in the field as location references. Eagle flight paths are recorded also before and after point count surveys and incidental to other field work. Flight paths are summarized on a final map, with those recorded during point count surveys distinguished from others to roughly account for spatial coverage bias. Documentation of flight paths can aid planning to avoid areas of high use (Strickland *et al.* 2011).

- Behavior and activity prevalent during each 1-minute interval is recorded as (*e.g.*) soaring flight (circling broadly with wings outstretched); unidirectional flapping-gliding; kiting-hovering; stooping or diving at prey; stooping or diving in an agonistic context with other eagles or other bird species; undulating/territorial flight; perched; or other (specified).

- Age class of individual eagles is recorded, *e.g.*, juvenile (first year), immature or subadult (second to fourth year), adult (fifth year or greater), or unknown.

- Weather data are recorded, including wind direction and speed, extent of cloud cover, precipitation (if any), and temperature (Strickland *et al.* 2011).

- Distance measures are used to estimate detectability for improving estimates from counts (Buckland *et al.* 2001) and could be used to assess whether eagles avoid observers. Horizontal distance of each eagle-minute is estimated and categorized, *e.g.*, in 100-m intervals to > 800 m.

The key consideration for planning point count surveys at proposed wind energy projects is sampling effort. We advise that project developers or operators coordinate closely with the Service regarding the appropriate seasonal sampling effort, as sampling considerations are complex and depend in part on case-specific objectives. We also reiterate that these (and most other) surveys should be conducted for at least 2 years before project construction and, in most cases, across all seasons. In general, sampling effort should be commensurate with the relative level of risk at a proposed project footprint if this can be surmised reliably from the Stage 1 assessment. If Stage 1 information cannot support reasonably certain risk categorization, Stage 2 surveys should be conducted as described here to clearly ascertain whether eagles are known or likely to use the area. If a project is determined to be category 2, products of point count surveys should include data for the fatality model detailed in this document (APPENDIX D). If there is compelling Stage 1 evidence indicating no use in a given season, zero use could be assumed and point count surveys in that season might be unnecessary.

In general, goals for the Stage 2 surveys are either to: (1) confirm category-3 status for a project, or (2) to generate a fatality rate estimate. Regardless of which of these survey goals apply to a particular project, we recommend first identifying potential sites for wind turbines, including alternate sites, then calculating the total area (km^2) encompassing a 1-km buffer around all the sites. We suggest 1 km because this approximates optimal spacing of a generic 2.5-MW turbine (Denholm *et al.* 2009), and the area outside this may not be representative of topographic features and vegetation types that characterize turbine strings within the project footprint. This approach assures close association between sampling sites and likely turbine locations, as recommended by Strickland *et al.* (2011). Next, we recommend that at least 30% of the area within 1 km of turbines be considered as the total km^2 area to be covered by 800-m radius point count plots (with a sample area for each plot of 2 km^2). Our recommended 30% minimum is based on the actual minimum coverage at eight wind facilities under review by the Service at the time version 2 of the ECPG was being developed.

The first case (i.e., (1) above) is the use of point count data to validate whether a proposed project meets category 3 criteria when Stage 1 information is inadequate. Based on experience with current parameters of the "prior term" in our predictive model (see APPENDIX D), we calculate an average of 20 hours per turbine as an optimal level of annual sampling via point count survey (e.g., equivalent of ten 4-hour point count

surveys at each of 20 sample points for a 40-turbine project; our 20-hour recommendation considers the hazardous area created by a generic 2.5-MW turbine with a rotor diameter of about100 m; sample effort for turbines with smaller rotor diameters would be less). As sampling effort falls from this level, uncertainty regarding fatality risk rises sharply, calling for an increasingly risk averse basis for risk categorization. Although 20 sample hours per turbine may be necessary initially for validating category 3 determination where little Stage 1 information exists, we expect this will decrease as more projects are incorporated into the adaptive management meta-analyses that will refine the prior term.

The second case (i.e., (2) above) is where Stage 1 evidence is strong enough to support the decision that a project is category 2 (or category 3 with potential for re-evaluation as category 2). Fatality rate estimation becomes the main objective of point count surveys and demands for sampling effort can be reduced. We recommend a minimum of 1 hour of observation per point count plot per month but at least 2 hours of observation per point count is warranted for a season for which Stage 1 evidence is ambiguous or suggests high use.

These ideas on minimum observation hours stem from the Service's initial experience in fatality estimation (see APPENDIX D: Stage 3 – Predicting Eagle Fatalities). However, as noted above, with more field applications of our fatality prediction model we should be able to refine our ability to characterize uncertainty based in part on site-specific characteristics, something the Service's current model does not do. Again, to develop a reasonable, informed sampling approach, we urge project developers to engage early with the Service in discussions about sampling design and strategies.

The example below includes determination of the number of point count plots for a project.

Example

The site for a 100-MW, 40-turbine project proposed in open foothills of central New Mexico encompasses 40 km^2 (16 mi^2). During the Stage 1 assessment, data from a hawk watch organization indicates the area is 25 miles east of a north-south mountain ridge that sustains a moderate level of migration by golden eagles each fall but receives little use in spring. According to the state ornithological society, the region also is thought to attract golden eagles during winter, but this is based on sparse anecdotal accounts. Aerial nesting surveys by the Service 5 years ago yielded no evidence of eagle nests within 10 miles of the proposed project, although use of the area by non-breeding resident eagles during spring and summer cannot be ruled out. Reconnaissance visits and review of land cover and other habitat layers in geodatabases support the general indication that the area is important to golden eagles during at least part of the year.

Stage 1 Summary: Of primary concern at the prospective project site is potential for risk to golden eagles during fall migration. Evidence of this at the Stage 1 level is somewhat equivocal, however, because the known migration pathway is outside the

project area. Further examination of use in spring, summer, and especially winter also seems warranted. Questions include temporal (seasonal) and spatial (distribution within project) use. The overarching goal is to quantify risk to eagles posed by the proposed project, mainly by estimating fatality rate. If fatality is anticipated, a secondary goal is to determine whether the predicted level is acceptable and, if not, whether fatality can be avoided and minimized through specified project design and operation features.

The primary tool for predicting fatality is the point count survey. However, if the pre-construction assessment is robust and optimally designed, point count surveys will provide insight on distribution of use within the project footprint especially near proposed turbine sites, and on migration timing and movement pathways.

Sampling effort

A. Number of points, *i.e.*, point count plots, and spatial allocation:
   1. 40 turbines are proposed for project
   2. potential sites for turbines have been selected
   3. area within 1 km of turbines covers total of 100 km^2
   4. 30% of total area = 30 km^2
   5. number of 800-m radius (area of each, 2-km^2) point count plots recommended = 30/2 = 15 plots
   6. survey points are distributed among turbine strings via random-systematic allocation, with each point no more than 1 km from a prospective turbine site

B. Number of counts per point per season and duration of each point count survey:
   1. Based on some Stage 1 evidence of low use in this example, 1 hour of observation per point count plot per month seems appropriate during each of winter (*e.g.*, mid-December through mid-March), spring (mid-March through mid-June), and summer (mid-June through mid-September) seasons. A count duration of 1 hour is selected to maximize efficiency in the field
   2. Survey effort is doubled during the mid-September through mid-December fall migration season for golden eagles, based on Stage 1 evidence of fall migration nearby and need for more definitive data on eagle occurrence, timing, and distribution within the footprint. This could be done by using either two 1-hour counts or a 2-hour count per point per month; the latter is chosen to maximize field efficiency and better emulate migration count methods. The 1-hour counts may lend better insight on temporal variation, but in this example each monthly session of 15 2-hour counts requires an observer 3-4 days to complete, affording some accounting of day-to-day variation.
   3. The total yearly effort in this example is nine 1-hour counts and three 2-hour counts at each of 15 points, yielding 225 total observation hours.

The raw data, in number of eagle-minutes, appear as follows (*e.g.*, for the first fall season sampled, with one 2-hour count per point per month):

Point no.	Point count visit number – Fall Season, Year 1		
	1 (early fall)	2 (mid-fall)	3 (late fall)
1	0	0	0
2	0	0	0
3	0	0	0
4	0	0	0
5	0	0	0
6	0	0	0
7	1	1	0
8	0	0	0
9	0	0	0
10	0	2	1
11	0	0	0
12	0	2	0
13	0	0	0
14	0	1	0
15	0	0	0

The first year's fall point count survey totals 90 observation hours, the equivalent of nine 10-hour migration counts. Thus, the fall point count surveys could yield much insight on eagle migration – perhaps even substituting for focused migration counts – especially if the sample is stratified so point count surveys mainly cover the midday period when eagles are most likely to be moving. (see b. Migration Counts and Concentration Surveys, below). Observations made during point count surveys in all seasons also could support a map of flight paths to roughly indicate the distribution of use of the area by eagles relative to turbine sites (see c. Utilization Distribution (UD) Assessment, below).

Fatality estimation should be adequately supported by the data, although multiple survey years are likely needed to account for annual variation. Data for fatality estimation should be made available to the Service in the rawest form, as in the above example.

b. Migration Counts and Concentration Surveys

Wherever potential for eagle migration exists, migration counts should be conducted unless the Stage 1 assessment presents compelling evidence that the project area does not include or is not part of a migration corridor or a migration stopover site. Migration counts convey relative numbers of diurnal raptors passing over an established point per unit time (Bildstein *et al.* 2007, Dunn *et al.* 2008), usually a migration concentration site. Examples of sites include north-south oriented ridges, cliff lines, or deeply incised river valleys; terminal points or coast lines of large water bodies; or peninsulas extending into large water bodies (Kerlinger 1989, Bildstein 2006, Mojica *et al.* 2008). Migration

counts could be considered a specialized type of point count, one for which the plot radius is unlimited (Reynolds *et al.* 1980) and the count period is quite long, from 6 hours to a full day.

In contrast to the allocation of sample points for point count surveys at proposed wind energy projects, migration counts typically are conducted from one to a few points within or adjacent to a proposed project footprint. Points are widely spaced, located primarily at places that collectively provide greatest visual coverage especially of topographic features likely to attract or funnel migrating raptors. At many proposed projects, however, survey points for migration counts could be the same as or a subset of those used for point count surveys, *e.g.*, per the above example (under 1a. Point Count Surveys), such that migration counts at a given point simultaneously contribute point count data. Consideration should be given to restructuring point count surveys to this end, including temporal stratification to more effectively account for potential eagle migration and improve precision of exposure estimates. As another example, during an anticipated 6-week peak of eagle migration in fall, point count duration could be extended to 6 hours. If the surveys were to cover either the first 6 hours or the last 6 hours of the day, the two survey periods would overlap by several hours in midday, better covering the time of day when eagles are most likely moving (Heintzelman 1986). The data may have to be adjusted slightly when used for fatality estimation, however.

Strickland *et al.* (2011) summarize some important details for conducting raptor migration counts at proposed wind energy sites. Counts should be conducted using standard techniques (Bildstein *et al.* 2007, Dunn *et al.* 2008) during at least peak periods of passage (see the Hawk Migration Association of North America's [HMANA] website for information on seasonal passage periods for eagles at various migration survey sites: http://www.hmana.org). Migration counts may involve staffing survey points up to 75% of days during peak passage (Dunn *et al.* 2008). If at least a modest eagle migration is evidenced (*i.e.*, multiple individuals observed passing unidirectionally during each of multiple days), surveys should be continued for at least 2 years and into the operational phase to validate initial observations and help assess evidence of collision and influence of turbines on migration behavior. Migration count data should be provided to the Service as an appendix to the ECP, using a reporting format similar to that used by HMANA. As with point count surveys, training of migration survey staff should include assessment of raptor identification skills and of ability of individuals to detect eagles in flight under a broad range of distances and weather conditions.

Potential for non-breeding (either winter or summer) season concentrations of eagles in or near the project footprint should begin to be evaluated in Stage 1, including close scrutiny of potential habitat via geospatial imagery and follow up reconnaissance visits (see APPENDIX B). Non-breeding bald eagles often use communal roosts and forage communally (Platt 1976, Mojica *et al.* 2008). Golden eagles may do so on occasion, with other golden eagles and/or with bald eagles (Craig and Craig 1984). Both species can become concentrated on spring and fall migration under particular combinations of weather and topographic conditions, or may annually use traditional stopover sites during migration. The Stage 1 assessment may suggests that seasonal concentrations of eagles

regularly occur within the project area, either because of favorable conditions (*e.g.*, clusters of large trees along rivers offering potential roost sites, stopover concentrations of migrating waterfowl) or because of indications from prior anecdotal or systematically collected records. The Stage 2 assessment should include surveys designed to further explore evidence of any such occurrences. If, based on the outcome of Stage 1, there is no compelling reason to believe concentration areas are lacking, an efficient way to begin to probe for concentration areas is simply to extend the duration of point count surveys and perhaps conduct them more frequently. Expanded point count surveys, distributed evenly across the day during the first year of Stage 2, should provide at least a preliminary indication of regular movements to and from what may be roosts or prey hotspots within or outside the project footprint. Moreover, expanded point count surveys conducted near potential turbine sites (see design recommendations in a. Point Count Surveys, above) can better inform turbine siting decisions in relation to eagle use of concentration areas, if such areas exist. The increased survey effort also could contribute towards a more precise indication of eagle exposure in a fatality estimate for the proposed project (APPENDIX D).

Early in Stage 2, evidence from Stage 1 of concentration areas in the project area may be corroborated or new evidence of concentrations may surface. In either case, focused surveys (*e.g.*, via direct observation or by aircraft) can be implemented to document their locations and daily timing and spatial patterns of their use by eagles in relation to the proposed project footprint throughout the season(s). For example, surveys for wintering concentrations of bald eagles could be conducted, following USFWS (1983) guidance. Direct, systematic observation from vantage points in early morning and evening is the most practical means of documenting roost locations and movements of eagles to and from roosts on a local scale (Steenhof *et al.* 1980, Crenshaw and McClelland 1989). Aerial surveys may be needed for repeated surveys of eagles at extensive roosts (Chandler *et al.* 1995). Direct observation can be used to compare occurrence and activity of eagles before and after construction and operation of a project (Becker 2002) and may be a valid means to identify disturbance effects on roosting concentrations.

c. Utilization Distribution (UD) Assessment

UD can be thought of as animal's spatial distribution or intensity of use of various parts of a given area, such as its home range. A basic though perhaps labor-intensive approach for documenting spatial distribution of use across all or part of a proposed project footprint by eagles is to systematically observe and record eagle movements and activities (*e.g.*, territorial display, prey delivery flight) on maps in the field then convert the data into GIS formats for standard analyses (*e.g.*, Walker *et al.* 2005). For example, a grid of square cells, each 0.5 x 0.5 km, can be framed by the Universal Transverse Mercator (UTM) system across a map of the area of interest to record eagle observations in each 0.25 km^2 cell. The area of interest is divided into non-overlapping observation sectors, each with a vantage point that affords unobstructed viewing of grid cells to more than 1 km in all directions. Observation periods last at least 4 hours and include all daylight hours and account for roost sites. If necessary, two (or more) observers working from separate vantage points can pinpoint locations of eagles through triangulation.

The data can be analyzed by simply counting the number of flights intersecting each cell. An eagle's distribution of use can then be estimated by using standard kernel analyses (Worton 1989, 1995, Seaman and Powell 1996, Kenward 2001) or other probabilistic approaches, comparable to Moorcroft *et al.* (1999), McGrady *et al.* (2002), and McLeod *et al.* (2002). Having concern over potential autocorrelation, Walker *et al.* (2005) randomly selected independent locations of golden eagles along flight paths to establish a point database for standard UD analyses. They determined that locations would be independent if separated by at least 45 minutes. McGrady *et al.* (2002) conservatively used a 1-hour minimum to separate points, even though their data indicated a 20-minute interval would suffice. Concerns with autocorrelation in UD analyses have recently diminished, however (Feiberg *et al.* 2010). Most study of eagle UD has focused on resident birds especially breeding adults on their nesting territories. Size and shape of use areas can vary seasonally (Newton 1979), so documentation of spatial use by resident eagles should encompass all seasons in addition to accounting for annual variation.

A substantial advantage of a direct observation approach compared to telemetry techniques, which typically target only one or two resident eagles at a proposed project, is that it disregards age and breeding and residency status. Included are overwintering individuals; dispersing juveniles; post-fledging young from nearby territories and juveniles dispersing from other areas or regions; and adults from adjoining territories plus non-breeding adults (*i.e.*, "floaters," Hunt 1998) and subadults that may occur along boundaries of breeding territories. In many instances, identification of individual eagles may not be important and final results of a generalized UD analysis may be based on data pooled from multiple birds, some of which were indistinguishable from each other in the field. A disadvantage of this approach is that position accuracy based on direct observation across expansive landscapes is coarse compared to using telemetry with GPS capability, and generally declines with distance, increasing topographic and forest cover, and during early morning and late evening hours. This can be resolved to some extent by limiting the size and increasing the number of observation sectors (in addition to using multiple observers), but for most pre-construction information needs, a high degree of accuracy is unessential for UD data. Last, it is unlikely that UD needs to be assessed across entire project footprints. Instead, it is more likely used to target specific areas of concern, such as areas where eagles nest or frequently forage, and to refine knowledge of use of particular areas to better inform turbine siting decisions. The method obviously has little utility in areas of low eagle occurrence.

Although we acknowledge telemetry offers some distinct benefits for assessing risks and impacts of wind projects, use of the method for eagles has other drawbacks. Specific individual eagles must be targeted for capture and not all eagles using a given project footprint are equally likely to be captured or provide useful data (*e.g.*, migrants may be readily captured but leave the area before providing much data). More importantly, capturing and radio-marking eagles can have negative effects on behavior, productivity, and re-use of nest sites (*e.g.*, Marzluff *et al.* 1997, Gregory *et al.* 2002), and recent information suggests a negative effect in some cases on survival, especially of golden eagles captured as adults and released with large (70- to 100-g), solar-charged transmitters (USFWS, unpublished information). These effects must be better understood

before routine use of telemetry techniques can be recommended as components of wind-facility assessments. Until then, the Service discourages the use of telemetry in assessments of eagle use associated with wind energy projects; survey approaches suggested herein do not require telemetry.

d. Summary

The Service encourages development of cost-effective sampling designs that simultaneously address multiple aspects of use of proposed wind energy projects by eagles, though emphasizes that high-quality point count data to support fatality rate estimation should be considered the highest priority. In many cases, the sampling framework for point count surveys likely can be extended to reasonably assess migration incidence, UD, and other objectives. Although field-based data that directly support fatality estimation are most important, development of methods for addressing other objectives is encouraged, such as the use of digital trail cameras to document eagle occurrence at carcass stations. Regardless, we recommend that pre-construction surveys at proposed wind energy sites encompass a minimum of 2 years, including at least 1 year characterized by robust sampling that integrates multiple survey types.

2. Survey of the Project-area Nesting Population: Number and Locations of Occupied Nests of Eagles

To evaluate project siting options and help assess potential effects of wind energy projects on breeding eagles, we recommend determining locations of occupied nests of eagles within the project area for no less than two breeding seasons prior to construction. The primary objective of a survey of the project-area nesting population is to determine the number and locations of occupied nests and the approximate centers of occupied nesting territories of eagles within the project area. If recent (*i.e.*, within the past 5 years) data are available on spacing of occupied eagle nests for the project-area nesting population, the data can be used to delineate an appropriate boundary for the project area as described in APPENDIX H. Otherwise, we suggest that project area be defined as the project footprint and all area within 10 miles.

In this ECPG document we use raptor breeding terminology originally proposed by Postupalsky (1974) and largely followed today (Steenhof and Newton 2007). An occupied nest is a nest structure at which any of the following is observed: (1) an adult eagle in an incubating position, (2) eggs, (3) nestlings or fledglings, (4) occurrence of a pair of adult eagles (or, sometimes subadults, *e.g.*, Steenhof *et al.* [1983]) at or near a nest through at least the time incubation normally occurs, (5) a newly constructed or refurbished stick nest in the area where territorial behavior of a raptor had been observed early in the breeding season, or (6) "A recently repaired nest with fresh sticks (clean breaks) or fresh boughs on top, and/or droppings and/or molted feathers on its rim or underneath" (Postupalsky 1974).

A nest that is not occupied is termed unoccupied. An occupied nesting territory includes one occupied nest and may include alternate nests, *i.e.*, any of several other nest structures within the nesting territory. Sometimes "active nest" is used to encompass occupied nests in which eggs were laid plus those at which no eggs were laid. Here, as

elsewhere in the ECPG and in Postupalsky (1974), an active nest is considered one in which an egg or eggs have been laid. A nest that is active is also, by default, occupied. A nest that is not active is inactive, and there is a regulatory definition for the term inactive nest (50 CFR 22.3. Not all pairs of bald eagles and golden eagles attempt to nest or nest successfully every year (Buehler 2000, Kochert *et al.* 2002), and nesting territories where pairs are present but do not attempt to nest could in some cases be misclassified as unoccupied. Accurate comprehension of territory distribution and determination of occupancy status is the crux of determining the project-area nesting population.

The project-area nesting population survey should include all potential eagle nesting habitat within the project area. At least two checks via aircraft or two ground-based observations are recommended to designate a nest or territory as unoccupied, as long as all potential nest sites and alternate nests are visible and monitored (*i.e.*, alternate nests may be widely separated such that a full-length, ground-based observation should be devoted to each). Ground-based observations should be conducted for at least 4 hours each (occupancy may be verified in less time), aided by spotting scopes, from at least 0.8 km from the nest(s), during weather conducive to eagle activity and good visibility. Surveys of occupancy should be conducted at least 30 days apart, ideally during the normal courtship and mid-incubation periods, respectively. Surveys later in the breeding season are likely to overlook some territorial pairs that that did not lay eggs or failed early in the nesting season. Timing of surveys should be based on local nesting chronologies; Service staff can provide recommendations. If an occupied nest or a pair of eagles is located, the territory should continue to be searched for alternate nest sites. This information can help determine the relative value of individual nests to a territory if ever there are applications for permits to take inactive nests, and when determining whether abandonment of a particular nest may result in loss of a territory.

Use of aerial surveys followed by ground-based surveys at targeted sites can be an ideal approach to determine nest and territory occupancy. Helicopters are an accepted and efficient means for inventory of extensive areas of potential nesting habitat for eagles, although fixed-wing aircraft can be used where potential nest sites are widely scattered and conspicuous. Aerial surveys for eagle nests in woodland habitat may require two to three times as much time as aerial surveys for nests on cliffs. When surveying rugged terrain by helicopter, cliffs should be approached from the front, rather than flying over from behind or suddenly appearing from around corners or buttresses. Inventories by helicopter should be flown at slow speeds, about 30 to 40 knots. All potentially suitable nest sites should be scrutinized; multiple passes at several elevation bands may be necessary to provide complete coverage of nest site habitat on large cliff complexes. Hovering for up to 15 seconds no closer than 50 m from a nest may be necessary to verify the nesting species, photograph the nest site, and, if late in the nesting season, allow the observer to count and estimate age of young in the nest. Aerial surveys may not be appropriate in some areas such as bighorn sheep lambing areas; to avoid such sensitive areas, state resource agencies should be consulted when planning surveys. Additional guidelines for aerial surveys for eagles and other raptors are reviewed in Anderson (2007).

Surveys should be conducted only by biologists with extensive experience in surveys of raptors and appropriate training in aerial surveys (see review in Anderson 2007). Whether inventories are conducted on the ground or aerially, metrics of primary interest to the Service for the project-area nesting population include:

1. number and locations of nest structures that are verified or likely to be eagle nests
2. number and locations of eagle nests currently or recently occupied based on criteria outlined herein
3. estimated number and approximate boundaries and centers of eagle breeding territories, based on records of nest site occupancy and clustering of nests.

Additionally, productivity (*i.e.*, reproductive success, defined here as the mean number of nestlings surviving to $\geq$ 56 and $\geq$ 67 days of age per occupied nest for golden eagles and bald eagles, respectively) may be of interest for assessing disturbance effects, although utility of productivity data at a given project likely will be limited due to small sample size and factors confounding the interpretation of results. A meta-analysis approach based on productivity data from many projects is contemplated as part of the adaptive management process accompanying the ECPG, and may contribute to understanding of disturbance effects on this aspect of eagle breeding biology. Moreover, abandonment of territories – the gravest manifestation and clearest evidence of disturbance effects – could be documented through the occupancy surveys recommended herein, if these surveys are repeated after project construction. We reiterate that accurate comprehension of territory distribution and determination of occupancy status should be the primary goal of nesting surveys.

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APPENDIX D: STAGE 3 – PREDICTING EAGLE FATALITIES

The Service uses a Bayesian method (see Gelman *et al.* 2003) to predict the annual fatality rate for a wind-energy facility, using explicit models to define the relationship between eagle exposure (resulting from the Stage 2 assessment, APPENDIX C), collision probability, and fatalities (verified during post-construction monitoring in Stage 5, APPENDIX H), and to account for uncertainty. The relationships between eagle abundance, fatalities, and their interactions with factors influencing collision probability are still poorly understood and appear to vary widely depending on multiple site-specific factors. The baseline model presented below is a foundation for modeling fatality predictions from eagle exposure to wind turbine hazards. In addition to generating the fatality estimate that will be a component of the Service's analysis of the permit application, the model also serves as a basis for learning and the exploration of other candidate models that attempt to better incorporate specific factors and complexity. The Service encourages project developers or operators to develop additional candidate models (both *a priori* and *post hoc*) for direct comparison with, and evaluation of, the baseline model and modeling approach. Our ability to learn over time and reduce uncertainty by incorporating new information into our modeling approach through an adaptive management framework (see APPENDIX A) enables us to improve site-specific estimation of eagle fatalities, reduce uncertainty in predictions, and, ultimately, improve management decisions relating to eagles and wind energy in a responsible and informed way. Rigorous post-construction monitoring is a critical component of evaluating model performance over time (see APPENDIX H).

Variables used in the formulas below are summarized in Table D-1 for ease of reference. The total annual eagle fatalities (F) as the result of collisions with wind turbines can be represented as the product of the rate of eagle exposure (λ) to turbine hazards, the probability that eagle exposure will result in a collision with a turbine (C), and an expansion factor (ε) that scales the resulting fatality rate to the parameter of interest, the annual predicted fatalities for the project:

$$F = \varepsilon \lambda C.$$

Using the Bayesian estimation framework, we define prior distributions for exposure rate and collision probability; the expansion factor is a constant and therefore does not require a prior distribution. Next, we calculate the exposure posterior distribution from its prior distribution and observed data. The expanded product of the posterior exposure distribution and collision probability prior yields the predicted annual fatalities.

Table D-1. Abbreviations and descriptions of variables used in the basic Service approach for predicting annual eagle fatalities from turbine collisions at a wind facility.

Abbreviation	Variable	Description
F	Annual fatalities	Annual eagle fatalities from turbine collisions
λ	Exposure rate	Eagle-minutes flying within the project footprint (in proximity to turbine hazards) per hr per km^2
C	Collision probability	The probability of an eagle colliding with a turbine given exposure
ε	Expansion factor	Product of daylight hours and total hazardous area ($hr \cdot km^2$)
k	Eagle-minutes	Number of minutes that eagles were observed flying during survey counts
δ	Turbine hazardous area	Rotor-swept area around a turbine or proposed turbine (km^2)
n	Trials	Number of trials for which events could have been observed (the number of $hr \cdot km^2$ observed)
τ	Daylight hours	Total daylight hours (*e.g.* 4383 hr per year)
n_{tur}	Number of turbines	Number of turbines (or proposed turbines) for the project

1. Exposure

The exposure rate λ is the expected number of exposure events (eagle-minutes) per daylight hour per square kilometer ($hr \cdot km^2$). We defined the prior distribution for exposure rate based on information from a range of projects under Service review and others described with sufficient detail in Whitfield (2009). The exposure prior predicts an exposure rate from a mixture distribution of project-specific Gamma distributions (Figure D-1). We used the Gamma distribution because all values are positive and real (see Gelman et al., 1995, p. 474–475). The mixture distribution is summarized by a new Gamma distribution (our prior distribution for exposure) with a mean (0.352) and standard deviation (0.357) derived from the conditional distributions (Gelman et al, 1995, equation 1.7 p. 20). The resulting prior distribution for exposure rate is:

$Prior\ \lambda \sim Gamma(\propto, \beta)$, with shape and rate parameters of α = 0.97 and β = 2.76.

Simulation trials produced consistent results. The prior distribution is meant to include the range of possible exposure rates for any project that may be considered.

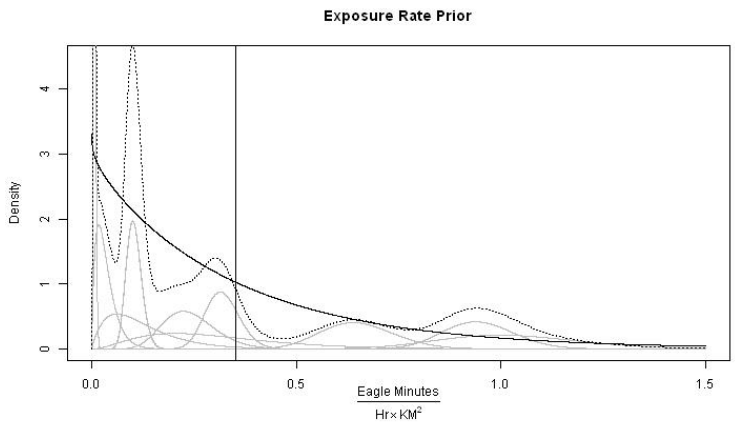

Figure D-1. The prior probability distribution Gamma(0.97, 2.76), for exposure rate, λ, with a mean of 0.352 (indicated by the reference line) and standard deviation of 0.357. The distribution is positively skewed such that exposure is generally at or near 0 with fewer higher values shown by the black curve. The project-specific distributions (gray curves) were used to determine the mixture distribution (dashed curve) which determined the prior distribution parameters.

Eagle exposure data collected during the pre-construction phase surveys (see APPENDIX C) can be used to update this prior and determine the posterior distribution that will be used to estimate the predicted fatalities. The Service may also be able to work with a project developer or operator on a case-by-case basis to use the prior λ distribution to generate a risk-averse fatality prediction for projects where no pre-construction survey data are available. Assuming the observed exposure minutes follow a Poisson distribution with rate λ, the resulting posterior λ distribution is:

$$Posterior\ \lambda \sim Gamma(\propto + \sum_{i=1}^{n} k_i\,, \beta + n).$$

The new posterior λ parameters are the sum of α from the prior and the events observed (eagle minutes, k_i), and the sum of β from the prior and the number of trials, n, for which events could have been observed (the number of "trials" is the number of $km^2 \cdot hr$ that were observed). Note that by including realistic time and area data from the pre-construction surveys, the relative influence of the prior λ distribution on the resulting posterior λ distribution for exposure rate becomes negligible. In other words, with adequate sampling, the data will determine the posterior distribution, not the prior. The posterior λ distribution can then be used to estimate the annual fatality distribution.

In addition, this posterior λ distribution can now serve as a prior distribution for the next iteration of the predictive model in an adaptive framework (see APPENDIX A), at least

for the project under consideration and potentially in a more general way as the posteriors from multiple sites are considered; in this way, we continually build new information directly into the predictive process.

2. Collision probability

Collision probability *C* is the probability, given exposure (1 minute of flight in the hazardous area), of an eagle colliding with a turbine; for the purposes of the model, all collisions are considered fatal. We based the prior distribution on a Whitfield (2009) study of avoidance rates from four independent sites. A weighted mean and range of avoidance from those sites yielded a mean and standard deviation for collision probability of 0.0067, 0.0061, respectively (note this is consistent with eagle avoidance rates in other risk assessment approaches, e.g. 99%). This in turn defined the prior *C* distribution as:

$Prior\ C \sim Beta(\nu, \nu')$, with parameters ν and ν′ of 1.2 and 176.7 (Figure D-2).

The Beta distribution is used to describe values between 0 and 1 (Gelman et al.,1995, p. 476–477). The prior *C* distribution attempts to include the range of possible collision probabilities across the set of potential sites to be considered.

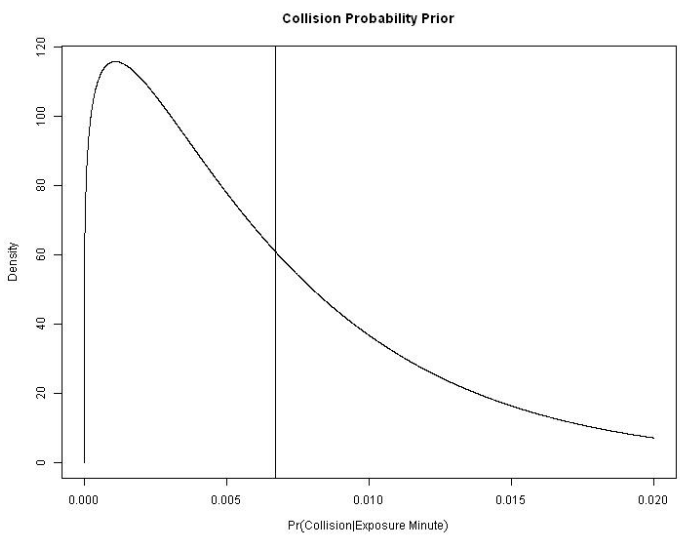

Figure D-2. The probability distribution for the collision probability prior, a Beta(1.2, 176.7) distribution with a mean of 0.0067 (indicated by the reference line) and a standard deviation of 0.0061. The distribution is positively skewed such that most collision probabilities will be small.

At the time of pre-construction permitting, the prior C distribution will be used to estimate the annual predicted fatalities. After construction, post-construction monitoring can be used to determine the posterior C distribution by updating the prior C distribution.

Assuming the observations of fatalities follow a binomial distribution with rate C, the posterior distribution of the rate C will be a beta distribution (the beta distribution and the binomial distribution are a conjugate pair):

$$Posterior\ C \sim Beta(v + f, v' + g),$$

where f is the number of fatalities estimated from the Stage 5 post-construction monitoring, and g is the estimated number of exposure events that did *not* result in a fatality. The posterior distribution for C cannot be calculated until a project has been built, has started operations, and at least one season of post-construction monitoring has been completed. Once determined, the posterior C distribution can then be used to generate a prediction for annual fatalities and can serve as a prior C for the next iteration of the predictive model (see APPENDIX A) (b) (5) [redacted]

3. Expansion

The expansion factor (ε) scales the resulting per unit fatality rate (fatalities per hr per km^2) to the daylight hours, τ, in 1 year (or other time period if calculating and combining fatalities for seasons or stratified areas) and total hazardous area (km^2) within the project footprint:

$$\varepsilon = \tau \sum_{i=1}^{n_t} \delta_i,$$

where n_t is the number of turbines, and δ is the circular area centered at the base of a turbine with a radius equal to the rotor-swept radius of the turbine; we define this as the hazardous area surrounding a turbine. In this model, to simplify data requirements and assumptions, we consider both eagle use and hazardous area as 2-dimensional areas. Alternative models that consider 3-dimensional space could also be considered, though the expansion factor should be adjusted accordingly. The units for ε are hr· km^2 per year (or time period of interest).

4. Fatalities

Now we can generate the distribution of predicted annual fatalities as the expanded product of the posterior exposure rate and the prior collision probability (once post-construction data is available, the posterior collision probability would be used to update the fatality distribution):

$$F = \varepsilon \cdot posterior\ \lambda \cdot prior\ C.$$

We can then determine the mean, median, standard deviation, and 80% quantile (this will be the upper credible limit) directly from the distribution of predicted fatalities.

5. Putting it all together: an example

The Patuxent Power Company example below illustrates the calculation of predicted fatalities from exposure data from a hypothetical project site. This data will normally come from the field surveys in Stage 2, but for the purposes of this example, we have generated fabricated observation data. The advantage of simulating data in such an exercise is that we can manipulate model inputs to critically evaluate the performance of the model. Additional examples are provided at the end of this document to illustrate the general approach and clarify specific considerations that may apply to certain projects.

> **Patuxent Power Company example** - Patuxent Power Company conducted surveys for eagles at a proposed location for a small- to medium-sized wind facility (18 turbines, each with a 50 meter rotor diameter) following the recommended methods in the ECPG (see Table D-2). They conducted 168 counts at 7 points and 60 eagle-min of exposure were observed. Each count was 2-hr in duration, and covered a circular area of radius 0.8 km. Thus, 675.6 $km^2 \cdot hr$ were observed in total.

Table D-2. Exposure data for Patuxent Power Company example. In this hypothetical example, 168 counts were performed. Each count was 2-hr in duration and covered a 0.8 km radius circle. Thus, the total time and area sampled was 675.6 $km^2 \cdot hr$. In that time, 60 exposure events (eagle-min) were observed.

1	0	0	2	0	2	0	1	5
2	0	0	1	0	0	0	1	2
3	0	1	2	0	0	0	1	4
4	0	1	0	0	0	1	1	3
5	0	1	0	1	0	1	1	4
6	0	0	1	1	0	0	1	3
7	0	1	0	0	0	1	1	3
8	0	0	0	0	0	1	0	1
9	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0
11	1	0	1	1	0	0	0	3
12	0	1	0	0	1	0	0	2
13	0	0	1	0	0	0	1	2
14	2	0	0	0	0	0	2	4
15	0	0	0	2	2	0	1	5
16	0	0	0	1	0	0	0	1
17	0	0	0	2	0	0	0	2
18	1	0	1	1	0	0	0	3
19	0	0	0	1	0	2	0	3
20	0	0	2	0	1	0	0	3

21	0	0	0	0	1	0	0	1
22	1	0	0	0	0	0	1	2
23	1	0	0	3	0	0	0	4
24	0	0	0	0	0	0	0	0
Total	6	5	11	13	7	6	12	60

b. Exposure

The posterior distribution for the exposure rate is:
$Posterior\ \lambda \sim Gamma(\widetilde{\alpha}, \widetilde{\beta})$, remember $Prior\ \lambda \sim gamma(0.97, 2.76)$; Figure D1, where,

$$\tilde{\alpha} = \alpha + \sum_{i=1}^{n} k_i = 0.97 + 60\ eagle\ minutes = 60.97\ eagle\ minutes$$

$$\tilde{\beta} = \beta + n = 2.76 + (168\ counts \times 2\ hr \times \pi(0.8\ km)^2) = 678.31\ km^2 \cdot hr$$

Thus,

$Posterior\ \lambda \sim Gamma(60.97, 678.31)$; the units for λ are per hr^- per km^2.

The posterior distribution is shown in Figure D-3. The mean and standard deviation of exposure rate are 0.09 and 0.01, respectively. Note that there is little influence of the prior on this posterior, because the sampling effort was substantial.

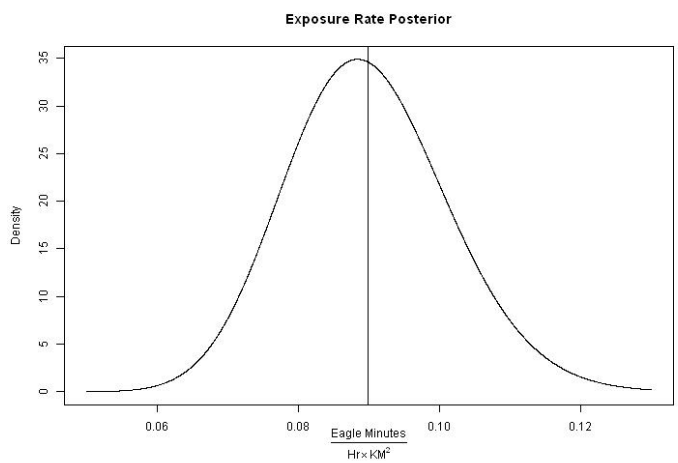

Figure D-3. The posterior distribution for exposure rate for the example project, "Patuxent Power Company". This gamma distribution has a mean (indicated by the reference line) of 0.09 and a standard deviation of 0.01.

b. Collision Probability

We do not have any additional information about collision probability, C, so we will use the prior distribution, which has a mean of 0.0067 and a standard deviation of 0.0061.

$$Prior\ C \sim Beta(1.2, 176.7);\ \text{see Figure D-2.}$$

c. Expansion

The expansion rate, ε, is the number of daylight hours in a year (τ) multiplied by the hazardous area (δ) around the 18 turbines proposed for the project:

$$\varepsilon = 4{,}383\ hr \cdot \pi(0.025\ km)^2 \cdot 18\ = 154.9\ hr \cdot km^2.$$

d. Fatalities

To determine the distribution for the predicted annual fatalities, the exposure and collision risk distributions need to be multiplied by each other and expanded. The resulting distribution cannot be calculated in closed form; it is easiest to generate it through simulations. In this example, after running 100,000 simulations, the predicted distribution for annual fatalities (Figure D-4) has a mean of 0.093 and a standard deviation of 0.087. The 80% quantile is 0.15 eagle fatalities per year.

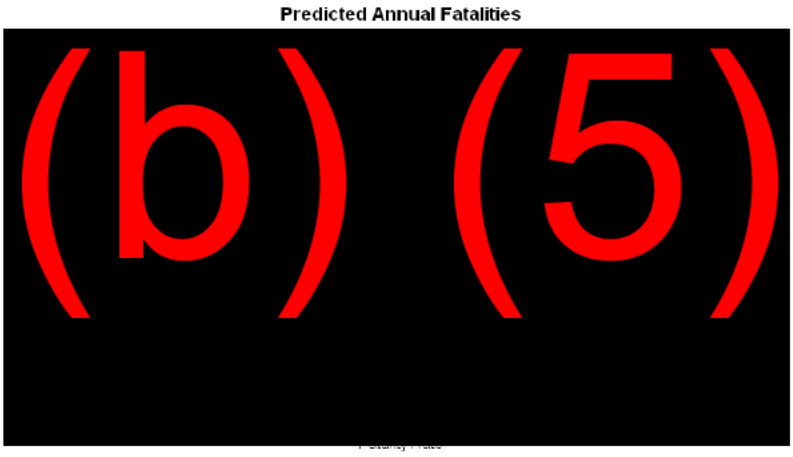

Figure D-4. (b) (5) [redacted]

The Service's baseline model for the proposed Patuxent wind facility predicts that 80% of the time that annual fatalities would be (b) (5) eagles or fewer, suggesting that an eagle

collision fatality would be predicted to occur at the project site every (b) (5) years on average. The facility had a medium amount of eagle activity at the site, but the small size of the project kept the predicted fatality numbers lower than they would have been for a larger project in the same location. Ideally, we would consider other candidate models alongside the baseline model presented here and compare their relative performance using data collected in Stage 5.

6. Additional considerations

This initial estimate of fatality rate should not take into account possible conservation measures and ACPs (*e.g.* changes in turbine siting or seasonal curtailments); these will be factored in as part of Stage 4 (APPENDIX E). Additionally, any loss of production that may stem from disturbance is not considered in these calculations, but should be added to these estimates and later adjusted based on post-construction monitoring as described in Stage 5. This stage and Stage 5 of the ECP will require close coordination between the project developer or operator and the Service.

a. Small-scale projects

Small-scale projects (generally these will be residential or small-business projects) may pose a low enough risk that Stage 2 surveys are unnecessary to demonstrate that the project is not likely not take eagles. This presumes that Stage 1 surveys are conducted and show no important eagle use areas or migration concentration sites in the project area. In such cases, the fatalities predicted by the collision fatality model are the expanded product of the exposure prior and the collision probability prior; the exposure prior is not updated to create a posterior as it would be for projects with survey data (Figure D-5). With the prior distributions currently used for exposure rate and collision probability (note that the parameters for the priors distributions are part of the adaptive management framework and will change as new information becomes available), the 80 percent quantile of the predicted fatality distribution for projects with less than approximately 2.19×10^{-3} km^2 of hazardous area predicts fatalities at a rate less than 1 eagle in 30 years (not likely to take eagles). This is equivalent to a single turbine with a rotor diameter of approximately 52 m, or 40 or more turbines with 8 m rotor diameter (each of which has the capacity to exceed typical home energy needs.) The calculation of hazardous area is presented in this Appendix under 'Expansion'. If the collision model prediction based on the exposure prior predicts that take of eagles will occur (e.g., if the hazardous area is greater than 2.19×10^{-3} km^2), Stage 2 preconstruction sampling for eagle use of the project area is recommended (see APPENDIX C). The data from Stage 2 surveys will be used to update the exposure prior distribution and produce a project-specific fatality prediction. Projects are encouraged to consult with the Service early in the planning process as components of the fatality prediction model will continue to evolve and may change over time.

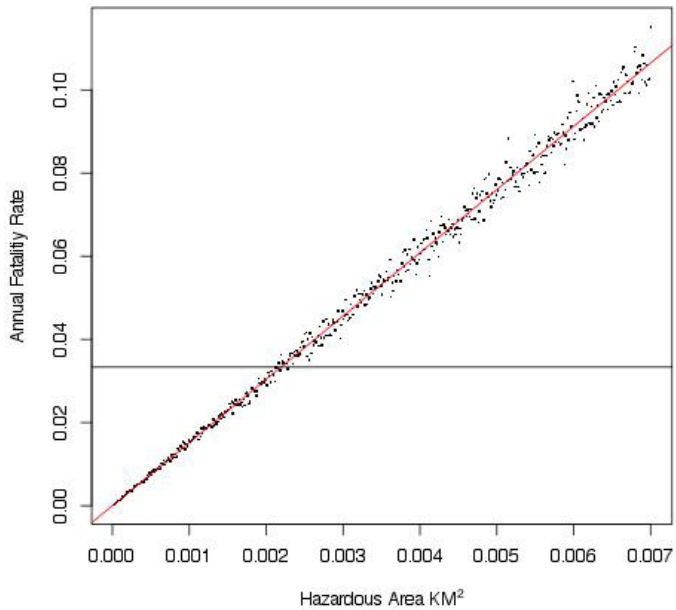

Figure D-5. Predicted fatalities for projects with small hazardous areas based on the prior-only collision fatality model; projects with less than 2.19×10^{-3} km^2 hazardous area are predicted to take less than 1 eagle in 30 years.

The Service will continue to develop components of the basic collision fatality model and the priors for exposure rate and the probability of collision are likely to change. Project developers, operators, and consultants should coordinate directly with the Service to ensure use of the most up-to-date versions of all Service models and parameter values. Additionally, the Service is developing additional tools to assist project developers or operators with estimating predicted fatalities given different inputs and allowing for the flexibility to incorporate other factors into additional candidate models. We encourage project developers or operators to begin coordinating with the Service early in the process (Stage 1 or Stage 2) so that we can collaboratively develop a suite of candidate models to consider.

Literature Cited

Gelman, A., Carlin, J. B., Stern, H. S., and D. B. Rubin. 2003. Bayesian Data Analysis, 2nd ed. London, Chapman & Hall.

Whitfield, D. P. 2009. Collision avoidance of golden eagles at wind farms under the 'Band' collision risk model. Report from Natural Research to Scottish Natural Heritage, Banchory, UK.

APPENDIX E: STAGE 4 – AVOIDANCE AND MINIMIZATION OF RISK USING ACPS AND OTHER CONSERVATION MEASURES, AND COMPENSATORY MITIGATION

The most important factor when considering potential effects to eagles is the siting of a wind project. Based on information gathered in Stage 2 and analyzed in Stage 3, the project developer or operator should revisit the site categorization from the Stage 1 assessment to determine if the site(s) still falls into an acceptable category of risk (at this stage, acceptable categories are 2 and 3, and very rarely 1). When information suggests that a proposed wind project has a high eagle exposure rate and presents multiple risk factors (*e.g.*, is proximate to an important eagle-use area or migration concentration site and Stage 2 data suggest eagles frequently use the proposed wind-project footprint), it should be considered a category 1 site; we recommend relocating the project to another area because a location at that site would be unlikely to meet the regulatory requirements for a programmatic permit. If the site falls into categories 2 or 3, or rarely some category 1 sites where there is potential to adequately abate risk, the ECP should next address conservation measures and ACPs that might be employed to minimize or, ideally, avoid eagle mortality and disturbance. To meet regulatory requirements, ACPs, if available, must be employed such that any remaining eagle take is unavoidable.

In this section of the ECP, we recommend project developers or operators re-run models predicting eagle fatality rates after implementing conservation measures and available ACPs for all the plausible alternatives. This re-analysis serves two purposes: (1) it demonstrates the degree to which minimization and avoidance measures might reduce effects to eagle populations compared to the baseline project configuration, and (2) it provides a prediction of unavoidable eagle mortality. Conservation measures and ACPs should be tailored to specifically address the risk factors identified in Stage 3 of the ECP. This section of the ECP should describe in detail the measures proposed to be implemented and their expected results.

The Service does not advocate the use of any particular conservation measures and merely provides the below list as examples. Moreover, at this time none of these measures have been approved as ACPs for wind projects. Ultimately, project developers or operators will propose and implement site specific conservation measures and ACPs (as they become available) in cooperation with local Service representatives in order to meet the regulatory standard of reducing any remaining take to a level that is unavoidable.

Examples of conservation measures that could be considered before and during project construction, depending on the specific risk factors involved, include:

1. Minimize the area and intensity of disturbances during pre-construction and construction periods.
2. Prioritize locating development on lands that provide minimal eagle use potential including highly developed and degraded sites.
3. Utilize existing transmission corridors and roads.

4. Set turbines back from ridge edges.
5. Site structures away from high eagle use areas and the flight zones between them.
6. Dismantle nonoperational meteorological towers.
7. Bury power lines to reduce avian collision and electrocution.
8. Follow the Avian Power Line Interaction Committee (APLIC) guidance on power line construction and design (APLIC 2006).
9. Minimize the extent of the road network.
10. Avoid the use of structures, or remove existing structures, that are attractive to eagles for perching.
11. Avoid construction designs (including structures such as meteorological towers) that increase the risk of collision, such as guy wires. If guy wires are used, mark them with bird flight diverters (according to the manufacturer's recommendation).
12. Avoid siting turbines in areas where eagle prey are abundant.
13. Avoid areas with high concentrations of ponds, streams, or wetlands.

Examples of avoidance and minimization measures that could be considered during project operation, depending on the specific risk factors involved, include:

1. Maintain facilities and grounds in a manner that minimizes any potential impacts to eagles (*e.g.* minimize storage of equipment near turbines that may attract prey, avoid seeding forbs below turbines that may attract prey, etc.).
2. Avoid practices that attract/enhance prey populations and opportunities for scavenging within the project area.
3. Take actions to reduce vehicle collision risk to wildlife and remove carcasses from the project area (*e.g.* deer, elk, livestock, etc.).
4. Instruct project personnel and visitors to drive at low speeds (< 25 mph) and be alert for wildlife, especially in low visibility conditions.

When post-construction fatality information becomes available, the project developer or operator and the Service should consider implementing all or a subset of the additional conservation measures and experimental ACPs that were considered at the time the permit was issued (see ASSESSING RISK AND EFFECTS, 3b. General Approach to Address Risks in the ECPG).

Examples of experimental ACPs that could be identified initially or after evaluation of post-construction fatality monitoring data, depending on the specific risk factors involved, include:

1. Seasonal, daily, or mid-day shut-downs (particularly relevant in situations where eagle strikes are seasonal in nature and limited to a few turbines, or occur at a particular time of day).
2. Turbine removal or relocation.
3. Adjusting turbine cut-in speeds.
4. Use of automated detection devices (*e.g.* radar, etc.) to control the operation of turbines.

Literature Cited

Avian Power Line Interaction Committee (APLIC). 2006. Suggested practices for avian protection on power lines: the state of the art in 2006. Edison Electric Institute, APLIC, and the California Energy Commission. Washington D.C. and Sacramento, CA, USA. http://www.aplic.org/SuggestedPractices2006(LR-2watermark).pdf.

APPENDIX F: ASSESSING PROJECT-LEVEL TAKE AND CUMULATIVE EFFECTS ANALYSES

The Service is required to evaluate and consider the effects of programmatic take permits on eagles at the eagle management unit, local-area, and project-area population scales, including cumulative effects, as part of its permit application review process (50 CFR 22.26 (f)(1) and USFWS 2009). The Service will rely on information a developer provides from the Stage 1 and Stage 2 assessments, as well as all other available information on mortality and other population-limiting effects at the various population scales, when preparing its cumulative impact assessment. The Service's NEPA on the Eagle Permit Rule evaluated and set sustainable take levels at the eagle management unit scale (USFWS 2009). However, that NEPA analysis did not assess impacts at other population scales. A significant part of the cumulative effects evaluation is assessing the effect of the proposed take in combination with take caused by previously authorized actions and reasonably foreseeable future actions on the local-area eagle population(s), and it is this analysis that is the focus of this appendix.

The purpose of this part of the cumulative effects evaluation is to identify situations where take, either at the individual project level or in combination with other authorized or foreseeable future actions and other limiting factors at the local-area population scale, may be approaching levels that are biologically problematic or which cannot reasonably be offset through compensatory mitigation. In previous assessments of the effect of falconry take on raptor populations (Millsap and Allen 2006), the Service identified annual take levels of 5% of annual production to be sustainable for a range of healthy raptor populations, and annual take levels of 1% of annual production as a relatively benign harvest rate over at least short intervals when population status was uncertain. This approach was used to establish take thresholds at the eagle management unit scale (USFWS 2009). The Service considered several alternatives for benchmark harvest rates at the local-area population scale, and after comparative evaluation identified take rates of between 1% and 5% of the estimated total eagle population size at this scale as significant, with 5% being at the upper end of what might be appropriate under the BGEPA preservation standard, whether offset by compensatory mitigation or not. These local-area harvest rate benchmarks are overlain by the more conservative take thresholds for the eagle management units, so the overall harvest rate at the eagle management unit scale should not exceed levels established in the Final Environmental Assessment (USFWS 2009).

The Service recommends a top-down approach for this assessment: (1) identify numbers of eagles that may be taken safely at the national level (*i.e.*, a national-level benchmarks); (2) allocate take opportunities among regional eagle management units (USFWS 2009) as a function of the proportion of eagles in each unit (*i.e.*, regional-level benchmarks); (3) further allocate take opportunities to the local-area population scale as a function of inferred eagle population size at that scale (assuming, in the absence of better data on eagle distribution at the scale of the eagle management unit, a uniform distribution of that population); and (4) incorporating benchmarks that can be used to assess the likely

sustainability of predicted levels of take at the local-area scale. Through a spatial accounting system, permitted take is managed to ensure that the benchmarks also consider cumulative effects at the local-area eagle population scale as a guard against authorizing excessive take at this scale.

In Table F-1, we work through this approach using the hypothetical example of eight individual yet identical projects, one in each bald eagle management unit. Each of these projects has a 314 mi^2 footprint, and affects a local-area bald eagle population over 8824 square mile (mi^2) area. For this example, we use a take rate of 5% of the local-area bald eagle population per year as the maximum acceptable take rate. In this example, the 5% benchmark take rate over the eight projects is 150 individual bald eagles per year, and the range of allowable take rates at this scale varies across management units from <1 bald eagle per year in the southwest to 67 per year in Alaska. Table F-2 provides population and eagle management unit area statistics for golden eagles to aid in performing these calculations for that species.

As noted above, in cases where the local-area eagle populations of proximate projects overlap, the overlap should be taken into account in a cumulative effects analysis so that the cumulative take on the local-area population scale can be considered against population benchmarks. Figure F-1 illustrates one method to do this, and Table F-3 provides the calculations for this example. These examples use bald eagles, but the same concept and approach can be used for golden eagles, with Bird Conservation Regions (BCRs) defining the eagle management units. The example in Figure F-1 involves bald eagles in Region 3. Project 1 (in green) has a footprint of 41 $miles^2$ (mi^2), and affects a local-area bald eagle population over 6854 mi^2 (light green buffer around the project footprint). Following the approach in Table F-1, project 1 was issued a programmatic take permit with a maximum annual project-level take of 21 bald eagles per year (see Table F-3). Project 2 (in red, the same size as project 1) applied for a programmatic eagle take permit 5 years later. The calculated project-level bald eagle take for project 2 is 20 bald eagles per year, but under the 5% benchmark, maximum take for 1563 mi^2 of project 2's local-area bald eagle population (totaling 5 bald eagles per year) was already allocated to project 1 (the hatched-marked area of overlap between the local areas of project 1 and project 2). Therefore, the calculated local-area bald eagle take for project 2 exceeds the 5% benchmark. Thus, the decision-maker for the permit for project 2 should carefully consider whether this project can be permitted as designed under the requirements of our regulations at 50 CFR 22.26.

The examples assume acceptable compensatory mitigation opportunities, when they are required, are limitless. They are not, and where compensatory mitigation is necessary to offset the permitted take, the availability of compensatory mitigation can become the proximate factor limiting take opportunities.

A critical assumption of this approach is that eagle density is uniform across eagle regions. The potential consequence of this assumption is to under protect eagles in areas of high density and over protect them in areas of low density. As the Service and others develop more reliable models for predicting the distribution of eagles within regional

management populations at finer scales, these approaches should be used in place of an assumption of uniform distribution in the analyses suggested here.

Table F-1. Example of the proposed method to calculate local-area annual eagle take benchmarks. The example uses bald eagles (BAEA), and is based on a hypothetical scenario where a single project with a circular footprint of 10-mile radius is proposed in each BAEA region. See Figure F-1 for an example of how to assess the cumulative effects of such permitted take over the local-area population.

BAEA Management Unit	Estimated Population Size[a]	Region Size (mi^2)	Maximum Take Rate (% local-area population per year)[b]	Management Unit Eagle Density (BAEA/ mi^2)[c]	Local Area (mi^2)[d]	Local-area 5% Benchmark (eagles per year)[e]
R1	7105	245336	5.0	0.029	8824	13
R2	797	565600	5.0	0.001	8824	>1
R3	27617	447929	5.0	0.062	8824	27
R4	13111	464981	5.0	0.028	8824	12
R5	14021	237687	5.0	0.059	8824	26
R6	5385	732395	5.0	0.007	8824	3
R7	86550	570374	5.0	0.152	8824	67
R8	889	265779	5.0	0.003	8824	1
Sum	155474					150

[a] Taken directly from USFWS (2009).
[b] A take rate of 5% is the Service's upper benchmark for take at the local-area population scale.
[c] Management unit eagle density = population size / management unit size.
[d] The local-area for this example is the project footprint (in this case, a circle with radius of 10 miles) plus a buffer of 43 additional miles (43 miles is the average natal dispersal distance for the BAEA) $= 3.142 * 53^2$.
[e] The local-area 5% benchmark = (Local-area*Regional Eagle Density)*0.05.

Table F-2. Background information necessary to estimate the local-area take benchmarks for golden eagles (GOEA). Columns are as in Table F-1. The local-area for golden eagles, which is not used in this table, is calculated using the median natal dispersal distance of 140 miles (USFWS 2009).

GOEA Management Unit	BCR Number	Estimated Population Size[a]	BCR Size (mi^2)[b]	Management Unit Eagle Density (GOEA per mi^2)
Alaska		2400	557007	0.0043
Northern Pacific Rainforest	5	108	68777	0.0016
Prairie Potholes	11	1680	160794	0.0104
Sierra Nevada	15	84	20414	0.0041
Shortgrass Prairie	18	1080	148540	0.0073
Coastal California	32	960	63919	0.0150
Sonoran and Mojave Desert	33	600	95593	0.0063
Sierra Madre Occidental	34	360	47905	0.0075
Chihuahuan Desert	35	720	72455	0.0099
Great Basin	9	6859	269281	0.0255
Northern Rockies	10	6172	199666	0.0309
Southern Rockies and Colorado Plateau	16	3770	199522	0.0189
Badlands and Prairies	17	7800	141960	0.0549
Sum		32593		

[a] Taken directly from USFWS 2009.
[b] BCR area values are from the North American Bird Conservation Region website at: http://www.bsc-eoc.org/international/bcrmain html (last visited 8 December 2011).

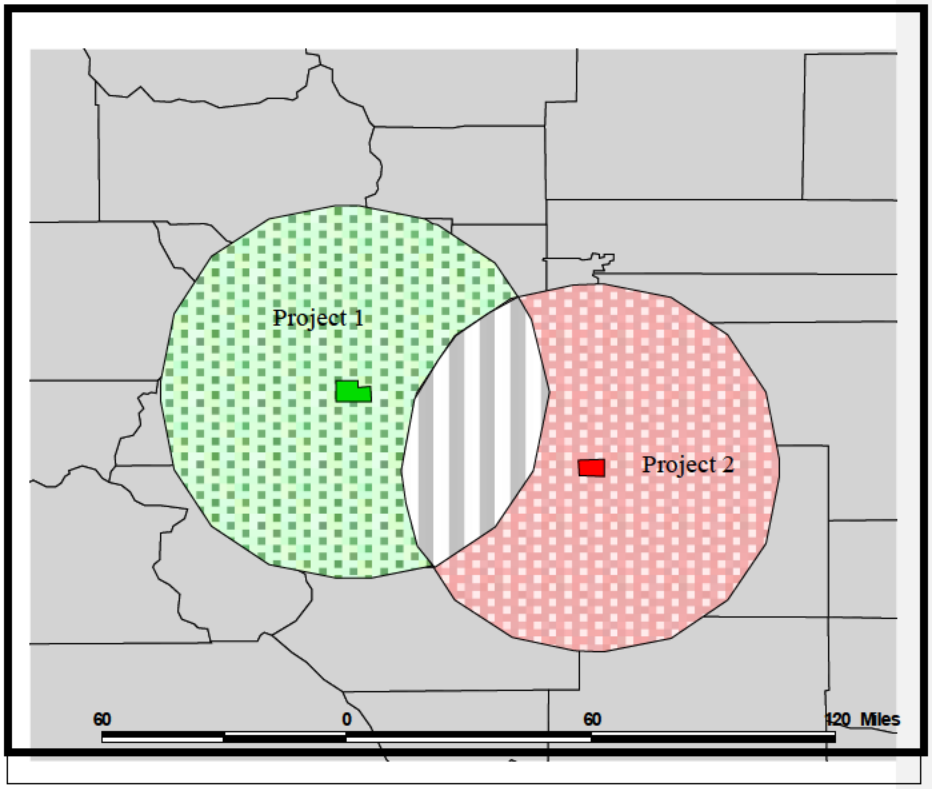

Figure F-1. Example of the proposed method for ensuring local-area take benchmarks are not exceeded through the cumulative take authorized over multiple projects. Project 1 is in green, project 2 is in red, and the overlap in their local-area eagle bald eagle populations is the hatched-marked area (see text). This same approach could be used to assess the cumulative effects of other forms of take and anthropomorphic impacts for which data on population effects are available.

Table F-3. Calculations used to determine local-area bald eagle take for the example in Fig. F-1, where project 1 is first-in-time, and the local-area bald eagle (BAEA) populations for the two projects overlap. Calculations are as described in the footnotes to table F-1.

Project	Region 3 BAEA Population Size	Region Size (mi^2)	Maximum Take Rate (% local-area population per year)[b]	Regional Eagle Density (BAEA per mi^2)	Local-area (mi^2)	Local-area 5% Benchmark (eagles per year)[e]
Project 1 (first-in-time)	27617	447929	5.0	0.062	6854	21
Project 2, unadjusted	27617	447929	5.0	0.062	6550	20
Overlap Area	27617	447929	5.0	0.062	1562	5
Project 2, adjusted	27617	447929	5.0	0.062	13404	15

Literature Cited

USFWS. 2007. Final environmental assessment, take of raptors from the wild under the falconry regulations and the raptor propagation regulations. U.S. Fish and Wildlife Service, Division of Migratory Bird Management, Washington, D.C.

USFWS. 2008. Final environmental assessment and management plan, take of migrant peregrine falcons from the wild for use in falconry, and reallocation of nestling/fledgling take. U.S. Fish and Wildlife Service, Division of Migratory Bird Management, Washington, D.C.

USFWS. 2009. Final environmental assessment, proposal to permit take as provided under the Bald and Golden Eagle Protection Act. U.S. Fish and Wildlife Service, Division of Migratory Bird Management, Washington, D.C.

USFWS. 2011. Draft eagle conservation plan guidance. U.S. Fish and Wildlife Service, Division of Migratory Bird Management, Washington, D.C.

APPENDIX G: EXAMPLES USING RESOURCE EQUIVALENCY ANALYSIS TO ESTIMATE THE COMPENSATORY MITIGATION FOR THE TAKE OF GOLDEN AND BALD EAGLES FROM WIND ENERGY DEVELOPMENT

1. Introduction

This appendix provides Resource Equivalency Analysis (REA) examples developed by the Service to illustrate the calculation of compensatory mitigation for the annual loss of golden (GOEA) eagles and bald (BAEA) eagles caused by wind power if conservation measures and ACPs do not remove the potential for take, and the projected take exceeds calculated thresholds for the species or management population affected. These examples result in estimates of the number of high-risk electric power poles that would need to be retrofitted *per* eagle taken based on the inputs provided below. Detailed explanatory documentation, literature, and supporting REA spreadsheets are now located at: www.fws.gov/windenergy/index html

As a *framework* for compensatory mitigation, it needs to be clear that the results provided below are an illustration of how REA works given the *current* understanding of GOEA and BAEA life history inputs, effectiveness of retrofitting high-risk electric power poles, the expected annual take, and the timing of both the eagle take permit and implementation of compensatory mitigation. As would be expected, the estimated number of eagle fatalities and the permit renewal period affect the number of poles to be retrofitted. Delays in retrofitting would lead to more retrofitted poles owed. New information on changes in the level of take, understanding of the eagle life history, or effectiveness of retrofitting could be used to change the number of retrofitted poles needed for compensation. Finally, while only electric pole retrofitting is presented here in detail, the REA metric of bird-years lends itself to consideration of other compensatory mitigation options to achieve the no-net-loss standard in the future. With enough reliable information, any compensatory mitigation that directly leads to an increased number of GOEA and BAEA (*e.g.*, habitat restoration) or the avoided loss of these eagles (*e.g.*, reducing vehicle/eagle collisions, making livestock water tanks 'eagle-safe', lead ammunition abatement, etc.) could be considered for compensation within the context of the REA.

2. REA Inputs

The best available peer-reviewed, published data are provided in Tables G-1 and G-2. It should be noted that additional modeling work within the REA may be needed, particularly on issues related to migration, adult female survivorship, natal dispersal, age at first breeding, and population sex ratio.

Table G-1. *EXAMPLE INPUTS* REA Inputs to Develop a Framework of Compensatory Mitigation for Potential Take of GOEA from Wind Energy Development

Parameter	REA Input		Reference
Start year of permit	2012		***Example.***
Length of permit renewal period	5 years		***Example.***
Estimated take	1 eagle/year		***Example.***
Average maximum lifespan	30 years		28 years, 3 months, USGS Bird Banding Lab. Consistent with Cole (2010) approach.
Age distribution of birds killed at wind facilities (based on age distribution of GOEA population)	(0-1) (1-4) (4-30)	20% 35% 45%	• 20% juveniles (age class (0-1)) • 35% sub-adults (11.67% for each age class from age class (1-2) through age class (3-4)) • 45% adults (1.73% for each age class from age class (4-5) through age class (29-30)) Assume age class is distributed evenly over time. Age distribution derived from models presented in USFWS 2009.
Age start reproducing	Age 5 [age class (5-6)]		Steenhof *et al.* 1984; Kochert *et al.* 2002
Expected years of reproduction	25 years		= (Maximum Lifespan) – (Age Start Reproducing) (Harmata 2002)
% of adult females that reproduce annually	80%		Steenhof *et al.* 1997
Productivity (mean number of individuals fledged per occupied nest annually)	0.61		USFWS 2009
year 0-1 survival	61%		USFWS 2009
year 1-2 survival	79%		
year 2-3 survival	79%		
year 3-4 survival	79%		
year 4+ survival	90.9%		
Relative productivity of mitigation option	0.0036 eagle electrocutions/pole/year		***Example.*** Compensatory mitigation involves retrofitting high-risk electric power poles, thus avoiding the loss of GOEA from electrocution (Lehman *et al.* 2010).
Discount rate	3%		A 3% discount rate is commonly used for valuing lost natural resource services (Freeman 1993, Lind 1982, NOAA 1999; and court decisions on damage assessment cases)

Table G-2. *EXAMPLE INPUTS.* REA Inputs to Develop a Framework of Compensatory Mitigation for Potential Take of BAEA from Wind Energy Development

Parameter	**REA Input**		**Reference**
Start year of permit	2011		***Example.***
Length of permit renewal period	5 years		***Example.***
Estimated take	1 eagle/year		***Example.***
Average maximum lifespan	30 years		32 years 10 months; Longevity record from USGS Bird Banding Lab. Consistent with Cole (2010) approach.
Age distribution of birds killed at wind facilities (based on age distribution of BAEA population)	(0-1) (1-4) (4-30)	15.4% 30% 54.6%	• 15.4% juveniles (age class (0-1)) • 30% sub-adults (10% for each age class from age class (1-2) through age class (3-4)) • 54.6% adults (2.1% for each age class from age class (4-5) through age class (29-30)) Assume age class is distributed evenly over time. Age distribution derived from models presented in USFWS 2009.
Age start reproducing	Age 5 [age class (5-6)]		Buehler 2000
Expected years of reproduction	25 years		= (Maximum Lifespan) – (Age Start Reproducing)
% of adult females that reproduce annually	42%		Hunt 1998, per. comm. Millsap
Productivity	1.3		Millsap *et al.* 2004
year 0-1 survival	77%		Millsap *et al.* 2004
year 1-2 survival	88%		
year 2-3 survival	88%		
year 3-4 survival	88%		
year 4+ survival	83%		
Relative productivity of mitigation option	0.0036 eagle electrocutions/pole/year		***Example.*** Mitigation involves retrofitting high-risk electric power poles, thus avoiding the loss of BAEA from electrocution (Lehman *et. al* 2010).
Discount rate	3%		A 3% discount rate is commonly used for valuing lost natural resource services (Freeman 1993; Lind 1982; NOAA 1999; and court decisions on damage assessment cases).

3. REA Example – WindCoA

The Service developed the following hypothetical scenario for permitting and compensatory mitigation to be applied to the take of GOEA[1] from wind power operations:

WindCoA conducted three years of pre-construction surveys to determine relative abundance of GOEA at their proposed wind project in Texas. The survey data was then used to populate a risk assessment model to generate an eagle fatality estimate. The initial fatality estimate of two eagles per year was further reduced after WindCoA implemented a few mutually agreed upon ACPs. The final fatality estimate generated from the risk assessment model, after consideration of the advanced conservation practices, was an annual take of one GOEA per year over the life of the permit starting in 2012.

WindCoA decided to conduct an REA to determine the number of high-risk power poles that would need to be retrofitted to get to no-net-loss. The company used the Service's GOEA REA inputs and assumed the power pole retrofit would occur in calendar year 2012, thus offsetting the potential loss of eagles at the newly operating wind project with avoidance of electrocution of an equal number of GOEA. Through proper operation and maintenance (O&M), the retrofitted poles are assumed to be effective in avoiding the loss of eagles for 10 years. The results of the model are expressed in the total number of electric power poles to be retrofitted to equate to no-net-loss of 5 eagles for the 5-year permit renewal period (1 eagle annually over five years). These results are extrapolated over the expected operating life of the wind project, which is assumed to be 30 years, for a total take of 30 eagles.

The results of the REA indicated that WindCoA needed to retrofit approximately 149 power poles for the first 5-year permit period (see Table G-3). Using an estimated cost of $7500/pole, the Service estimated that WindCoA could contribute $1,117,500 to a third-party mitigation account or contract the retrofits directly. After determining that they could fund the retrofits directly at a lower cost, WindCoA decided to partner with UtilityCoB to get the required number of poles retrofitted. UtilityCoB had previously conducted a risk assessment of their equipment and had identified high-risk poles that were likely to take golden eagles. Through a written agreement, WindCoA provided funding to UtilityCoB to retrofit the required number of power poles and maintain the retrofits for 10 years. In addition, WindCoA contracted with ConsultCoC to perform effectiveness monitoring of the retrofitted power poles for 2 years. The contract required that ConsultCoC visit each retrofitted power pole every 4 months (quarterly) to perform fatality searches and check for proper operation and maintenance of the equipment. The Service reviewed the compensatory mitigation project proposed by WindCoA and found it to be consistent with requirements at 50 CFR 22.26. After reviewing the signed contract between WindCoA, UtilityCoB, and ConsultCoC, the Service issued a programmatic eagle take permit to WindCoA.

[1] Using the inputs provided in Table G-2, this scenario may also be applied to BAEA.

a. REA Language and Methods

As discussed in greater detail in documents on the supporting website, this REA includes:

- The **direct loss** of GOEA/BAEA eagles from the take (*debit* in bird-years);
- The **relative productivity** of retrofitting high-risk power poles, which is the effectiveness in avoiding the loss of GOEA/BAEA by electrocution as a mitigation offset (measured in total bird-years per pole); and
- The **mitigation owed**, which is the total debit divided by the relative productivity (*scaling*) to identify the number of high-risk power poles that need retrofitting to completely offset the take of GOEA/BAEA eagles (credit).

There are up to 16 steps when conducting a REA. Depending on whether foregone future reproduction (part of the debit) is included, there are up to 13 total steps involved in calculating the injury side (debit) of a REA, and three additional steps involved in estimating compensatory mitigation owed (credit). Please refer to the technical note "Scaling Directly Proportional Avoided Loss Mitigation/Restoration Projects" on the supporting website (www.fws.gov/windenergy) for further information on the development of REA inputs and the inclusion of lost reproduction. Notably, in the case of an avoided loss project where the estimated prevented loss of bird-years (*e.g.*, through mitigation) is *directly proportional* to the loss of bird-years (*e.g.*, from "take"), the life history inputs (*e.g.*, longevity, age distribution, survival rates, reproduction) do not affect the final results of the credit owed. That is, the retrofitting of high-risk power poles is a directly proportional avoided loss, so only the level of take (number of eagles annually), the avoided loss of eagles per mitigated electric pole, the number of years the mitigated pole is effective in avoiding the loss of eagles, and the timing of the mitigation relative to the take affect the final credit owed. It should also be noted that the annual take of one eagle is used in the example because the lost bird-years associated with one eagle can be easily multiplied by the actual take to estimate the total debit in bird-years.

The following is a brief discussion of REA variables used in the Service's WindCoA example that affect the outcome of the compensatory mitigation calculation:

- **Relative Productivity of Mitigation (0.0036 electrocutions/pole/year**) – This rate is taken directly from published literature on eagle electrocution rates in northeastern Utah and northwestern Colorado and is specific to eagles (Lehman *et al.* 2010). Although the referenced study also lists a higher rate (0.0066) that includes all known eagle mortalities, this rate included eagles that may have died from causes unrelated to electrocution.
- **Years of Avoided Loss Per Retrofitted Pole (10 Years) –** The Service uses a period of 10 years for crediting the project developer or operator for the avoided loss of eagles from power pole retrofits. This is a reasonable amount of time to assume that power pole retrofits will remain effective. However, project developers or operators should consider entering into agreements with utility companies or contractors for the long-term maintenance of retrofits. Evidence of this type of agreement could increase the amount of credit received by the project developer or operator and, as a result, decrease the amount of compensatory mitigation required.

- **Permit Renewal Period (5 Years)** – This will be the review period that is used by the Service for adaptive management purposes and re-calculation of compensatory mitigation. The Service believes that this length of time will enable the project developer or operator to continue to meet the statutory and regulatory eagle preservation standard. This permit review tenure will remain the same regardless of the overall tenure of the permit.
- **Retrofit Cost/Payment ($7,500/pole)** – The Service received input directly from the industry regarding the actual costs to retrofit power poles. Estimates ranged from a low of approximately $400 to over $11,000 given that costs vary according to many factors. The Service believes that $7,500 represents a reasonable estimate for the current cost to retrofit power poles in the United States. Project developers or operators are encouraged to contract directly for retrofits as this will likely not be as costly as contributing $7,500/pole to an eagle compensatory mitigation account.

b. REA Results for WindCoA

Using the WindCoA example described above, along with the REA inputs provided in Table G-1, Table G-3 provides a summary of the results:

Table G-3. WindCoA Example: Compensatory Mitigation Owed for a 5-Year Permitted Take of 5 GOEA Extrapolated to the 30-Year Expected Operating Life of the Wind Project (30 GOEA in Total).

Total Debit for Take of 1 GOEA	28.485	PV* bird-years for 5 years of GOEA take
÷Relative Productivity of High-Risk Electric Pole Retrofitting	÷0.191	Avoided loss of PV bird-years per retrofitted pole (assumes 10 years of avoided loss per pole based on the commitment from UtilityCoB)
= Mitigation Owed for 5-Year Permitted Take	=149.136	Poles to be retrofitted to achieve no-net-loss
x # Cycles of 5-Year Permit Reviews =Total Mitigation Owed	x 6 = 894.818	Poles to be retrofitted to achieve no-net-loss for the 30-year expected operating life of the wind project

*PV=Present Value

If *all* of the REA inputs remain the same after the initial five years, then the estimated 149.14 poles may be multiplied by the expected number of permit reviews to provide an estimate of the total number of poles that would eventually be retrofitted. For example, for the 30-year life cycle of the WindCoA wind project, 149.14 poles would be multiplied by 6 permit renewals to equal approximately 895 high-risk power poles in total to be retrofitted as compensatory mitigation for the take of 30 GOEA over 30 years (1 eagle annually). While this example shows the effectiveness of the mitigation method as

lasting for 10 years, it may be the case that the method selected is more or less effective at avoiding the loss of eagles (*e.g.*, 5 years, more than 10 years). The REA can be adjusted for the expected effectiveness of mitigation, and more or fewer high-risk power poles would need to be mitigated. All estimates of compensatory mitigation are contingent on proper operation and maintenance being conducted by UtilityCoB or a contractor to ensure that the expected effectiveness is achieved.

For purposes of illustration, should WindCoA choose to use the GOEA inputs provided in Table G-1 and their fatality estimate is that 5 GOEA will be taken annually, the results may be easily adjusted as shown in Table G-4:

Table G-4. WindCoA Example: Compensatory Mitigation Owed for a 5-Year Permitted Take of 25 GOEA Extrapolated to the 30-Year Expected Operating Life of the Wind Project (150 GOEA in Total).

Total Debit for Take of 1 GOEA	28.485	PV bird-years for 5 years of GOEA take from Table F-3
x Actual Annual Take of GOEA	x 5 =142.425	PV bird-years for 5 years of GOEA take
÷ Relative Productivity of High-Risk Electric Pole Retrofitting	÷0.191	Avoided loss of PV bird-years per retrofitted pole (assumes 10 years of avoided loss per pole based on the commitment from UtilityCoB)
= Mitigation Owed for 5-Year Permitted Take	=**745.681**	Poles to be retrofitted to achieve no-net-loss
x # Cycles of 5-Year Permit Reviews = Total Mitigation Owed	x 6 =**4474.086**	Poles to be retrofitted to achieve no-net-loss for the 30-year expected operating life of the wind project

PV=Present Value

c. Summary of Bald Eagle REA Results

Following the same process described above for GOEA (*i.e.*, using the WindCoA example and the BAEA REA inputs provided in Table G-2), Table G-5 provides a summary of the results for bald eagles:

Table G-5. Example of Compensatory Mitigation Owed for a 5-Year Permitted Take of 5 BAEA Extrapolated to the 30-Year Expected Operating Life of the Wind Project (30 BAEA in Total).

Total Debit for Take of 1 BAEA	20.229	PV bird-years for 5 years of BAEA take
÷ Relative Productivity of High-Risk Electric Pole Retrofitting	÷0.136	Avoided loss of PV bird-years per retrofitted pole
= Mitigation Owed for 5-Year Permitted Take	**=149.136**	Poles to be retrofitted to achieve no-net-loss
x # Cycles of 5-Year Permit Reviews = Total Mitigation Owed	x 6 **=894.818**	Poles to be retrofitted to achieve no-net-loss for the 30-year expected operating life of the wind project

PV=Present Value

Although there are differences between GOEA and BAEA life history inputs (*e.g.*, longevity, age distribution, survival rates, reproduction), the estimated avoided loss of bird-years through mitigation is *directly proportional* to the loss of bird-years from the take, so the life history inputs do not affect the final results of the credit owed. Because there was no change in the level of take (number of eagles annually), the avoided loss of eagles per mitigated electric pole, the number of years the mitigated pole is effective in avoiding the loss of eagles, or the timing of the mitigation relative to the take, there is no change in the credit owed. To help illustrate, when comparing the results of BAEA to GOEA, both the debit (20.23÷28.49) and the relative productivity of electric pole retrofitting (0.14÷0.19) for BAEA are approximately 70% of GOEA, so the amount of retrofitting owed is the same. That is, both the numerator of the scaling equation (total debit) and the denominator (relative productivity of mitigation) were changed proportionally (approximately 70%), so there is no change in the mitigation owed.

d. Discussion on Using REA

The ECPG does not mandate the use of REA. Rather, the Service recognized the need for a reliable, transparent, reproducible, and cost-effective tool to expedite wind power permits, while ensuring sufficient compensatory mitigation for the take of golden eagles and bald eagles from operations to meet regulatory permitting requirements. Although there is a learning curve, REA meets these basic needs. This appendix and materials on the supporting website explain the methods, share the tools to run REAs, and discuss how changes in the different inputs can affect the results. Should project developers or operators/applicants choose to use the provided inputs, methods, and tools, the Service will be able to appropriately focus on the expected take of eagles. Project developers or operators/applicants have the discretion to offer alternative REA inputs or use different compensatory mitigation modeling methods. However, they will need to provide sufficient evidence and tools (if necessary) to ensure that the Service can provide

appropriate review of the results, and should expect that such an effort will likely take additional time.

e. Additional Compensatory Mitigation Example

In the United States, another known cause of mortality to eagles, both bald and golden, is vehicle collisions. Eagles are susceptible to being struck by vehicles as they feed on carcasses along roadsides, particularly in areas of the United States where large numbers of ungulates concentrate seasonally (*e.g.* winter, breeding season, etc.). As a compensatory mitigation strategy, a project developer or operator may decide to collect data (or use existing data if it is available) on the annual number of eagle mortalities that result from vehicle collisions in a specified geographic area or along a specific stretch of roadway. This data could then be used to generate an estimate of the number of eagle mortalities that could be prevented in the same area by removing carcasses from roadsides. If there was sufficient evidence that this was a valid project (*e.g.* quantifiable and verifiable), the project developer or operator could contract to have these roadsides 'cleaned' of carcasses during the time of year that ungulates concentrate and eagles are known to be struck. The credible estimate of eagle mortalities that would be avoided through carcass removal would be the value of the compensatory mitigation achieved.

f. Take from disturbance

Project developers or operators should work with the Service to determine if take from disturbance is likely to occur. This should be predicted in advance based on Stage 3 data, and verified through post-construction monitoring in Stage 5. The following are recommended take calculations based on information contained within the FEA (USFWS 2009):

For the standard bald eagle population:

- Take resulting from disturbance at one nest on only one occasion = take of 1.3 individuals
- One nest take resulting in the permanent abandonment of a territory = take of 1.3 individuals for the first year, then take of 8 individuals annually until data show the number of breeding pairs has returned to or exceeded the original estimated number for the eagle management unit.

For the standard golden eagle population:

- Take resulting from disturbance at one nest on only one occasion = take of 0.8 individuals
- One nest take resulting in the permanent abandonment of a territory = take of 0.8 individuals for the first year, then take of 4 individuals annually until data show the number of breeding pairs has returned to or exceeded the original estimated number for the eagle management unit.

Using the data presented in the above WindCoA example, the compensatory mitigation required for disturbance resulting in the loss of productivity from one GOEA nest for one year would result in the following:

1. Disturbance take of one GOEA nest on one occasion = 0.8 GOEA
2. From the REA, the take of one GOEA for one year = 6 PV bird-years

3. Six PV bird-years/GOEA * 0.8 GOEA = 4.8 PV bird-years
4. From the REA, 4.8 PV bird-years ÷ 0.191 PV bird-years/pole retrofitted (for 10 year maintenance of poles) = 25.1 poles retrofitted

WindCoA would be required to retrofit a total of 174.24 poles (149.14 poles for the lethal take of 5 GOEA (see Table G-3) + 24.5 poles for the disturbance take of one GOEA nest) to cover the initial five year permitted take.

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APPENDIX H : STAGE 5 – CALIBRATING AND UPDATING OF THE FATALITY PREDICTION AND CONTINUED RISK-ASSESSMENT

Given the degree of uncertainty that currently exists surrounding the risk of wind facilities to eagles and the factors that contribute to that risk, post-construction monitoring is one of the most significant activities that will be undertaken by eagle programmatic take permit holders. Post-construction monitoring has two basic components when applied to eagle take: (1) estimating the mean annual fatality rate, and (2) assessing possible disturbance effects on neighboring nests and communal roosts. Provided that assessments conducted during Stages 1-4 are consistent, robust, and reliably performed as suggested in this ECPG, the pre-construction data should provide a solid platform for development of the Stage 5 monitoring and assessment studies.

1. Fatality Monitoring

All wind facilities that are permitted to take eagles will need to conduct fatality monitoring to ensure compliance with regulatory requirements. Fatality monitoring must be conducted at all wind facilities that are permitted to take eagles. We anticipate that in most cases, intensive monitoring to estimate the true annual fatality rate and to assess possible disturbance effects will be conducted for at least the first two years after permit issuance, followed by less intense monitoring for up to three years after the expiration date of the permit, in accordance with monitoring requirements at 50 CFR 22.26(c)(2). However, additional intensive, targeted monitoring may be necessary to determine the effectiveness of additional conservation measures and ACPs implemented to reduce observed fatalities. Such monitoring should be rigorous and sufficient to yield a reasonable estimate of the mean annual eagle fatality rate for the project. General considerations for designing fatality monitoring programs can be found in Strickland *et al.* (2011) and the WEG, and these sources should be consulted in the development of a post-construction study design. Because the post-construction monitoring protocol will be included as a condition of the programmatic take permit, the design of such monitoring will be determined jointly by the permittee and the Service. Additionally, the Service and USGS are investing significant resources into research to test and assess post-construction monitoring approaches for eagles, thus we expect to be able to offer useful input in the design of such monitoring programs. Fatality monitoring for eagles can be combined with monitoring mortality of other wildlife so long as sampling intensity takes into account the relative infrequency of eagle mortality events.

Fatality-monitoring efforts involve searching for eagle carcasses beneath turbines and other facilities to estimate the number of fatalities. The primary objectives of these efforts are to: (1) estimate eagle fatality rates for comparison with the model-based predictions prior to construction, and (2) to determine whether individual turbines or strings of turbines are responsible for the majority of eagle fatalities, and if so, the factors associated with those turbines that might account for the fatalities and which might be addressed via conservation measures and ACPs.

Fatality monitoring results should be of sufficient statistical validity to provide a reasonably precise estimate of the eagle mortality rate at a project to allow meaningful

comparisons with pre-construction predictions, and to provide a sound basis for determining if, and if so which, conservation measures and ACPs might be appropriate. The basic method of measuring fatality rates is the carcass search. All fatality monitoring should include estimates of carcass removal and carcass detection bias (scavenger removal and searcher efficiency) likely to influence those rates, using the currently accepted methods. Fatality and bias correction efforts should occur across all seasons to assess potential temporal variation. Where seasonal eagle concentrations were identified in the Stage 2 assessment, sampling protocols should take these periodic pulses in abundance into account in the sample design.

Carcass searches underestimate actual mortalities at wind turbines, but with appropriate sampling, carcass counts can be adjusted to account for biases in detection (Kunz *et al.* 2007, Arnett *et al.* 2007, NRC 2007, Huso 2010). Important sources of bias and error include: (1) low or highly variable fatality rates; (2) carcass removal by scavengers; (3) differences in searcher efficiency; (4) failure to account for the influence of site (*e.g.*, vegetative) conditions in relation to carcass removal and searcher efficiency; and (5) fatalities or injured birds that may land or move outside search plots. Strickland et al (2011) provide a concise overview of fatality prediction models and considerations in the selection of a model. In the case of eagles, a primary consideration in the selection of a model and in the sampling design is the relative rarity of collisions, even at sites where fatality rates are comparatively high.

Regardless of the approach selected, we recommend the following data be collected for each search:

1. Date.
2. Start time.
3. End time.
4. Interval since last search.
5. Observer.
6. Which turbine area was searched (including decimal-degree latitude longitude or UTM coordinates and datum).
7. Weather data for each search, including the weather for the interval since the last search.
8. GPS track of the search path.

When a dead eagle is found, the following information should be recorded on a fatality data sheet:

1. Date.
2. Species.
3. Age and sex (following criteria in Pyle 2008) when possible.
4. Band number and notation if wearing a radio-transmitter or auxiliary marker.
5. Observer name.
6. Turbine or pole number or other identifying character.
7. Distance of the carcass from the turbine or pole.
8. Azimuth of the carcass from the turbine or pole.

9. Decimal-degree latitude longitude or UTM coordinates of the turbine or pole and carcass.
10. Habitat surrounding the carcass.
11. Condition of the carcass (entire, partial, scavenged).
12. Description of the carcass (*e.g.*, intact, wing sheared, in multiple pieces).
13. A rough estimate of the time since death (*e.g.*, ≤1 day, > a week), and how estimated.
14. A digital photograph of the carcass.
15. Information on carcass disposition.

In some cases, eagle take permits may specify other biological materials or data that should be collected from eagle carcasses (*e.g.*, feathers, tissue samples). Rubber gloves should be used to handle all carcasses to eliminate possible disease transmission. All eagle fatalities (not just those found on post-construction surveys) and associated information should be immediately reported to the Service's Office of Law Enforcement and to the Service's migratory bird permit issuing office if the facility is operating under an eagle take permit. Eagle carcasses should not be moved until such notification occurs, after which carcass disposition should be in accordance with permit conditions or Service direction.

2. Disturbance Monitoring

Project developers or operators may also be required to monitor many of the eagle nesting territories and communal roost sites identified in the Stage 2 assessments as stated in the permit regulations at 50 CFR 22.26(c)(2)for at least two years after project construction and for up to three years after the cessation of the activity. The objective of such monitoring will be to determine post-construction (1) territory or roost occupancy rates, (2) nest success rates, and (3) productivity. On a project-by-project basis, changes in any of these reproductive measures may not be indicative of disturbance. However, patterns may become apparent when the Service and USGS pool data appropriately and analyze findings from many projects in the context of a meta-analysis within the adaptive management framework.

Eagle nesting territories most likely to be affected by disturbance from a wind project are those that have use areas within or adjacent to the project footprint. The Service will accept an assumption that all eagle pairs at or within the mean project-area inter-nest distance (as determined from the Stage 2 assessment) of the project boundary are territories that may be at risk of disturbance (*e.g.*, if the mean nearest-neighbor distance between simultaneously occupied eagle territories in the Stage 2 assessment is 2 miles, we would expect disturbance to most likely affect eagles within 2 miles of the project boundary; Figures H-1 though H-4). Eagle pairs nesting within ½ the project-area mean intern-nest distance are the highest candidates for disturbance effects, and should receive special attention and consideration.

Where nesting habitat is patchy or eagle nesting density is low such that nearest-neighbors are outside a 10-mile wide perimeter of the project footprint, we recommend either: (1) extending the project-area survey outward to include the nearest-neighbors for

the purposes of estimating the mean inter-nest distance value, or (2) undertaking detailed observational studies of the eagles occupying territories within the typical project-area to assess use patterns and ranging behavior relative to the project footprint. We recognize that selecting option (1) for golden eagles would extend the project area beyond the maximum of 10 miles advocated in the ECPG, but in some areas it is possible golden eagles using nests further than 10 miles from the project footprint may occur there. Regardless of which approach is used, territories that meet this distance criterion should be re-sampled annually for no less than two years after the project is operational following identical survey and reporting procedures as were used in the Stage 2 assessment.

If such monitoring shows strong evidence of direct disturbance from a project, project developers or operators and the Service will consider additional conservation measures and ACPs that might be effective in reducing the effect. Such measures would be within the sideboards established at the time of permit issuance. Alternatively, the project developer or operator may be required to provide compensatory mitigation to offset the estimated decreases in productivity to the extent necessary to meet the statutory requirement to preserve eagles.

The Service and the project developer or operator should agree on a site-specific, post-construction survey protocol for eagle concentration areas identified in Stage 2 and make an a priori decision on how to interpret and act on potential outcomes. Mortalities of eagles using proximate communal roosts will be accounted for through the protocol for monitoring post-construction fatalities. However, if communal roosts are no longer used by eagles because of disturbance, that effect should be determined, evaluated, and where population-level effects are indicated, mitigated.

3. Comparison of Post-Construction Eagle Use with Pre-Construction Use

As noted elsewhere, Service fatality models assume eagle use of the project footprint does not change as a result of project development. However, there is little information to support this assumption, and the ability to accurately predict fatality rates could be greatly improved by comparative information on post-construction eagle use. The Service encourages project developers or operators to consider conducting exposure surveys similar in design and intensity to pre-construction survey work to test this assumption where and when feasible.

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Figures H-1 to H-4 (following pages). Suggested approach for determining project-area and identifying eagle nesting territories to monitor for disturbance effects during Stage 5.

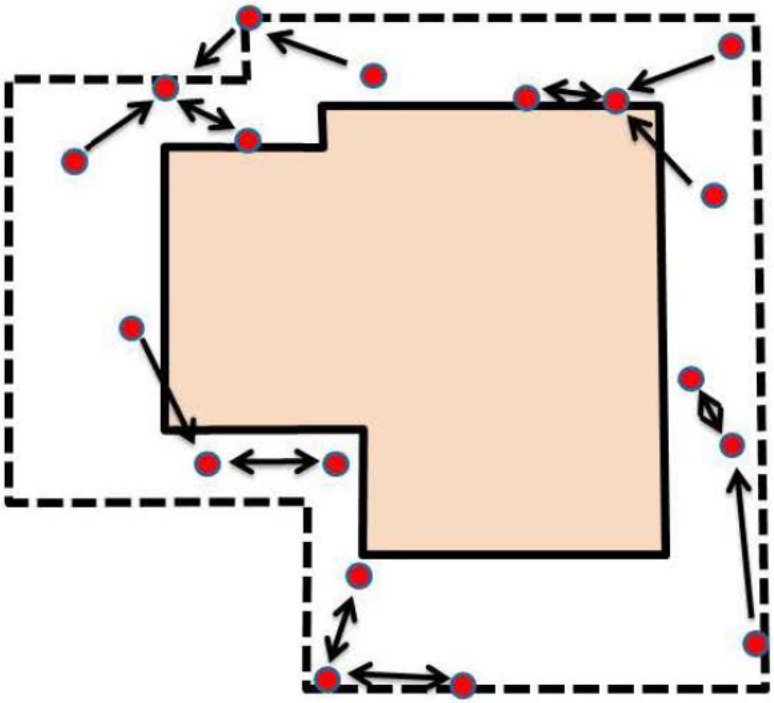

Figure H-1. Map showing hypothetical wind-facility project footprint (area inside the solid-black line, shaded peach), and the recommended project-area for eagle use area surveys in Stage 2 (inside the dotted line). Red dots denote occupied eagle nests. Arrows represent nearest-neighbor distance measurements that would be collected and used in the calculation of the project-area mean inter-nest distance. In some cases, nests are reciprocal nearest neighbors (double arrows); in these cases the inter-nest distance is the same for both nests. In other cases, the relationship is not reciprocal (e.g., a nest's nearest neighbor may be closer to another nest; one-way arrows), in which case the two have different inter-nest distance values. Ideally, this process would be completed over two or more breeding seasons to account for annual variation in nest occupancy and spacing.

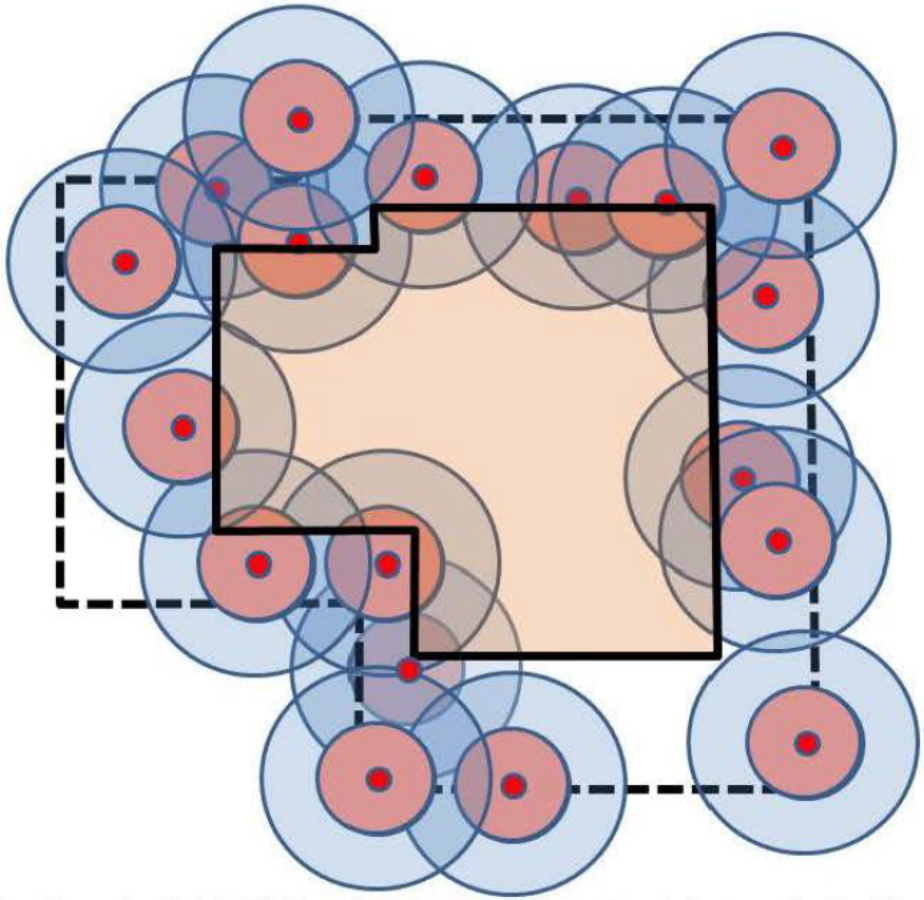

Figure H-2. Map of the same hypothetical wind-facility project in Figure H-1. Circles around occupied nests are at the radius of the project-area mean inter-nest distance (blue rings), and ½ the project-area mean inter-nest distance (pink rings), both calculated from the distance measurements collected as described in Figure H-1.

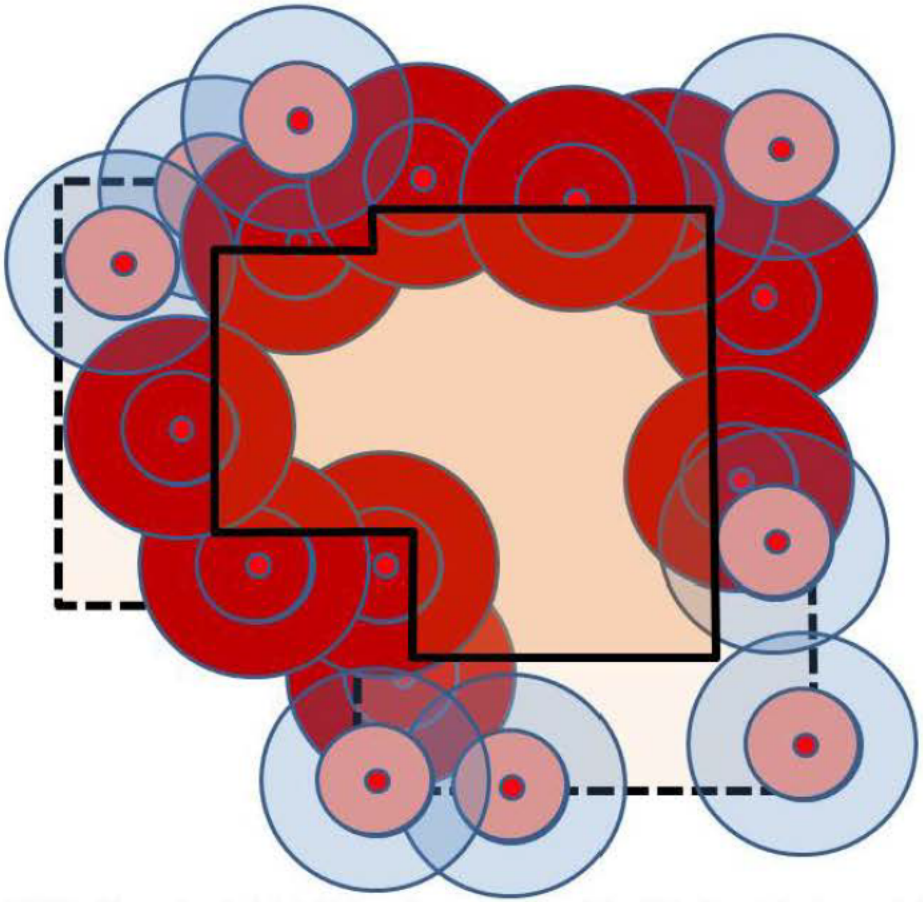

Figure H-3. Map of the same hypothetical wind-facility project area as in Figures H-1 and H-2, after applying site categorization criteria from the Guidelines. The site is currently borderline category 1 because the project footprint includes or approaches several eagle nests, and includes the area within ½ the local area inter-nest distance of those nests now highlighted in red.

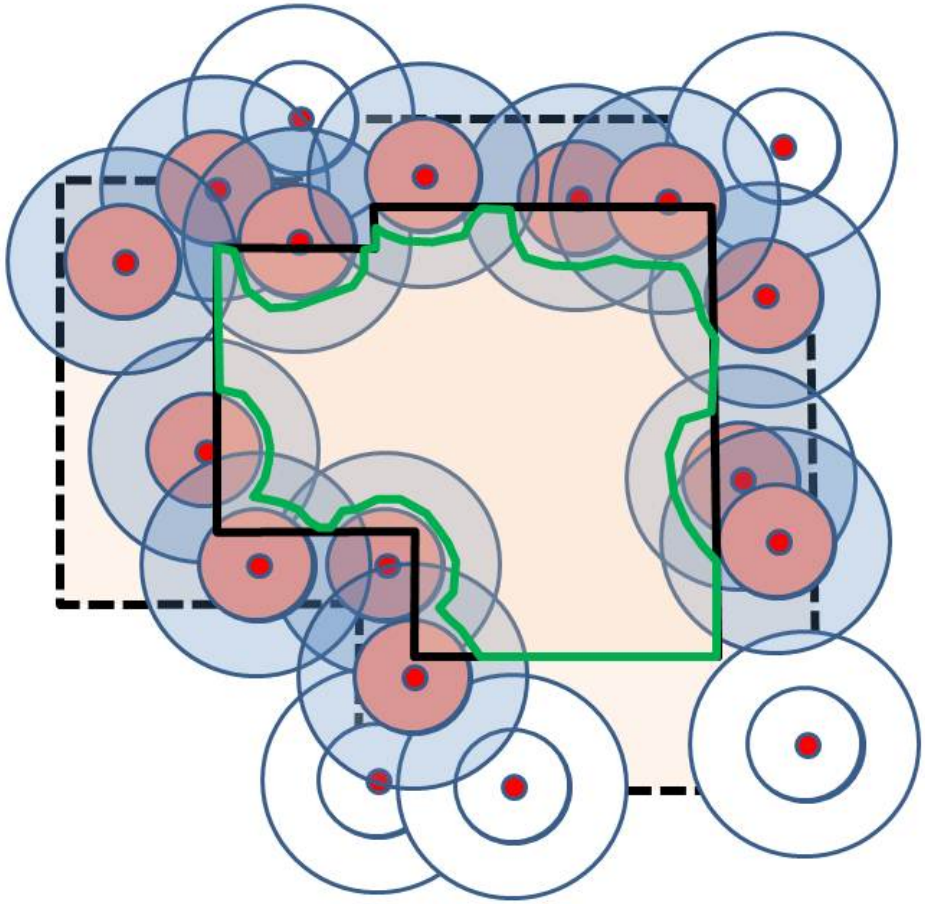

Figure H-4. The same hypothetical wind-facility project as in Figures H-1 – H-3, but re-designed such that the green line now delineates the project footprint. The re-design lessens the likelihood of negative effects on nesting eagles in the project area, and the project is now in category 2. If the project moves forward and the project developer or operator receives a programmatic eagle-take permit, those territories that are shaded should be monitored for disturbance-effects following Stage 5 recommendations because they are at or within one project-area mean inter-nest distance of the project footprint.

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FW: ECP Guidance

1 message

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Eagle Conservation Plan Guidance
Module 1 – Land-based Wind Energy
Version 2

U.S. Fish and Wildlife Service
Division of Migratory Bird Management

July 2012

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Disclaimer

This Eagle Conservation Plan Guidance is not intended to, nor shall it be construed to, limit or preclude the Service from exercising its authority under any law, statute, or regulation, or from taking enforcement action against any individual, company, or agency. This Guidance is not meant to relieve any individual, company, or agency of its obligations to comply with any applicable Federal, state, tribal, or local laws, statutes, or regulation. This Guidance by itself does not prevent the Service from referring cases for prosecution, whether a company has followed it or not.

EXECUTIVE SUMMARY

1. Overview

Of all America's wildlife, eagles hold perhaps the most revered place in our national history and culture. The United States has long imposed special protections for its bald and golden eagle populations. Now, as the nation seeks to increase its production of domestic energy, wind energy developers and wildlife agencies have recognized a need for specific guidance to help make wind energy facilities compatible with eagle conservation and the laws and regulations that protect eagles.

To meet this need, the U.S. Fish and Wildlife Service (Service) has developed the Eagle Conservation Plan Guidance (ECPG). This document provides specific in-depth guidance for conserving bald and golden eagles in the course of siting, constructing, and operating wind energy facilities. The ECPG guidance supplements the Service's Land-Based Wind Energy Guidelines (WEG). WEG provides a broad overview of wildlife considerations for siting and operating wind energy facilities, but does not address the in-depth guidance needed for the specific legal protections afforded to bald and golden eagles. The ECPG fills this gap.

Like the WEG, the ECPG recommends that wind project developers take a staged approach to siting new projects. Both recommend preliminary landscape-level assessments to assess potential wildlife interactions and proceed to site-specific surveys and risk assessments prior to construction. They also recommend for monitoring project operations and reporting eagle fatalities to the Service and state and tribal wildlife agencies.

While the provisions in the ECPG are voluntary, the Service believes that following the guidance will help project operators in complying with regulatory requirements and avoiding the unintentional "take" of eagles at wind energy facilities, and will also assist the wind energy industry in providing the biological data and risk assessments needed to support permit applications for facilities that may pose a risk to eagles.

2. The Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (BGEPA) is the primary law protecting eagles. BGEPA prohibits "take" of eagles without a permit (16 USC 668-668c). BGEPA defines "take" to include "pursue, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb," and prohibits take of individuals and their parts, nests, or eggs. The Service expanded this definition by regulation to include the term "destroy" to ensure that "take" includes destruction of eagle nests. The term "disturb" is further defined by regulation as "to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause,….injury to an eagle, a decrease in productivity, or nest abandonment" (50 CFR 22.3).

3. Risks to Eagles from Wind Energy Facilities

Wind energy development can affect eagles in a variety of ways. First, eagles can be killed by colliding with structures such as wind turbines. This is the primary threat to eagles from wind facilities, and the ECPG guidance is primarily aimed at this threat. Second, disturbance from pre-construction, construction, or operation and maintenance activities might disturb eagles at concentration sites or and result in loss of productivity at nearby nests. Third, serious disturbance or mortality effects could result in the permanent or long term loss of a nesting territory. (b) (5) [redacted] Additionally, disturbances near important eagle use areas or migration concentration sites might stress eagles so much that they suffer reproductive failure or mortality elsewhere, to a degree that could amount to prohibited take.

4. Eagle Take Permits

The Service recognizes that wind energy facilities, even those developed and operated with the utmost effort to conserve wildlife, may under some circumstances result in the "take" of eagles under BGEPA. However, in 2009, the Service promulgated new permit rules for eagles that address this issue (50 CFR 22.26 and 22.27).

Under these new rules the Service can issue permits that authorize individual instances of take of bald and golden eagles when the take is associated with, but not the purpose of, an otherwise lawful activity, and cannot practicably be avoided. The regulations also authorize permits for "programmatic" take, which means that instances of "take" may not be isolated, but may recur. The programmatic take permits are the most germane permits for wind energy facilities. However, under these regulations, any ongoing or programmatic take must be unavoidable even after the implementation of advanced conservation practices (ACPs).

5. Voluntary Nature of the ECPG

Wind project operators are not legally required to seek or obtain an eagle take permit. However, the unintentional take of an eagle without a permit is a violation of BGEPA, and could result in prosecution. The methods and approaches suggested in the ECPG are not mandatory to obtain an eagle take permit. The Service will accept other approaches that provide the information and data required by the regulations. However, Service employees who process eagle take permit applications are trained in the methods and approaches covered in the ECPG. Using other methodologies may result in longer application processing times.

6. Eagle Take Thresholds

Eagle take permits may be issued only in compliance with the conservation standards of BGEPA. This means that the take must be compatible with the preservation of each species, defined (in USFWS 2009a) as "consistent with the goal of stable or increasing breeding populations."

To ensure that any authorized "take" of eagles does not exceed this standard, the Service has set regional take thresholds for each species, using methodology contained in the National Environmental Policy Act (NEPA) Final Environmental Assessment (FEA) developed for the new eagle permit rules (USFWS 2009b). The Service looked at regional populations of eagles and set take thresholds for each species (upper limits on the number of eagle mortalities that can be allowed under permit each year in these regional management areas).

The analysis identified take thresholds greater than zero for bald eagles in most regional management areas. However, the Service determined that golden eagle populations might not be able to sustain any additional unmitigated mortality at that time, and set the thresholds for this species at zero for all regional populations. This means that any new authorized "take" of golden eagles must be at least equally offset by compensatory mitigation (specific conservation actions to replace or offset project-induced losses).

The Service also put in place measures to ensure that local eagle populations are not depleted by take that would be otherwise regionally acceptable. The Service specified that take rates must be carefully assessed, both for individual projects and for the cumulative effects of other activities causing take, at the scale of the local-area eagle population (a population within a distance of 43 miles for bald eagles and 140 miles for golden eagles). This distance is based on the median distance to which eagles disperse from the nest where they are hatched to where they settle to breed.

The Service identified take rates of between 1 and 5 percent of the total estimated local-area eagle population as significant, with 5 percent being at the upper end of what might be appropriate under the BGEPA preservation standard, whether offset by compensatory mitigation or not. Appendix F provides a full description of take thresholds and benchmarks, and provides suggested tools for evaluating how these apply to individual projects.

7. An Approach for Developing and Evaluating Eagle ACPs

Permits for eagle take at wind-energy facilities are programmatic in nature as they will authorize recurring take rather than isolated incidences of take. For programmatic take permits, the regulations require that any authorized take must be unavoidable after the implementation of advanced conservation practices (ACPs). ACPs are defined as "scientifically supportable measures that are approved by the Service and represent the best available techniques to reduce eagle disturbance and ongoing mortalities to a level where remaining take is unavoidable" (50 CFR 22.3).

The best information currently available indicates there are no conservation measures that have been scientifically shown to reduce eagle disturbance and blade-strike mortality at wind projects. Therefore, the Service has not currently approved any ACPs for wind energy projects. Despite the current lack of formally approved ACPs, there may be other conservation measures based on the best available scientific information that should be

applied as a condition on programmatic eagle take permits for wind-energy facilities. (b) (5) [redacted]

The process of developing ACPs for wind energy facilities has been hampered by the lack of standardized scientific study of potential ACPs. The Service has determined that the best way to obtain the needed scientific information is to work with industry to develop ACPs for wind projects as part of an adaptive-management regime and comprehensive research program tied to the programmatic-take-permit process. In this scenario, ACPs will be implemented at operating wind facilities with an eagle take permit on an "experimental" basis (the ACPs are considered experimental because they would not meet the definition of an ACP in the eagle permit regulation). The experimental ACPs would be scientifically evaluated for their effectiveness, as described in detail in this document, and based on the results of these studies, could be modified in an adaptive management regime. This approach should provide the needed scientific information for the future establishment of formal ACPs, while enabling wind energy facilities to move forward in the interim.

(b) (5) [redacted], a project developer or operator will be expected to implement any reasonable avoidance and minimization measures that may reduce take of eagles at a project. In addition, the Service and the project developer or operator would identify other site-specific and possibly turbine-specific factors that may pose risks to eagles, and agree on the potential future experimental ACPs to avoid and minimize those risks. Unless the Service determines that there is a reasonable scientific basis to implement prospective ACPs up front (or it is otherwise advantageous to the developer to do so), we recommend that such potentially costly measures be deferred until such time as there is eagle take at the facility and the circumstances and evidence suggest the prospective ACPs might be warranted. (b) (5) [redacted]

Because the ACPs would be experimental, the Service recommends that they be subject to a cost cap that the Service and the project developer or operator would establish as part of the initial agreement before issuance of an eagle permit. This would provide a degree of financial certainty as to what the costs of such measures might be. The amount of the cap should be proportional to overall risk.

As the results from monitoring experimental ACPs across a number of facilities accumulate and are analyzed, scientific information in support of certain experimental ACPs may accrue, whereas other ACPs may show little value in reducing take. If the Service determines that the available science demonstrates an experimental ACP is effective in reducing eagle take, the Service will approve that ACP and require its implementation up front on new applications when and where warranted.

As the ECPG evolves, the Service would not expect project developers or operators to retroactively redo analyses or surveys using the new approaches. The adaptive approach

to the ECPG should not deter project developers or operators from using the ECPG immediately.

8. Mitigation Actions to Reduce Effects on Eagle Populations

(b) (5) [redacted], where wind energy facilities cannot avoid taking eagles and eagle populations are not healthy enough to sustain additional mortality, applicants must reduce the unavoidable mortality to a no-net-loss standard for the duration of the permitted activity. No-net-loss means that these actions either reduce another ongoing form of mortality to a level equal to or greater than the unavoidable mortality, or lead to an increase in carrying capacity that allows the eagle population to grow by an equal or greater amount. Actions to reduce eagle mortality or increase carrying capacity to this no-net-loss standard are known as "compensatory mitigation" in the ECPG. Examples of compensatory mitigation activities might include retrofitting power lines to reduce eagle electrocutions, removing road-killed animals along roads where vehicles hit and kill scavenging eagles, or increasing prey availability.

Additional types of mitigation such as preserving habitat – actions that would not by themselves lead to increased numbers of eagles but would assist eagle conservation – may also be advised to offset other detrimental effects of permits on eagles. Compensatory mitigation is further discussed below (Stage 4 – Avoidance and Minimization of Risk and Compensatory Mitigation).

9. Relationship of Eagle Guidelines (ECPG) to the Wind Energy Guidelines (WEG)

The ECPG is intended to be implemented in conjunction with other actions recommended in the WEG that assess impacts to wildlife species and their habitats. The WEG recommends a five-tier process for such assessments, and the ECPG fits within that framework. The ECPG focuses on eagles to facilitate collection of information that could support an eagle take permit decision. The ECPG uses a five-stage approach like the WEG; the relationship between the ECPG stages and the WEG tiers is shown in Fig. 1.

Tiers 1 and 2 of the WEG (Stage 1 of the ECPG) could provide sufficient evidence to demonstrate that a project poses very low risk to eagles. Provided this assessment is robust, eagles may not warrant further consideration in subsequent WEG tiers, and Stages 2 through 5 of the ECPG and pursuit of an eagle take permit might be unnecessary. A similar conclusion could be reached at the end of Stage 2, 3, or 4.

The following sections describe the general approach envisioned for assessing wind project impacts to eagles (also see the Stage Overview Table at the end of the Executive Summary).

Tiers 1 and 2 of the WEG, Stage 1 of the ECPG

Tier 1 of the WEG is the preliminary site evaluation (landscape-scale screening of possible project sites). Tier 2 is site characterization (broad characterization of one or

more potential project sites). These correspond with Stage 1 of the ECPG, the site-assessment stage. As part of the Tiers 1 and 2 process, project developers should carry out Stage 1 of the ECPG and evaluate broad geographic areas to assess the relative importance of various areas to resident breeding and non-breeding eagles, and to migrant and wintering eagles. During Stage 1, the project developer or operator should gather existing information from publicly available literature, databases, and other sources, and use those data to judge the appropriateness of various potential project sites, balancing suitability for development with potential risk to eagles.

To increase the probability of meeting the regulatory requirements for a programmatic take permit, biological advice from the Service and other jurisdictional wildlife agencies should be requested as early as possible in the developer's planning process and should be as inclusive as possible to ensure all issues are being addressed at the same time and in a coordinated manner. Ideally, consultation with the Service, and state and tribal wildlife agencies is done before wind developers make any substantial financial commitment or finalize lease agreements.

Tier 3 of the WEG, Stages 2, 3, and 4 of the ECPG

During Tier 3 of the WEG, a developer conducts field studies to document wildlife use and habitat at the project site and predict project impacts. These site-specific studies are critical to evaluating potential impacts to all wildlife including eagles. The developer and the Service would use the information collected to support an eagle take permit application, should the developer seek a permit. As part of Tier 3, the ECPG recommends project developers or operators implement three stages of assessment for eagles:

- Stage 2 - site-specific surveys and assessments;
- Stage 3 - predicting eagle fatalities; and
- Stage 4 – avoidance and minimization of risk and compensatory mitigation.

Stage 2 – Site Specific Surveys and Assessments

During Stage 2 the Service recommends the project developer collect quantitative data through scientifically rigorous surveys designed to assess the potential risk of the proposed project to eagles. The Service recommends collecting information that will allow estimation of the eagle exposure rate (eagle-minutes flying within the project footprint per hour per kilometer^2), as well as surveys sufficient to determine if important eagle use areas or migration concentration sites are within or in close proximity to the project footprint (see Appendix C). In the case of small wind projects (one utility-scale turbine or a few small turbines), the project developer should consider the proximity of eagle nesting and roosting sites to a proposed project and discuss the results of the Stage 1 assessment with the Service to determine if Stage 2 surveys are necessary. In many cases the hazardous area associated with such projects will be small enough that Stage 2 surveys will not be necessary.

Stage 3 – Predicting Eagle Fatalities

In Stage 3, the Service and project developers or operators use data from Stage 2 in models to predict eagle risk expressed as the average number of fatalities per year extrapolated to the tenure of the permit. These models can compare alternative siting, construction, and operational scenarios, a useful feature in constructing hypotheses regarding predicted effects of conservation measures and experimental ACPs. The Service encourages project developers or operators to use the recommended pre-construction survey protocol in this ECPG in Stage 2 to help inform our predictive models in Stage 3. If Service-recommended survey protocols are used, this risk assessment can be greatly facilitated using model tools available from the Service. If project developers or operators use other forms of information for the Stage 2 assessment, they would need to fully describe those methods and the analysis used for the eagle risk assessment. The Service would require more time to evaluate and review the data because, for example, the Service would need to compare the results of the project developer or operator's eagle risk assessment with predictions from our models. If the results differ, we would work with the project developers or operators to determine which model results are most appropriate for the Service's eventual permitting decisions.

The Service and project developers or operators also evaluate Stage 2 data to determine whether disturbance take is likely, and if so, at what level. Any loss of production that may stem from disturbance should be added to the fatality rate prediction for the project. The risk assessments at Stage 2 and Stage 3 are consistent with developing the information necessary to assess the efficacy of conservation measures, and to develop the monitoring required by the permit regulations at 50 CFR 22.26(c)(2).

Stage 4 - Avoidance and Minimization of Risk and Compensatory Mitigation.

In Stage 4 the information gathered should be used by the project developer or operator and the Service to determine potential conservation measures and ACPs (if available) to avoid or minimize predicted risks at a given site (see Appendix E). The Service will compare the initial predictions of eagle mortality and disturbance for the project with predictions that take into account proposed and potential conservation measures and ACPs, once developed and approved, to determine if the project developer or operator has avoided and minimized risks to the maximum degree achievable, thereby meeting the requirements for programmatic permits that remaining take is unavoidable. Additionally, the Service will use the information provided along with other data to conduct a cumulative effects analysis to determine if the project's impacts, in combination with other permitted take and other known factors, are at a level that exceed the established thresholds or benchmarks for eagle take at the regional and local-area scales. This final eagle risk assessment is completed at the end of Stage 4 after application of conservation measures and ACPs (if available) along with a plan for compensatory mitigation if required.

The eagle permit process requires compensatory mitigation if conservation measures do not remove the potential for take, and the projected take exceeds calculated thresholds for

the eagle management unit in which the project is located. However, there may also be other situations in which compensatory mitigation is necessary. The following guidance applies to those situations as well.

Compensatory mitigation can address pre-existing causes of eagle mortality (such as eagle electrocutions from power poles) or it can address increasing the carrying capacity of the eagle population in the affected eagle management unit. However, there needs to be a credible analysis that supports the conclusion that implementing the compensatory mitigation action will achieve the desired beneficial offset in mortality or carrying capacity.

For new wind development projects, if compensatory mitigation is necessary, the compensatory mitigation action (or a verifiable, legal commitment to such mitigation) will be required up front before project operations begin because projects must meet the statutory eagle preservation standard before the Service may issue a permit. For operating projects, compensatory mitigation should be applied from the start of the permit period, not retroactively from the time the project began. The initial compensatory mitigation effort should be sufficient to offset the predicted number of eagle fatalities per year for five years. No later than at the end of the five year period, the Service and the project operator will compare the predicted annual take estimate to the realized take based on post-construction monitoring. (b) (5) [redacted]. If the observed take was less than estimated, the permittee will receive a credit for the excess compensation (the difference between the actual mean and the number compensated for) that can be applied to other take (either by the permittee or other permitted individuals at his/her discretion) within the same eagle management unit. The Service, in consultation with the permittee, will determine compensatory mitigation for future years for the project at this point, taking into account the observed levels of mortality and any reduction in that mortality that is expected based on implementation of additional experimental conservation measures and ACPs. Monitoring using the best scientific and practicable methods available should be included to determine the effectiveness of the resulting compensatory mitigation efforts. The Service would modify the compensatory mitigation process to adapt to any improvements in our knowledge base as new data become available.

At the end of Stage 4, all the materials necessary to satisfy the regulatory requirements to support a permit application should be available. While a project operator can submit a permit application at any time, the Service recommends that Stage 4 be completed before initiating the formal process to determine whether a programmatic eagle take permit can be issued. Ideally, National Environmental Policy Act (NEPA) and National Historic Preservation Act (NHPA) analyses and assessments will already be underway, but if not, Stage 4 should include necessary NEPA analysis, NHPA compliance, coordination with other jurisdictional agencies, and tribal consultation.

Tier 4 and 5 of the WEG, Stage 5 of the ECPG

If the Service issues an eagle take permit and the project goes forward, project operators will conduct post-construction surveys to collect data that can be compared with the pre-construction risk-assessment predictions for eagle fatalities and disturbance. The monitoring protocol should include validated techniques for assessing both mortality and disturbance effects, and they must meet the permit-condition requirements at 50 CFR 22.26(c)(2). In most cases, intensive monitoring will be conducted for at least the first two years after permit issuance, followed by less intense monitoring for up to three years after the expiration date of the permit. Project developers or operators should use the post-construction survey protocols included or referenced in this ECPG, but we will consider other monitoring protocols provided by permit applicants though the process will likely take longer than if familiar approaches were used. The Service will use the information from post-construction monitoring in a meta-analysis framework to weight and improve pre-construction predictive models.

Additionally in Stage 5, the Service and project developers or operators should use the post-construction monitoring data to (1) assess whether compensatory mitigation is adequate, excessive, or deficient to offset observed mortality, and make adjustments accordingly; and (2) explore operational changes that might be warranted at a project after permitting to reduce observed mortality and meet permit requirements.

9. Site Categorization Based on Mortality Risk to Eagles

Beginning at the end of Stage 1, and continuing at the end of Stages 2, 3, and 4, we recommend the approach outlined below be used to assess the likelihood that a wind project will likely take eagles, and if so, that the project will meet standards in 50 CFR 22.26 for issuance of a programmatic eagle take permit.

Category 1 – High risk to eagles, potential to avoid or mitigate impacts is low

A project is in this category if it:
(1) has an important eagle-use area or migration concentration site within the project footprint; or
(2) has an annual eagle fatality estimate (average number of eagles predicted to be taken annually) > 5% of the estimated local-area population size; or
(3) causes the cumulative annual take for the local-area population to exceed 5% of the estimated local-area population size.

In addition, projects that have eagle nests within ½ of the mean project-area inter-nest distance of the project footprint should be carefully evaluated. If it is likely eagles occupying these territories use or pass through the project footprint, category 1 designation may be appropriate.

Projects or alternatives in category 1 should be substantially redesigned to at least meet the category 2 criteria. The Service recommends that project developers not build projects at sites in category 1 because the project would likely not meet the regulatory

requirements. The recommended approach for assessing the percentage of the local-area population predicted to be taken is described in Appendix F.

Category 2 – High or moderate risk to eagles, opportunity to mitigate impacts

A project is in this category if it:

(1) has an important eagle-use area or migration concentration site within the project area but not in the project footprint; or
(2) has an annual eagle fatality estimate between 0.03 eagles per year and 5% of the estimated local-area population size; or
(3) causes cumulative annual take of the local-area population of less than 5% of the estimated local-area population size.

Projects in this category will potentially take eagles at a rate greater than is consistent with maintaining stable or increasing populations, but the risk might be reduced to an acceptable level through a combination of conservation measures and reasonable compensatory mitigation. These projects have a risk of ongoing take of eagles, but this risk can be minimized. For projects in this category the project developer or operator should prepare an Eagle Conservation Plan (ECP) or similar plan to document meeting the regulatory requirements for a programmatic permit. The ECP or similar document can be a stand-alone document, or part of a larger bird and bat strategy as described in the WEG, so long as it adequately meets the regulatory requirements at 50 CFR 22.26 to support a permit decision. For eagle management populations where take thresholds are set at zero, the conservation measures in the ECP should include compensatory mitigation and must result in no-net-loss to the breeding population to be compatible with the permit regulations. This does not apply to golden eagles east of the 100th meridian, for which no non-emergency take can presently be authorized (USFWS 2009b).

Category 3 – Minimal risk to eagles

A project is in this category if it:
(1) has no important eagle use areas or migration concentration sites within the project area; and
(2) has an annual eagle fatality rate estimate of less than 0.03; and
(3) causes cumulative annual take of the local-area population of less than 5% of the estimated local-area population size.

Projects in category 3 pose little risk to eagles and may not require or warrant eagle take permits, but that decision should be made in coordination with the Service. Still, a project developer or operator may wish to create an ECP or similar document or strategy that documents the project's low risk to eagles, and outlines mortality monitoring for eagles and a plan of action if eagles are taken during project construction or operation. (b)(5)
[redacted]

The risk category of a project can potentially change as a result of additional site-specific analyses and application of measures to reduce the risk. For example, a project may appear to be in category 2 as a result of Stage 1 analyses, but after collection of site-specific information in Stage 2 it might become clear it is a category 1 project. If a project cannot practically be placed in one of these categories, the project developer or operator and the Service should work together to determine if the project can meet programmatic eagle take permitting requirements in 50 CFR 22.26 and 22.27. Projects should be placed in the highest category (with category 1 being the highest) in which one or more of the criteria are met.

10. Addressing Uncertainty

> There is substantial uncertainty surrounding the risk of wind projects to eagles, and of ways to minimize that risk. For this reason, the Service stresses that it is very important not to underestimate eagle fatality rates at wind facilities. Overestimates, once confirmed, can be adjusted downward based on post-construction monitoring information with no consequence to eagle populations. Project developers or operators can trade or be credited for excess compensatory mitigation, and debits to regional and local-area eagle-take thresholds and benchmarks can be adjusted downwards to reflect actual fatality rates. However, the options for addressing underestimated fatality rates are extremely limited, and pose either potential hardships for wind developers (curtailment of operations, requiring additional compensatory mitigation, or rescinding the permit) or significant risks to eagle populations (excessive mortality over the 20- to 30-year life of a wind project).

(b) (5)

Our long-term approach for moving forward in the face of this uncertainty is to implement eagle take permitting in a formal adaptive management framework. The Service anticipates four specific sets of adaptive management decisions: (1) adaptive management of wind project siting and design recommendations; (2) adaptive management of wind project operations; (3) adaptive management of compensatory mitigation; and (4) adaptive management of population-level take thresholds. These are discussed in more detail in Appendix A. The adaptive management process will depend heavily on pre- and post-construction data from individual projects, but analyses, assessment, and model evaluation will rely on data pooled over many individual wind projects. Learning accomplished through adaptive management will be rapidly incorporated into the permitting process so that the regulatory process adjusts in proportion to actual risk.

11. Interaction with the Service

The Service encourages early, frequent and thorough coordination between project developers or operators and Service and other jurisdictional-agency employees as they implement the tiers of the WEG, and the related Stages of the ECPG. Close coordination will aid the refinement of the modeling process used to predict fatalities, as well as the post-construction monitoring to evaluate those models. We anticipate the ECPG and the

recommended methods and metrics will evolve as the Service and project developers or operators learn together. The Service has created a cross-program, cross-regional team of biologists who will work jointly on eagle-programmatic-take permit applications to help ensure consistency in administration and application of the Eagle Permit Rule. This close coordination and interaction is especially important as the Service processes the first group of programmatic eagle take permit applications.

The Service will continue to refine this ECPG with input from all stakeholders with the objective of maintaining stable or increasing breeding populations of both bald and golden eagles while simultaneously developing science-based eagle-take regulations and procedures that are appropriate to the risk associated with each wind energy project.

Stage Overview Table - Overview of staged approach to developing an Eagle Conservation Plan as described in the ECPG. Stages are in chronological order. Stage 5 would only be applicable in cases where a permit was issued at the end of Stage 4.

Stage	Objective	Actions	Data Sources
1	At the landscape level, identify potential wind facility locations with manageable risk to eagles.	Broad, landscape-scale evaluation.	Technical literature, agency files, on-line biological databases, data from nearby projects, industry reports, geodatabases, experts.
2	Obtain site-specific data to predict eagle fatality rates and disturbance take at wind-facility sites that pass Stage 1 assessment. Investigate other aspects of eagle use to consider assessing distribution of occupied nests in the project area, migration, areas of seasonal concentration, and intensity of use across the project footprint.	Site-specific surveys and intensive observation to determine eagle exposure rate and distribution of use in the project footprint, plus locations of occupied eagle nests, migration corridors and stopover sites, foraging concentration areas, and communal roosts in the project area.	Project footprint: 800-m radius point count surveys and utilization distribution studies. Project area: nest surveys, migration counts at likely topographic features, investigation of use of potential roost sites and of areas of high prey availability. Ideally conducted for no less than 2 years pre-construction.
3	As part of pre-construction monitoring and assessment, estimate the fatality rate of eagles for the facility evaluated in Stage 2, excluding possible additions of conservation measures and advanced conservation practices (ACPs). Consider possible disturbance effects.	Use the exposure rate derived from Stage 2 data in Service-provided models to predict the annual eagle fatality rate for the project. Determine if disturbance effects are likely and what they might be.	Point count, nest, and eagle concentration area data from Stage 2.
4	As part of the pre-construction assessment, identify and evaluate conservation measures and ACPs that might avoid or	Re-run fatality prediction models with risk adjusted to reflect application of conservation measures and	Fatality estimates before and after application of conservation measures and ACPs, using point count data

	minimize fatalities and disturbance effects identified in Stage 3. When necessary, identify compensatory mitigation to reduce predicted take to a no-net-loss standard.	ACPs to determine fatality estimate (80% upper confidence limit or equivalent). Calculate required compensatory mitigation amount where necessary, considering disturbance effects, if any. Identify actions needed to accomplish compensatory mitigation.	from Stage 2. Estimates of disturbance effects from Stage 3.
Permit Decision	Determine if regulatory requirements for issuance of a permit have been met.	The Service will issue or deny the permit request based on an evaluation of the ECP or other form of application.	Data from Stages 1, 2, 3 and 4; results of NEPA analysis; and considering information obtained during tribal consultation and through coordination with the states and other jurisdictional agencies.
5	During post-construction monitoring, document mean annual eagle fatality rate and effects of disturbance. Determine if initial conservation measures and ACPs are working and should be continued, and if additional conservation measures might reduce observed fatalities. Monitor effectiveness of compensatory mitigation. Ideally, assess use of area by eagles for comparison to pre-construction levels.	Conduct fatality monitoring in project footprint. Monitor activity of eagles that may be disturbed at nest sites, communal roosts, and/or major foraging sites. Ideally, monitor eagle use of project footprint via point counts, migration counts, and/or intensive observation of use distribution.	Post-construction survey database for fatality monitoring, Comparable pre- and post-construction data for selected aspect of eagle use of the project footprint and adjoining areas. All post-construction surveys should be conducted for at least 2 years, and targeted thereafter to assess effectiveness of any experimental conservation measures or ACPs.

INTRODUCTION AND PURPOSE

The mission of the Service is working with others to conserve, protect and enhance fish, wildlife, plants and their habitats for the continuing benefit of the American people. As part of this, we are charged with implementing statutes including the BGEPA, MBTA, and ESA. BGEPA prohibits all take of eagles unless otherwise authorized by the Service. A goal of BGEPA is to ensure that any authorized take of bald and golden eagles is compatible with their preservation, which the Service has interpreted to mean allowing take that is consistent with the goal of stable or increasing breeding populations. In 2009, the Service promulgated regulations authorizing issuance of permits for non-purposeful take of eagles; the ECPG is intended to promote compliance with BGEPA with respect to such permits by providing recommended procedures for:

(1) conducting early pre-construction assessments to identify important eagle use areas;
(2) analyzing pre-construction information to estimate potential impacts on eagles;
(3) avoiding, minimizing, and/or compensating for potential adverse effects to eagles; and
(4) monitoring for impacts to eagles during construction and operation.

The ECPG calls for scientifically rigorous surveys, monitoring, risk assessment, and research designs proportionate to the risk to both bald and golden eagles. The ECPG describes a process by which wind energy developers, operators, and their consultants can collect and analyze information that could lead to a programmatic permit to authorize unintentional take of eagles at wind energy facilities. The processes described here is not required, but project developers or operators should coordinate closely with the Service if they plan to use an alternative approach to meet the regulatory requirements for a permit.

1. Purpose

The Service published a final rule (Eagle Permit Rule) on September 11, 2009 under BGEPA (50 CFR 22.26) authorizing limited issuance of permits to take bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*) ‘‘for the protection of . . . other interests in any particular locality’’ where the take is compatible with the preservation of the bald eagle and the golden eagle, is associated with and not the purpose of an otherwise lawful activity, and cannot practicably be avoided (USFWS 2009a). The ECPG explains the Service’s approach to issuing programmatic eagle take permits for wind energy projects under this authority, and provides guidance to permit applicants (project developers or operators), Service biologists, and biologists with other jurisdictional agencies (state and tribal fish and wildlife agencies, in particular) on the development of *Eagle Conservation Plans* (ECPs) to support permit issuance.

Since finalization of the Eagle Permit Rule, the development and planned development of wind facilities (developments for the generation of electricity from wind turbines) have increased in the range of the golden eagle in the western United States. Golden eagles are vulnerable to collisions with wind turbines (Hunt 2002), and in some areas such collisions could be a major source of mortality (Hunt *et al.* 1999, 2002; USFWS unpublished data). Although significant numbers of bald eagle mortalities have not yet been reported at North American wind facilities, deaths have occurred at more than one location (USFWS, unpublished data), and the closely related and behaviorally similar

white-tailed eagle (*Haliaeetus albicilla*) has been killed regularly at wind facilities in Europe (Krone 2003, Cole 2009, Nygård *et al.* 2010). Because of this risk to eagles, many of the current and planned wind facilities require permits under the Eagle Permit Rule to be in compliance with the law if and when an eagle is taken at that facility. In addition to being legally necessary to comply with BGEPA and 50 CFR 22.26, the conservation practices necessary to meet standards required for issuance of these permits should offset the short- and long-term negative effects of wind energy facilities on eagle populations. Because of the urgent need for guidance on permitting eagle take at wind facilities, this initial module focuses on this issue. Many of the concepts and approaches outlined in this module can be readily exported to other situations (*e.g.*, solar facilities, electric power lines), and the Service expects to release other modules in the future specifically addressing other sources of eagle take.

The ECPG is intended to provide interpretive guidance to Service biologists and others in applying the regulatory permit standards as specified in the rule. They do not in-and-of themselves impose additional regulatory or generally-binding requirements. An ECP *per se* is not required, even to obtain a programmatic eagle take permit. As long as the permit application is complete and includes the information necessary to evaluate a permit application under 50 CFR 22.26 or 22.27, the Service will review the application and make a determination if a permit will be issued. However, Service personnel will be trained in the application of the procedures and approaches outlined in the ECPG, and developers who choose to use other approaches should expect the review time on the part of the Service to be longer. The Service recommends that the basic format for the ECP be followed to allow for expeditious consideration of the application materials.

Preparation of an ECP and consultation with the Service are voluntary actions on the part of the developer. There is no legal requirement that wind developers apply for or obtain an eagle take permit, so long as the project does not result in take of eagles. However, take of an eagle without an eagle take permit is a violation of BGEPA, so the developer or operator must weigh the risks in his/her decision. The Service is available to consult with the developer or operator as he/she makes that decision.

The ECPG is written to guide wind-facility projects starting from the earliest conceptual planning phase. For projects already in the development or operational phase, implementation of all stages of the recommended approach in the ECPG may not be applicable or possible. Project developers or operators with operating or soon-to-be operating facilities and who are interested in obtaining a programmatic eagle take permit should coordinate with the Service. The Service will work with project developers or operators to determine if the project might be able to meet the permit requirements in 50 CFR 22.26 by conducting eagle fatality and disturbance monitoring, by agreeing to adopt reasonable operational avoidance and minimization measures that might reduce the eagle fatalities detected through monitoring, and by implementing any necessary compensatory mitigation. Sections of the ECPG that address these topics are relevant to both planned and operating wind facilities.

The ECPG is designed to be compatible with the more general guidelines provided in the *U.S. Fish and Wildlife Service Land-based Wind Energy Guidelines* (WEG) http://www fws.gov/habitatconservation/windpower/wind_turbine_advisory_committee.html. However, because the ECPG describes actions which help to comply with the regulatory requirements in BGEPA for an eagle take permit as described in 50 CFR 22.26 and 22.27, they are more specific. The Service will make every effort to ensure the work and timelines for both processes are as congruent as possible.

2. Legal Authorities and Relationship to Other Statutes and Guidelines

There are several laws that must be considered for compliance during eagle take permit application review under the 50 CFR 22.26 and 22.27 regulations: BGEPA, MBTA, ESA, the National Environmental Policy Act (NEPA) (42 U.S.C. 4321 *et. seq.*), and the National Historic Preservation Act (NHPA) (16 U.S.C. 470 *et seq.*). BGEPA is the primary law protecting eagles. BGEPA defines "take" to include "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb" and prohibits take of individuals, and their parts, nests, or eggs (16 USC 668 & 668c). The Service expanded this definition by regulation to include the term "destroy" to ensure that "take" includes destruction of eagle nests (50 CFR 22.3). The term "disturb" is defined by regulation at 50 CFR 22.3 as "to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, …injury to an eagle, a decrease in productivity, or nest abandonment…" (USFWS 2007). A goal of BGEPA is to ensure that any authorized take is compatible with eagle preservation, which the Service has interpreted to mean it can authorize take that is consistent with the goal of stable or increasing breeding populations of bald and golden eagles (USFWS 2009b).

In 2009, two new permit rules were created for eagles. Under 50 CFR 22.26, the Service can issue permits that authorize individual instances of take of bald and golden eagles when the take is associated with, but not the purpose of an otherwise lawful activity, and cannot practicably be avoided. The regulation also authorizes ongoing or programmatic take, but requires that any authorized programmatic take be unavoidable after implementation of advanced conservation practices. Under 50 CFR 22.27, the Service can issue permits that allow the intentional take of eagle nests where necessary to alleviate a safety emergency to people or eagles, to ensure public health and safety, where a nest prevents use of a human-engineered structure, and to protect an interest in a particular locality where the activity or mitigation for the activity will provide a net benefit to eagles. Only inactive nests are allowed to be taken except in cases of safety emergencies.

The new Eagle Permit Rule provides a mechanism where the Service may legally authorize the non-purposeful take of eagles. However, BGEPA provides the Secretary of the Interior with the authority to issue eagle take permits only when the take is compatible with the preservation of each species, defined in USFWS (2009a) as "…consistent with the goal of stable or increasing breeding populations." The Service ensures that any take it authorizes under 50 CFR 22.26 does not exceed this preservation standard by setting regional take thresholds for each species determined using the methodology contained in the NEPA Final Environmental Assessment (FEA) developed

for the new permit rules (USFWS 2009b). The details and background of the process used to calculate these take thresholds are presented in the FEA (USFWS 2009b). It is important to note that the take thresholds for regional eagle management populations (eagle management units) and the process by which they are determined are derived independent from this or any other ECPG module.

Many states and tribes have regulations that protect eagles, and may require permits for purposeful and non-purposeful take. Project developers or operators should contact all pertinent state and tribal fish and wildlife agencies at the earliest possible stage of project development to ensure proper coordination and permitting. The Service will coordinate our programmatic take permits with all such jurisdictional agencies.

Wind projects that are expected to cause take of endangered or threatened wildlife species should still receive incidental take authorizations under sections 7 or 10 of ESA in order to ensure compliance with Federal law. A project developer or operator seeking an Incidental Take Permit (ITP) through the ESA section 10 Habitat Conservation Plan (HCP) process may be issued an ITP only if the permitted activity is otherwise lawful (section 10(a)(1)(B)). If the project and covered activities in the HCP are likely to take bald or golden eagles, the project proponent should obtain a BGEPA permit or include the bald or golden eagle as a covered species in the HCP in order for the activity to be lawful in the event that eagles are taken. When bald or golden eagles are covered in an HCP and ITP, the take is authorized under BGEPA even if the eagle species is not listed under the ESA (see 50 CFR 22.11(a)).

If bald or golden eagles are included as covered species in an HCP, the avoidance, minimization, and other mitigation measures in the HCP must meet the BGEPA permit issuance criteria of 50 CFR 22.26, and include flexibility for adaptive management. If take of bald or golden eagles is likely but the project developer or operator does not qualify for eagle take authorization (or chooses not to request such authorization), an ITP may be issued in association with the proposed HCP. The project proponent must be advised, in writing, that bald or golden eagles would not be included as covered species and take of bald eagles or golden eagles would not, therefore, be authorized under the incidental take permit. The project developer or operator must also be advised that the incidental take permit would be subject to suspension or revocation if take of bald eagles or golden eagles should occur.

In addition to ESA, wind project developers or operators need to address take under MBTA. MBTA prohibits the taking, hunting, killing, pursuit, capture, possession, sale, barter, purchase, transport, and export of migratory birds, their eggs, parts, and nests, except when authorized by the Department of the Interior. For eagles, the BGEPA take authorization serves as authorization under MBTA per 50 CFR 22.11(b). For other MBTA-protected birds, because neither the MBTA nor its permit regulations at 50 CFR Part 21 currently provide a specific mechanism to permit "unintentional" take, it is important for project developers or operators to work proactively with the Service to avoid and minimize take of migratory birds. The Service, with assistance from a Federal Advisory Committee, developed the WEG to provide a structured system to evaluate and

address potential negative impacts of wind energy projects on species of concern. Because the Service has the authority to issue a permit for non-purposeful take of eagles, our legal and procedural obligations are significantly greater, and therefore the ECPG is more focused and detailed than the WEG. We have modeled as much of the ECPG as possible after the WEG, but there are important and necessary differences.

NEPA applies to issuance of eagle take permits because issuing a permit is a federal action. While providing technical assistance to agencies conducting NEPA analyses, the Service will participate in the other agencies' NEPA to the extent feasible in order to streamline subsequent NEPA analyses related to a project. For actions that may result in applications for development of programmatic permits, the Service may participate as a cooperating agency to streamline the permitting process.

If no other federal nexus exists or if the existing NEPA of another agency is not adequate, the Service must complete a NEPA analysis before it can issue a permit. The Service will work with the project developer or operator to conduct a complete NEPA analysis, including assisting with data needs and determining the scope of analysis. Project developers or operators may provide assistance that can expedite the NEPA process in accordance with 40 CFR §1506.5. Additionally, there are opportunities to "batch" NEPA analyses for proposed projects in the same geographic area. In these cases, project developers or operators and the Service could pool resources and data, likely increasing the quality of the product and the efficiency of the process. Developers should coordinate closely with the Service for projects with no federal nexus other than the eagle permit. Close coordination between project developers or operators and the Service regarding the data needs and scope of the analysis required for a permit will reduce delays.

Through 50 CFR 22.26 and the associated FEA, the Service defined "mitigation" as per the Service Mitigation Policy (46 FR 7644, Jan. 23, 1981), and the President's Council on Environmental Quality (40 CFR 1508.20 (a–e)), to sequentially include the following:

(1) Avoiding the impact on eagles altogether by not taking a certain action or parts of an action;
(2) Minimizing impacts by limiting the degree or magnitude of the action and its implementation;
(3) Rectifying the impact by repairing, rehabilitating, or restoring the affected environment;
(4) Reducing or eliminating the impact over time by implementing preservation and maintenance operation during the lifetime of the action; and
(5) Compensating for the impact by replacing or providing substitute resources or environments.

Throughout this document we differentiate between mitigation, which covers all of the components listed above, and compensatory mitigation, which is a subset of (5) above and directly targets offsetting permitted disturbance and mortality to accomplish a no-net-loss objective at the scale of the eagle management unit. The Service requires

compensatory mitigation (potentially in addition to other mitigation) where it has not been determined that eagle populations can sustain additional mortality. The NEPA analysis on our permits and the discussion of mitigation in this document follow this system, and in this ECPG we refer to (1) – (4) as conservation measures to avoid and minimize take, of which ACPs are a subset, and to (5) as compensatory mitigation.

Eagles are significant species in Native American culture and religion (Palmer 1988) and may be considered contributing elements to a "traditional cultural property" under Section 106 of the NHPA. Some locations where eagles would be taken have traditional religious and cultural importance to Native American tribes and thus have the potential of being regarded as traditional cultural properties under NHPA. Permitted take of one or more eagles from these areas, for any purpose, could be considered an adverse effect to the traditional cultural property. These considerations will be incorporated into any NEPA analysis associated with an eagle take permit.

Federally-recognized Indian tribes enjoy a unique government-to-government relationship with the United States. The Service recognizes Indian tribal governments as the authoritative voice regarding the management of tribal lands and resources within the framework of applicable laws. It is important to recall that many tribal traditional lands and tribal rights extend beyond reservation lands. The Service consults with Indian tribal governments under the authorities of Executive Order 13175 "Consultation and Coordination with Indian Tribal Governments" and supporting DOI and Service policies. To this end, when it is determined that federal actions and activities may affect a tribe's resources (including cultural resources), lands, rights, or ability to provide services to its members, the Service must, to the extent practicable, seek to engage the affected tribe(s) in consultation and coordination.

3. Background and Overview of Process

Increased energy demands and the nationwide goal to increase energy production from renewable sources have intensified the development of energy facilities, including wind energy. The Service supports renewable energy development that is compatible with fish and wildlife conservation. The Service closely coordinates with state, tribal, and other federal agencies in the review and permitting of wind energy projects to address potential resource effects, including effects to bald and golden eagles. However, our knowledge of these effects and how to address them at this time is limited. Given this and the Service's regulatory mandate to only authorize actions that are "compatible with the goal of stable or increasing breeding populations" of eagles has led us to adopt an adaptive management framework predicated, in part, on the precautionary approach for consideration and issuance of programmatic eagle take permits. This framework consists of case-specific considerations applied within a national framework, and with the outcomes carefully monitored so that we maximize learning from each case. The knowledge gained through monitoring can then be used to update and refine the process for making future permitting decisions such that our ultimate conservation objectives are attained, as well as to consider operational adjustments at individual projects at regular intervals where deemed necessary and appropriate. The ECPG provides the background and information necessary for wind project developers or operators to prepare an ECP

that assesses the risk of a prospective or operating project to eagles, and how siting, design, and operational modifications can mitigate that risk. Implementation of the final ECP must reduce predicted eagle take, and the population level effect of that take, to a degree compatible with regulatory standards to justify issuance of a programmatic take permit by the Service.

a. Risks to Eagles

Energy development can affect eagles in a variety of ways. First, structures such as wind turbines can cause direct mortality through collision (Hunt 2002, Nygård *et al.* 2010). This is the primary threat to eagles from wind facilities, and the monitoring and avoidance and minimization measures advocated in the ECPG primarily are aimed at this threat. Second, activities associated with pre-construction, construction, or operation and maintenance of a project might cause disturbance and result in loss of productivity at nearby nests or disturbance to nearby concentrations of eagles. Third, if disturbance or mortality effects are permanent, they could result in the permanent or long term loss of a nesting territory. All of these impacts, unless properly permitted, are violations of BGEPA (USFWS 2009a). Additionally, disturbances near important eagle use areas or migration concentration sites might stress eagles to a degree that leads to reproductive failure or mortality elsewhere; these impacts are of concern as well, and they could amount to prohibited take, though such effects are difficult to predict and quantify. Thus, the ECPG addresses both direct mortality and disturbance. Many new wind projects are located in remote areas that have few, if any, transmission lines. The Service considers new transmission lines and other infrastructure associated with renewable energy projects to be part of a project. Accordingly, assessments of project impacts should include transmission lines and other facilities, not merely wind turbines.

b. General Approach to Address Risk

Applicants for permits under 50 CFR 22.26, non-purposeful eagle take, are required to avoid and minimize the potential for take of eagles to the extent practicable. Permits for wind-energy development are programmatic as they will authorize recurring take, rather than isolated incidences of take. For programmatic take permits, the regulations at 50 CFR 22.26 require that any authorized take is unavoidable after implementation of ACPs. 50 CFR 22.3 defines "advanced conservation practices" as "scientifically supportable measures that are approved by the Service and represent the best available techniques to reduce eagle disturbance and ongoing mortalities to a level where remaining take is unavoidable."

(b) (5) [redacted], the best information indicates that there are currently no available scientifically supportable measures that will reduce eagle disturbance and blade-strike mortality at wind projects. (b) (5) the Service has not currently approved any ACPs for wind-energy projects. Despite the current lack of available ACPs, the best available scientific information may demonstrate that a particular avoidance, minimization, or other mitigation action should be applied as a condition on an eagle programmatic take permit for wind-energy facilities. (b) (5) [redacted]

(b) (5) [redacted]

[redacted] a project developer or operator will still be expected to implement any reasonable avoidance and minimization measures that may reduce take of eagles at a project. However, the Service and the project developer or operator will discuss and agree on other site-specific and possibly turbine-specific factors that may pose risks to eagles and potential future ACPs that might reduce or eliminate those risks if the risks are substantiated by the best available science. Unless the Service determines that there is a reasonable scientific basis to implement prospective ACPs up front, we recommend that such potentially costly measures be deferred until such time as there is eagle take at the facility and the circumstances and evidence surrounding instances of take suggest the prospective ACPs might be warranted. This agreement would be specified as a condition of the programmatic eagle take permit.

Because ACPs would be considered experimental in these situations (b) (5) [redacted]), we recommend that they be subject to a cost cap that the Service and the project developer or operator establish as part of the initial agreement before issuance of a permit, thereby providing financial certainty to the project operator or developer as to what maximum costs of such measures might be. The amount of the cap should be relevant to the theorized risk factors identified for the project, and proportional to overall risk. (b) (5) [redacted]

If eagle take is confirmed through post-construction monitoring, developers or operators would be expected to implement the potentially effective experimental ACP(s) and to monitor future eagle take relative to the ACP(s) as part of the adaptive management process specified in Appendix A, but all within the limits of the pre-determined financial cap. As the results from monitoring experimental ACPs across a number of facilities accumulates and is analyzed as part of the adaptive management process, scientific information in support of certain ACPs may accrue, whereas other ACPs may show little value in reducing take. If the Service determines that the available science demonstrates an experimental ACP is effective in reducing eagle take, the Service will approve that ACP and require its implementation up front on new projects when and where warranted.

Where take is unavoidable and when eagle populations at the scale of the eagle management unit (as defined in USFWS 2009b) are not estimated to be healthy enough to sustain additional mortality over existing levels, applicants must reduce the effect of

permitted unavoidable mortality to a no-net-loss standard through compensatory mitigation for the duration of the permitted activity. No-net-loss means that unavoidable mortality caused by the permitted activities is offset by compensatory mitigation that reduces another, ongoing form of mortality by an equal or greater amount, or which leads to an increase in carrying capacity that allows the eagle population to grow by an equal or greater amount. Compensatory mitigation may also be necessary to offset substantial effects in other situations (USFWS 2009a), and mitigation designed to offset other detrimental effects of permits on eagles may be advised in addition to compensatory mitigation in some cases. The approach described in the ECPG is applicable for all land-based wind energy projects within the range of the bald and golden eagle where interactions with wind project infrastructure have been documented or are reasonably expected to occur. The ECPG is intended to provide a national framework for assessing and mitigating risk.

As part of the application process for a programmatic eagle take permit, the Service recommends that project developers or operators prepare an ECP that outlines the project development process and includes conservation and monitoring plans as recommended in this ECPG. The ECPG provides examples of ways that applicants can meet the regulatory standards in the rule, and while other approaches may be acceptable, the Service will determine their adequacy on a case-by-case basis. As noted previously, an ECP is not required, but if one is developed following the approach recommended here, it will expedite Service review of the project.

There is substantial uncertainty surrounding the risk of wind projects to eagles, and of ways to minimize that risk. For this reason, the Service strongly recommends that care be taken to protect against the consequences of underestimating eagle fatality rates at wind facilities. Overestimates, once confirmed, can be adjusted downward based on post-construction monitoring information with no consequence to eagle populations, and project developers or operators can trade or be credited for excess compensatory mitigation. However, the options for addressing underestimated fatality rates are extremely limited, and pose either potential hardships for wind developers (b) (5) [redacted] or significant risks to eagle populations (b) (5) [redacted]

ASSESSING RISK AND EFFECTS

1. Considerations When Assessing Eagle Use Risk

Bald eagles and golden eagles associate with distinct geographic areas and landscape features throughout their respective ranges. The Service defines these "important eagle-use areas" as "an eagle nest, foraging area, or communal roost site that eagles rely on for breeding, sheltering, or feeding, and the landscape features surrounding such nest, foraging area, or roost site that are essential for the continued viability of the site for breeding, feeding, or sheltering eagles" (USFWS 2009a; 50 CFR 22.3). Migration corridors and migration stopover sites also provide important foraging areas for eagles

during migration (*e.g.*, Restani *et al.* 2001, Mojica 2008) and result in seasonal concentrations of eagles. As a result, the presence of a migration corridor or stopover site on or near a proposed wind development project could increase the probability of encounters between eagles and wind turbines. Although these sites are not specifically included within the regulatory definition of an important eagle-use area at 50 CFR 22.3, the presence of such a site on or near a proposed wind project could increase the likelihood of collisions.

Wind energy projects that overlap, or are proximate to, important eagle use areas or migration concentration sites may pose risks to the eagles for reasons described earlier. Project developers or operators should identify the location and type of all important eagle use areas or migration concentration sites that might be affected by a proposed wind project (*e.g.*, within the project area). If recent (within the previous 5 years) local data are available on the spacing of eagle nests for the project-area nesting population, those data can be used to determine an appropriate boundary for such surveys (as described in Appendix H). Otherwise, for both species we suggest initial surveys be conducted on and within 10 miles of a project's footprint to establish the project-area mean inter-nest distance. The project footprint is the minimum convex polygon (*e.g.*, Mohr 1947) that encompasses the wind project area inclusive of the hazardous area around all turbines and any associated infrastructure, including utility lines, out-buildings, roads, etc. We suggest 10 miles because this is ½ the largest recorded spacing between nearest simultaneously occupied nests for either species (golden eagles in the Mojave/Sonoran deserts of western Arizona; Millsap 1981). For subsequent monitoring (*e.g.*, post-construction monitoring of occupancy and productivity of pairs potentially disturbed by the project), the project-area mean inter-nest distance can be used to define a more relevant project-area boundary. The 10-mile perimeter may seem (b) (5) for bald eagles in some areas, and the Service acknowledges there needs to be flexibility in the application of this approach to accommodate specific situations.

Evaluating the spatial area described above for each wind project is a key part of the programmatic take permitting process. As described later, surveys should be conducted initially to obtain data to predict effects of wind projects on eagles. After the project begins operating, studies should again be conducted to determine the actual effects. The following sections include descriptions and criteria for identifying important eagle use areas or migration concentration sites in these assessments.

a. General Background and Rationale for Assessing Project Effects on Eagles

A synthesis of publicly available databases and technical literature are fundamental to the pre-construction assessment component of an ECP. In some instances, this work may reveal information on use of a proposed project area by eagles that is strong enough to support a decision on whether to proceed with the project. In most cases, if available information warrants further consideration of a potential wind project site, on-site surveys should be implemented to further document use of the project area by eagles. The goal of such surveys should be to quantify and describe use of the project area by breeding (territorial) and non-breeding eagles across seasons and years. A variety of survey approaches may be needed to accomplish this goal.

Although potential for presence of all types of important eagle use areas or migration concentration sites should be considered when beginning to assess a potential project site, special attention is typically given to nests and nesting pairs. An eagle territory is defined in 50 CFR 22.3 as an area that contains, or historically contained, one or more nests within the home range of a mated pair of eagles. We recognize that usage conflicts with the true biological meaning of the term territory, but we use it herein in its regulatory context. Newton (1979) considered the nesting territory of a raptor as the defended area around a pair's nest site and defined the home range as "...the area traveled by the individual in its normal activities of food gathering, mating, and caring for the young." For golden eagles at least, the extent of the home range and territory during nesting season generally are similar; the eagle defends its territory by undulating flight displays near the home range boundaries and adjoining territories barely overlap (Harmata 1982, Collopy and Edwards 1989, Marzluff *et al.* 1997).

Avoidance zones, often distinguished by specific "buffer" distances, have been prescribed to protect nests and other types of eagle use areas from disturbance. Recommendations for the size of avoidance zones for nests of bald eagles and golden eagles have sometimes been based on documented distances between nests and territory boundaries. For example, McGrady *et al.* (2002) and Watson and Davies (2009) indicated nesting territories of golden eagles extend to at least 4 miles from their nests. Garrett *et al.* (1993) found that bald eagle territories extend at least 2 miles from nests, though studies in areas of densely packed breeding territories of bald eagles suggest much smaller distances (Sherrod *et al.* 1976, Hodges and Robards 1982, Anthony 2001). A recommendation for a spatial buffer to avoid disturbance of eagle nests can hardly be applied throughout the entire range of either species due to marked variation in the size and configuration of nesting territories. As such, these avoidance prescriptions have been conservative because there are few site-specific data on spatial extent of territories in the published and unpublished literature. For bald eagles, minimum-distance buffers are prescribed by the Service to protect nests, foraging areas, and communal roosts against disturbance from a variety of activities (USFWS 2007b).

The approach we recommend in the ECPG for evaluating siting options and assessing potential mortality and disturbance effects of wind facilities on eagles is to conduct standardized surveys (*e.g.*, point counts) to estimate eagle exposure within the project footprint. We further suggest augmenting these with surveys to determine locations of important eagle use areas or migration concentration sites for the project-area eagle population. The project-area eagle population is the population of breeding, resident non-breeding, migrating, and wintering eagles within the project area. As described previously and in Appendix H, if recent data on the spacing of eagle nests in the project area are available, it may be appropriate to use the mean species-specific inter-nest distance (assuming there is no reason to suspect eagle territories in the project area are configured such that the mean inter-nest distance would be misleading) as the outer boundary of the project area. Such a choice, however, also increases the importance of having adequate eagle exposure information from the project footprint for all seasons. For example, a winter communal night roost of eagles further than one mean inter-nest

distance from the project boundary could produce a large influx of eagles into the footprint in winter. Inadequate winter eagle exposure sampling (or sampling in only one year, if the night roost is not used annually) in combination with selection of a project area based on nest spacing alone, could result in a failure to detect this increased risk to eagles in winter. Unpredicted fatalities that result from such an oversight will have to be addressed by the project developers or operators eventually through increased compensatory mitigation, operational adjustments, or both to continue operating under the authority of a valid eagle permit. Thus, it is important that the combination of exposure and project-area surveys adequately capture all risks to eagles.

One-half the mean inter-nest distance has been used as a coarse approximation for the territory boundary in a number of raptor studies (*e.g.*, Thorstrom 2001, Wichmann *et al.* 2003, Soutullo *et al.* 2006). Eagle pairs at nests within ½ the mean project-area inter-nest distance of the project footprint are potentially susceptible to disturbance take and blade-strike mortality, as these pairs and offspring may use the project footprint. We recommend using this distance to delineate territories and associated breeding eagles at risk of mortality or disturbance. Exposure surveys should adequately sample the parts of the project footprint potentially used by these eagle pairs so they are captured in the fatality estimates, and these nests should be included in post-construction occupancy and productivity monitoring (see Appendix H). This information is useful in decisions on whether a wind project might meet permit requirements at 50 CFR 22.26 considering both predicted take through fatalities and likely take from disturbance; for evaluating various siting and project-configuration alternatives; and in monitoring for disturbance effects during the post-construction period. In some situations, as where nests are concentrated on linear features (such as cliffs for golden eagles or along rivers for bald eagles), ½ the mean inter-nest distance may not encompass all important parts of the territory. In these situations inferences based on nest spacing should be used cautiously. The overall effectiveness of this approach will be evaluated through post-construction monitoring and the adaptive management framework described later in this ECPG.

b. Additional Considerations for Assessing Project Effects: Migration Corridors and Stopover Sites

Bald eagles and golden eagles tend to migrate along north-south oriented cliff lines, ridges, and escarpments, where they are buoyed by uplift from deflected winds (Kerlinger 1989, Mojica *et al.* 2008). Bald eagles typically migrate during midday by soaring on thermal uplift or on winds aloft, the onset of dally movements migration being influenced by rising temperatures and favorable winds (Harmata 2002). Both species will forage during migration flights, though for bald eagles foraging often is limited to lakes, rivers, streams, and other wetland systems (Mojica *et al.* 2008). Both species use lift from heated air from open landscapes to move efficiently during migration and seasonal movements, gliding from one thermal to the next and sometimes moving in groups with other raptor species.

Passage rates and altitude of migrant eagles can be influenced by temperature, barometric pressure, winds aloft, storm systems, weather patterns at the site of origin, and wind speed (Yates *et al.* 2001). Both species avoid large water bodies during migration and

funnel along the shoreline, often becoming concentrated at the tips of peninsulas or in other situations where movement requires water crossings (Newton 1979). Eagles annually use stopover sites with predictably ample food supplies (*e.g.*, Restani *et al.* 2000, Mojica *et al.* 2008), although some stopovers may be brief and infrequent, such as when optimal migration conditions suddenly become unfavorable and eagles are forced to land and seek roosts. Presence of a migration corridor or stopover site in the project area is best documented and delineated by using a standard "hawk watch" migration count as recommended in this ECPG as part of site-specific surveys or, in some cases, by simply expanding point count surveys to account for migration incidence during what normally would be the peak migration period (Appendix C).

Much eagle mortality could occur if communal night roosts or communal foraging areas of eagles are separated by strings of wind turbines from other areas used by eagles. Outside the breeding season, both bald eagles and golden eagles can roost communally. Such roosts can include individuals of all ages and residency status (Platt 1976, Craig and Craig 1984, Mojica *et al.* 2008). During the breeding season, non-breeding bald eagles also may roost communally. Large roosts of eagles tend to be associated with nearby foraging areas. Conversely, eagles also may congregate to forage at sites of unusually high prey or carcass availability; such concentrations of bald eagles may number in the hundreds (Buehler 2000). Methods for documenting concentrations of eagles, and movements to and from such areas in relation to the project footprint are provided in Appendix C.

2. Eagle Risk Factors

Factors that influence vulnerability of eagles to collisions with wind turbines are poorly known. Theoretically, two major elements are likely involved: (1) eagle abundance, and (2) the presence of features or circumstances that decrease an eagle's ability to perceive and avoid collision. However, the relative importance of these factors, and how they interrelate, remains poorly understood for eagles and birds in general (Strickland *et al.* 2011). Table 1 lists some of the factors known or postulated to be associated with turbine blade-strike risk in raptors, but evidence for or against these is equivocal, and may well vary between sites. While some of these factors are not known to affect eagles, because of the similarity of flight behavior between eagles and some other soaring raptors, we include them here because they may apply to eagles. Evidence across multiple studies suggests that in addition to eagle abundance, two main factors contribute to increased risk of collision by eagles: (1) the interaction of topographic features, season, and wind currents that create conditions for high-risk flight behavior near turbines; and (2) behavior that distracts eagles and presumably makes them less vigilant (*e.g.*, active foraging or inter- and intra-specific interactions).

Table 1. Factors potentially associated with wind turbine collision risk in raptors. Not all factors apply to eagles, and the influence of these factors may vary in association with other covariates on a case-by-case basis.

Risk Factor	Status of Knowledge from Literature	Citations
Bird Density	Mixed findings; likely some relationship but other factors have overriding influence across a range of species.	Barrios and Rodriguez (2004), De Lucas *et al.* (2008), Hunt (2002), Smallwood *et al.* (2009), Ferrer *et al.* (2011)
Bird Age	Mixed findings. Higher number of fatalities among subadult and adult golden eagles in one area. Higher fatalities among adult white-tailed eagles in another.	Hunt (2002), Nygård et al (2010)
Proximity to Nests	White-tailed eagle nesting areas close to turbines have been observed to have low nest success and be abandoned over time.	Nygård et al (2010)
Bird Residency Status	Mixed findings. Higher risk to resident adults in Egyptian vultures (*Neophron percnopterus*). High number of mortalities among subadults and floating adults in golden eagles in one other study.	Barrios and Rodriguez (2004), Hunt (2002)
Season	Mixed findings. In some cases for some species, risk appears higher in seasons with greater propensity to use slope soaring (fewer thermals) or kiting flight (windy weather) while hunting.	Barrios and Rodriguez (2004), De Lucas *et al.* (2008), Hoover and Morrision (2005), Smallwood *et al.* (2009)
Flight Style	Species most at risk perform more frequent flights that can be described as kiting, hovering, and diving for prey.	Smallwood *et al.* (2009)
Interaction with Other Birds	Higher risk when interactive behavior is occurring.	Smallwood *et al.* (2009)
Active Hunting/ Prey Availability	High risk when hunting close to turbines, across a range of species.	Barrios and Rodriguez (2004), De Lucas *et al.* (2008), Hoover and Morrision (2005), Hunt (2002), Smallwood *et al.* (2009)
Turbine Height	Mixed, contradictory findings across a range of species.	Barclay *et al.* (2007), De Lucas *et al.* (2008)
Rotor Speed	Higher risk associated with higher blade-tip speed for golden eagles in one study, but this finding may not be generally applicable.	Chamberlain *et al.* (2006)
Rotor-swept Area	Meta-analysis found no effect, but variation among studies clouds interpretation.	Barclay *et al.* (2007)
Topography	Several studies show higher risk of collisions with turbines on ridge lines and on slopes. Also a higher risk in saddles that present low-energy ridge crossing points.	Barrios and Rodriguez (2004), De Lucas *et al.* (2008), Hoover and Morrission (2005), Smallwood and Thelander (2004)
Wind Speed	Mixed findings, probably locality dependent.	Barrios and Rodriguez (2004), Hoover and Morrision (2005), Smallwood *et al.* (2009)

3. Overview of Process to Assess Risk

This ECPG, and in particular the eagle fatality prediction model described in Appendix D, relies on the assumption that there is predictable relationship between pre-construction eagle occurrence and abundance in the project footprint and subsequent fatalities. Assessing the veracity of this operating hypothesis is a key element of the adaptive management component of the ECPG. The ECPG outlines a decision-making process that gathers information at each stage of project development, with an increasing level of detail. This approach provides a framework for making decisions sequentially at three critical phases in project development: (1) siting, (2) construction, and (3) operations. The greatest potential to avoid and minimize impacts to eagles occurs if eagle risk factors are taken into account at the earliest phase of project development. If siting and construction have proceeded without consideration of risks to eagles, significant opportunities to avoid and minimize risk may have been lost. This can potentially result in greater compensatory mitigation requirements or, in the worst case, an unacceptable level of mortality for eagles.

The related, but more general, WEG advocates using a five-tiered approach for iterative decision making relative to assessing and addressing wildlife effects from wind facilities. Elements of all of those tiers apply here, but the process for eagles is more specifically defined and falls into five broadly overlapping, iterative stages that largely do not parallel the WEG's five tiers (Figure 1).

Stage 1 for eagles (Appendix B) combines Tiers 1 and 2 from the WEG, and consists of an initial **site assessment**. In this stage project developers or operators evaluate broad geographic areas to assess the relative importance of various areas to resident breeding and non-breeding eagles, and to migrant and wintering eagles. The Service is available to assist project developers or operators in beginning to identify important eagle use areas or migration concentration sites and potential eagle habitat at this stage. To increase the probability of meeting the regulatory requirements for a programmatic take permit, biological advice from the Service and other jurisdictional wildlife agencies should be requested as early as possible in the developer's planning process and should be as inclusive as possible to ensure all issues are being address at the same time and in a coordinated manner. Ideally, consultation with the Service, and state and tribal wildlife agencies is done prior to any substantial financial commitment or finalization of lease agreements. During Stage 1 the project developer or operator should gather existing information from publicly available literature, databases, and other sources, and use those data to judge the appropriateness of various potential project sites, balancing suitability for development with potential risk to eagles.

Once a site has been selected, the next stage, **Stage 2**, is **site-specific surveys and assessments** (this is the first component of Tier 3 in the WEG; Appendix C). During Stage 2 the project developer or operator should collect quantitative data through scientifically rigorous surveys designed to assess the potential risk of the proposed project to eagles. In the case of small wind projects (one or a few small turbines), the project developer or operator should apply the predictive model described in Stage 3 (below) to determine if stage 2 surveys are necessary. In many cases, the hazardous area

associated with such projects will be small enough that Stage 2 surveys will not be necessary to demonstrate that the project will likely not take eagles.

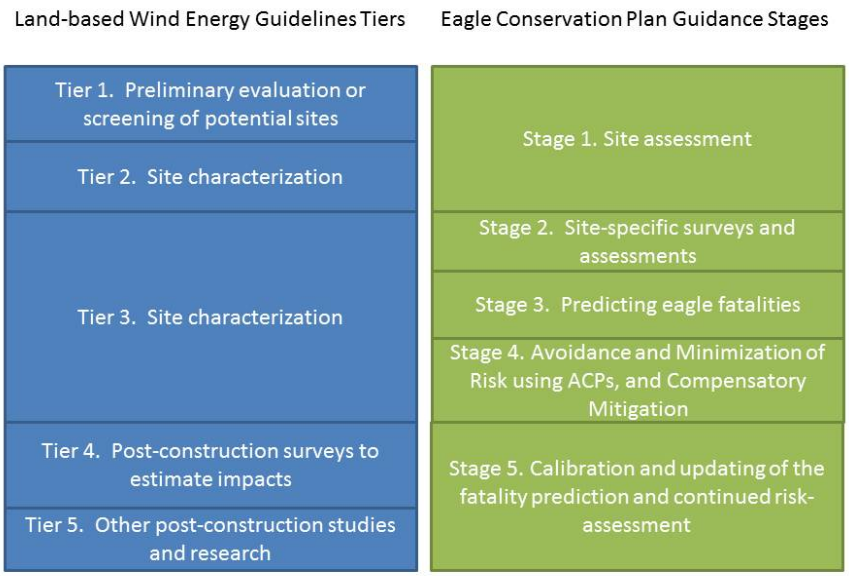

Figure 1. Chart comparing Land-based Wind Energy Guideline tiers with Eagle Conservation Plan Guidance stages.

In **Stage 3**, **the predicting eagle fatalities stage**, the Service and project developers or operators use data from Stage 2 in standardized models linked to the Service's adaptive management process to generate predictions of eagle risk in the form of average number of fatalities per year extrapolated to the tenure of the permit (see Appendix D). These models can be used to comparatively evaluate alternative siting, construction, and operational scenarios, a useful feature in constructing hypotheses regarding predicted effects of conservation measures and ACPs. We encourage project developers or operators to use the recommended pre-construction survey protocol in this ECPG in Stage 2 to help inform our predictive models in Stage 3. If Service-recommended survey protocols are used, this risk assessment can be greatly facilitated using model tools available from the Service. If project developers or operators use other forms of information for the Stage 2 assessment, they will need to fully describe those methods and the analysis used for the eagle risk assessment, and more time will be required for Service biologists to evaluate and review the data. For example, the Service will compare the results of the project developer or operator's eagle risk assessment with

predictions from our models, and if the results differ, we will work with the project developers or operators to determine which model results are most appropriate for the Service's eventual permitting decisions. The Service and project developers or operators also evaluate Stage 2 data to determine whether disturbance take is likely, and if so, at what level. Any loss of production that may stem from disturbance should be added to the fatality rate prediction for the project. The risk assessments at Stage 2 and Stage 3 are consistent with developing the information necessary to assess the efficacy of conservation measures, and to develop the monitoring required by the permit regulations at 50 CFR 22.26(c)(2).

Stage 4 is the **avoidance and minimization of risk using conservation measures and ACPs and compensatory mitigation** (if required).

Conservation measures and *ACPs*. Regardless of which approach is employed in the Stage 3 assessment, in Stage 4 the information gathered should be used by the project developer or operator and the Service to determine potential conservation measures and ACPs (if available) that can be employed to avoid and/or minimize the predicted risks at a given site (see Appendix E). The Service will compare the initial predictions of eagle mortality and disturbance for the project with predictions that take into account proposed and potential conservation measures and ACPs to determine if the project developer or operator has avoided and minimized risks to the maximum degree achievable, thereby meeting the requirements for programmatic permits in 50 CFR 22.26 that remaining take is unavoidable. Additionally, the Service will use the information provided along with other data to conduct a cumulative effects analysis to determine if the project's impacts, in combination with other permitted take and other known factors affecting the local-area and eagle management unit population(s), are at a level that exceed established thresholds or benchmarks (see Appendix F). This final eagle risk assessment is completed at the end of Stage 4 after application of conservation measures and ACPs along with a plan for compensatory mitigation if required.

Compensatory Mitigation. Compensatory mitigation occurs in the eagle permitting process if conservation measures and ACPs do not remove the potential for take, and the projected take exceeds calculated thresholds for the species-specific eagle management unit in which the project is located. Compensatory mitigation may also be necessary in other situations as described in the preamble to 50 CFR 22.26 (USFWS 2009a), and the following guidance applies to those situations as well.

Compensatory mitigation can address any pre-existing mortality source affecting the species-specific eagle management unit impacted by the project (*e.g.* environmental lead abatement, addressing eagle electrocutions due to high risk power poles, etc.) that was in effect at the time of the FEA in 2009 (USFWS 2009b), or it can address increasing the carrying capacity of the eagle population in the affected eagle management unit. However, there needs to be a credible analysis that supports the conclusion that implementing the compensatory mitigation action will achieve the desired beneficial offset in mortality or carrying capacity. All compensatory mitigation projects will be

subjected to random inspections by the Service or appointed subcontractors to examine efficacy, accuracy, and reporting rigor.

For new wind development projects, if compensatory mitigation is necessary, the compensatory mitigation action (or a verifiable, legal commitment to such mitigation) will be required up front before project operations commence because projects must meet the statutory and regulatory eagle preservation standard before the Service may issue a permit. For operating projects that may meet permitting requirements, compensatory mitigation should be applied from the start of the permit period, not retroactively from the initiation of project operations. The initial compensatory mitigation contribution effort should be sufficient to offset take at the upper 80% confidence limit (or equivalent) of the predicted number of eagle fatalities per year for a five-year period starting with the date the project becomes operational (or, for operating projects, the date the permit is signed). No later than at the end of the five year period, the predicted annual take estimate will be compared to the realized take as estimated by post-construction monitoring. If the observed and predicted take is different, either (1) additional compensatory mitigation will be required retroactively to offset higher-than-predicted levels of take to ensure continued compliance with regulatory requirements (assuming the estimated number of eagles taken was greater than the number actually compensated for), or (2) the permittee will receive a credit for the excess compensation (the difference between the actual mean and the number compensated for) that can be applied to other take (either by the permittee or other permitted individuals at his/her discretion) within the same eagle management unit. Compensatory mitigation for future years for the project will be determined at this point, taking into account the observed levels of mortality and any reduction in that mortality that is expected based on implementation of additional experimental conservation measures and ACPs that might reduce fatalities.

To illustrate an acceptable process for calculating compensatory mitigation, the Service has prepared an example of a strategy using Resource Equivalency Analysis (REA) to quantify the number of power pole retrofits needed to offset the take of golden eagles at a wind project (see Appendix G). The Service used the example of eliminating electrocutions because: (1) high-risk power poles cause quantifiable adverse impacts to eagles; (2) the 'per eagle' effects of high-risk power pole retrofitting are quantifiable and verifiable through accepted practices; (3) success of and subsequent maintenance of retrofitting can be monitored; and (4) electrocution from high-risk power poles is known to cause eagle mortality and this can be corrected. The potential for take of eagles is estimated using informed modeling, as described in Stage 3 of the ECPG (Appendix D). This fatality prediction is one of several fundamental variables that are used to populate the REA (see REA Inputs, Appendix G). The REA generates a project-area eagle impact calculation (debit), expressed in bird-years, and an estimate of the quantity of compensatory mitigation (credit) (*e.g.*, power pole retrofits) necessary to offset this impact. Compensatory mitigation would then be implemented either directly by the project developer or operator or through a formal, binding agreement with a third party to implement the required actions.

Effectiveness monitoring of the resulting compensatory mitigation projects should be included within the above options using the best scientific and practicable method available. The Service will modify the compensatory mitigation process to adapt to any improvements in our knowledge base as new data become available.

At the end of Stage 4, all the materials necessary to satisfy the regulatory requirements to support a permit application should be available. While the application can be submitted at any time, it is only after completion of Stage 4 that the Service can begin the formal process to determine whether a programmatic eagle take permit can be issued or not. Ideally, NEPA and NHPA analyses and assessments will already be underway, but if not, Stage 4 should include necessary NEPA analysis, NHPA compliance, coordination with other jurisdictional agencies, and tribal consultation.

If a permit is issued and the project goes forward, **Stage 5** of the process is **calibration and updating of the fatality prediction and continued risk assessment**, equivalent to Tier 4 and, in part, Tier 5 in the WEG**.** During this stage, post-construction surveys are conducted to generate empirical data for comparison with the pre-construction risk-assessment fatality and disturbance predictions. The monitoring protocol should include both validated techniques for assessing mortality, and for estimating effects of disturbance to eagles, and they must meet the permit-condition requirements at 50 CFR 22.26(c)(2). We anticipate that in most cases, intensive monitoring to estimate the true annual fatality rate and to assess possible disturbance effects will be conducted for at least the first two years after permit issuance, followed by less intense monitoring for up to three years after the expiration date of the permit, in accordance with monitoring requirements at 50 CFR 22.26(c)(2). We recommend project developers or operators use the post-construction survey protocols included or referenced in this ECPG, but we will consider other monitoring protocols provided by permit applicants. We will use the information from post-construction monitoring in a meta-analysis framework to weight and improve pre-construction predictive models. Additionally in Stage 5 the Service and project developers or operators should use the post-construction monitoring data to (1) assess whether compensatory mitigation is adequate, excessive, or deficient to offset observed mortality, and make adjustments accordingly; and (2) explore operational changes that might be warranted at a project after permitting to reduce observed mortality and ensure that permit condition requirements at 50 CFR 22.26(c)(7) are met.

Table 2 provides a summary of the roles of the project developer or operator and the Service, responsibilities, and decision points at each stage.

Table 2. Roles, responsibilities of the project developers and operators and the Service, and decision points at each stage of the ECP process.

Stage	Project developer/operator role	Service role
1	• Conduct a desktop landscape-level assessment for known or likely occurrence of eagles, including reconnaissance visits to prospective sites	• Recommend and help provide existing data and input if requested • Provide preliminary consultation on appropriateness of application for eagle

	• Consult with the Service on potential for any obvious negative impacts on eagles in at least general locale of prospective sites • Decision point: select site(s) for Stage 2 study, if appropriate	take permits for sites considered and the likelihood permits could be issued • Review available Stage 1 data and advise what Stage 2 data are recommended • Decision point: none
2	• Conduct detailed, site-specific field studies in the project area to inform eagle fatality prediction model, document important eagle use areas or migration concentration sites, and identify possible eagle disturbance issues • Coordinate in advance with the Service and other jurisdictional agencies to ensure studies will satisfy regulatory requirements for permitting • Decision point: choose whether to move to Stage 3	• Consult on field study design and approach in coordination with other jurisdictional agencies • Decision point: None
3	• Optionally generate an estimated annual eagle fatality prediction for the site(s) and an assessment of eagle disturbance risk using data from Stage 2 and model(s) of choice • Report on all other germane aspects of eagle use such as communal roosts and nest or territory locations • Decision point: choose whether to move to Stage 4	• Generate an initial eagle fatality estimate for site(s), using the Service model and survey data from Stage 2 • Assess likelihood of disturbance to eagles; quantify extent and impact of disturbance, if any likely • Make preliminary recommendation on risk category • Consult with developer/operator to interpret and resolve discrepancies in conclusions and risk category recommendation • Decision point: None
4	• Identify conservation measures and ACP s that can be used to avoid and minimize take identified in Stage 3 • Optionally generate revised fatality and disturbance estimates, taking into account conservation measures and ACPs • Identify and develop necessary agreements for compensatory mitigation to offset take, if required • Decision point: choose whether to submit eagle take permit application	• Re-run Service fatality model to predict fatalities with conservation measures and ACPs • Re-assess potential for disturbance take with conservation measures and ACPs • Coordinate with developer/operator to reach agreement on predicted take and risk category • Coordinate with developer/operator on compensatory mitigation, if requested • Provide revised preliminary assessment of likelihood site(s) will be permittable if requested • Decision point: None
Permit Decision	• Draft ECP or equivalent, including a plan for post-construction monitoring of eagle fatality and disturbance • Submit a permit application that meets requirements at 50 CFR 22 26 or 22 27, including ECP or equivalent information as part of application package • Choose whether to assist Service in conducting NEPA	• Coordinate and consult on writing of ECP or equivalent, including proposed plan for post-construction • Convey adequacy of ECP or equivalent to developer/operator • Evaluate permit application for regulatory sufficiency • Draft permit conditions drawing on relevant components of ECP or equivalent

	• Decision point: None	• Conduct cumulative effects analysis • Conduct NEPA review • Conduct NHPA evaluation • Coordinate with other jurisdictional agencies • Consult with Tribes • Establish limits on future operational adjustments proportionate to risk, in coordination with applicant • Decision point: whether permit can be issued
5	• Implement post-construction monitoring in accordance with permit conditions, including immediate reporting of any eagle take • Participate in scheduled reviews of post-construction monitoring results • Effect additional compensatory mitigation if necessary • Implement and monitor additional conservation measures and ACPS, if warranted, within scope of permit sideboards • Decision point: choose whether to apply for permit renewal near the end of permit term	• Monitor compliance with permit conditions • Review post-construction monitoring data, including comparison of predicted and observed annual fatality rate and disturbance • At no more than 5-year intervals, determine whether revision of the estimated fatality rate, adjustments to monitoring, implementation of additional experimental conservation measures and ACPs, and compensatory mitigation are warranted • Effect any necessary adjustments by crediting back excess compensatory mitigation, or by assessing additional compensatory mitigation for fatalities in excess of predictions • Combine monitoring data with that from other projects for meta-analysis within adaptive management framework • Decision point: determine what adjustments need to be made to compensatory mitigation level, and whether additional conservation measures and ACPs are warranted or not

4. Site Categorization Based on Mortality Risk to Eagles

We recommend the approach outlined below be used to categorize the likelihood that a site or operational alternative will meet standards in 50 CFR 22.26 for issuance of a programmatic eagle take permit.

a. Category 1 – High risk to eagles, potential to avoid or mitigate impacts is low

A project is in this category if it:

(1) has an important eagle-use area or migration concentration site within the project footprint; or
(2) has a species-specific uncertainty-adjusted annual fatality estimate (average number of eagles predicted to be taken annually) > 5% of the estimated species-specific local-area population size; or
(3) causes the cumulative annual take for the local-area population to exceed 5% of the estimated species-specific local-area population size.

In addition, projects that have eagle nests within ½ the mean project-area inter-nest distance of the project footprint should be carefully evaluated. If it is likely eagles occupying these territories use or pass through the project footprint, category 1 designation may be appropriate.

Projects or alternatives in category 1 should be substantially redesigned if they are to at least meet the category 2 criteria. Construction of projects at sites in category 1 is not recommended because the project would likely not meet the regulatory requirements for permit issuance and may place the project developer or operator at risk of violating the BGEPA. The recommended approach for assessing the percentage of the local-area population predicted to be taken is described in Appendix F.

b. Category 2 – High or moderate risk to eagles, opportunity to mitigate impacts
A project is in this category if it:

(1) has an important eagle-use area or migration concentration site within the project area but not in the project footprint; or
(2) has a species-specific uncertainty-adjusted fatality estimate between 0.03 eagles per year and 5% of the estimated species-specific local-area population size; or
(3) causes cumulative annual take of the species-specific local-area population of less than 5% of the estimated local-area population size.

Projects in this category will potentially take eagles at a rate greater than is consistent with maintaining stable or increasing populations, but the risk might be reduced to an acceptable level through a combination of conservation measures and reasonable compensatory mitigation. These projects have a risk of ongoing take of eagles, but this risk can be minimized. For projects in this category the project developer or operator should prepare an ECP or similar plan to document meeting the regulatory requirements for a programmatic permit. For eagle management populations where take thresholds are set at zero, the conservation measures in the ECP should include compensatory mitigation and must result in no-net-loss to the breeding population to be compatible with the permit regulations. This does not apply to golden eagles east of the 100th meridian, for which no non-emergency take can presently be authorized (USFWS 2009b).

c. Category 3 – Minimal risk to eagles
A project is in this category if it:

(1) has no important eagle use areas or migration concentration sites within the project area; and
(2) has a species-specific uncertainty-adjusted annual fatality rate estimate of less than 0.03 for both species of eagle; and
(3) causes cumulative annual take of the local-area population of less than 5% of the estimated species-specific local-area population size.

Projects in category 3 pose little risk to eagles and may not require or warrant eagle take permits, but that decision should be made in coordination with the Service. Still, a

project developer or operator may wish to create an ECP that documents the project's low risk to eagles, and outlines mortality monitoring for eagles and a plan of action if eagles are taken during project construction or operation. If take should occur, the developer or operator should contact the Service to discuss ways to avoid take in the future.

The risk category of a project has the potential to change from one of higher risk to one of lower risk or one of lower risk to one of higher risk through additional site-specific analyses and application of measures to reduce the risk. For example, a project may appear to be in category 2 as a result of Stage 1 analyses, but after collection of site-specific information in Stage 2 it might become clear it is a category 1 project. If a project cannot practically be placed in one of these categories, the project developer or operator and the Service should work together to determine if the project can meet programmatic eagle take permitting requirements in 50 CFR 22.26 and 22.27. Projects should be placed in the highest category (with category 1 being the highest) in which one or more of the criteria are met.

5. Cumulative Effects Considerations

a. Early Planning

Regulations at 50 CFR 22.26 require the Service to consider the cumulative effects of programmatic eagle take permits. Cumulative effects are defined as: "the incremental environmental impact or effect of the proposed action, together with impacts of past, present, and reasonably foreseeable future actions" (50 CFR 22.3). Thorough cumulative effects analysis will depend on effective analysis during the NEPA process associated with an eagle permit. Scoping and other types of preliminary analyses can help identify important cumulative-effects factors and identify applicable past, present, and future actions. Comprehensive evaluation during early planning may identify measures that would avoid and minimize the effects to the degree that take of eagles is not likely to occur. In that case, there may be no permit, and thus no need for NEPA associated with an eagle take permit. When a wind project developer or operator seeks an eagle take permit, a comprehensive cumulative effects analysis at the early planning stage will serve to streamline subsequent steps, including the NEPA process.

The Service recommends that cumulative effects analyses be consistent with the principles of cumulative effects outlined in the Council on Environmental Quality (CEQ) handbook, "Considering Cumulative Effects under the National Environmental Policy Act (1997) (CEQ handbook). The Service recommends consideration of the following examples from the CEQ handbook that may apply to cumulative effects to eagles and the ecosystems they depend upon:

(1) Time crowding - frequent and repetitive effects on an environmental system;
(2) Time lags - delayed effects;
(3) Space crowding - High spatial density of effects on an environmental system;
(4) Cross- boundary - Effects occur away from the source;
(5) Fragmentation - change in landscape pattern;
(6) Compounding effects - Effects arising from multiple sources or pathways;
(7) Indirect effects - secondary effects; and
(8) Triggers and thresholds - fundamental changes in system behavior or structure.

b. Analysis Associated with Permits

The cumulative effects analysis for a wind project and a permit authorization should include whether the anticipated take of eagles is compatible with eagle preservation as required at 50 CFR 22.26, including indirect impacts associated with the take that may affect eagle populations. It should also include consideration of the cumulative effects of other permitted take and additional factors affecting eagle populations.

Whether or not a permit authorization is compatible with eagle preservation was analyzed in the FEA that established the thresholds for take (USFWS 2009b). The scale of that analysis was based upon eagle management units as defined in USFWS (2009b). However, the scale for cumulative effects analysis of wind projects and associated permits should include consideration of the effects at the local-population scale as well.

The cumulative effects analyses for programmatic permits should cover the time period over which the take will occur, not just the period the permit will cover, including the effect of the proposed action, other actions affecting eagles, predicted climate change impacts, and predicted changes in number and distribution of affected eagle populations. Effects analyses should note whether the project is located in areas where eagle populations are increasing or predicted to increase based on available data, over the lifetime of the project, even if take is not anticipated in the immediate future. In addition, conditions where populations are saturated should be considered in cumulative effects analyses. Numerous relatively minor disruptions to eagle behavior from multiple activities, even if spatially or temporally distributed, may lead to disturbance that would not have resulted from fewer or more carefully sited activities (*e.g.*, Whitfield *et al.* 2007). Additional detailed guidance for cumulative impacts analyses can be found on the Council on Environmental Quality website at http://ceq.hss.doe.gov/nepa/ccenepa/ccenepa.htm.

Specific recommendations for conducting cumulative effects analysis of the authorized take under eagle programmatic take permits is provided in Appendix F.

ADAPTIVE MANAGEMENT

Management of wind facilities to minimize eagle take, through decisions about siting, design, operation, and compensatory mitigation, is a set of recurrent decisions made in the face of uncertainty. The Department of the Interior has a long history of approaching such decisions through a process of adaptive management (Williams *et al.* 2007). The purpose of adaptive management is to improve long-term management outcomes, by recognizing where key uncertainties impede decision making, seeking to reduce those uncertainties over time, and applying that learning to subsequent decisions (Walters 1986).

In the case of managing eagle populations in the face of energy development there is considerable uncertainty to be reduced. For example, evidence shows that in some areas

or specific situations, large soaring birds, specifically raptors, are vulnerable to colliding with wind turbines (Barrios and Rodriguez 2004, Kuvlesky *et al.* 2007). However, we are uncertain about the relative importance of factors that influence that risk. We are also uncertain about the best way to mitigate the effects of wind turbine developments on raptors; we suspect some strategies might be effective, others are worth trying. We also suspect that a few species, including golden eagles (USFWS 2009b), may be susceptible enough to collisions with wind turbines that populations may be negatively affected. Thus, there are uncertainties at several levels that challenge our attempts to manage eagle populations: (1) at the level of understanding factors that affect collision risk, (2) at the level that influences population trends, and (3) about the efficacy of various mitigation options. The Service, our conservation partners, and industry will never have the luxury of perfect information before needing to act to manage eagles. Our goal is to reduce that uncertainty through use of formal adaptive management, thereby improving our predictive capability over time. Applying a systematic, cohesive, nationally-consistent strategy of management and monitoring is necessary to accomplish this goal.

In the context of wind energy development and eagle management under the ECPG, there are four specific sets of decisions that will be approached through adaptive management: (1) adaptive management of wind project operations; (2) adaptive management of wind project siting and design recommendations; (3) adaptive management of compensatory mitigation; and (4) adaptive management of population-level take thresholds. These are discussed in more detail in Appendix A. The adaptive management process will depend heavily on pre- and post-construction data from individual projects, but analyses, assessment, and model evaluation will rely on data pooled over many individual wind projects. Therefore, individual project developers or operators will have limited direct responsibilities for conducting adaptive management analyses, other than to provide data through post-construction monitoring.

EAGLE CONSERVATION PLAN DEVELOPMENT PROCESS

The following sections of the ECPG, including attached appendices, provide a descriptive instructional template for developing an ECP. Throughout this section, we use the term ECP to include any other document or collection of documents that could be considered equivalent to an ECP. The ECP is an integral part of the permit process, and the following chronological step-by-step outline shows how the pieces fit together:
The ECPG provides guidance and serves as a reference for project developers or operators, the Service, and other jurisdictional agency biologists when developing and evaluating ECPs. Using the ECPG as a non-binding reference, the Service will work with project developers or operators to develop an ECP. The ECP documents how the project developer or operator intends to comply with the regulatory requirements for programmatic permits and the associated NEPA process by avoiding and minimizing the risk of taking eagles up-front, and formally evaluating possible alternatives in (ideally) siting, configuration, and operation of wind projects. The Service's ability to influence siting and configuration factors depends on the stage of development of the project at the time the project developer or operator comes to us.

The Service recommends that project developers or operators develop an ECP following the five-staged approach described earlier. During Stages 1 through 4, projects or alternatives should be placed in one of the three risk categories, with increasing certainty by Stage 4. The ECP should provide detailed information on siting, configuration, and operational alternatives that avoid and minimize eagle take to the point any remaining take is unavoidable and, if required, mitigates that remaining take to meet the statutory preservation standard. The Service will use the ECP and other application materials to either develop an eagle take permit for the project, or to determine that the project cannot be permitted because risk to eagles is too high to meet the regulatory permit requirements.

For permitted projects, the Service will use the 80% upper confidence limit or similar risk-averse estimate (*e.g.*, the upper limit of the 80% credible interval is used in the Service's predictive model described in Appendix D) of the mean annual predicted unavoidable eagle take to determine likely population-level effects of the permit and compensatory mitigation levels, if required. For predicted recurring eagle take that is in excess of calculated eagle management unit take thresholds, the Service will either (a) approve a compensatory mitigation proposal from the project developer or operator; or (b) accept, if sufficient, a commitment of funds to an appropriate independent third party that is formally obligated (via contract or other agreement with the project developer or operator) to perform the approved mitigation work. Under either (a) or (b), the compensatory mitigation cost and actions will be calibrated so as to offset the predicted unavoidable take, such that we bring the individual permit's (and cumulatively over all such permits') predicted mortality effect to a no-net-loss standard. Compensatory mitigation will initially be based on the upper 80% confidence limit of the predicted mean annual fatality rate (or similar risk-averse estimate) over a five year period, and it will be adjusted for future years based on the observed fatality rate over the initial period of intensive post-construction monitoring (no less than 2 years). Compensatory mitigation, as well as other forms of mitigation aimed at reducing other detrimental effects of permits on eagles, may also be necessary in other situations where predicted effects to eagle populations are substantial and not consistent with stable or increasing breeding populations of eagles.
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Post-construction monitoring may be required as a condition of an eagle programmatic take permit and will be required for wind-energy projects that may potentially take eagles. This monitoring should be systematic and standardized to be suitable for use in a formal adaptive management framework to evaluate and improve the predictive accuracy of our models. In addition, the information will be used by the Service and the project developer or operator to determine if, after no more than five years of post-construction monitoring, the 80% upper confidence limit on the predicted mean number of annual fatalities adequately captured the observed estimated mean number of fatalities annually. If the observed and predicted estimates of annual fatalities are different, either additional compensatory mitigation will be required retroactively to offset higher-than-predicted levels of take (assuming the actual number of eagles taken was greater than the number

actually compensated for), or the permittee will receive a credit for the excess compensation (the difference between the actual mean and the number compensated for) that can be applied to other take (either by the permittee or other permitted individuals at his/her discretion) within the same eagle management unit at any time in the future.

At no more than five-years from the date a permit is issued, the permittee will compile and the Service and the permittee will review fatality information for the project to determine if experimental ACPs should be implemented to potentially reduce eagle mortalities based on the observed, specific situation at each site. As discussed previously, at the time of permit issuance the Service and the project developer or operator will agree to an upper limit on the cost of such future experimental ACPs, which will only be implemented if warranted by eagle disturbance or mortality data. If these experimental ACPs are likely to reduce mortalities at the project in the future, the amount of future compensatory mitigation will be decreased accordingly (*e.g.* if ACPs are predicted to reduce the fatality rate from three to two eagles annually, compensatory mitigation would only be required to offset the future predicted take of two eagles per year). In such cases, additional post-implementation monitoring should be conducted to determine the effectiveness of the experimental ACPs. In cases where observed fatalities exceed predicted to the degree category 1 fatality-rate criteria are confirmed to have been met or exceeded by a permitted project, and for whatever reason experimental ACPs or additional conservation measures cannot be implemented to reduce fatalities to category 2 levels or below, the Service may have to rescind the permit for that project to remain in compliance with regulatory criteria.

Programmatic eagle take permits will be conditioned to require access to the areas where take is possible and where compensatory mitigation is being implemented by Service personnel, or other qualified persons designated by the Service, within reasonable hours and with reasonable notice from the Service, for purposes of monitoring the site(s). The regulations provide, and a condition of any permit issued will require, that the Service may conduct such monitoring while the permit is valid, and for up to three years after it expires (50 CFR 22.26(c)(4)). In general, verifying compliance with permit conditions is a secondary purpose of site visits; the primary purpose is to monitor the effects and effectiveness of the permitted action and mitigation measures. This may be done if a project developer or operator is unable to observe or report to the Service the information required by the annual report—or it may serve as a "quality control" measure the Service can use to verify the accuracy of reported information and/or adjust monitoring and reporting requirements to provide better information for purposes of adaptive management.

1. Contents of the Eagle Conservation Plan

This section provides a recommended outline for an ECP, with a short description of what should be contained in each section. See previous sections and referenced appendices for details on the stages and categories.

a. Stage 1
Data from Stage 1 should be presented and summarized in this section of the ECP. The project developer or operator should work with the Service to place potential wind–facility site in a category based on the Stage 1 information. For detailed recommendations on the Stage 1 process, see Appendix B.

b. Stage 2
Data from Stage 2 should be presented and summarized in this section of the ECP. For detailed recommendations on the Stage 2 methods and metrics, see Appendix C. The risk categorization should be re-assessed in this section, taking into account Stage 2 results.

c. Stage 3
In this section of the ECP, project developers or operators should work in coordination with the Service to calculate a prediction of the annual eagle fatality rate and confidence interval for the project using data generated from the Stage 2 assessment. The initial estimate of the fatality rate should not take into account possible conservation measures and ACPs; these will be factored in as part of Stage 4. For detailed recommendations on Stage 3 methods and metrics, see Appendix D. The risk categorization should be re-assessed in this section, taking into account Stage 3 results.

d. Stage 4
This section of the ECP should describe how proposed conservation measures and ACPs should reduce the fatality rate generated in stage 3, and what compensatory mitigation measures will be employed to offset unavoidable take, if required. This section facilitates demonstrating how conservation measures and ACPs have reduced the raw predicted fatality rate to the unavoidable standard. For detailed recommendations on considerations for the development of conservation measures and ACPs see Appendix E. The risk categorization should be re-assessed in this section, taking into account Stage 4 results. This should be the final pre-construction risk categorization for the proposed project. This section should also fully describe the proposed compensatory mitigation approach (if required). For detailed recommendations regarding compensatory mitigation, see Appendix G.

e. Stage 5 – Post-construction Monitoring
In this section of the ECP, the project developer or operator should describe the proposed post-construction survey methodology for the project. Detailed recommendations for post-construction monitoring are in Appendix H. The Stage 5 post-construction monitoring plan is the final section of the ECP.

INTERACTION WITH THE SERVICE

As noted throughout this ECPG, frequent and thorough coordination between project developers or operators and Service and other jurisdictional-agency employees is crucial to the development of an effective and successful ECP. Close coordination will also be necessary in the refinement of the modeling process used to predict fatalities, as well as

in post-construction monitoring to evaluate those models. We anticipate the ECPG and the recommended methods and metrics will evolve rapidly as the Service and project developers or operators learn together. The Service has created a cross-program, cross-regional team of biologists who will work jointly on eagle-programmatic-take permit applications to help ensure consistency in administration and application of the Eagle Permit Rule. This close coordination and interaction is especially important as the Service processes the first few programmatic eagle take permit applications.

The Service will continue to refine this ECPG with input from all stakeholders with the objective of maintaining stable or increasing breeding populations of both bald and golden eagles while simultaneously developing science-based eagle-take regulations and procedures that are appropriate to the risk associated with each wind energy project. As the ECPG evolves, the Service will not expect project developers or operators to retroactively redo analyses or surveys using the new approaches. The adaptive approach to the ECPG should not deter project developers or operators from using it immediately.

INFORMATION COLLECTION

(b) (5)

[redacted]

GLOSSARY

Active nest – see occupied nest.

Adaptive resource management – an iterative decision process that promotes flexible decision-making that can be adjusted in the face of uncertainties as outcomes from management actions and other events become better understood.

Advanced conservation practices (ACP) — means scientifically supportable measures that are approved by the Service and represent the best available techniques to reduce eagle disturbance and ongoing mortalities to a level where remaining take is unavoidable. ACPs are a special subset of conservation measures that must be implemented where they are applicable.

Adult – an eagle five or more years of age.

Alternate nests – additional sites within a nesting territory that are available to be used.

Avoidance and minimization measures – conservation actions targeted to remove or reduce specific risk factors (*e.g.*, avoiding important eagle use areas and migration concentration sites, placing turbines away from ridgelines). A subset of conservation measures.

Benchmark –an eagle harvest rate at the local-area population scale that should trigger heightened scrutiny.

Breeding territory – equivalent to eagle territory.

Calculated take thresholds – annual allowable eagle take limits established in USFWS (2009b).

Collision probability (risk) – the probability that an eagle will collide with a turbine given exposure.

Compensatory mitigation – replacement of project-induced losses to fish and wildlife resources. Substitution or offsetting of fish and wildlife resource losses with resources considered to be of equivalent biological value. In the case of an the ECPG, an action in the eagle permitting process that offsets the predicted take of eagles if ACPs and other conservation measures do not completely remove the potential for take, and projected take exceeds calculated take thresholds for the species or the eagle management unit affected (or in some cases, under other circumstances as described in USFWS 2009a).

Conservation measures – actions that avoid (this is best achieved at the siting stage), minimize, rectify, reduce, eliminate, or mitigate an effect over time. ACPs are conservation measures that have scientific support and which must be implemented where they are applicable.

Discount rate – the interest rate used in calculating the present value of expected yearly benefits and costs.

Disturb - means 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.

Eagle Conservation Plans (ECP) – a document produced by the project developer or operator in coordination with the Service that supports issuance of an eagle take permit under 50 CFR 22.26 and potentially 22.27 (or demonstrates that such a permit is unnecessary).

Eagle Management Unit - regional eagle populations defined in the FEA (USFWS 2009b). For golden eagles, eagle management units follow Bird Conservation Regions (Figure 2), whereas bald eagle management units largely follow Service regional boundaries (Figure 3).

Eagle exposure rate – Eagle-minutes flying within the project footprint (in proximity to turbine hazards) per hour (hr) per kilometer^2 (km^2).

Eagle nest (or nest) -- any readily identifiable structure built, maintained or used by bald eagles or golden eagles for the purposes of reproduction (as defined in 50 CFR 22.3).

Eagle territory – an area that contains, or historically contained, one or more nests within the home range of a mated pair of eagles (from the regulatory definition of "territory" at 50 CFR 22.3).

Experimental ACPs – prospective conservation measures identified at the start of a programmatic eagle take permit that are not implemented immediately, but are deferred pending the results of post-construction monitoring. If such monitoring indicates the measures might reduce observed eagle fatalities, they should be implemented and monitored for a sufficient period of time to determine their effectiveness.

Fatality monitoring – searching for eagle carcasses beneath turbines and other facilities to estimate the number of fatalities.

Fatality rate. – (1) in fatality prediction models, the fatality rate is the number of eagle fatalities per hr per km^2 **;** (2) elsewhere in the ECPG it is the number of eagles taken or predicted to be taken per year.

Floater (floating adult) – an adult eagle that has not settled on a breeding territory.

Hazardous area – Rotor-swept area around a turbine or proposed turbine (km^2).

Home range - the area traveled by and eagle in its normal activities of food gathering, mating, and caring for young. Breeding home range is the home range during the breeding season, and the non-breeding home range is the home range outside the breeding season.

Important eagle-use area - an eagle nest, foraging area, or communal roost site that eagles rely on for breeding, sheltering, or feeding, and the landscape features surrounding such nest, foraging area, or roost site that are essential for the continued viability of the site for breeding, feeding, or sheltering eagles (as defined at 50 CFR 22.26).

Inactive nest ─ a bald eagle or golden eagle nest that is not currently being used by eagles as determined by the continuing absence of any adult, egg, or dependent young at the nest for at least 10 consecutive days immediately prior to, and including, at present. An inactive nest may become active again and remains protected under the Eagle Act.

Inventory –systematic observations of the numbers, locations, and distribution of eagles and eagle resources such as suitable habitat and prey in an area.

Jurisdictional agency – a government agency with jurisdictional authority to regulate an activity (*e.g.*, a state or tribal fish and wildlife agency, a state or federal natural resource agency, etc.).

Juvenile – an eagle less than one year old.

Kiting – stationary or near-stationary hovering by a raptor, usually while searching for prey.

Local-area population – is as defined in USFWS (2009b), and refers to the eagle population within a distance from the project footprint equal to the species median natal-dispersal distance (43 miles for bald eagles and 140 miles for golden eagles).

Mean inter-nest distance – the mean nearest-neighbor distance between simultaneously occupied eagle nests.

Meteorological towers (met towers) – towers erected to measure meteorological events such as wind speed, direction, air temperature, etc.

Migration concentration sites – places where geographic features (e.g., north-south oriented ridgelines, peninsulas) funnel migrating eagles, resulting in concentrated use during migration periods.

Migration corridors - the routes or areas where eagles may concentrate during migration (*e.g.*, funneling areas along ridgetops, at tips of peninsulas) as a result of the interplay between weather variables and topography.

Migration counts – standardized counts that can be used to determine relative numbers of diurnal raptors passing over an established point during fall or spring migration.

Mitigation – avoidance, minimization, rectification, reduction over time, and compensation for negative impacts to bald eagles and golden eagles from the permitted actions. In the ECPG, we use the term compensatory mitigation to describe

the subset of mitigation actions designed to offset take to achieve the no-net-loss standard.

Monitoring – (1) a process of project oversight such as checking to see if activities were conducted as agreed or required; (2) making measurements of uncontrolled events at one or more points in space or time with space and time being the only experimental variable or treatment; (3) making measurements and evaluations through time that are done for a specific purpose, such as to check status and/or trends or the progress towards a management objective.

No-net-loss – no net change in the overall eagle population mortality or natality rate after issuance of a permit that authorizes take, because compensatory mitigation reduces another form of mortality, or increases natality, by a comparable amount.

Occupied nest – a nest used for breeding in the current year by a pair of eagles. Presence of an adult, eggs, or young, freshly molted feathers or plucked down, or current year's mutes (whitewash) suggest site occupancy. In years when food resources are scarce, it is not uncommon for a pair of eagles to occupy a nest yet never lay eggs; such nests are considered occupied.

Occupied territory – an area that encompasses a nest or nests or potential nest sites and is defended by a mated pair of eagles.

Operational adjustments – modifications made to an existing wind project that changes how that project operates (*e.g.*, increasing turbine cut in speeds, implementing curtailment of turbines during periods of high eagle use).

Posterior distribution (Bayesian) – a distribution that quantifies the uncertainty in the model parameters after incorporating the observed data. The distributions are usually summarized by intervals around the median.

Present value – within the context of a Resource Equivalency Analysis (REA), refers to the value of debits and credits based on an assumed annual discount rate (3%). This term is commonly used in economics and implies that resources lost or gained in the future are of less value to us today.

Prior distribution (Bayesian) – a distribution that quantifies the uncertainty in the model parameters from previous data or past knowledge. A non-informative prior can be used to imply that little or nothing is known about the parameters.

Programmatic take – take that is recurring, is not caused solely by indirect effects, and that occurs over the long term or in a location or locations that cannot be specifically identified (as defined in 50 CFR 22.3).

Project area – the area that includes the project footprint as well as contiguous land that shares relevant characteristics. For eagle-take considerations, the Service recommends the project area be either project footprint and a surrounding perimeter equal to the mean species-specific inter-nest distance for eagles locally, or the project footprint and a 10-mile perimeter.

Project-area inter-nest distance – the mean nearest-neighbor distance between simultaneously occupied eagle nests of a species (including occupied nests in years where no eggs are laid). We recommend calculating this metric from the nesting territory survey in Stage 2, using all nesting territories within the project area, ideally over multiple years.

Project-area nesting population – number of pairs of eagles nesting within the project area.

Project-area eagle population – the population of eagles, considering breeding, migrating, and wintering eagles, within the project area.

Project footprint - the minimum-convex polygon that encompasses the wind-project area inclusive of the hazardous area around all turbines and any associated utility infrastructure, roads, etc.

Project developer or operator – any developer or operator that proposes to construct a wind project.

Productivity ─ the number of juveniles fledged from an occupied nest, often reported as a mean over a sample of nests.

Renewable energy – energy produced by solar, wind, geothermal or any other methods that do not require fossil fuels.

Resource Equivalency Analysis (REA) – in the context of the ECPG, a methodology used to compare the injury to or loss of eagles caused by wind facilities (debit) to the benefits from projects designed to improve eagle survival or increase productivity (credits). Compensation is evaluated in terms of eagles and their associated services instead of by monetary valuation methods.

Retrofit – any activity that results in the modification of an existing power line structure to make it bird safe.

Risk-averse – a conservative estimate in the face of considerable uncertainty. For example, the Service typically will use the upper 80% credible interval of the median estimated number of annual eagle fatalities for permit decisions in an effort to avoid underestimating fatality rates at wind projects.

Risk validation – as part of Stage 5 assessment, where post-construction surveys are conducted to generate empirical data for comparison with the pre-construction risk assessment predictions to validate if the initial assumptions were correct.

Roosting – activity where eagles seek cover, usually during night or periods of severe weather (*e.g.*, cold, wind, snow). Roosts are usually found in protected areas, typically tree rows or trees along a river corridor.

Seasonal concentration areas – areas used by concentrations of eagles seasonally, usually proximate to a rich prey source.

Site categorization – a standardized approach to categorize the likelihood that a site or operational alternative will meet standards in 50 CFR 22.26 for issuance of a programmatic eagle take permit.

Stopover sites – areas temporarily used by eagles to rest, seek forage, or cover on their migration routes.

Subadult – an eagle between 1 and 4 years old, typically not of reproductive age.

Survey –combined inventory and monitoring.

Take threshold – an upper limit on the annual eagle harvest rate for each species-specific eagle management unit. Thresholds were set in the Final Environmental Assessment on the Eagle Permit Rule (USFWS 2009b).

Territory – area that contains, or historically contained, one or more nests within the home range of a mated pair of eagles (from 50 CFR 22.3).

Unoccupied nest - those nests not selected by raptors for use in the current nesting season. See also inactive nest.

U.S. Fish and Wildlife Service Draft Land-based Wind Energy Guidelines (WEG) – a document that describes a multi-tiered process to site, construct, operate and monitor wind facilities in ways that avoid, minimize, and mitigate impacts to wildlife.

Wind facilities – developments for the generation of electricity from wind turbines.

Wind project – developments for the generation of electricity from wind turbines.

Wind turbine – a machine for converting the kinetic energy in wind into mechanical energy, which is then converted to electricity.

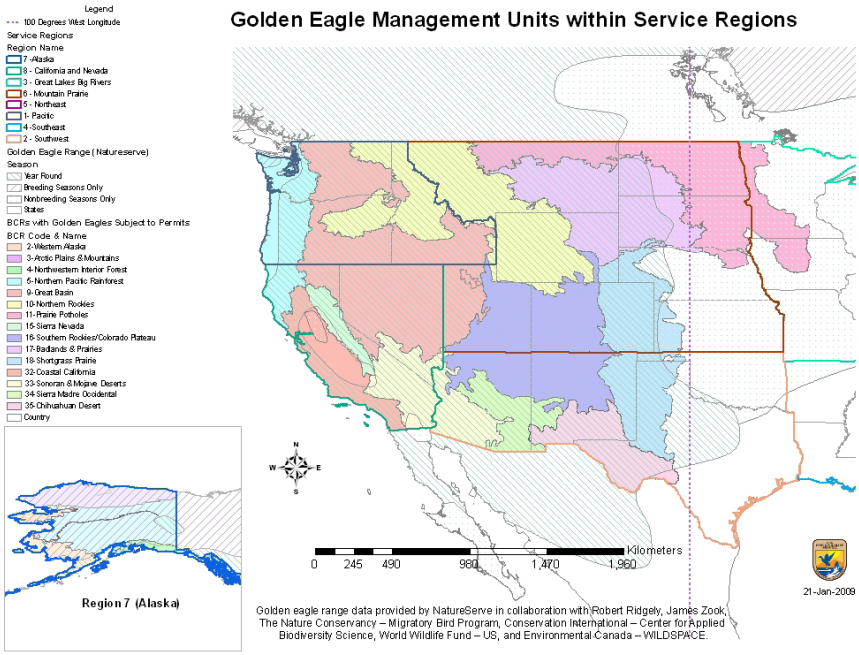

Figure 2. Map of golden eagle management units, from USFWS (2009b).

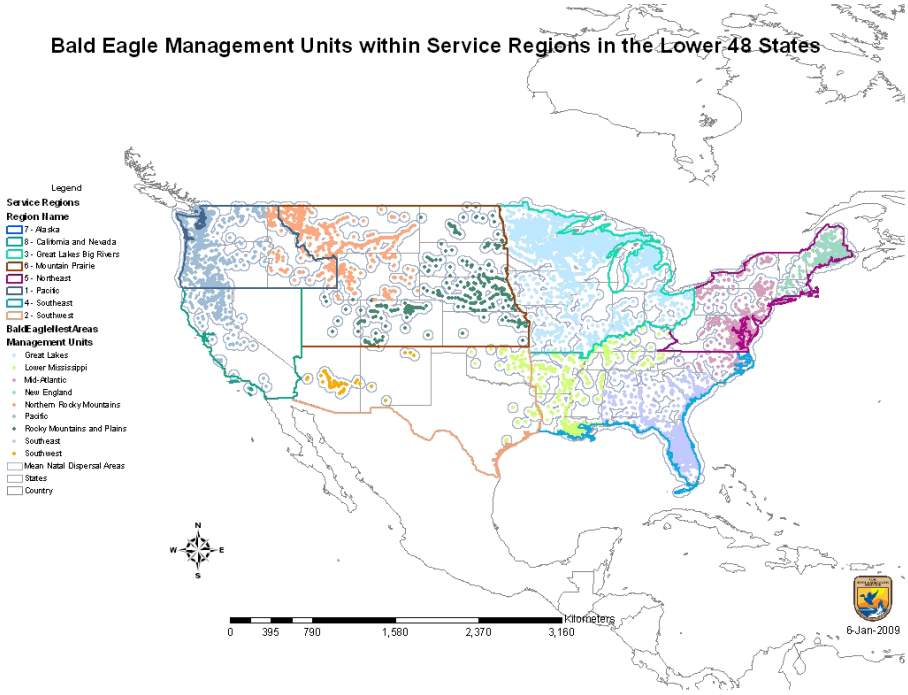

Figure 3. Map of bald eagle management units, from USFWS (2009b).

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APPENDIX A: ADAPTIVE MANAGEMENT

Management of wind facilities to minimize eagle take through decisions about siting, design, operation, and compensatory mitigation, is a set of recurrent decisions made in the face of uncertainty. The Department of the Interior has a long history of approaching such decisions through a process of adaptive management (Williams *et al.* 2007). The purpose of adaptive management is to improve long-term management outcomes, by recognizing where key uncertainties impede decision making, seeking to reduce those uncertainties over time, and applying that learning to subsequent decisions (Walters 1986).

Adaptive management is a special case of decision analysis applied to recurrent decisions (Lyons *et al.* 2008). Like all formal decision analysis, it begins with the identification of fundamental objectives—the long-term ends sought through the decision (step 2, Fig. A-1). These objectives are the primary concern, and all the other elements are designed around them. With these objectives in mind, alternative actions are considered, and the consequences of these alternatives are evaluated with regard to how well they might achieve the objectives. But in many decisions, there is critical uncertainty that impedes the decision (step 6, Fig. A-1), that is, the decision-maker is missing knowledge that affects which alternative might be best. In recurrent decisions, there exists the opportunity to reduce that uncertainty, by monitoring the outcomes of early actions, and apply that learning to later actions. It is valuable to note that learning is not pursued for its own sake, but only insofar as it helps improve long-term management by reducing these uncertainties.

There are two hallmarks of a formal interpretation of adaptive management, like that described above. The first hallmark is the *a priori* identification of the critical uncertainty. In this way, adaptive management is not a blind search for some unspecified new insights, but a focused effort to reduce the uncertainty that stands in the way of better decision-making. The second hallmark is that the means of adaptation is clear, that is, the way in which new information will be applied to subsequent decisions is articulated.

There is, however, recognition that unanticipated learning does occur in any real system, and this learning can sometimes lead to valuable insights. In so-called "double-loop learning" (Argyris and Shon 1978), the learning might even lead to a re-framing of the decision, a re-examination of the objectives, or consideration of new alternatives (this could be represented by a loop from step 7 to step 1 in Fig. A-1). In the context of eagle management at wind facilities, the Service's focus is on the inner-loop learning (represented by the feedback from step 7 to 8 to 4 in Fig. A-1), but unanticipated learning will not be ignored.

In the case of managing eagle populations in the face of energy development, there is considerable uncertainty to be reduced. For example, we believe that in some areas or specific situations, large soaring birds, specifically raptors, might be especially vulnerable to colliding with wind turbines (Barrios and Rodriguez 2004, Kuvlesky *et al.*

2007), but we are uncertain about the relative importance of factors that influence that risk. We are also uncertain about the best way to mitigate the effects of wind turbine developments on raptors; we suspect some

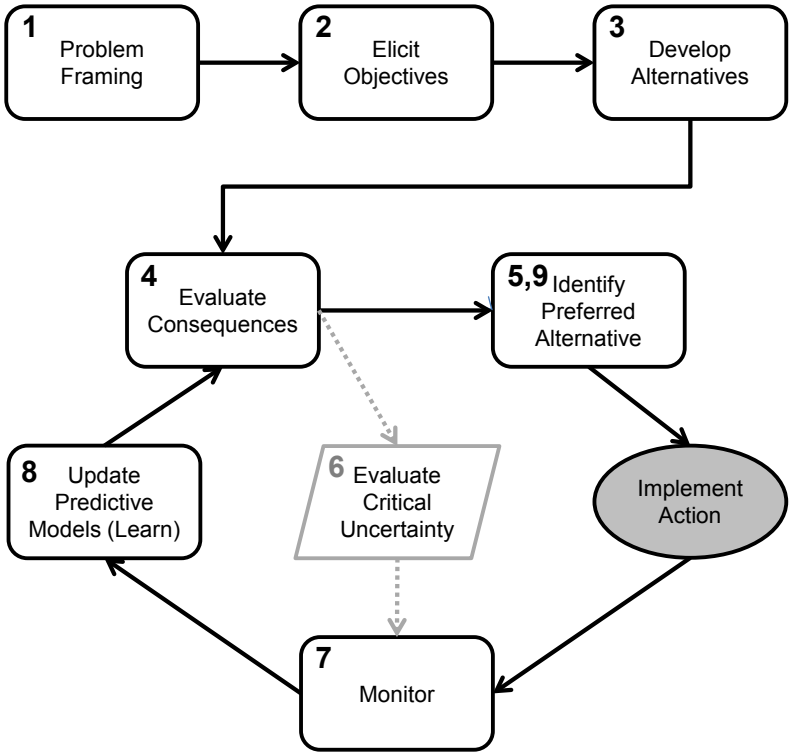

Figure A-1: A framework for adaptive resource management (ARM). At the core of adaptive management is critical uncertainty that impedes the identification of a preferred alternative. When decisions are recurrent, implementation coupled with monitoring can resolve uncertainty, and allow future decisions to reflect that learning. (Figure from Runge 2011).

strategies might be effective, others are worth trying. We also suspect that a few species, including golden eagles (USFWS 2009), may be susceptible enough to collisions with wind turbines that populations may be negatively affected. Thus, there are uncertainties at several levels that challenge our attempts to manage eagle populations: (1) at the level of understanding factors that affect collision risk, (2) at the level that influences population trends, and (3) about the efficacy of various mitigation options. The Service, our conservation partners, and industry will never have the luxury of perfect information before needing to act to manage eagles. We are therefore left to make management decisions based on the best available information with some inherent degree of

uncertainty about the outcomes of those decisions. Our goal is to reduce that uncertainty through use of formal adaptive management, thereby improving our predictive capability over time. Applying a systematic, cohesive, nationally-consistent strategy of management and monitoring is necessary to accomplish this goal.

1. Adaptive Management as a Tool

Using adaptive management as a tool to manage wildlife populations is not new to the Service. We and other agencies are increasingly using the principles of adaptive management across a range of programs, including waterfowl harvest management (Johnson *et al.* 1997), endangered species (Runge 2011), and habitat management at local and landscape scales (Lyons *et al.* 2008). Applying adaptive management to complex resource management issues is promoted throughout the Department of the Interior (Williams *et al.* 2007).

Waterfowl harvest management is the classic example of adaptive resource management. Hunting regulations are reset each year in the United States and Canada through the application of adaptive management principles (Johnson *et al.* 1997). A key uncertainty in waterfowl management is the extent to which harvest mortality is compensated by reductions in non-harvest mortality or by increases in productivity (Williams *et al.* 1996). Various population models have been built based on competing hypotheses to answer this question; these competing models make different predictions about how the population will respond to hunting. Every year the Service and the Canadian Wildlife Service monitor waterfowl and environmental conditions to estimate population size, survival rates, productivity, and hunting rates. These data feed into the various competing models, and the models are evaluated annually based on how well they predict changes in waterfowl populations. Models that perform best year-after-year accrue increasing weight (*i.e.*, evidence in support of the underlying hypothesis). Weighted model outputs directly lead to recommended sets of hunting regulations (*e.g.*, bag limits and season lengths) for the subsequent year. Over time, by monitoring the population effects of various harvest rates on survivorship, and environmental conditions on productivity, our uncertainty about the degree to which harvest is compensated by other factors has been reduced, allowing for the setting of harvest rates with greater confidence every year. The application of adaptive management principles to waterfowl harvest regulation has helped the Service and its partners achieve or exceed population goals for most species of waterfowl (NAWMP 2004).

Adaptive management is a central component of the Service's approach to collaborative management at the landscape scale, through strategic habitat conservation (NEAT 2006). The principles of adaptive management are also embedded in endangered species management (Ruhl 2004, Runge 2011), including in recovery planning (Smith 2011) and habitat conservation planning (Wilhere 2002). Indeed, the Service recognizes that adaptive management is a normative concept in modern ecological decision-making (Callicott *et al.* 1999), and embraces it as a fundamental tool.

2. Applying Adaptive Management to Eagle Take Permitting

In the context of wind energy development and eagle management under the ECPG, there are four specific sets of decisions that are suitable for an adaptive management approach.

a. Adaptive Management of Wind Project Operations

The most immediate and direct opportunity for adaptive management is at the site-level for wind facilities after construction. The relevant uncertainty is in the predictions of eagle take at the project, and the operational factors that influence the level of take. The role of adaptive management at this scale will be analyzed and evaluated in the NEPA associated with each permit. Under the ECPG, a wind project would initially work with the Service to generate predictions of take, given the siting, design, and operational parameters of the project. These predictions are made under uncertainty, and the risk to eagles associated with this uncertainty is factored into the compensatory mitigation terms of the permit under BGEPA. After a site becomes operational, ongoing surveys of realized take can be compared to the predictions of take. At the review points of the permit (typically, every five years), the Service and the operator will review the observed take. If the observed take exceeds the predicted and permitted take, the Service will work with the operator to identify measures that could be taken to reduce the take below the permitted threshold (within the limits jointly agreed to at the outset of the permit period). The monitoring data may provide clues about how this could be done, for example, by identifying where and when most of the take is occurring. On the other hand, if the observed take is significantly less than the predicted take, the Service can work with the operator to update the predictions of take for the next review period, adjust the conditions for compensatory mitigation, and return credits to the operator for any excess compensatory mitigation.

In a related manner, for both new and existing facilities, ongoing monitoring can provide information to reduce uncertainty about the effectiveness of conservation measures and ACPs. In particular, experimental conservation measures and ACPs are actions taken by the operator that are thought to reduce mortality risk, but there is uncertainty about how effective some of these measures can be. In the end, the purpose of adaptive management of operations is to reduce mortality of eagles while also reducing the impact of conservation measures and ACPs on power generation at wind facilities.

b. Adaptive Management of Wind Project Siting and Design Recommendations

Through the ECPG and the permit review process, the Service makes recommendations to operators about how to site and design wind facilities to reduce eagle disturbance and mortality. These recommendations are based on the best available science, but acknowledge that our understanding of the interaction between eagles and wind facilities is incomplete. Adaptive management provides the opportunity to respond to increasing understanding about this interaction.

The particular focus of this layer of adaptive management is the predictions of take that are made by considering pre-construction surveys and risk factors (see APPENDIX D). The proposed models are initially quite coarse in their ability to make predictions, but the Service, in partnership with the U.S. Geological Survey (USGS), plans to refine these

models. The key uncertainties concern the risk factors that are important in predicting eagle take. For example, how important is the proximity to nesting sites, prey concentrations, or ridgelines in determining the risk posed by any wind turbine? Multiple models will be developed to express uncertainty in these risk factors, and the predictions from these multiple models will be compared to the patterns of observed take at existing facilities. Using multiple models to express uncertainty allows inclusion and evaluation of alternative models from different sources. The learning that emerges will be used to improve the predictions from the models, which in turn, will allow future recommendations about siting and design to be enhanced. In this case, the benefit of the monitoring at individual sites accrues to the wind industry as a whole.

c. Adaptive Management of Compensatory Mitigation

The determination of appropriate levels of compensatory mitigation, such as through a resource equivalency analysis (REA, see APPENDIX F), is based on two predictions: the level of take expected at a project; and the amount of mitigation required to offset that take. As noted above, site-level learning, through observation of realized take, can be used to update predictions of take, and compensatory mitigation can be adjusted accordingly. In addition, the accrued experience across sites, through monitoring of the effectiveness of compensatory mitigation projects and eagle population responses, can be used to update the methods and parameters in the REA methods used to determine the appropriate level of compensatory mitigation.

d. Adaptive Management of Population-Level Take Thresholds

Healthy, robust populations of animals can sustain some degree of incidental take, without long-term adverse impacts to the population or the ecosystem. The amount of take that is sustainable and that can be authorized is a function of both scientific factors (*e.g.*, the intrinsic growth rate and carrying capacity of the population) and policy interpretation (*e.g.*, the amount of potential growth that can be allocated to take, and the risk tolerance for excessive take) (Runge *et al.* 2009). The capacity to sustain incidental take arises from the resilience in populations due to the ability to compensate for that take by increasing survival or reproductive rates.

At the scale of regional populations (*e.g.*, bird conservation regions for golden eagles), the central question for eagles is not altogether different than it is for waterfowl: to what extent is mortality from energy development, or any other anthropogenic source, compensated by reductions in mortality from other sources, or by increases in productivity? These questions are best answered by building population models founded on competing hypotheses that incorporate estimates of mortality, productivity, and the variation around those vital rates. What is needed is a systematic effort to collect information on mortality, breeding, and population status to feed those models. Similar to waterfowl management, reducing uncertainty in population-level models for eagle management will require rolling up the results of local monitoring and research across the distribution of eagles. The results will allow the Service to make more informed management recommendations to reach the Service's population goal of stable or increasing breeding populations for both eagle species.

At present, the Service's regulations call for no increase in net take of golden eagles, under a protective concern that the current level of take exceeds a sustainable threshold. As our understanding of golden eagle population size and status increases, and our knowledge of vital rates and potential resilience improves, the Service and USGS will reanalyze the potential for instituting take thresholds for golden eagles. Take thresholds for bald eagles will also be re-assed no less frequently than every five years (USFWS 2009). If thresholds for either species are increased and additional take is authorized, continued population monitoring will be critical in providing feedback on population response (*i.e.*, step 4 to 8 in Fig. A-1).

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APPENDIX B: STAGE 1 – SITE ASSESSMENT

Occurrence of eagles and their use of landscapes vary across broad spatial scales. The first step in project development is to conduct a landscape-scale assessment, based mainly on publicly available information, to identify sites within a large geographic area that have both high potential for wind energy and low potential for negative impacts on eagles if a project is developed. Stage 1 corresponds to Tiers 1 and 2 of the WEG and, along with Stage 2 herein and Tier 3 in the WEG, comprise the pre-construction evaluation of wind energy projects. Depending on the outcome of Stage 1, developers decide whether to proceed to the next stage, "... requiring a greater investment in data collection to answer certain questions" (referring to Tier 3, in the WEG; see also Table B-1). The WEG should be examined for general considerations relevant to Stage 1; this appendix and the following APPENDIX C focus on considerations specific to eagles.

The Stage 1 assessment should evaluate wind energy potential within the ecological context of eagles, including considerations for the eagle's annual life-cycle, *i.e.*, breeding, dispersal, migration, and wintering. The goal at this stage is to determine whether prospective wind project sites are within areas known or likely to be used by eagles and, if so, begin to determine the relative spatiotemporal extent and type of eagle use of the sites. Areas used heavily by eagles are likely to fall into category 1; development in these areas should be avoided because the Service probably could not issue project developers or operators a programmatic permit for take that complies with all regulatory requirements. Stage 1 assessment is a relatively straightforward "desktop" process that probably should conduct before significant financial resources have been committed to developing a particular project.

Multiple data sources can be consulted when evaluating a prospective site's value to eagles. Wildlife biologists and other natural resource professionals from federal agencies including the Service, and tribal, state, and county agencies should be consulted early in the Stage 1 process to help ensure all relevant information is being considered. Information mainly encompasses physiographic and biological factors that could affect eagle risk associated with wind energy development. Questions generally focus on: (1) recent or historical nesting and seasonal occurrence data for eagles at the prospective area; (2) migration or other regular movement by eagles through the area or surrounding landscape; (3) seasonal concentration areas such as a communal roost site in a mature riparian woodland or a prairie dog (*Cynomys* spp.) town serving as a major forage base; and (4) physical features of the landscape, especially topography, that may attract or concentrate eagles. "Historical" is defined here as 5 or more years; a search for historical data should encompass at least the previous 5 years. Data from far longer time periods may be available but should be cautiously scrutinized for confounding factors such as land use change that diminish the data's relevance.

Preliminary site evaluation could begin with a review of publically available information, including resource databases such as NatureServe (http://www natureserve.org/) and the American Wind Wildlife Institute's Landscape Assessment Tool (LAT; http://www.awwi.org/initiatives/landscape.aspx); information from relevant tribal, state,

and federal agencies, including the Service; state natural heritage databases; state Wildlife Action Plans; raptor migration databases such as those available through Hawk Migration Association of North America (http://www.hmana.org) or HawkWatch International (http://www.hawkwatch.org); peer-reviewed literature and published technical reports; and geodatabases of land cover, land use, and topography (*e.g.*, the LAT integrates several key geodatabases). Additional information on a site's known or potential value to eagles can be garnered by directly contacting persons with eagle expertise from universities, conservation organizations, and professional or state ornithological or natural history societies. Some of this wide assortment of desktop information and certain knowledge gaps identified probably will necessitate validation through site-level reconnaissance, as suggested in the WEG.

Using these and other data sources, a series of questions should be considered to help place the prospective project site or alternate sites into an appropriate risk category. Relevant questions include (modified from the WEG):

1. Does existing or historical information indicate that eagles or eagle habitat (including breeding, migration, dispersal, and wintering habitats) may be present within the geographic region under development consideration?
2. Within a prospective project site, are there areas of habitat known to be or potentially valuable to eagles that would be destroyed or degraded due to the project?
3. Are there important eagle use areas or migration concentration sites documented or thought to occur in the project area?
4. Does existing or historical information indicate that habitat supporting abundant prey for eagles may be present within the geographic region under development consideration (acknowledging, wherever appropriate, that population levels of some prey species such as black-tailed jackrabbits (*Lepus californicus*) cycle dramatically [Gross *et al.* 1974] such that they are abundant and attract eagles only in certain years [*e.g.*, Craig *et al.* 1984])?
5. For a given prospective site, is there potential for significant adverse impacts to eagles based on answers to above questions and considering the design of the proposed project?

We recommend development of a map that, based on answers to the above questions, indicates areas that fall under site category 1, *i.e.*, areas where wind energy development would pose obvious, substantially high risks to eagle populations. Remaining areas could be tentatively categorized as either moderate to high but mitigable risk or minimal risk to eagle populations (category 2 or category 3). Prospective sites that fall into category 1 at this point are unlikely candidates for a programmatic permit for take of eagles, although classification of a site at Stage 1 might be regarded as tentative (see "Assessing Risk and Effects; 4. Site Categorization Based on Mortality Risk to Eagles" in the ECPG. If a site appears to be a category 1 site based on the outcome of Stage 1, the developer can decide whether information at that stage adequately supports a category decision or whether to invest in Stage 2 assessment to clarify preliminary indications of Stage 1 (Table B-1). Sites that tentatively fall into categories 2 or 3 at Stage 1 can move on to Stage 2

assessment, but could ultimately be excluded as permit candidates after more site-specific data are collected in Stage 2.

Again, the goal of Stage 1 site assessment in this ECPG is to determine whether prospective wind project sites are within areas known or likely to be used by eagles and, if so, begin to assess the spatiotemporal extent and type of eagle use the sites receive or are likely to receive. Thus, the ultimate goal of Stage 1 is to determine whether sites exhibit any obvious substantial risk for eagles. For those that do not, the Stage 1 site assessment will provide fundamental support for the design of detailed surveys in Stage 2, decisions which influence optimal allocation of the financial investment in surveys and quality of data collected. In some situations, the Stage 1 site assessment may provide enough information to adequately estimate impacts and support decisions on site categorization (and, where relevant, potential conservation measures and appropriate levels of compensatory mitigation), rendering Stage 2 assessment unnecessary (Table B-1).

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Table B-1. Framework for decisions on investment at Stage 2 level to address chief information needs. A bidirectional arrow represents a continuum of conditions.

	Strength of Stage 1 Information Base for Assessing Risk to Eagles		
Area of Information Need	**Robust:** well investigated and supported, at least semi-quantitative documentation from most recent 2-5 years, encompassing potential site(s) or adjoining areas from which reliable inferences can be made	↔	**Weak:** characterized by little supportive information and marginal certainty overall, at best only general descriptions, conjecture, or limited inferences from other areas or regions
Seasonal abundance		↔	
Nesting records		↔	
Migration corridors		↔	
Communal roosts		↔	
Prey availability or foraging hotspots		↔	
Outcome and implications for additional assessment needs at Stage 2 level:	Relevant areas of information need are well-addressed and risk level is clearly low – Stage 2 may not be warranted or else modest or limited-focus survey effort at Stage 2 level recommended Relevant areas of information need are well-addressed and risk level is moderate or high – strong effort at Stage 2 level advised	↔	Uncertain risk level – strong survey effort at Stage 2 level advised

APPENDIX C: STAGE 2 – SITE-SPECIFIC SURVEYS AND ASSESSMENT

1. Surveys of Eagle Use

Information collected in Stage 2 is used mainly to generate predictions of the mean annual number of eagle fatalities for a prospective wind energy project and to identify important eagle use areas or migration concentration sites that could be affected by the project. Information from Stage 2 is also used to assess the likelihood of disturbance take of eagles. An array of survey types could be used to quantify use by eagles of a proposed project area. This section focuses on four types of surveys recommended for assessing risk to eagles at proposed wind projects. The first three are surveys of eagle use within the proposed project footprint. These include: (1) point count surveys, which mainly generate occurrence data that form underpinnings of the risk assessment model recommended herein; (2) migration ("hawk watch") counts, documenting hourly passage rates of eagles; and (3) utilization distribution (UD) assessment, an accounting of the intensity of use of various parts of the home range within the project footprint; and (4) surveys of nesting territory occupancy in the project area. Where uncertainties exist regarding survey methods, our recommendations tend to be conservative such that biases in survey data, if any, are more likely to favor greater rather than lower estimates of use and ultimately more rather than less protection for eagles. This approach is consistent with the Service's policy of taking a risk-averse stance in the face of existing uncertainty with respect to eagle programmatic take permits.

In addition to fatality estimation and informing a site categorization decision, Stage 2 studies of eagles should help answer the following questions (modified from the WEG):

1. What is the distribution, relative abundance, behavior, and site use of eagles and to what extent do these factors expose eagles to risk from the proposed wind energy project?
2. What are the potential risks of adverse impacts of the proposed wind energy project to individual and local populations of eagles and their habitats?
3. How can developers avoid, minimize, and mitigate identified adverse impacts?
4. Are there studies that should be initiated at this stage that would be continued in post-construction?

a. Point Count Surveys

Point counts (*i.e.*, circular-plot surveys) often are used to assess relative abundance, population trends, and habitat preferences of birds (Johnson 1995). The Service advocates use of point count surveys as the means of providing primary input for models predicting fatality rate of eagles associated with wind turbines. However, we acknowledge the term point count survey does not accurately describe the approach we advocate for collecting data to support fatality rate estimation at wind energy projects. The Service's approach in this regard is point-based recording of activity duration (minutes of flight) within a three-dimensional plot. In contrast, point count surveys, as typically conducted, yield indices of relative abundance or frequency of occurrence (in addition to trend, density estimation, and habitat association, depending on how data are collected; Ralph *et al.* 1993). With that said, most records of eagle flight duration are likely to be classified as 1 minute, per the approach recommended in this section, and as

such resemble records of occurrence for data from point count surveys. Although a bit of a misnomer in this regard, "point count survey" is applied broadly herein to include both point-based records of flight time and traditional point count surveys because sampling frameworks for each so closely overlap and both data types can be gathered simultaneously, along with other information described in this appendix. There may be other means of generating count data to support the fatality model described in this document. Consideration of alternative approaches for predicting fatality at such projects may require greater time and additional reviews.

The general approach for conducting a fixed-radius point count survey is to travel to a pre-determined point on the landscape and record individual birds detected – whether observed, only heard, or both observed and heard – within a circular plot, the boundary of which is at a fixed distance from the point and is marked in the field in several places (Hutto *et al.* 1986, Ralph *et al.* 1993). In addition to plot radius, the survey is standardized by count duration. Sometimes a variable-radius plot method (Reynolds *et al.* 1980) is used, yielding species-by-species detectability coefficients to appropriately bound the plot radius (*i.e.*, sampling area) for each species. A variety of point count survey methods have been used specifically for raptors (reviewed in Anderson [2007]; the North American Breeding Bird Survey [Sauer *et al.* 2009] is a random-systematic, continent-wide point count survey of bird population trends, including those of many raptor species). However, a fixed-radius approach with circular plots of 800-m radius typically is used for surveying eagles and other large (greater than crow [*Corvus* spp.]-size) diurnal species of raptors at proposed wind energy projects in the United States (Strickland *et al.* 2011).

The optimal duration of point count survey for eagles is a focus of current research. For now, for point count surveys of eagles at proposed wind energy projects, the Service recommends counts of 1, 2, or more hours duration instead of 20- to 40-minute counts typically used (Strickland *et al.* 2011). Longer counts also facilitate integration of other survey types (e.g., development of utilization distribution profiles). Many raptor biologists have suggested that the likelihood of detecting an eagle during a 20- to 40-minute point count survey is extremely low in all but locales of greatest eagle activity and datasets generated by pre-construction point count surveys of this duration typically are replete with counts of zero eagles, resulting in unwieldy confidence intervals and much uncertainty. Moreover, time spent traveling to and accessing points for 20-minute surveys may exceed time spent conducting the observations. For example, 250 1-hour surveys conducted annually at a project of average size (*e.g.*, 15 sampling points, 1 to 3 km apart) and travel conditions require roughly the same total field time as needed for 500 20-minute surveys, yet yield 50% more observation hours (250 versus 167), with correspondingly greater probability of detecting eagles. Another advantage of longer counts is that they reduce biases created if some eagles avoid conspicuous observers as they approach their points and begin surveys, although some observers may become fatigued and overlook eagles during longer counts. A potential trade off of fewer visits, of course, is diminished accounting of temporal variation (*e.g.*, variable weather conditions or an abrupt migration event). While counting at fewer points for longer periods might also reduce the ability to sample more area, we advocate maintain the

minimum spatial coverage of at least 30% of the project footprint. Until there is more evidence that shorter count intervals are adequate to estimate eagle exposure, we believe that a sampling strategy including counts of longer duration, albeit fewer total counts, may in the end improve sampling efficiency and data quality.

A key assumption of fatality prediction models based on data from point count surveys is that occurrence of eagles at a proposed project footprint before construction bears a positive relationship with turbine-collision mortality after the project becomes operational (Strickland *et al.* 2011). Support for this assumption from published literature is limited for eagles and other diurnal raptors at this time, however. In a recent study of raptors at 20 projects in Europe, no overall relationship was evident between either of two pre-construction risk indices and post-construction mortality (Ferrer *et al.* 2011). However, the authors based risk indices only in part on data from pre-construction point counts; factors incorporated into risk indices included a somewhat subjective decision on species-specific sensitivity to collision and conservation status. Despite this, a weak relationship between pre-construction flight activity and post-construction mortality was suggested for the most common species, griffon vulture (*Gyps fulvus*) and kestrels (*Falco* spp.). Neither *Aquila* nor *Haliaeetus* eagles occurred in the study. On coastal Norway, however, a high density, local population of the white-tailed eagle, a species closely related and ecologically similar to the bald eagle, experienced substantial turbine-collision fatality and loss of nesting territories after development of a wind energy project (Nygård *et al.* 2010). The relationship between pre-construction occurrence and post-construction mortality might be less clear if eagles and other raptor species avoided areas after wind energy projects were constructed (*e.g.*, Garvin *et al.* 2011), but in general such displacement seems negligible (Madders and Whitfield 2006).

Precision, consistency, and utility of data derived from point count surveys depend greatly on the sampling framework and field approach for conducting the counts, which in turn depend somewhat on study objectives and the array of species under consideration. Precision and reliability of data from point count surveys for eagles can be much improved upon – and need for a risk-averse approach lessened – by incorporating some basic, common-sense sideboards into the survey design. One of these, longer count duration, is discussed above. Below are examples of ideal design features for point count surveys of eagle use of proposed wind energy projects, particularly when fatality rate prediction is a primary objective. Some of these extend from Strickland *et al.* (2011) and references therein, although the first is not in accord with corresponding guidance in that document.

- Surveys of eagles and other large birds are exclusive of those for small birds, to avoid overlooking large birds while searching at a much smaller scale for a much different suite of birds. The relatively brief (*e.g.*, 10-minute) point counts for small birds could be conducted during the same visit, but before or after the count of large birds.

- In open areas where observers may be conspicuous, counts are conducted from a portable blind or from a blind incorporated into a vehicle to reduce the possibility

that some individual eagles avoid observers, ,thus reducing likelihood of detection. Blinds are designed to mask conspicuous observer movement while not impeding views of surroundings.

- Point locations may be shifted slightly to capitalize on whatever vantage points may be available to enhance the observer's view of surroundings.

- Elevated platforms (*e.g.*, blinds on scaffolding or high in trees, truck-mounted lifts) are used to facilitate observation in vistas obstructed by tall vegetation, topographic features, or anthropogenic structures.

- The observer's visual field at a point count plot, if less than 800 m (*e.g.*, due to obstruction by forest cover), is mapped. The percentage of the plot area that is visible is factored into the calculation of area surveyed.

- Observers use the most efficient, logical route to move among points, changing the starting point with the beginning of each survey cycle such that each point is surveyed during a range of daylight hours.

- Systematic scans of the point count plot using binoculars alternating with scans via the unaided eye to detect close and distant eagles, and with overhead checks for eagles that may have been overlooked during peripheral scanning (Bildstein *et al.* 2007).

- Observers are trained and their skills are tested, including accurate identification and distance estimation (both horizontal and vertical; *e.g.*, eagles greater than 600 m horizontal distance may not be detected by some observers and correction for differences among individual observers may be warranted).

- The boundary of each point count plot is identified via distinct natural or anthropogenic features or marked conspicuously (*e.g.*, flagging on poles) at several points for distance reference. Distance intervals within the plot also are marked if observations are to be categorized accordingly; rangefinder instruments are useful in this regard.

- Surveys are distributed across daylight hours (*e.g.*, morning – sunrise to 1100 hours; midday – 1101-1600; evening 1601 to sunset). In areas or during seasons where eagle flight is more likely during midday than in early morning or evening (*e.g.*, migration [Heintzelman 1986]), sampling efficiency could be increased by temporally stratifying surveys to more intensively cover the midday period.

- A map (*e.g.*, 1:24,000 scale topographic quadrangle) or aerial photographs indicating topographic and other reference features plus locations of point count plots is used as the primary recording instrument in the field. A GPS with GIS interface may serve in this regard.

- Time and position of each individual eagle is recorded on the map, *e.g.*, at the beginning of each minute of observation, if not more frequently.

The following examples of suggested sideboards pertain especially to point count surveys supplying data for the fatality prediction method recommended in this document:

- Following a point count survey, the duration of observation of each eagle flying within the plot is summarized in number of minutes, rounded to the next highest integer (*e.g.*, an eagle observed flying within the plot for about 15 seconds is 1 eagle-minute, another observed within for about 1 minute 10 seconds is 2 eagle-minutes, and so on; most observations likely will equal 1 eagle-minute).

- Eagles are mapped when perched or when otherwise not flying, but the summary of eagle-minutes for a count excludes these observations and includes only eagles in flight.

- Horizontal distance of each eagle-minute is estimated and recorded as ≤ 800 m or > 800 m. Vertical distance of each eagle-minute is estimated and recorded as ≤ 200 m (at or below conservative approximation of maximum height of blade tip of tallest turbine) or > 200 m. Thus, the point count "plot" is a 200-m high cylinder with a radius of 800 m.

- Surveys are done under all weather conditions except that surveys are not conducted when visibility is less than 800 m horizontally and 200 m vertically.

- Data from point count surveys are archived in their rawest form to be available when fatality is estimated as detailed in this document (APPENDIX D).

Other information recorded during point counts may prove useful in project assessment and planning, or in additional data analyses (some requiring data pooled from many projects), *e.g.*:

- Flight paths of eagles, including those outside the plot, are recorded on reference maps, using topographic features or markers placed in the field as location references. Eagle flight paths are recorded also before and after point count surveys and incidental to other field work. Flight paths are summarized on a final map, with those recorded during point count surveys distinguished from others to roughly account for spatial coverage bias. Documentation of flight paths can aid planning to avoid areas of high use (Strickland *et al.* 2011).

- Behavior and activity prevalent during each 1-minute interval is recorded as (*e.g.*) soaring flight (circling broadly with wings outstretched); unidirectional flapping-gliding; kiting-hovering; stooping or diving at prey; stooping or diving in an agonistic context with other eagles or other bird species; undulating/territorial flight; perched; or other (specified).

- Age class of individual eagles is recorded, *e.g.*, juvenile (first year), immature or subadult (second to fourth year), adult (fifth year or greater), or unknown.

- Weather data are recorded, including wind direction and speed, extent of cloud cover, precipitation (if any), and temperature (Strickland *et al.* 2011).

- Distance measures are used to estimate detectability for improving estimates from counts (Buckland *et al.* 2001) and could be used to assess whether eagles avoid observers. Horizontal distance of each eagle-minute is estimated and categorized, *e.g.*, in 100-m intervals to > 800 m.

The key consideration for planning point count surveys at proposed wind energy projects is sampling effort. We advise that project developers or operators coordinate closely with the Service regarding the appropriate seasonal sampling effort, as sampling considerations are complex and depend in part on case-specific objectives. We also reiterate that these (and most other) surveys should be conducted for at least 2 years before project construction and, in most cases, across all seasons. In general, sampling effort should be commensurate with the relative level of risk at a proposed project footprint if this can be surmised reliably from the Stage 1 assessment. If Stage 1 information cannot support reasonably certain risk categorization, Stage 2 surveys should be conducted as described here to clearly ascertain whether eagles are known or likely to use the area. If a project is determined to be category 2, products of point count surveys should include data for the fatality model detailed in this document (APPENDIX D). If there is compelling Stage 1 evidence indicating no use in a given season, zero use could be assumed and point count surveys in that season might be unnecessary.

In general, goals for the Stage 2 surveys are either to: (1) confirm category-3 status for a project, or (2) to generate a fatality rate estimate. Regardless of which of these survey goals apply to a particular project, we recommend first identifying potential sites for wind turbines, including alternate sites, then calculating the total area (km^2) encompassing a 1-km buffer around all the sites. We suggest 1 km because this approximates optimal spacing of a generic 2.5-MW turbine (Denholm *et al.* 2009), and the area outside this may not be representative of topographic features and vegetation types that characterize turbine strings within the project footprint. This approach assures close association between sampling sites and likely turbine locations, as recommended by Strickland *et al.* (2011). Next, we recommend that at least 30% of the area within 1 km of turbines be considered as the total km^2 area to be covered by 800-m radius point count plots (with a sample area for each plot of 2 km^2). Our recommended 30% minimum is based on the actual minimum coverage at eight wind facilities under review by the Service at the time version 2 of the ECPG was being developed.

The first case (i.e., (1) above) is the use of point count data to validate whether a proposed project meets category 3 criteria when Stage 1 information is inadequate. Based on experience with current parameters of the "prior term" in our predictive model (see APPENDIX D), we calculate an average of 20 hours per turbine as an optimal level of annual sampling via point count survey (e.g., equivalent of ten 4-hour point count

surveys at each of 20 sample points for a 40-turbine project; our 20-hour recommendation considers the hazardous area created by a generic 2.5-MW turbine with a rotor diameter of about100 m; sample effort for turbines with smaller rotor diameters would be less). As sampling effort falls from this level, uncertainty regarding fatality risk rises sharply, calling for an increasingly risk averse basis for risk categorization. Although 20 sample hours per turbine may be necessary initially for validating category 3 determination where little Stage 1 information exists, we expect this will decrease as more projects are incorporated into the adaptive management meta-analyses that will refine the prior term.

The second case (i.e., (2) above) is where Stage 1 evidence is strong enough to support the decision that a project is category 2 (or category 3 with potential for re-evaluation as category 2). Fatality rate estimation becomes the main objective of point count surveys and demands for sampling effort can be reduced. We recommend a minimum of 1 hour of observation per point count plot per month but at least 2 hours of observation per point count is warranted for a season for which Stage 1 evidence is ambiguous or suggests high use.

These ideas on minimum observation hours stem from the Service's initial experience in fatality estimation (see APPENDIX D: Stage 3 – Predicting Eagle Fatalities). However, as noted above, with more field applications of our fatality prediction model we should be able to refine our ability to characterize uncertainty based in part on site-specific characteristics, something the Service's current model does not do. Again, to develop a reasonable, informed sampling approach, we urge project developers to engage early with the Service in discussions about sampling design and strategies.

The example below includes determination of the number of point count plots for a project.

Example

The site for a 100-MW, 40-turbine project proposed in open foothills of central New Mexico encompasses 40 km^2 (16 mi^2). During the Stage 1 assessment, data from a hawk watch organization indicates the area is 25 miles east of a north-south mountain ridge that sustains a moderate level of migration by golden eagles each fall but receives little use in spring. According to the state ornithological society, the region also is thought to attract golden eagles during winter, but this is based on sparse anecdotal accounts. Aerial nesting surveys by the Service 5 years ago yielded no evidence of eagle nests within 10 miles of the proposed project, although use of the area by non-breeding resident eagles during spring and summer cannot be ruled out. Reconnaissance visits and review of land cover and other habitat layers in geodatabases support the general indication that the area is important to golden eagles during at least part of the year.

Stage 1 Summary: Of primary concern at the prospective project site is potential for risk to golden eagles during fall migration. Evidence of this at the Stage 1 level is somewhat equivocal, however, because the known migration pathway is outside the

project area. Further examination of use in spring, summer, and especially winter also seems warranted. Questions include temporal (seasonal) and spatial (distribution within project) use. The overarching goal is to quantify risk to eagles posed by the proposed project, mainly by estimating fatality rate. If fatality is anticipated, a secondary goal is to determine whether the predicted level is acceptable and, if not, whether fatality can be avoided and minimized through specified project design and operation features.

The primary tool for predicting fatality is the point count survey. However, if the pre-construction assessment is robust and optimally designed, point count surveys will provide insight on distribution of use within the project footprint especially near proposed turbine sites, and on migration timing and movement pathways.

Sampling effort

A. Number of points, *i.e.*, point count plots, and spatial allocation:
   1. 40 turbines are proposed for project
   2. potential sites for turbines have been selected
   3. area within 1 km of turbines covers total of 100 km^2
   4. 30% of total area = 30 km^2
   5. number of 800-m radius (area of each, 2-km^2) point count plots recommended = 30/2 = 15 plots
   6. survey points are distributed among turbine strings via random-systematic allocation, with each point no more than 1 km from a prospective turbine site

B. Number of counts per point per season and duration of each point count survey:
   1. Based on some Stage 1 evidence of low use in this example, 1 hour of observation per point count plot per month seems appropriate during each of winter (*e.g.*, mid-December through mid-March), spring (mid-March through mid-June), and summer (mid-June through mid-September) seasons. A count duration of 1 hour is selected to maximize efficiency in the field
   2. Survey effort is doubled during the mid-September through mid-December fall migration season for golden eagles, based on Stage 1 evidence of fall migration nearby and need for more definitive data on eagle occurrence, timing, and distribution within the footprint. This could be done by using either two 1-hour counts or a 2-hour count per point per month; the latter is chosen to maximize field efficiency and better emulate migration count methods. The 1-hour counts may lend better insight on temporal variation, but in this example each monthly session of 15 2-hour counts requires an observer 3-4 days to complete, affording some accounting of day-to-day variation.
   3. The total yearly effort in this example is nine 1-hour counts and three 2-hour counts at each of 15 points, yielding 225 total observation hours.

The raw data, in number of eagle-minutes, appear as follows (*e.g.*, for the first fall season sampled, with one 2-hour count per point per month):

Point no.	Point count visit number – Fall Season, Year 1		
	1 (early fall)	2 (mid-fall)	3 (late fall)
1	0	0	0
2	0	0	0
3	0	0	0
4	0	0	0
5	0	0	0
6	0	0	0
7	1	1	0
8	0	0	0
9	0	0	0
10	0	2	1
11	0	0	0
12	0	2	0
13	0	0	0
14	0	1	0
15	0	0	0

The first year's fall point count survey totals 90 observation hours, the equivalent of nine 10-hour migration counts. Thus, the fall point count surveys could yield much insight on eagle migration – perhaps even substituting for focused migration counts – especially if the sample is stratified so point count surveys mainly cover the midday period when eagles are most likely to be moving. (see b. Migration Counts and Concentration Surveys, below). Observations made during point count surveys in all seasons also could support a map of flight paths to roughly indicate the distribution of use of the area by eagles relative to turbine sites (see c. Utilization Distribution (UD) Assessment, below).

Fatality estimation should be adequately supported by the data, although multiple survey years are likely needed to account for annual variation. Data for fatality estimation should be made available to the Service in the rawest form, as in the above example.

b. Migration Counts and Concentration Surveys

Wherever potential for eagle migration exists, migration counts should be conducted unless the Stage 1 assessment presents compelling evidence that the project area does not include or is not part of a migration corridor or a migration stopover site. Migration counts convey relative numbers of diurnal raptors passing over an established point per unit time (Bildstein *et al.* 2007, Dunn *et al.* 2008), usually a migration concentration site. Examples of sites include north-south oriented ridges, cliff lines, or deeply incised river valleys; terminal points or coast lines of large water bodies; or peninsulas extending into large water bodies (Kerlinger 1989, Bildstein 2006, Mojica *et al.* 2008). Migration

counts could be considered a specialized type of point count, one for which the plot radius is unlimited (Reynolds *et al.* 1980) and the count period is quite long, from 6 hours to a full day.

In contrast to the allocation of sample points for point count surveys at proposed wind energy projects, migration counts typically are conducted from one to a few points within or adjacent to a proposed project footprint. Points are widely spaced, located primarily at places that collectively provide greatest visual coverage especially of topographic features likely to attract or funnel migrating raptors. At many proposed projects, however, survey points for migration counts could be the same as or a subset of those used for point count surveys, *e.g.*, per the above example (under 1a. Point Count Surveys), such that migration counts at a given point simultaneously contribute point count data. Consideration should be given to restructuring point count surveys to this end, including temporal stratification to more effectively account for potential eagle migration and improve precision of exposure estimates. As another example, during an anticipated 6-week peak of eagle migration in fall, point count duration could be extended to 6 hours. If the surveys were to cover either the first 6 hours or the last 6 hours of the day, the two survey periods would overlap by several hours in midday, better covering the time of day when eagles are most likely moving (Heintzelman 1986). The data may have to be adjusted slightly when used for fatality estimation, however.

Strickland *et al.* (2011) summarize some important details for conducting raptor migration counts at proposed wind energy sites. Counts should be conducted using standard techniques (Bildstein *et al.* 2007, Dunn *et al.* 2008) during at least peak periods of passage (see the Hawk Migration Association of North America's [HMANA] website for information on seasonal passage periods for eagles at various migration survey sites: http://www.hmana.org). Migration counts may involve staffing survey points up to 75% of days during peak passage (Dunn *et al.* 2008). If at least a modest eagle migration is evidenced (*i.e.*, multiple individuals observed passing unidirectionally during each of multiple days), surveys should be continued for at least 2 years and into the operational phase to validate initial observations and help assess evidence of collision and influence of turbines on migration behavior. Migration count data should be provided to the Service as an appendix to the ECP, using a reporting format similar to that used by HMANA. As with point count surveys, training of migration survey staff should include assessment of raptor identification skills and of ability of individuals to detect eagles in flight under a broad range of distances and weather conditions.

Potential for non-breeding (either winter or summer) season concentrations of eagles in or near the project footprint should begin to be evaluated in Stage 1, including close scrutiny of potential habitat via geospatial imagery and follow up reconnaissance visits (see APPENDIX B). Non-breeding bald eagles often use communal roosts and forage communally (Platt 1976, Mojica *et al.* 2008). Golden eagles may do so on occasion, with other golden eagles and/or with bald eagles (Craig and Craig 1984). Both species can become concentrated on spring and fall migration under particular combinations of weather and topographic conditions, or may annually use traditional stopover sites during migration. The Stage 1 assessment may suggests that seasonal concentrations of eagles

regularly occur within the project area, either because of favorable conditions (*e.g.*, clusters of large trees along rivers offering potential roost sites, stopover concentrations of migrating waterfowl) or because of indications from prior anecdotal or systematically collected records. The Stage 2 assessment should include surveys designed to further explore evidence of any such occurrences. If, based on the outcome of Stage 1, there is no compelling reason to believe concentration areas are lacking, an efficient way to begin to probe for concentration areas is simply to extend the duration of point count surveys and perhaps conduct them more frequently. Expanded point count surveys, distributed evenly across the day during the first year of Stage 2, should provide at least a preliminary indication of regular movements to and from what may be roosts or prey hotspots within or outside the project footprint. Moreover, expanded point count surveys conducted near potential turbine sites (see design recommendations in a. Point Count Surveys, above) can better inform turbine siting decisions in relation to eagle use of concentration areas, if such areas exist. The increased survey effort also could contribute towards a more precise indication of eagle exposure in a fatality estimate for the proposed project (APPENDIX D).

Early in Stage 2, evidence from Stage 1 of concentration areas in the project area may be corroborated or new evidence of concentrations may surface. In either case, focused surveys (*e.g.*, via direct observation or by aircraft) can be implemented to document their locations and daily timing and spatial patterns of their use by eagles in relation to the proposed project footprint throughout the season(s). For example, surveys for wintering concentrations of bald eagles could be conducted, following USFWS (1983) guidance. Direct, systematic observation from vantage points in early morning and evening is the most practical means of documenting roost locations and movements of eagles to and from roosts on a local scale (Steenhof *et al.* 1980, Crenshaw and McClelland 1989). Aerial surveys may be needed for repeated surveys of eagles at extensive roosts (Chandler *et al.* 1995). Direct observation can be used to compare occurrence and activity of eagles before and after construction and operation of a project (Becker 2002) and may be a valid means to identify disturbance effects on roosting concentrations.

c. Utilization Distribution (UD) Assessment

UD can be thought of as animal's spatial distribution or intensity of use of various parts of a given area, such as its home range. A basic though perhaps labor-intensive approach for documenting spatial distribution of use across all or part of a proposed project footprint by eagles is to systematically observe and record eagle movements and activities (*e.g.*, territorial display, prey delivery flight) on maps in the field then convert the data into GIS formats for standard analyses (*e.g.*, Walker *et al.* 2005). For example, a grid of square cells, each 0.5 x 0.5 km, can be framed by the Universal Transverse Mercator (UTM) system across a map of the area of interest to record eagle observations in each 0.25 km^2 cell. The area of interest is divided into non-overlapping observation sectors, each with a vantage point that affords unobstructed viewing of grid cells to more than 1 km in all directions. Observation periods last at least 4 hours and include all daylight hours and account for roost sites. If necessary, two (or more) observers working from separate vantage points can pinpoint locations of eagles through triangulation.

The data can be analyzed by simply counting the number of flights intersecting each cell. An eagle's distribution of use can then be estimated by using standard kernel analyses (Worton 1989, 1995, Seaman and Powell 1996, Kenward 2001) or other probabilistic approaches, comparable to Moorcroft *et al.* (1999), McGrady *et al.* (2002), and McLeod *et al.* (2002). Having concern over potential autocorrelation, Walker *et al.* (2005) randomly selected independent locations of golden eagles along flight paths to establish a point database for standard UD analyses. They determined that locations would be independent if separated by at least 45 minutes. McGrady *et al.* (2002) conservatively used a 1-hour minimum to separate points, even though their data indicated a 20-minute interval would suffice. Concerns with autocorrelation in UD analyses have recently diminished, however (Feiberg *et al.* 2010). Most study of eagle UD has focused on resident birds especially breeding adults on their nesting territories. Size and shape of use areas can vary seasonally (Newton 1979), so documentation of spatial use by resident eagles should encompass all seasons in addition to accounting for annual variation.

A substantial advantage of a direct observation approach compared to telemetry techniques, which typically target only one or two resident eagles at a proposed project, is that it disregards age and breeding and residency status. Included are overwintering individuals; dispersing juveniles; post-fledging young from nearby territories and juveniles dispersing from other areas or regions; and adults from adjoining territories plus non-breeding adults (*i.e.*, "floaters," Hunt 1998) and subadults that may occur along boundaries of breeding territories. In many instances, identification of individual eagles may not be important and final results of a generalized UD analysis may be based on data pooled from multiple birds, some of which were indistinguishable from each other in the field. A disadvantage of this approach is that position accuracy based on direct observation across expansive landscapes is coarse compared to using telemetry with GPS capability, and generally declines with distance, increasing topographic and forest cover, and during early morning and late evening hours. This can be resolved to some extent by limiting the size and increasing the number of observation sectors (in addition to using multiple observers), but for most pre-construction information needs, a high degree of accuracy is unessential for UD data. Last, it is unlikely that UD needs to be assessed across entire project footprints. Instead, it is more likely used to target specific areas of concern, such as areas where eagles nest or frequently forage, and to refine knowledge of use of particular areas to better inform turbine siting decisions. The method obviously has little utility in areas of low eagle occurrence.

Although we acknowledge telemetry offers some distinct benefits for assessing risks and impacts of wind projects, use of the method for eagles has other drawbacks. Specific individual eagles must be targeted for capture and not all eagles using a given project footprint are equally likely to be captured or provide useful data (*e.g.*, migrants may be readily captured but leave the area before providing much data). More importantly, capturing and radio-marking eagles can have negative effects on behavior, productivity, and re-use of nest sites (*e.g.*, Marzluff *et al.* 1997, Gregory *et al.* 2002), and recent information suggests a negative effect in some cases on survival, especially of golden eagles captured as adults and released with large (70- to 100-g), solar-charged transmitters (USFWS, unpublished information). These effects must be better understood

before routine use of telemetry techniques can be recommended as components of wind-facility assessments. Until then, the Service discourages the use of telemetry in assessments of eagle use associated with wind energy projects; survey approaches suggested herein do not require telemetry.

d. Summary

The Service encourages development of cost-effective sampling designs that simultaneously address multiple aspects of use of proposed wind energy projects by eagles, though emphasizes that high-quality point count data to support fatality rate estimation should be considered the highest priority. In many cases, the sampling framework for point count surveys likely can be extended to reasonably assess migration incidence, UD, and other objectives. Although field-based data that directly support fatality estimation are most important, development of methods for addressing other objectives is encouraged, such as the use of digital trail cameras to document eagle occurrence at carcass stations. Regardless, we recommend that pre-construction surveys at proposed wind energy sites encompass a minimum of 2 years, including at least 1 year characterized by robust sampling that integrates multiple survey types.

2. Survey of the Project-area Nesting Population: Number and Locations of Occupied Nests of Eagles

To evaluate project siting options and help assess potential effects of wind energy projects on breeding eagles, we recommend determining locations of occupied nests of eagles within the project area for no less than two breeding seasons prior to construction. The primary objective of a survey of the project-area nesting population is to determine the number and locations of occupied nests and the approximate centers of occupied nesting territories of eagles within the project area. If recent (*i.e.*, within the past 5 years) data are available on spacing of occupied eagle nests for the project-area nesting population, the data can be used to delineate an appropriate boundary for the project area as described in APPENDIX H. Otherwise, we suggest that project area be defined as the project footprint and all area within 10 miles.

In this ECPG document we use raptor breeding terminology originally proposed by Postupalsky (1974) and largely followed today (Steenhof and Newton 2007). An occupied nest is a nest structure at which any of the following is observed: (1) an adult eagle in an incubating position, (2) eggs, (3) nestlings or fledglings, (4) occurrence of a pair of adult eagles (or, sometimes subadults, *e.g.*, Steenhof *et al.* [1983]) at or near a nest through at least the time incubation normally occurs, (5) a newly constructed or refurbished stick nest in the area where territorial behavior of a raptor had been observed early in the breeding season, or (6) "A recently repaired nest with fresh sticks (clean breaks) or fresh boughs on top, and/or droppings and/or molted feathers on its rim or underneath" (Postupalsky 1974).

A nest that is not occupied is termed unoccupied. An occupied nesting territory includes one occupied nest and may include alternate nests, *i.e.*, any of several other nest structures within the nesting territory. Sometimes "active nest" is used to encompass occupied nests in which eggs were laid plus those at which no eggs were laid. Here, as

elsewhere in the ECPG and in Postupalsky (1974), an active nest is considered one in which an egg or eggs have been laid. A nest that is active is also, by default, occupied. A nest that is not active is inactive, and there is a regulatory definition for the term inactive nest (50 CFR 22.3. Not all pairs of bald eagles and golden eagles attempt to nest or nest successfully every year (Buehler 2000, Kochert *et al.* 2002), and nesting territories where pairs are present but do not attempt to nest could in some cases be misclassified as unoccupied. Accurate comprehension of territory distribution and determination of occupancy status is the crux of determining the project-area nesting population.

The project-area nesting population survey should include all potential eagle nesting habitat within the project area. At least two checks via aircraft or two ground-based observations are recommended to designate a nest or territory as unoccupied, as long as all potential nest sites and alternate nests are visible and monitored (*i.e.*, alternate nests may be widely separated such that a full-length, ground-based observation should be devoted to each). Ground-based observations should be conducted for at least 4 hours each (occupancy may be verified in less time), aided by spotting scopes, from at least 0.8 km from the nest(s), during weather conducive to eagle activity and good visibility. Surveys of occupancy should be conducted at least 30 days apart, ideally during the normal courtship and mid-incubation periods, respectively. Surveys later in the breeding season are likely to overlook some territorial pairs that that did not lay eggs or failed early in the nesting season. Timing of surveys should be based on local nesting chronologies; Service staff can provide recommendations. If an occupied nest or a pair of eagles is located, the territory should continue to be searched for alternate nest sites. This information can help determine the relative value of individual nests to a territory if ever there are applications for permits to take inactive nests, and when determining whether abandonment of a particular nest may result in loss of a territory.

Use of aerial surveys followed by ground-based surveys at targeted sites can be an ideal approach to determine nest and territory occupancy. Helicopters are an accepted and efficient means for inventory of extensive areas of potential nesting habitat for eagles, although fixed-wing aircraft can be used where potential nest sites are widely scattered and conspicuous. Aerial surveys for eagle nests in woodland habitat may require two to three times as much time as aerial surveys for nests on cliffs. When surveying rugged terrain by helicopter, cliffs should be approached from the front, rather than flying over from behind or suddenly appearing from around corners or buttresses. Inventories by helicopter should be flown at slow speeds, about 30 to 40 knots. All potentially suitable nest sites should be scrutinized; multiple passes at several elevation bands may be necessary to provide complete coverage of nest site habitat on large cliff complexes. Hovering for up to 15 seconds no closer than 50 m from a nest may be necessary to verify the nesting species, photograph the nest site, and, if late in the nesting season, allow the observer to count and estimate age of young in the nest. Aerial surveys may not be appropriate in some areas such as bighorn sheep lambing areas; to avoid such sensitive areas, state resource agencies should be consulted when planning surveys. Additional guidelines for aerial surveys for eagles and other raptors are reviewed in Anderson (2007).

Surveys should be conducted only by biologists with extensive experience in surveys of raptors and appropriate training in aerial surveys (see review in Anderson 2007). Whether inventories are conducted on the ground or aerially, metrics of primary interest to the Service for the project-area nesting population include:

1. number and locations of nest structures that are verified or likely to be eagle nests
2. number and locations of eagle nests currently or recently occupied based on criteria outlined herein
3. estimated number and approximate boundaries and centers of eagle breeding territories, based on records of nest site occupancy and clustering of nests.

Additionally, productivity (*i.e.*, reproductive success, defined here as the mean number of nestlings surviving to $\geq$ 56 and $\geq$ 67 days of age per occupied nest for golden eagles and bald eagles, respectively) may be of interest for assessing disturbance effects, although utility of productivity data at a given project likely will be limited due to small sample size and factors confounding the interpretation of results. A meta-analysis approach based on productivity data from many projects is contemplated as part of the adaptive management process accompanying the ECPG, and may contribute to understanding of disturbance effects on this aspect of eagle breeding biology. Moreover, abandonment of territories – the gravest manifestation and clearest evidence of disturbance effects – could be documented through the occupancy surveys recommended herein, if these surveys are repeated after project construction. We reiterate that accurate comprehension of territory distribution and determination of occupancy status should be the primary goal of nesting surveys.

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APPENDIX D: STAGE 3 – PREDICTING EAGLE FATALITIES

The Service uses a Bayesian method (see Gelman *et al.* 2003) to predict the annual fatality rate for a wind-energy facility, using explicit models to define the relationship between eagle exposure (resulting from the Stage 2 assessment, APPENDIX C), collision probability, and fatalities (verified during post-construction monitoring in Stage 5, APPENDIX H), and to account for uncertainty. The relationships between eagle abundance, fatalities, and their interactions with factors influencing collision probability are still poorly understood and appear to vary widely depending on multiple site-specific factors. The baseline model presented below is a foundation for modeling fatality predictions from eagle exposure to wind turbine hazards. In addition to generating the fatality estimate that will be a component of the Service's analysis of the permit application, the model also serves as a basis for learning and the exploration of other candidate models that attempt to better incorporate specific factors and complexity. The Service encourages project developers or operators to develop additional candidate models (both *a priori* and *post hoc*) for direct comparison with, and evaluation of, the baseline model and modeling approach. Our ability to learn over time and reduce uncertainty by incorporating new information into our modeling approach through an adaptive management framework (see APPENDIX A) enables us to improve site-specific estimation of eagle fatalities, reduce uncertainty in predictions, and, ultimately, improve management decisions relating to eagles and wind energy in a responsible and informed way. Rigorous post-construction monitoring is a critical component of evaluating model performance over time (see APPENDIX H).

Variables used in the formulas below are summarized in Table D-1 for ease of reference. The total annual eagle fatalities (F) as the result of collisions with wind turbines can be represented as the product of the rate of eagle exposure (λ) to turbine hazards, the probability that eagle exposure will result in a collision with a turbine (C), and an expansion factor (ε) that scales the resulting fatality rate to the parameter of interest, the annual predicted fatalities for the project:

$$F = \varepsilon \lambda C.$$

Using the Bayesian estimation framework, we define prior distributions for exposure rate and collision probability; the expansion factor is a constant and therefore does not require a prior distribution. Next, we calculate the exposure posterior distribution from its prior distribution and observed data. The expanded product of the posterior exposure distribution and collision probability prior yields the predicted annual fatalities.

Table D-1. Abbreviations and descriptions of variables used in the basic Service approach for predicting annual eagle fatalities from turbine collisions at a wind facility.

Abbreviation	Variable	Description
F	Annual fatalities	Annual eagle fatalities from turbine collisions
λ	Exposure rate	Eagle-minutes flying within the project footprint (in proximity to turbine hazards) per hr per km^2
C	Collision probability	The probability of an eagle colliding with a turbine given exposure
ε	Expansion factor	Product of daylight hours and total hazardous area ($hr \cdot km^2$)
k	Eagle-minutes	Number of minutes that eagles were observed flying during survey counts
δ	Turbine hazardous area	Rotor-swept area around a turbine or proposed turbine (km^2)
n	Trials	Number of trials for which events could have been observed (the number of $hr \cdot km^2$ observed)
τ	Daylight hours	Total daylight hours (*e.g.* 4383 hr per year)
n_{tur}	Number of turbines	Number of turbines (or proposed turbines) for the project

1. Exposure

The exposure rate λ is the expected number of exposure events (eagle-minutes) per daylight hour per square kilometer ($hr \cdot km^2$). We defined the prior distribution for exposure rate based on information from a range of projects under Service review and others described with sufficient detail in Whitfield (2009). The exposure prior predicts an exposure rate from a mixture distribution of project-specific Gamma distributions (Figure D-1). We used the Gamma distribution because all values are positive and real (see Gelman et al., 1995, p. 474–475). The mixture distribution is summarized by a new Gamma distribution (our prior distribution for exposure) with a mean (0.352) and standard deviation (0.357) derived from the conditional distributions (Gelman et al, 1995, equation 1.7 p. 20). The resulting prior distribution for exposure rate is:

$Prior\ \lambda \sim Gamma(\propto, \beta)$, with shape and rate parameters of α = 0.97 and β = 2.76.

Simulation trials produced consistent results. The prior distribution is meant to include the range of possible exposure rates for any project that may be considered.

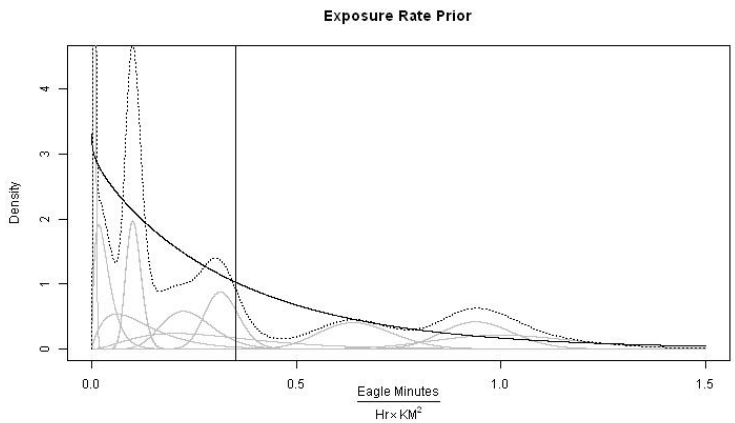

Figure D-1. The prior probability distribution Gamma(0.97, 2.76), for exposure rate, λ, with a mean of 0.352 (indicated by the reference line) and standard deviation of 0.357. The distribution is positively skewed such that exposure is generally at or near 0 with fewer higher values shown by the black curve. The project-specific distributions (gray curves) were used to determine the mixture distribution (dashed curve) which determined the prior distribution parameters.

Eagle exposure data collected during the pre-construction phase surveys (see APPENDIX C) can be used to update this prior and determine the posterior distribution that will be used to estimate the predicted fatalities. The Service may also be able to work with a project developer or operator on a case-by-case basis to use the prior λ distribution to generate a risk-averse fatality prediction for projects where no pre-construction survey data are available. Assuming the observed exposure minutes follow a Poisson distribution with rate λ, the resulting posterior λ distribution is:

$$Posterior\ \lambda \sim Gamma(\propto + \sum_{i=1}^{n} k_i\,, \beta + n).$$

The new posterior λ parameters are the sum of α from the prior and the events observed (eagle minutes, k_i), and the sum of β from the prior and the number of trials, n, for which events could have been observed (the number of "trials" is the number of $km^2 \cdot hr$ that were observed). Note that by including realistic time and area data from the pre-construction surveys, the relative influence of the prior λ distribution on the resulting posterior λ distribution for exposure rate becomes negligible. In other words, with adequate sampling, the data will determine the posterior distribution, not the prior. The posterior λ distribution can then be used to estimate the annual fatality distribution.

In addition, this posterior λ distribution can now serve as a prior distribution for the next iteration of the predictive model in an adaptive framework (see APPENDIX A), at least

for the project under consideration and potentially in a more general way as the posteriors from multiple sites are considered; in this way, we continually build new information directly into the predictive process.

2. Collision probability

Collision probability *C* is the probability, given exposure (1 minute of flight in the hazardous area), of an eagle colliding with a turbine; for the purposes of the model, all collisions are considered fatal. We based the prior distribution on a Whitfield (2009) study of avoidance rates from four independent sites. A weighted mean and range of avoidance from those sites yielded a mean and standard deviation for collision probability of 0.0067, 0.0061, respectively (note this is consistent with eagle avoidance rates in other risk assessment approaches, e.g. 99%). This in turn defined the prior *C* distribution as:

$Prior\ C \sim Beta(\nu, \nu')$, with parameters ν and ν′ of 1.2 and 176.7 (Figure D-2).

The Beta distribution is used to describe values between 0 and 1 (Gelman et al.,1995, p. 476–477). The prior *C* distribution attempts to include the range of possible collision probabilities across the set of potential sites to be considered.

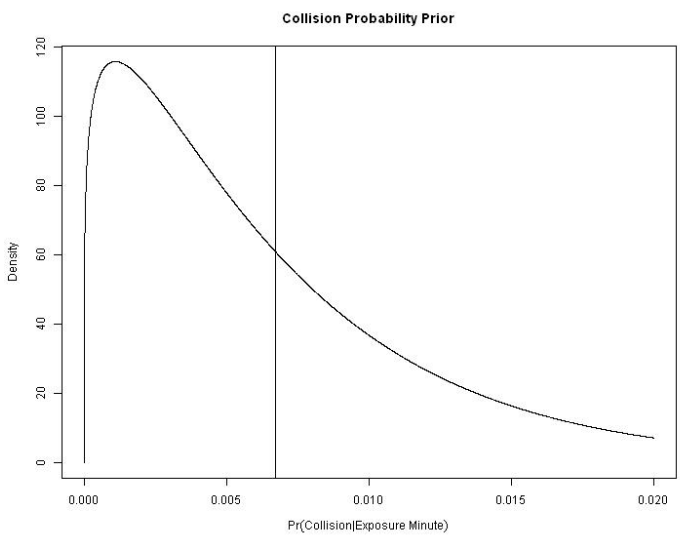

Figure D-2. The probability distribution for the collision probability prior, a Beta(1.2, 176.7) distribution with a mean of 0.0067 (indicated by the reference line) and a standard deviation of 0.0061. The distribution is positively skewed such that most collision probabilities will be small.

At the time of pre-construction permitting, the prior C distribution will be used to estimate the annual predicted fatalities. After construction, post-construction monitoring can be used to determine the posterior C distribution by updating the prior C distribution.

Assuming the observations of fatalities follow a binomial distribution with rate C, the posterior distribution of the rate C will be a beta distribution (the beta distribution and the binomial distribution are a conjugate pair):

$$Posterior\ C \sim Beta(v + f, v' + g),$$

where f is the number of fatalities estimated from the Stage 5 post-construction monitoring, and g is the estimated number of exposure events that did *not* result in a fatality. The posterior distribution for C cannot be calculated until a project has been built, has started operations, and at least one season of post-construction monitoring has been completed. Once determined, the posterior C distribution can then be used to generate a prediction for annual fatalities and can serve as a prior C for the next iteration of the predictive model (see APPENDIX A). (b) (5) [redacted]

3. Expansion

The expansion factor (ε) scales the resulting per unit fatality rate (fatalities per hr· per km^2) to the daylight hours, τ, in 1 year (or other time period if calculating and combining fatalities for seasons or stratified areas) and total hazardous area (km^2) within the project footprint:

$$\varepsilon = \tau \sum_{i=1}^{n_t} \delta_i,$$

where n_t is the number of turbines, and δ is the circular area centered at the base of a turbine with a radius equal to the rotor-swept radius of the turbine; we define this as the hazardous area surrounding a turbine. In this model, to simplify data requirements and assumptions, we consider both eagle use and hazardous area as 2-dimensional areas. Alternative models that consider 3-dimensional space could also be considered, though the expansion factor should be adjusted accordingly. The units for ε are hr· km^2 per year (or time period of interest).

4. Fatalities

Now we can generate the distribution of predicted annual fatalities as the expanded product of the posterior exposure rate and the prior collision probability (once post-construction data is available, the posterior collision probability would be used to update the fatality distribution):

$$F = \varepsilon \cdot posterior\ \lambda \cdot prior\ C.$$

We can then determine the mean, median, standard deviation, and 80% quantile (this will be the upper credible limit) directly from the distribution of predicted fatalities.

5. Putting it all together: an example

The Patuxent Power Company example below illustrates the calculation of predicted fatalities from exposure data from a hypothetical project site. This data will normally come from the field surveys in Stage 2, but for the purposes of this example, we have generated fabricated observation data. The advantage of simulating data in such an exercise is that we can manipulate model inputs to critically evaluate the performance of the model. Additional examples are provided at the end of this document to illustrate the general approach and clarify specific considerations that may apply to certain projects.

> **Patuxent Power Company example** - Patuxent Power Company conducted surveys for eagles at a proposed location for a small- to medium-sized wind facility (18 turbines, each with a 50 meter rotor diameter) following the recommended methods in the ECPG (see Table D-2). They conducted 168 counts at 7 points and 60 eagle-min of exposure were observed. Each count was 2-hr in duration, and covered a circular area of radius 0.8 km. Thus, 675.6 $km^2 \cdot hr$ were observed in total.

Table D-2. Exposure data for Patuxent Power Company example. In this hypothetical example, 168 counts were performed. Each count was 2-hr in duration and covered a 0.8 km radius circle. Thus, the total time and area sampled was 675.6 $km^2 \cdot hr$. In that time, 60 exposure events (eagle-min) were observed.

1	0	0	2	0	2	0	1	5
2	0	0	1	0	0	0	1	2
3	0	1	2	0	0	0	1	4
4	0	1	0	0	0	1	1	3
5	0	1	0	1	0	1	1	4
6	0	0	1	1	0	0	1	3
7	0	1	0	0	0	1	1	3
8	0	0	0	0	0	1	0	1
9	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0
11	1	0	1	1	0	0	0	3
12	0	1	0	0	1	0	0	2
13	0	0	1	0	0	0	1	2
14	2	0	0	0	0	0	2	4
15	0	0	0	2	2	0	1	5
16	0	0	0	1	0	0	0	1
17	0	0	0	2	0	0	0	2
18	1	0	1	1	0	0	0	3
19	0	0	0	1	0	2	0	3
20	0	0	2	0	1	0	0	3

21	0	0	0	0	1	0	0	1
22	1	0	0	0	0	0	1	2
23	1	0	0	3	0	0	0	4
24	0	0	0	0	0	0	0	0
Total	6	5	11	13	7	6	12	60

b. Exposure

The posterior distribution for the exposure rate is:
$Posterior\ \lambda \sim Gamma(\widetilde{\alpha}, \widetilde{\beta})$, remember $Prior\ \lambda \sim gamma(0.97, 2.76)$; Figure D1, where,

$$\tilde{\alpha} = \alpha + \sum_{i=1}^{n} k_i = 0.97 + 60\ eagle\ minutes = 60.97\ eagle\ minutes$$

$$\tilde{\beta} = \beta + n = 2.76 + (168\ counts \times 2\ hr \times \pi(0.8\ km)^2) = 678.31\ km^2 \cdot hr$$

Thus,

$Posterior\ \lambda \sim Gamma(60.97, 678.31)$; the units for λ are per hr^- per km^2.

The posterior distribution is shown in Figure D-3. The mean and standard deviation of exposure rate are 0.09 and 0.01, respectively. Note that there is little influence of the prior on this posterior, because the sampling effort was substantial.

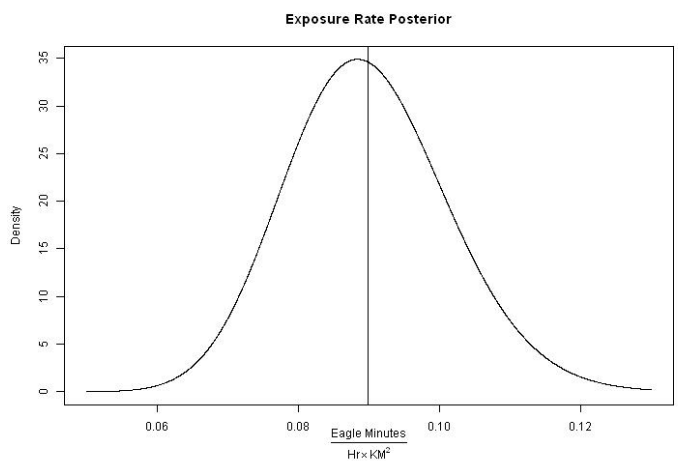

Figure D-3. The posterior distribution for exposure rate for the example project, "Patuxent Power Company". This gamma distribution has a mean (indicated by the reference line) of 0.09 and a standard deviation of 0.01.

b. Collision Probability

We do not have any additional information about collision probability, C, so we will use the prior distribution, which has a mean of 0.0067 and a standard deviation of 0.0061.

$$Prior\ C \sim Beta(1.2, 176.7);\ \text{see Figure D-2.}$$

c. Expansion

The expansion rate, ε, is the number of daylight hours in a year (τ) multiplied by the hazardous area (δ) around the 18 turbines proposed for the project:

$$\varepsilon = 4{,}383\ hr \cdot \pi(0.025\ km)^2 \cdot 18\ = 154.9\ hr \cdot km^2.$$

d. Fatalities

To determine the distribution for the predicted annual fatalities, the exposure and collision risk distributions need to be multiplied by each other and expanded. The resulting distribution cannot be calculated in closed form; it is easiest to generate it through simulations. In this example, after running 100,000 simulations, the predicted distribution for annual fatalities (Figure D-4) has a mean of 0.093 and a standard deviation of 0.087. The 80% quantile is 0.15 eagle fatalities per year.

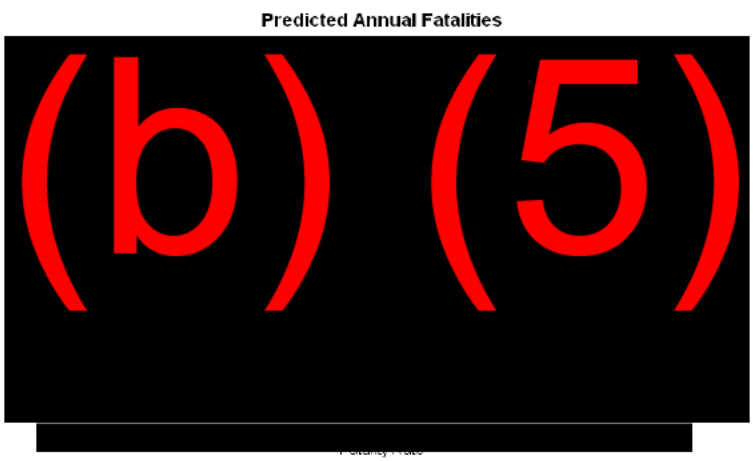

Figure D-4. (b) (5) [redacted]

The Service's baseline model for the proposed Patuxent wind facility predicts that 80% of the time that annual fatalities would be (b) (5) eagles or fewer, suggesting that an eagle

collision fatality would be predicted to occur at the project site every [redacted] years on average. The facility had a medium amount of eagle activity at the site, but the small size of the project kept the predicted fatality numbers lower than they would have been for a larger project in the same location. Ideally, we would consider other candidate models alongside the baseline model presented here and compare their relative performance using data collected in Stage 5.

6. Additional considerations

This initial estimate of fatality rate should not take into account possible conservation measures and ACPs (*e.g.* changes in turbine siting or seasonal curtailments); these will be factored in as part of Stage 4 (APPENDIX E). Additionally, any loss of production that may stem from disturbance is not considered in these calculations, but should be added to these estimates and later adjusted based on post-construction monitoring as described in Stage 5. This stage and Stage 5 of the ECP will require close coordination between the project developer or operator and the Service.

a. Small-scale projects

Small-scale projects (generally these will be residential or small-business projects) may pose a low enough risk that Stage 2 surveys are unnecessary to demonstrate that the project is not likely not take eagles. This presumes that Stage 1 surveys are conducted and show no important eagle use areas or migration concentration sites in the project area. In such cases, the fatalities predicted by the collision fatality model are the expanded product of the exposure prior and the collision probability prior; the exposure prior is not updated to create a posterior as it would be for projects with survey data (Figure D-5). With the prior distributions currently used for exposure rate and collision probability (note that the parameters for the priors distributions are part of the adaptive management framework and will change as new information becomes available), the 80 percent quantile of the predicted fatality distribution for projects with less than approximately 2.19×10^{-3} km^2 of hazardous area predicts fatalities at a rate less than 1 eagle in 30 years (not likely to take eagles). This is equivalent to a single turbine with a rotor diameter of approximately 52 m, or 40 or more turbines with 8 m rotor diameter (each of which has the capacity to exceed typical home energy needs.) The calculation of hazardous area is presented in this Appendix under 'Expansion'. If the collision model prediction based on the exposure prior predicts that take of eagles will occur (e.g., if the hazardous area is greater than 2.19×10^{-3} km^2), Stage 2 preconstruction sampling for eagle use of the project area is recommended (see APPENDIX C). The data from Stage 2 surveys will be used to update the exposure prior distribution and produce a project-specific fatality prediction. Projects are encouraged to consult with the Service early in the planning process as components of the fatality prediction model will continue to evolve and may change over time.

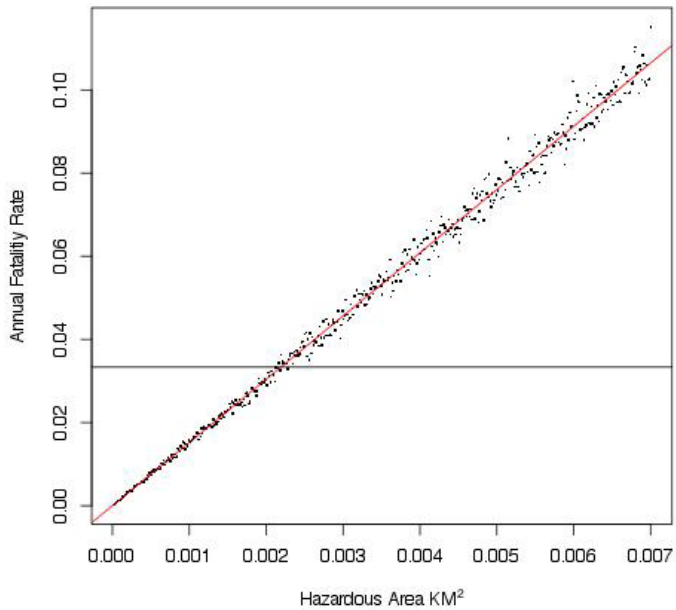

Figure D-5. Predicted fatalities for projects with small hazardous areas based on the prior-only collision fatality model; projects with less than 2.19×10^{-3} km^2 hazardous area are predicted to take less than 1 eagle in 30 years.

The Service will continue to develop components of the basic collision fatality model and the priors for exposure rate and the probability of collision are likely to change. Project developers, operators, and consultants should coordinate directly with the Service to ensure use of the most up-to-date versions of all Service models and parameter values. Additionally, the Service is developing additional tools to assist project developers or operators with estimating predicted fatalities given different inputs and allowing for the flexibility to incorporate other factors into additional candidate models. We encourage project developers or operators to begin coordinating with the Service early in the process (Stage 1 or Stage 2) so that we can collaboratively develop a suite of candidate models to consider.

Literature Cited

Gelman, A., Carlin, J. B., Stern, H. S., and D. B. Rubin. 2003. Bayesian Data Analysis, 2nd ed. London, Chapman & Hall.

Whitfield, D. P. 2009. Collision avoidance of golden eagles at wind farms under the 'Band' collision risk model. Report from Natural Research to Scottish Natural Heritage, Banchory, UK.

APPENDIX E: STAGE 4 – AVOIDANCE AND MINIMIZATION OF RISK USING ACPS AND OTHER CONSERVATION MEASURES, AND COMPENSATORY MITIGATION

The most important factor when considering potential effects to eagles is the siting of a wind project. Based on information gathered in Stage 2 and analyzed in Stage 3, the project developer or operator should revisit the site categorization from the Stage 1 assessment to determine if the site(s) still falls into an acceptable category of risk (at this stage, acceptable categories are 2 and 3, and very rarely 1). When information suggests that a proposed wind project has a high eagle exposure rate and presents multiple risk factors (*e.g.*, is proximate to an important eagle-use area or migration concentration site and Stage 2 data suggest eagles frequently use the proposed wind-project footprint), it should be considered a category 1 site; we recommend relocating the project to another area because a location at that site would be unlikely to meet the regulatory requirements for a programmatic permit. If the site falls into categories 2 or 3, or rarely some category 1 sites where there is potential to adequately abate risk, the ECP should next address conservation measures and ACPs that might be employed to minimize or, ideally, avoid eagle mortality and disturbance. To meet regulatory requirements, ACPs, if available, must be employed such that any remaining eagle take is unavoidable.

In this section of the ECP, we recommend project developers or operators re-run models predicting eagle fatality rates after implementing conservation measures and available ACPs for all the plausible alternatives. This re-analysis serves two purposes: (1) it demonstrates the degree to which minimization and avoidance measures might reduce effects to eagle populations compared to the baseline project configuration, and (2) it provides a prediction of unavoidable eagle mortality. Conservation measures and ACPs should be tailored to specifically address the risk factors identified in Stage 3 of the ECP. This section of the ECP should describe in detail the measures proposed to be implemented and their expected results.

The Service does not advocate the use of any particular conservation measures and merely provides the below list as examples. Moreover, at this time none of these measures have been approved as ACPs for wind projects. Ultimately, project developers or operators will propose and implement site specific conservation measures and ACPs (as they become available) in cooperation with local Service representatives in order to meet the regulatory standard of reducing any remaining take to a level that is unavoidable.

Examples of conservation measures that could be considered before and during project construction, depending on the specific risk factors involved, include:

1. Minimize the area and intensity of disturbances during pre-construction and construction periods.
2. Prioritize locating development on lands that provide minimal eagle use potential including highly developed and degraded sites.
3. Utilize existing transmission corridors and roads.

4. Set turbines back from ridge edges.
5. Site structures away from high eagle use areas and the flight zones between them.
6. Dismantle nonoperational meteorological towers.
7. Bury power lines to reduce avian collision and electrocution.
8. Follow the Avian Power Line Interaction Committee (APLIC) guidance on power line construction and design (APLIC 2006).
9. Minimize the extent of the road network.
10. Avoid the use of structures, or remove existing structures, that are attractive to eagles for perching.
11. Avoid construction designs (including structures such as meteorological towers) that increase the risk of collision, such as guy wires. If guy wires are used, mark them with bird flight diverters (according to the manufacturer's recommendation).
12. Avoid siting turbines in areas where eagle prey are abundant.
13. Avoid areas with high concentrations of ponds, streams, or wetlands.

Examples of avoidance and minimization measures that could be considered during project operation, depending on the specific risk factors involved, include:

1. Maintain facilities and grounds in a manner that minimizes any potential impacts to eagles (*e.g.* minimize storage of equipment near turbines that may attract prey, avoid seeding forbs below turbines that may attract prey, etc.).
2. Avoid practices that attract/enhance prey populations and opportunities for scavenging within the project area.
3. Take actions to reduce vehicle collision risk to wildlife and remove carcasses from the project area (*e.g.* deer, elk, livestock, etc.).
4. Instruct project personnel and visitors to drive at low speeds (< 25 mph) and be alert for wildlife, especially in low visibility conditions.

When post-construction fatality information becomes available, the project developer or operator and the Service should consider implementing all or a subset of the additional conservation measures and experimental ACPs that were considered at the time the permit was issued (see ASSESSING RISK AND EFFECTS, 3b. General Approach to Address Risks in the ECPG).

Examples of experimental ACPs that could be identified initially or after evaluation of post-construction fatality monitoring data, depending on the specific risk factors involved, include:

1. Seasonal, daily, or mid-day shut-downs (particularly relevant in situations where eagle strikes are seasonal in nature and limited to a few turbines, or occur at a particular time of day).
2. Turbine removal or relocation.
3. Adjusting turbine cut-in speeds.
4. Use of automated detection devices (*e.g.* radar, etc.) to control the operation of turbines.

Literature Cited

Avian Power Line Interaction Committee (APLIC). 2006. Suggested practices for avian protection on power lines: the state of the art in 2006. Edison Electric Institute, APLIC, and the California Energy Commission. Washington D.C. and Sacramento, CA, USA. http://www.aplic.org/SuggestedPractices2006(LR-2watermark).pdf.

APPENDIX F: ASSESSING PROJECT-LEVEL TAKE AND CUMULATIVE EFFECTS ANALYSES

The Service is required to evaluate and consider the effects of programmatic take permits on eagles at the eagle management unit, local-area, and project-area population scales, including cumulative effects, as part of its permit application review process (50 CFR 22.26 (f)(1) and USFWS 2009). The Service will rely on information a developer provides from the Stage 1 and Stage 2 assessments, as well as all other available information on mortality and other population-limiting effects at the various population scales, when preparing its cumulative impact assessment. The Service's NEPA on the Eagle Permit Rule evaluated and set sustainable take levels at the eagle management unit scale (USFWS 2009). However, that NEPA analysis did not assess impacts at other population scales. A significant part of the cumulative effects evaluation is assessing the effect of the proposed take in combination with take caused by previously authorized actions and reasonably foreseeable future actions on the local-area eagle population(s), and it is this analysis that is the focus of this appendix.

The purpose of this part of the cumulative effects evaluation is to identify situations where take, either at the individual project level or in combination with other authorized or foreseeable future actions and other limiting factors at the local-area population scale, may be approaching levels that are biologically problematic or which cannot reasonably be offset through compensatory mitigation. In previous assessments of the effect of falconry take on raptor populations (Millsap and Allen 2006), the Service identified annual take levels of 5% of annual production to be sustainable for a range of healthy raptor populations, and annual take levels of 1% of annual production as a relatively benign harvest rate over at least short intervals when population status was uncertain. This approach was used to establish take thresholds at the eagle management unit scale (USFWS 2009). The Service considered several alternatives for benchmark harvest rates at the local-area population scale, and after comparative evaluation identified take rates of between 1% and 5% of the estimated total eagle population size at this scale as significant, with 5% being at the upper end of what might be appropriate under the BGEPA preservation standard, whether offset by compensatory mitigation or not. These local-area harvest rate benchmarks are overlain by the more conservative take thresholds for the eagle management units, so the overall harvest rate at the eagle management unit scale should not exceed levels established in the Final Environmental Assessment (USFWS 2009).

The Service recommends a top-down approach for this assessment: (1) identify numbers of eagles that may be taken safely at the national level (*i.e.*, a national-level benchmarks); (2) allocate take opportunities among regional eagle management units (USFWS 2009) as a function of the proportion of eagles in each unit (*i.e.*, regional-level benchmarks); (3) further allocate take opportunities to the local-area population scale as a function of inferred eagle population size at that scale (assuming, in the absence of better data on eagle distribution at the scale of the eagle management unit, a uniform distribution of that population); and (4) incorporating benchmarks that can be used to assess the likely

sustainability of predicted levels of take at the local-area scale. Through a spatial accounting system, permitted take is managed to ensure that the benchmarks also consider cumulative effects at the local-area eagle population scale as a guard against authorizing excessive take at this scale.

In Table F-1, we work through this approach using the hypothetical example of eight individual yet identical projects, one in each bald eagle management unit. Each of these projects has a 314 mi^2 footprint, and affects a local-area bald eagle population over 8824 square mile (mi^2) area. For this example, we use a take rate of 5% of the local-area bald eagle population per year as the maximum acceptable take rate. In this example, the 5% benchmark take rate over the eight projects is 150 individual bald eagles per year, and the range of allowable take rates at this scale varies across management units from <1 bald eagle per year in the southwest to 67 per year in Alaska. Table F-2 provides population and eagle management unit area statistics for golden eagles to aid in performing these calculations for that species.

As noted above, in cases where the local-area eagle populations of proximate projects overlap, the overlap should be taken into account in a cumulative effects analysis so that the cumulative take on the local-area population scale can be considered against population benchmarks. Figure F-1 illustrates one method to do this, and Table F-3 provides the calculations for this example. These examples use bald eagles, but the same concept and approach can be used for golden eagles, with Bird Conservation Regions (BCRs) defining the eagle management units. The example in Figure F-1 involves bald eagles in Region 3. Project 1 (in green) has a footprint of 41 $miles^2$ (mi^2), and affects a local-area bald eagle population over 6854 mi^2 (light green buffer around the project footprint). Following the approach in Table F-1, project 1 was issued a programmatic take permit with a maximum annual project-level take of 21 bald eagles per year (see Table F-3). Project 2 (in red, the same size as project 1) applied for a programmatic eagle take permit 5 years later. The calculated project-level bald eagle take for project 2 is 20 bald eagles per year, but under the 5% benchmark, maximum take for 1563 mi^2 of project 2's local-area bald eagle population (totaling 5 bald eagles per year) was already allocated to project 1 (the hatched-marked area of overlap between the local areas of project 1 and project 2). Therefore, the calculated local-area bald eagle take for project 2 exceeds the 5% benchmark. Thus, the decision-maker for the permit for project 2 should carefully consider whether this project can be permitted as designed under the requirements of our regulations at 50 CFR 22.26.

The examples assume acceptable compensatory mitigation opportunities, when they are required, are limitless. They are not, and where compensatory mitigation is necessary to offset the permitted take, the availability of compensatory mitigation can become the proximate factor limiting take opportunities.

A critical assumption of this approach is that eagle density is uniform across eagle regions. The potential consequence of this assumption is to under protect eagles in areas of high density and over protect them in areas of low density. As the Service and others develop more reliable models for predicting the distribution of eagles within regional

management populations at finer scales, these approaches should be used in place of an assumption of uniform distribution in the analyses suggested here.

Table F-1. Example of the proposed method to calculate local-area annual eagle take benchmarks. The example uses bald eagles (BAEA), and is based on a hypothetical scenario where a single project with a circular footprint of 10-mile radius is proposed in each BAEA region. See Figure F-1 for an example of how to assess the cumulative effects of such permitted take over the local-area population.

BAEA Management Unit	Estimated Population Size[a]	Region Size (mi^2)	Maximum Take Rate (% local-area population per year)[b]	Management Unit Eagle Density (BAEA/ mi^2)[c]	Local Area (mi^2)[d]	Local-area 5% Benchmark (eagles per year)[e]
R1	7105	245336	5.0	0.029	8824	13
R2	797	565600	5.0	0.001	8824	>1
R3	27617	447929	5.0	0.062	8824	27
R4	13111	464981	5.0	0.028	8824	12
R5	14021	237687	5.0	0.059	8824	26
R6	5385	732395	5.0	0.007	8824	3
R7	86550	570374	5.0	0.152	8824	67
R8	889	265779	5.0	0.003	8824	1
Sum	155474					150

[a] Taken directly from USFWS (2009).
[b] A take rate of 5% is the Service's upper benchmark for take at the local-area population scale.
[c] Management unit eagle density = population size / management unit size.
[d] The local-area for this example is the project footprint (in this case, a circle with radius of 10 miles) plus a buffer of 43 additional miles (43 miles is the average natal dispersal distance for the BAEA) $= 3.142 * 53^2$.
[e] The local-area 5% benchmark = (Local-area*Regional Eagle Density)*0.05.

Table F-2. Background information necessary to estimate the local-area take benchmarks for golden eagles (GOEA). Columns are as in Table F-1. The local-area for golden eagles, which is not used in this table, is calculated using the median natal dispersal distance of 140 miles (USFWS 2009).

GOEA Management Unit	BCR Number	Estimated Population Size[a]	BCR Size (mi^2)[b]	Management Unit Eagle Density (GOEA per mi^2)
Alaska		2400	557007	0.0043
Northern Pacific Rainforest	5	108	68777	0.0016
Prairie Potholes	11	1680	160794	0.0104
Sierra Nevada	15	84	20414	0.0041
Shortgrass Prairie	18	1080	148540	0.0073
Coastal California	32	960	63919	0.0150
Sonoran and Mojave Desert	33	600	95593	0.0063
Sierra Madre Occidental	34	360	47905	0.0075
Chihuahuan Desert	35	720	72455	0.0099
Great Basin	9	6859	269281	0.0255
Northern Rockies	10	6172	199666	0.0309
Southern Rockies and Colorado Plateau	16	3770	199522	0.0189
Badlands and Prairies	17	7800	141960	0.0549
Sum		32593		

[a] Taken directly from USFWS 2009.
[b] BCR area values are from the North American Bird Conservation Region website at: http://www.bsc-eoc.org/international/bcrmain html (last visited 8 December 2011).

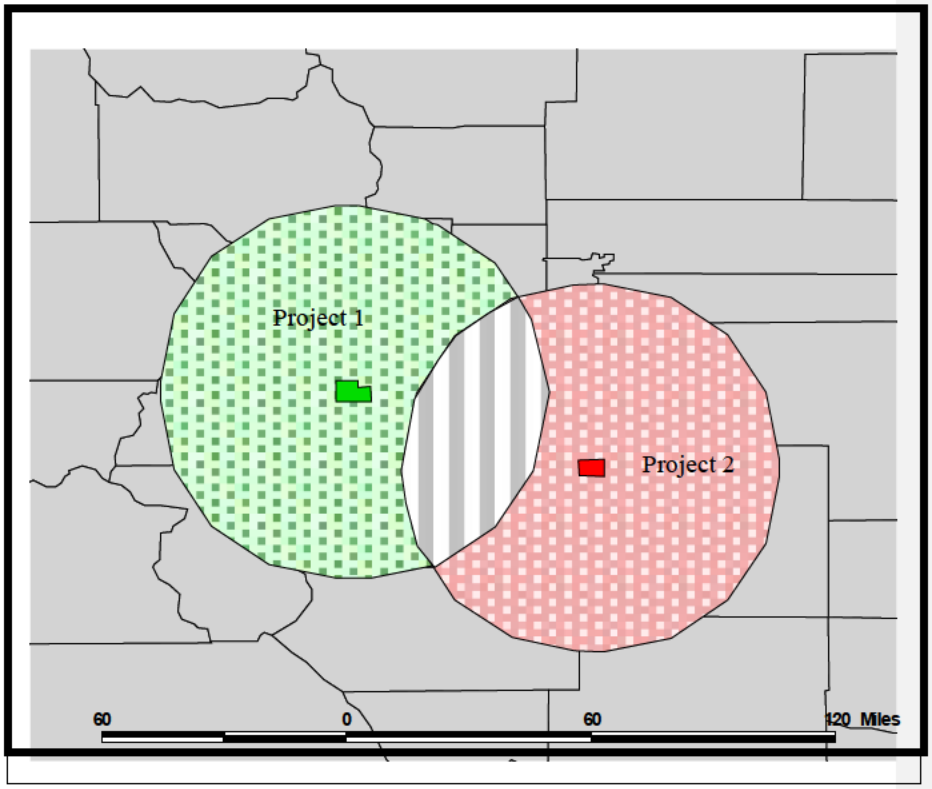

Figure F-1. Example of the proposed method for ensuring local-area take benchmarks are not exceeded through the cumulative take authorized over multiple projects. Project 1 is in green, project 2 is in red, and the overlap in their local-area eagle bald eagle populations is the hatched-marked area (see text). This same approach could be used to assess the cumulative effects of other forms of take and anthropomorphic impacts for which data on population effects are available.

Table F-3. Calculations used to determine local-area bald eagle take for the example in Fig. F-1, where project 1 is first-in-time, and the local-area bald eagle (BAEA) populations for the two projects overlap. Calculations are as described in the footnotes to table F-1.

Project	Region 3 BAEA Population Size	Region Size (mi^2)	Maximum Take Rate (% local-area population per year)[b]	Regional Eagle Density (BAEA per mi^2)	Local-area (mi^2)	Local-area 5% Benchmark (eagles per year)[e]
Project 1 (first-in-time)	27617	447929	5.0	0.062	6854	21
Project 2, unadjusted	27617	447929	5.0	0.062	6550	20
Overlap Area	27617	447929	5.0	0.062	1562	5
Project 2, adjusted	27617	447929	5.0	0.062	13404	15

Literature Cited

USFWS. 2007. Final environmental assessment, take of raptors from the wild under the falconry regulations and the raptor propagation regulations. U.S. Fish and Wildlife Service, Division of Migratory Bird Management, Washington, D.C.

USFWS. 2008. Final environmental assessment and management plan, take of migrant peregrine falcons from the wild for use in falconry, and reallocation of nestling/fledgling take. U.S. Fish and Wildlife Service, Division of Migratory Bird Management, Washington, D.C.

USFWS. 2009. Final environmental assessment, proposal to permit take as provided under the Bald and Golden Eagle Protection Act. U.S. Fish and Wildlife Service, Division of Migratory Bird Management, Washington, D.C.

USFWS. 2011. Draft eagle conservation plan guidance. U.S. Fish and Wildlife Service, Division of Migratory Bird Management, Washington, D.C.

APPENDIX G: EXAMPLES USING RESOURCE EQUIVALENCY ANALYSIS TO ESTIMATE THE COMPENSATORY MITIGATION FOR THE TAKE OF GOLDEN AND BALD EAGLES FROM WIND ENERGY DEVELOPMENT

1. Introduction

This appendix provides Resource Equivalency Analysis (REA) examples developed by the Service to illustrate the calculation of compensatory mitigation for the annual loss of golden (GOEA) eagles and bald (BAEA) eagles caused by wind power if conservation measures and ACPs do not remove the potential for take, and the projected take exceeds calculated thresholds for the species or management population affected. These examples result in estimates of the number of high-risk electric power poles that would need to be retrofitted *per* eagle taken based on the inputs provided below. Detailed explanatory documentation, literature, and supporting REA spreadsheets are now located at: www.fws.gov/windenergy/index html

As a *framework* for compensatory mitigation, it needs to be clear that the results provided below are an illustration of how REA works given the *current* understanding of GOEA and BAEA life history inputs, effectiveness of retrofitting high-risk electric power poles, the expected annual take, and the timing of both the eagle take permit and implementation of compensatory mitigation. As would be expected, the estimated number of eagle fatalities and the permit renewal period affect the number of poles to be retrofitted. Delays in retrofitting would lead to more retrofitted poles owed. New information on changes in the level of take, understanding of the eagle life history, or effectiveness of retrofitting could be used to change the number of retrofitted poles needed for compensation. Finally, while only electric pole retrofitting is presented here in detail, the REA metric of bird-years lends itself to consideration of other compensatory mitigation options to achieve the no-net-loss standard in the future. With enough reliable information, any compensatory mitigation that directly leads to an increased number of GOEA and BAEA (*e.g.*, habitat restoration) or the avoided loss of these eagles (*e.g.*, reducing vehicle/eagle collisions, making livestock water tanks 'eagle-safe', lead ammunition abatement, etc.) could be considered for compensation within the context of the REA.

2. REA Inputs

The best available peer-reviewed, published data are provided in Tables G-1 and G-2. It should be noted that additional modeling work within the REA may be needed, particularly on issues related to migration, adult female survivorship, natal dispersal, age at first breeding, and population sex ratio.

Table G-1. *EXAMPLE INPUTS* REA Inputs to Develop a Framework of Compensatory Mitigation for Potential Take of GOEA from Wind Energy Development

Parameter	REA Input		Reference
Start year of permit	2012		***Example.***
Length of permit renewal period	5 years		***Example.***
Estimated take	1 eagle/year		***Example.***
Average maximum lifespan	30 years		28 years, 3 months, USGS Bird Banding Lab. Consistent with Cole (2010) approach.
Age distribution of birds killed at wind facilities (based on age distribution of GOEA population)	(0-1) (1-4) (4-30)	20% 35% 45%	• 20% juveniles (age class (0-1)) • 35% sub-adults (11.67% for each age class from age class (1-2) through age class (3-4)) • 45% adults (1.73% for each age class from age class (4-5) through age class (29-30)) Assume age class is distributed evenly over time. Age distribution derived from models presented in USFWS 2009.
Age start reproducing	Age 5 [age class (5-6)]		Steenhof *et al.* 1984; Kochert *et al.* 2002
Expected years of reproduction	25 years		= (Maximum Lifespan) – (Age Start Reproducing) (Harmata 2002)
% of adult females that reproduce annually	80%		Steenhof *et al.* 1997
Productivity (mean number of individuals fledged per occupied nest annually)	0.61		USFWS 2009
year 0-1 survival	61%		USFWS 2009
year 1-2 survival	79%		
year 2-3 survival	79%		
year 3-4 survival	79%		
year 4+ survival	90.9%		
Relative productivity of mitigation option	0.0036 eagle electrocutions/pole/year		***Example.*** Compensatory mitigation involves retrofitting high-risk electric power poles, thus avoiding the loss of GOEA from electrocution (Lehman *et al.* 2010).
Discount rate	3%		A 3% discount rate is commonly used for valuing lost natural resource services (Freeman 1993, Lind 1982, NOAA 1999; and court decisions on damage assessment cases)

Table G-2. *EXAMPLE INPUTS.* REA Inputs to Develop a Framework of Compensatory Mitigation for Potential Take of BAEA from Wind Energy Development

Parameter	**REA Input**		**Reference**
Start year of permit	2011		***Example.***
Length of permit renewal period	5 years		***Example.***
Estimated take	1 eagle/year		***Example.***
Average maximum lifespan	30 years		32 years 10 months; Longevity record from USGS Bird Banding Lab. Consistent with Cole (2010) approach.
Age distribution of birds killed at wind facilities (based on age distribution of BAEA population)	(0-1) (1-4) (4-30)	15.4% 30% 54.6%	• 15.4% juveniles (age class (0-1)) • 30% sub-adults (10% for each age class from age class (1-2) through age class (3-4)) • 54.6% adults (2.1% for each age class from age class (4-5) through age class (29-30)) Assume age class is distributed evenly over time. Age distribution derived from models presented in USFWS 2009.
Age start reproducing	Age 5 [age class (5-6)]		Buehler 2000
Expected years of reproduction	25 years		= (Maximum Lifespan) – (Age Start Reproducing)
% of adult females that reproduce annually	42%		Hunt 1998, per. comm. Millsap
Productivity	1.3		Millsap *et al.* 2004
year 0-1 survival	77%		Millsap *et al.* 2004
year 1-2 survival	88%		
year 2-3 survival	88%		
year 3-4 survival	88%		
year 4+ survival	83%		
Relative productivity of mitigation option	0.0036 eagle electrocutions/pole/year		***Example.*** Mitigation involves retrofitting high-risk electric power poles, thus avoiding the loss of BAEA from electrocution (Lehman *et. al* 2010).
Discount rate	3%		A 3% discount rate is commonly used for valuing lost natural resource services (Freeman 1993; Lind 1982; NOAA 1999; and court decisions on damage assessment cases).

3. REA Example – WindCoA

The Service developed the following hypothetical scenario for permitting and compensatory mitigation to be applied to the take of GOEA[1] from wind power operations:

WindCoA conducted three years of pre-construction surveys to determine relative abundance of GOEA at their proposed wind project in Texas. The survey data was then used to populate a risk assessment model to generate an eagle fatality estimate. The initial fatality estimate of two eagles per year was further reduced after WindCoA implemented a few mutually agreed upon ACPs. The final fatality estimate generated from the risk assessment model, after consideration of the advanced conservation practices, was an annual take of one GOEA per year over the life of the permit starting in 2012.

WindCoA decided to conduct an REA to determine the number of high-risk power poles that would need to be retrofitted to get to no-net-loss. The company used the Service's GOEA REA inputs and assumed the power pole retrofit would occur in calendar year 2012, thus offsetting the potential loss of eagles at the newly operating wind project with avoidance of electrocution of an equal number of GOEA. Through proper operation and maintenance (O&M), the retrofitted poles are assumed to be effective in avoiding the loss of eagles for 10 years. The results of the model are expressed in the total number of electric power poles to be retrofitted to equate to no-net-loss of 5 eagles for the 5-year permit renewal period (1 eagle annually over five years). These results are extrapolated over the expected operating life of the wind project, which is assumed to be 30 years, for a total take of 30 eagles.

The results of the REA indicated that WindCoA needed to retrofit approximately 149 power poles for the first 5-year permit period (see Table G-3). Using an estimated cost of $7500/pole, the Service estimated that WindCoA could contribute $1,117,500 to a third-party mitigation account or contract the retrofits directly. After determining that they could fund the retrofits directly at a lower cost, WindCoA decided to partner with UtilityCoB to get the required number of poles retrofitted. UtilityCoB had previously conducted a risk assessment of their equipment and had identified high-risk poles that were likely to take golden eagles. Through a written agreement, WindCoA provided funding to UtilityCoB to retrofit the required number of power poles and maintain the retrofits for 10 years. In addition, WindCoA contracted with ConsultCoC to perform effectiveness monitoring of the retrofitted power poles for 2 years. The contract required that ConsultCoC visit each retrofitted power pole every 4 months (quarterly) to perform fatality searches and check for proper operation and maintenance of the equipment. The Service reviewed the compensatory mitigation project proposed by WindCoA and found it to be consistent with requirements at 50 CFR 22.26. After reviewing the signed contract between WindCoA, UtilityCoB, and ConsultCoC, the Service issued a programmatic eagle take permit to WindCoA.

[1] Using the inputs provided in Table G-2, this scenario may also be applied to BAEA.

a. REA Language and Methods

As discussed in greater detail in documents on the supporting website, this REA includes:

- The **direct loss** of GOEA/BAEA eagles from the take (*debit* in bird-years);
- The **relative productivity** of retrofitting high-risk power poles, which is the effectiveness in avoiding the loss of GOEA/BAEA by electrocution as a mitigation offset (measured in total bird-years per pole); and
- The **mitigation owed**, which is the total debit divided by the relative productivity (*scaling*) to identify the number of high-risk power poles that need retrofitting to completely offset the take of GOEA/BAEA eagles (credit).

There are up to 16 steps when conducting a REA. Depending on whether foregone future reproduction (part of the debit) is included, there are up to 13 total steps involved in calculating the injury side (debit) of a REA, and three additional steps involved in estimating compensatory mitigation owed (credit). Please refer to the technical note "Scaling Directly Proportional Avoided Loss Mitigation/Restoration Projects" on the supporting website (www.fws.gov/windenergy) for further information on the development of REA inputs and the inclusion of lost reproduction. Notably, in the case of an avoided loss project where the estimated prevented loss of bird-years (*e.g.*, through mitigation) is *directly proportional* to the loss of bird-years (*e.g.*, from "take"), the life history inputs (*e.g.*, longevity, age distribution, survival rates, reproduction) do not affect the final results of the credit owed. That is, the retrofitting of high-risk power poles is a directly proportional avoided loss, so only the level of take (number of eagles annually), the avoided loss of eagles per mitigated electric pole, the number of years the mitigated pole is effective in avoiding the loss of eagles, and the timing of the mitigation relative to the take affect the final credit owed. It should also be noted that the annual take of one eagle is used in the example because the lost bird-years associated with one eagle can be easily multiplied by the actual take to estimate the total debit in bird-years.

The following is a brief discussion of REA variables used in the Service's WindCoA example that affect the outcome of the compensatory mitigation calculation:

- **Relative Productivity of Mitigation (0.0036 electrocutions/pole/year**) – This rate is taken directly from published literature on eagle electrocution rates in northeastern Utah and northwestern Colorado and is specific to eagles (Lehman *et al.* 2010). Although the referenced study also lists a higher rate (0.0066) that includes all known eagle mortalities, this rate included eagles that may have died from causes unrelated to electrocution.
- **Years of Avoided Loss Per Retrofitted Pole (10 Years) –** The Service uses a period of 10 years for crediting the project developer or operator for the avoided loss of eagles from power pole retrofits. This is a reasonable amount of time to assume that power pole retrofits will remain effective. However, project developers or operators should consider entering into agreements with utility companies or contractors for the long-term maintenance of retrofits. Evidence of this type of agreement could increase the amount of credit received by the project developer or operator and, as a result, decrease the amount of compensatory mitigation required.

- **Permit Renewal Period (5 Years)** – This will be the review period that is used by the Service for adaptive management purposes and re-calculation of compensatory mitigation. The Service believes that this length of time will enable the project developer or operator to continue to meet the statutory and regulatory eagle preservation standard. This permit review tenure will remain the same regardless of the overall tenure of the permit.
- **Retrofit Cost/Payment ($7,500/pole)** – The Service received input directly from the industry regarding the actual costs to retrofit power poles. Estimates ranged from a low of approximately $400 to over $11,000 given that costs vary according to many factors. The Service believes that $7,500 represents a reasonable estimate for the current cost to retrofit power poles in the United States. Project developers or operators are encouraged to contract directly for retrofits as this will likely not be as costly as contributing $7,500/pole to an eagle compensatory mitigation account.

b. REA Results for WindCoA

Using the WindCoA example described above, along with the REA inputs provided in Table G-1, Table G-3 provides a summary of the results:

Table G-3. WindCoA Example: Compensatory Mitigation Owed for a 5-Year Permitted Take of 5 GOEA Extrapolated to the 30-Year Expected Operating Life of the Wind Project (30 GOEA in Total).

Total Debit for Take of 1 GOEA	28.485	PV* bird-years for 5 years of GOEA take
÷Relative Productivity of High-Risk Electric Pole Retrofitting	÷0.191	Avoided loss of PV bird-years per retrofitted pole (assumes 10 years of avoided loss per pole based on the commitment from UtilityCoB)
= Mitigation Owed for 5-Year Permitted Take	=149.136	Poles to be retrofitted to achieve no-net-loss
x # Cycles of 5-Year Permit Reviews =Total Mitigation Owed	x 6 = 894.818	Poles to be retrofitted to achieve no-net-loss for the 30-year expected operating life of the wind project

*PV=Present Value

If *all* of the REA inputs remain the same after the initial five years, then the estimated 149.14 poles may be multiplied by the expected number of permit reviews to provide an estimate of the total number of poles that would eventually be retrofitted. For example, for the 30-year life cycle of the WindCoA wind project, 149.14 poles would be multiplied by 6 permit renewals to equal approximately 895 high-risk power poles in total to be retrofitted as compensatory mitigation for the take of 30 GOEA over 30 years (1 eagle annually). While this example shows the effectiveness of the mitigation method as

lasting for 10 years, it may be the case that the method selected is more or less effective at avoiding the loss of eagles (*e.g.*, 5 years, more than 10 years). The REA can be adjusted for the expected effectiveness of mitigation, and more or fewer high-risk power poles would need to be mitigated. All estimates of compensatory mitigation are contingent on proper operation and maintenance being conducted by UtilityCoB or a contractor to ensure that the expected effectiveness is achieved.

For purposes of illustration, should WindCoA choose to use the GOEA inputs provided in Table G-1 and their fatality estimate is that 5 GOEA will be taken annually, the results may be easily adjusted as shown in Table G-4:

Table G-4. WindCoA Example: Compensatory Mitigation Owed for a 5-Year Permitted Take of 25 GOEA Extrapolated to the 30-Year Expected Operating Life of the Wind Project (150 GOEA in Total).

Total Debit for Take of 1 GOEA	28.485	PV bird-years for 5 years of GOEA take from Table F-3
x Actual Annual Take of GOEA	x 5 =142.425	PV bird-years for 5 years of GOEA take
÷ Relative Productivity of High-Risk Electric Pole Retrofitting	÷0.191	Avoided loss of PV bird-years per retrofitted pole (assumes 10 years of avoided loss per pole based on the commitment from UtilityCoB)
= Mitigation Owed for 5-Year Permitted Take	=**745.681**	Poles to be retrofitted to achieve no-net-loss
x # Cycles of 5-Year Permit Reviews = Total Mitigation Owed	x 6 =**4474.086**	Poles to be retrofitted to achieve no-net-loss for the 30-year expected operating life of the wind project

PV=Present Value

c. Summary of Bald Eagle REA Results

Following the same process described above for GOEA (*i.e.*, using the WindCoA example and the BAEA REA inputs provided in Table G-2), Table G-5 provides a summary of the results for bald eagles:

Table G-5. Example of Compensatory Mitigation Owed for a 5-Year Permitted Take of 5 BAEA Extrapolated to the 30-Year Expected Operating Life of the Wind Project (30 BAEA in Total).

Total Debit for Take of 1 BAEA	20.229	PV bird-years for 5 years of BAEA take
÷ Relative Productivity of High-Risk Electric Pole Retrofitting	÷0.136	Avoided loss of PV bird-years per retrofitted pole
= Mitigation Owed for 5-Year Permitted Take	**=149.136**	Poles to be retrofitted to achieve no-net-loss
x # Cycles of 5-Year Permit Reviews = Total Mitigation Owed	x 6 **=894.818**	Poles to be retrofitted to achieve no-net-loss for the 30-year expected operating life of the wind project

PV=Present Value

Although there are differences between GOEA and BAEA life history inputs (*e.g.*, longevity, age distribution, survival rates, reproduction), the estimated avoided loss of bird-years through mitigation is *directly proportional* to the loss of bird-years from the take, so the life history inputs do not affect the final results of the credit owed. Because there was no change in the level of take (number of eagles annually), the avoided loss of eagles per mitigated electric pole, the number of years the mitigated pole is effective in avoiding the loss of eagles, or the timing of the mitigation relative to the take, there is no change in the credit owed. To help illustrate, when comparing the results of BAEA to GOEA, both the debit (20.23÷28.49) and the relative productivity of electric pole retrofitting (0.14÷0.19) for BAEA are approximately 70% of GOEA, so the amount of retrofitting owed is the same. That is, both the numerator of the scaling equation (total debit) and the denominator (relative productivity of mitigation) were changed proportionally (approximately 70%), so there is no change in the mitigation owed.

d. Discussion on Using REA

The ECPG does not mandate the use of REA. Rather, the Service recognized the need for a reliable, transparent, reproducible, and cost-effective tool to expedite wind power permits, while ensuring sufficient compensatory mitigation for the take of golden eagles and bald eagles from operations to meet regulatory permitting requirements. Although there is a learning curve, REA meets these basic needs. This appendix and materials on the supporting website explain the methods, share the tools to run REAs, and discuss how changes in the different inputs can affect the results. Should project developers or operators/applicants choose to use the provided inputs, methods, and tools, the Service will be able to appropriately focus on the expected take of eagles. Project developers or operators/applicants have the discretion to offer alternative REA inputs or use different compensatory mitigation modeling methods. However, they will need to provide sufficient evidence and tools (if necessary) to ensure that the Service can provide

appropriate review of the results, and should expect that such an effort will likely take additional time.

e. Additional Compensatory Mitigation Example

In the United States, another known cause of mortality to eagles, both bald and golden, is vehicle collisions. Eagles are susceptible to being struck by vehicles as they feed on carcasses along roadsides, particularly in areas of the United States where large numbers of ungulates concentrate seasonally (*e.g.* winter, breeding season, etc.). As a compensatory mitigation strategy, a project developer or operator may decide to collect data (or use existing data if it is available) on the annual number of eagle mortalities that result from vehicle collisions in a specified geographic area or along a specific stretch of roadway. This data could then be used to generate an estimate of the number of eagle mortalities that could be prevented in the same area by removing carcasses from roadsides. If there was sufficient evidence that this was a valid project (*e.g.* quantifiable and verifiable), the project developer or operator could contract to have these roadsides 'cleaned' of carcasses during the time of year that ungulates concentrate and eagles are known to be struck. The credible estimate of eagle mortalities that would be avoided through carcass removal would be the value of the compensatory mitigation achieved.

f. Take from disturbance

Project developers or operators should work with the Service to determine if take from disturbance is likely to occur. This should be predicted in advance based on Stage 3 data, and verified through post-construction monitoring in Stage 5. The following are recommended take calculations based on information contained within the FEA (USFWS 2009):

For the standard bald eagle population:

- Take resulting from disturbance at one nest on only one occasion = take of 1.3 individuals
- One nest take resulting in the permanent abandonment of a territory = take of 1.3 individuals for the first year, then take of 8 individuals annually until data show the number of breeding pairs has returned to or exceeded the original estimated number for the eagle management unit.

For the standard golden eagle population:

- Take resulting from disturbance at one nest on only one occasion = take of 0.8 individuals
- One nest take resulting in the permanent abandonment of a territory = take of 0.8 individuals for the first year, then take of 4 individuals annually until data show the number of breeding pairs has returned to or exceeded the original estimated number for the eagle management unit.

Using the data presented in the above WindCoA example, the compensatory mitigation required for disturbance resulting in the loss of productivity from one GOEA nest for one year would result in the following:

1. Disturbance take of one GOEA nest on one occasion = 0.8 GOEA
2. From the REA, the take of one GOEA for one year = 6 PV bird-years

3. Six PV bird-years/GOEA * 0.8 GOEA = 4.8 PV bird-years
4. From the REA, 4.8 PV bird-years ÷ 0.191 PV bird-years/pole retrofitted (for 10 year maintenance of poles) = 25.1 poles retrofitted

WindCoA would be required to retrofit a total of 174.24 poles (149.14 poles for the lethal take of 5 GOEA (see Table G-3) + 24.5 poles for the disturbance take of one GOEA nest) to cover the initial five year permitted take.

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APPENDIX H : STAGE 5 – CALIBRATING AND UPDATING OF THE FATALITY PREDICTION AND CONTINUED RISK-ASSESSMENT

Given the degree of uncertainty that currently exists surrounding the risk of wind facilities to eagles and the factors that contribute to that risk, post-construction monitoring is one of the most significant activities that will be undertaken by eagle programmatic take permit holders. Post-construction monitoring has two basic components when applied to eagle take: (1) estimating the mean annual fatality rate, and (2) assessing possible disturbance effects on neighboring nests and communal roosts. Provided that assessments conducted during Stages 1-4 are consistent, robust, and reliably performed as suggested in this ECPG, the pre-construction data should provide a solid platform for development of the Stage 5 monitoring and assessment studies.

1. Fatality Monitoring

All wind facilities that are permitted to take eagles will need to conduct fatality monitoring to ensure compliance with regulatory requirements. Fatality monitoring must be conducted at all wind facilities that are permitted to take eagles. We anticipate that in most cases, intensive monitoring to estimate the true annual fatality rate and to assess possible disturbance effects will be conducted for at least the first two years after permit issuance, followed by less intense monitoring for up to three years after the expiration date of the permit, in accordance with monitoring requirements at 50 CFR 22.26(c)(2). However, additional intensive, targeted monitoring may be necessary to determine the effectiveness of additional conservation measures and ACPs implemented to reduce observed fatalities. Such monitoring should be rigorous and sufficient to yield a reasonable estimate of the mean annual eagle fatality rate for the project. General considerations for designing fatality monitoring programs can be found in Strickland *et al.* (2011) and the WEG, and these sources should be consulted in the development of a post-construction study design. Because the post-construction monitoring protocol will be included as a condition of the programmatic take permit, the design of such monitoring will be determined jointly by the permittee and the Service. Additionally, the Service and USGS are investing significant resources into research to test and assess post-construction monitoring approaches for eagles, thus we expect to be able to offer useful input in the design of such monitoring programs. Fatality monitoring for eagles can be combined with monitoring mortality of other wildlife so long as sampling intensity takes into account the relative infrequency of eagle mortality events.

Fatality-monitoring efforts involve searching for eagle carcasses beneath turbines and other facilities to estimate the number of fatalities. The primary objectives of these efforts are to: (1) estimate eagle fatality rates for comparison with the model-based predictions prior to construction, and (2) to determine whether individual turbines or strings of turbines are responsible for the majority of eagle fatalities, and if so, the factors associated with those turbines that might account for the fatalities and which might be addressed via conservation measures and ACPs.

Fatality monitoring results should be of sufficient statistical validity to provide a reasonably precise estimate of the eagle mortality rate at a project to allow meaningful

comparisons with pre-construction predictions, and to provide a sound basis for determining if, and if so which, conservation measures and ACPs might be appropriate. The basic method of measuring fatality rates is the carcass search. All fatality monitoring should include estimates of carcass removal and carcass detection bias (scavenger removal and searcher efficiency) likely to influence those rates, using the currently accepted methods. Fatality and bias correction efforts should occur across all seasons to assess potential temporal variation. Where seasonal eagle concentrations were identified in the Stage 2 assessment, sampling protocols should take these periodic pulses in abundance into account in the sample design.

Carcass searches underestimate actual mortalities at wind turbines, but with appropriate sampling, carcass counts can be adjusted to account for biases in detection (Kunz *et al.* 2007, Arnett *et al.* 2007, NRC 2007, Huso 2010). Important sources of bias and error include: (1) low or highly variable fatality rates; (2) carcass removal by scavengers; (3) differences in searcher efficiency; (4) failure to account for the influence of site (*e.g.*, vegetative) conditions in relation to carcass removal and searcher efficiency; and (5) fatalities or injured birds that may land or move outside search plots. Strickland et al (2011) provide a concise overview of fatality prediction models and considerations in the selection of a model. In the case of eagles, a primary consideration in the selection of a model and in the sampling design is the relative rarity of collisions, even at sites where fatality rates are comparatively high.

Regardless of the approach selected, we recommend the following data be collected for each search:

1. Date.
2. Start time.
3. End time.
4. Interval since last search.
5. Observer.
6. Which turbine area was searched (including decimal-degree latitude longitude or UTM coordinates and datum).
7. Weather data for each search, including the weather for the interval since the last search.
8. GPS track of the search path.

When a dead eagle is found, the following information should be recorded on a fatality data sheet:

1. Date.
2. Species.
3. Age and sex (following criteria in Pyle 2008) when possible.
4. Band number and notation if wearing a radio-transmitter or auxiliary marker.
5. Observer name.
6. Turbine or pole number or other identifying character.
7. Distance of the carcass from the turbine or pole.
8. Azimuth of the carcass from the turbine or pole.

9. Decimal-degree latitude longitude or UTM coordinates of the turbine or pole and carcass.
10. Habitat surrounding the carcass.
11. Condition of the carcass (entire, partial, scavenged).
12. Description of the carcass (*e.g.*, intact, wing sheared, in multiple pieces).
13. A rough estimate of the time since death (*e.g.*, ≤1 day, > a week), and how estimated.
14. A digital photograph of the carcass.
15. Information on carcass disposition.

In some cases, eagle take permits may specify other biological materials or data that should be collected from eagle carcasses (*e.g.*, feathers, tissue samples). Rubber gloves should be used to handle all carcasses to eliminate possible disease transmission. All eagle fatalities (not just those found on post-construction surveys) and associated information should be immediately reported to the Service's Office of Law Enforcement and to the Service's migratory bird permit issuing office if the facility is operating under an eagle take permit. Eagle carcasses should not be moved until such notification occurs, after which carcass disposition should be in accordance with permit conditions or Service direction.

2. Disturbance Monitoring

Project developers or operators may also be required to monitor many of the eagle nesting territories and communal roost sites identified in the Stage 2 assessments as stated in the permit regulations at 50 CFR 22.26(c)(2)for at least two years after project construction and for up to three years after the cessation of the activity. The objective of such monitoring will be to determine post-construction (1) territory or roost occupancy rates, (2) nest success rates, and (3) productivity. On a project-by-project basis, changes in any of these reproductive measures may not be indicative of disturbance. However, patterns may become apparent when the Service and USGS pool data appropriately and analyze findings from many projects in the context of a meta-analysis within the adaptive management framework.

Eagle nesting territories most likely to be affected by disturbance from a wind project are those that have use areas within or adjacent to the project footprint. The Service will accept an assumption that all eagle pairs at or within the mean project-area inter-nest distance (as determined from the Stage 2 assessment) of the project boundary are territories that may be at risk of disturbance (*e.g.*, if the mean nearest-neighbor distance between simultaneously occupied eagle territories in the Stage 2 assessment is 2 miles, we would expect disturbance to most likely affect eagles within 2 miles of the project boundary; Figures H-1 though H-4). Eagle pairs nesting within ½ the project-area mean intern-nest distance are the highest candidates for disturbance effects, and should receive special attention and consideration.

Where nesting habitat is patchy or eagle nesting density is low such that nearest-neighbors are outside a 10-mile wide perimeter of the project footprint, we recommend either: (1) extending the project-area survey outward to include the nearest-neighbors for

the purposes of estimating the mean inter-nest distance value, or (2) undertaking detailed observational studies of the eagles occupying territories within the typical project-area to assess use patterns and ranging behavior relative to the project footprint. We recognize that selecting option (1) for golden eagles would extend the project area beyond the maximum of 10 miles advocated in the ECPG, but in some areas it is possible golden eagles using nests further than 10 miles from the project footprint may occur there. Regardless of which approach is used, territories that meet this distance criterion should be re-sampled annually for no less than two years after the project is operational following identical survey and reporting procedures as were used in the Stage 2 assessment.

If such monitoring shows strong evidence of direct disturbance from a project, project developers or operators and the Service will consider additional conservation measures and ACPs that might be effective in reducing the effect. Such measures would be within the sideboards established at the time of permit issuance. Alternatively, the project developer or operator may be required to provide compensatory mitigation to offset the estimated decreases in productivity to the extent necessary to meet the statutory requirement to preserve eagles.

The Service and the project developer or operator should agree on a site-specific, post-construction survey protocol for eagle concentration areas identified in Stage 2 and make an a priori decision on how to interpret and act on potential outcomes. Mortalities of eagles using proximate communal roosts will be accounted for through the protocol for monitoring post-construction fatalities. However, if communal roosts are no longer used by eagles because of disturbance, that effect should be determined, evaluated, and where population-level effects are indicated, mitigated.

3. Comparison of Post-Construction Eagle Use with Pre-Construction Use

As noted elsewhere, Service fatality models assume eagle use of the project footprint does not change as a result of project development. However, there is little information to support this assumption, and the ability to accurately predict fatality rates could be greatly improved by comparative information on post-construction eagle use. The Service encourages project developers or operators to consider conducting exposure surveys similar in design and intensity to pre-construction survey work to test this assumption where and when feasible.

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Figures H-1 to H-4 (following pages). Suggested approach for determining project-area and identifying eagle nesting territories to monitor for disturbance effects during Stage 5.

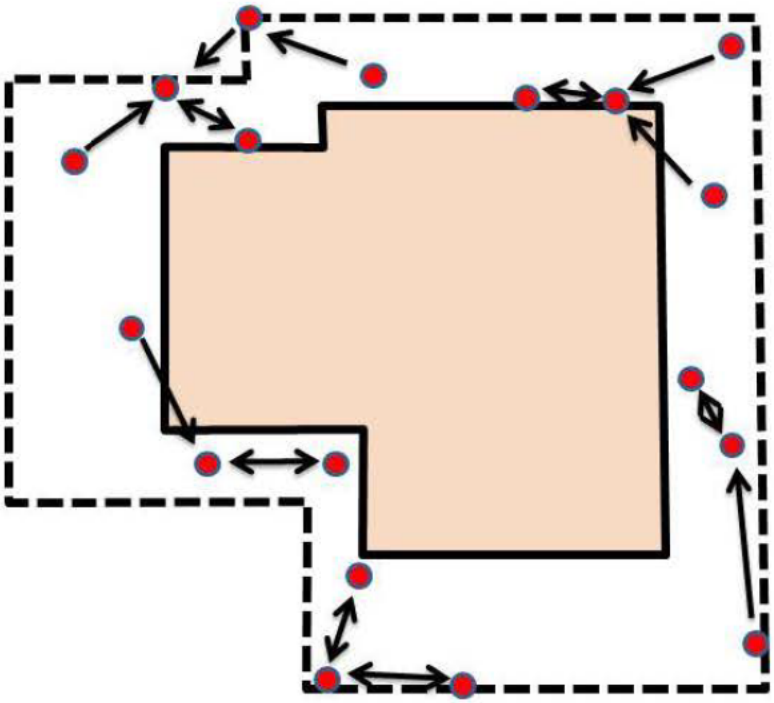

Figure H-1. Map showing hypothetical wind-facility project footprint (area inside the solid-black line, shaded peach), and the recommended project-area for eagle use area surveys in Stage 2 (inside the dotted line). Red dots denote occupied eagle nests. Arrows represent nearest-neighbor distance measurements that would be collected and used in the calculation of the project-area mean inter-nest distance. In some cases, nests are reciprocal nearest neighbors (double arrows); in these cases the inter-nest distance is the same for both nests. In other cases, the relationship is not reciprocal (e.g., a nest's nearest neighbor may be closer to another nest; one-way arrows), in which case the two have different inter-nest distance values. Ideally, this process would be completed over two or more breeding seasons to account for annual variation in nest occupancy and spacing.

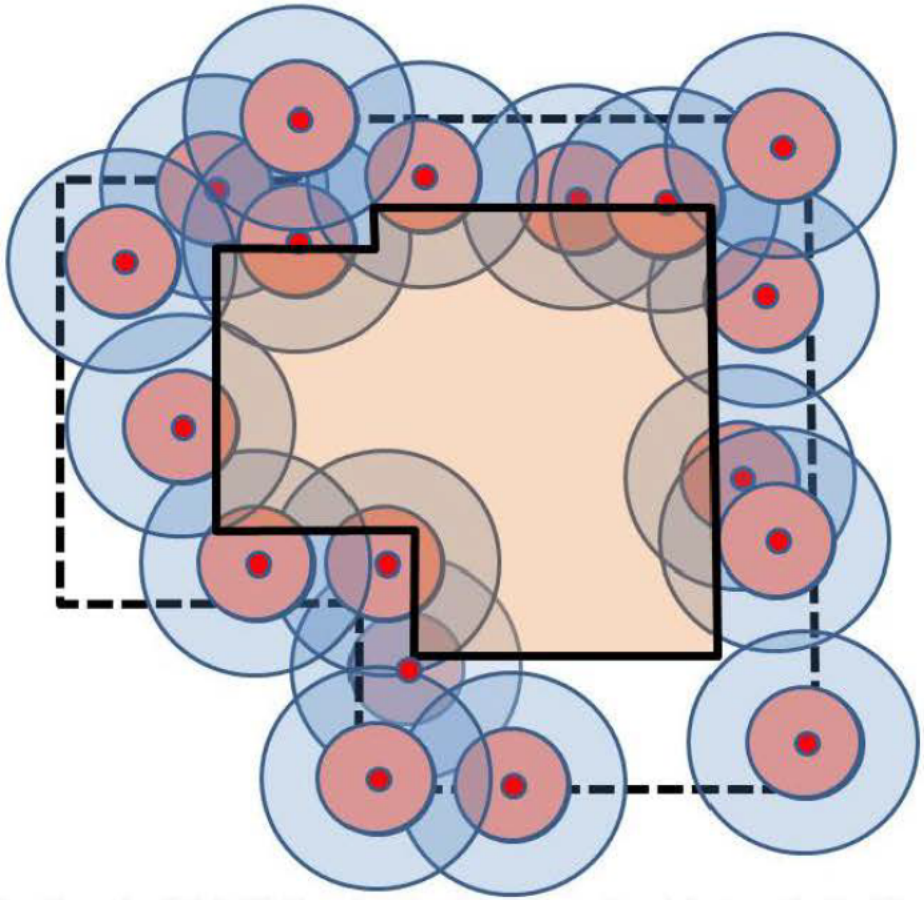

Figure H-2. Map of the same hypothetical wind-facility project in Figure H-1. Circles around occupied nests are at the radius of the project-area mean inter-nest distance (blue rings), and ½ the project-area mean inter-nest distance (pink rings), both calculated from the distance measurements collected as described in Figure H-1.

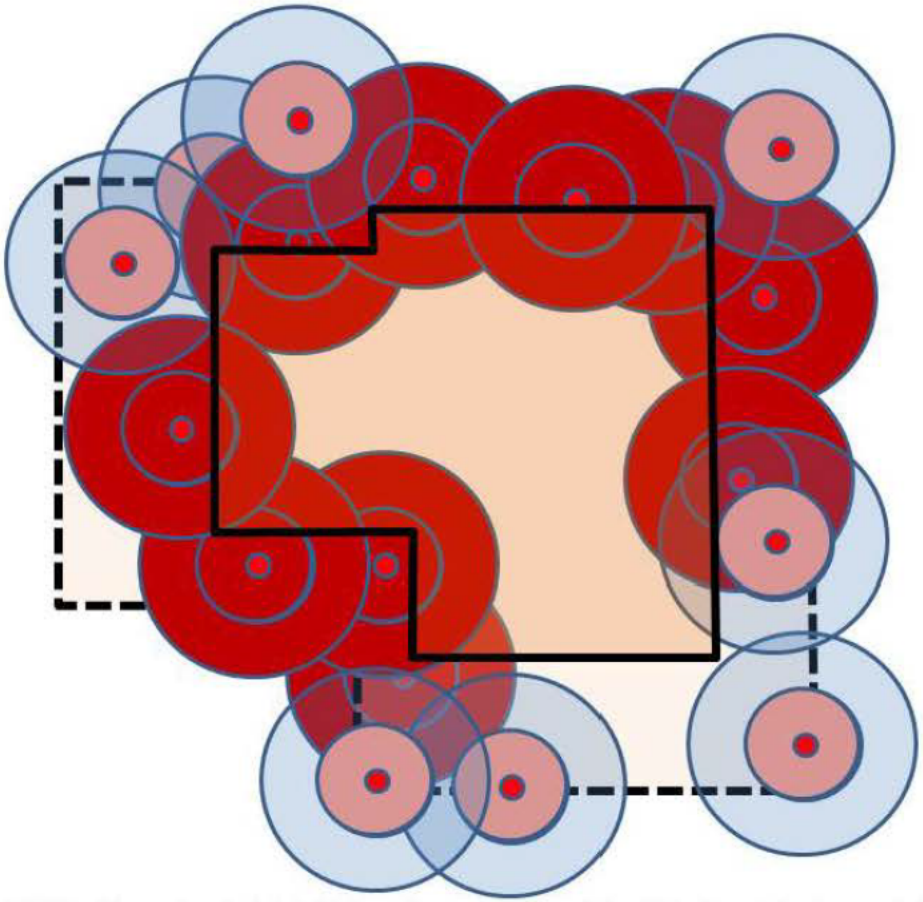

Figure H-3. Map of the same hypothetical wind-facility project area as in Figures H-1 and H-2, after applying site categorization criteria from the Guidelines. The site is currently borderline category 1 because the project footprint includes or approaches several eagle nests, and includes the area within ½ the local area inter-nest distance of those nests now highlighted in red.

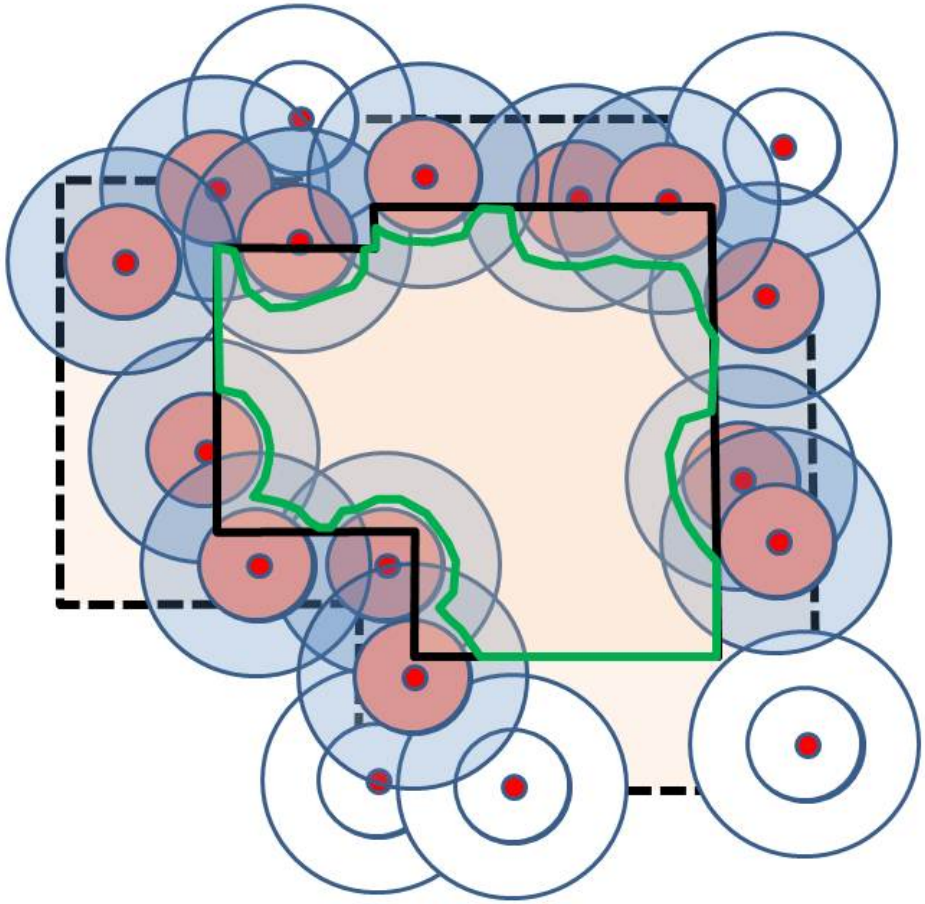

Figure H-4. The same hypothetical wind-facility project as in Figures H-1 – H-3, but re-designed such that the green line now delineates the project footprint. The re-design lessens the likelihood of negative effects on nesting eagles in the project area, and the project is now in category 2. If the project moves forward and the project developer or operator receives a programmatic eagle-take permit, those territories that are shaded should be monitored for disturbance-effects following Stage 5 recommendations because they are at or within one project-area mean inter-nest distance of the project footprint.

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Jerome Ford, Assistant Director Migratory Bird Program, U.S. Fish and Wildlife Service

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Division of Migratory Bird Management

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FW: ECP Guidance

1 message

Lawyer, Mark <Mark_Lawyer@ios.doi.gov> Thu, Aug 23, 2012 at 2:42 PM
To: "Klein, Elizabeth A" <Elizabeth_Klein@ios.doi.gov>, "Black, Steve" <steve_black@ios.doi.gov>, "Scott, Janea" <Janea_Scott@ios.doi.gov>
Cc: "Iudicello, Fay" <Fay_Iudicello@ios.doi.gov>

Liz,

I am forwarding to you the final eagle conservation plan guidance, per your request.

Mark Lawyer

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Executive Secretariat and Regulatory Affairs
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From: Bigby, Delores
Sent: Thursday, August 23, 2012 2:41 PM
To: Lawyer, Mark
Subject: ECP Guidance

Hi Mark:

As you requested, attached please find the ECP Guidance document.

Delores Bigby, Executive Assistant

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1461K

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Fw: eagle letter

1 message

Scott, Janea <Janea_Scott@ios.doi.gov> Thu, Aug 23, 2012 at 11:09 AM
To: "Black, Steve" <steve_black@ios.doi.gov>

FYI

From: Julie Falkner [mailto:JFALKNER@defenders.org]
Sent: Thursday, August 23, 2012 10:04 AM
To: Klein, Elizabeth A; Scott, Janea
Subject: eagle letter

Good morning Liz and Janea: I hope you are both well. Attached is a letter submitted by several NGOs and wind energy associations requesting that the FWS take a more comprehensive approach to solving the eagle permitting issues and consider doing so with the stakeholders input.

Please let me know if you have any questions or would care to discuss. We appreciate your interest in this important mater.

Julie

Juliette Falkner

Senior Policy Analyst, Renewable Energy and Wildlife

Defenders of Wildlife

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Joint eagle process letter8 22 2012.pdf
65K

August 22, 2012

The Honorable Ken Salazar
Secretary, United States Department of the Interior
1849 C Street NW
Washington, DC 20240

Dear Secretary Salazar:

Thank you for your efforts and commitment to meeting our nation's renewable energy and conservation goals. Each of our organizations is deeply committed to responsibly sited renewable energy development opportunities that avoid and minimize the impacts on wildlife and their habitats. We write to suggest a path forward for needed fundamental improvements to the bald and golden eagle permit process by the United States Fish and Wildlife Service (Service). Recently, many of the undersigned submitted separate comments responding to the Service's notices proposing changes to the existing eagle permit regulations. We strongly believe that by working together and with the Service, we could find workable solutions to improve the permitting process and conservation of bald and golden eagles.

The conservation community, the wind industry, states, federally recognized Indian tribes and federal agencies have a long history of working with the Department of the Interior (Department) to develop workable policy recommendations for the responsible siting of wind energy projects. For example, the Wind Turbine Guidelines Federal Advisory Committee brought together scientists, industry, conservationists, federally recognized tribes and representatives from states, to provide recommendations to the Service, which were substantially adopted to help wind energy project developers avoid and minimize the impacts of land-based wind projects on wildlife and their habitats.

In that spirit, we urge the Service to supplement the current notice-and-comment proceedings through continued and collaborative interaction with key stakeholders with the express purpose of examining the issues identified in the two notices regarding eagle permits and the draft eagle conservation plan guidance. There are several potential processes ranging from a negotiated rulemaking, advisory committee, or policy dialogue to less formal interactive technical workshops, a technical conference, an agency task force, and/or a scientific panel. The important denominator is that the process includes a variety of experts on eagles, the permitting process, the regulatory process and energy development. Such a process could explore, for example: additional science and data on assessing eagle populations; further mitigation options; advanced conservation practices; short- and long-term resource needs and administrative priorities; implementation of effective risk criteria; how eagle information gaps should be addressed and how responsibly sited wind farms are allowed to move forward in the interim while this process is on-going; other causes of eagle mortality in addition to wind energy; and generally how to create more certainty for both the species and the wind industry under a regulatory process for eagle permits.

We appreciate this opportunity to share our thoughts with you and look forward to working with you to ensure the best possible outcome for the conservation of the iconic bald and golden eagles and the further development of needed renewable energy. While we understand that the Service will need time to analyze the comments submitted and to evaluate the appropriate next steps, the undersigned will continue to collaborate and discuss these issues. We sincerely hope that the Service will work with us, and other interested parties who are seeking reasonable solutions, to develop a

workable, comprehensive and transparent approach to eagle conservation that we will collectively be able to support.

Thank you for considering our request. We look forward to your reply.

Sincerely,

Jamie Clark
President and CEO
Defenders of Wildlife

David Yarnold
President and CEO
National Audubon Society

Frances Beinecke
President
Natural Resources Defense Council

Jonathan W. Gassett, Ph.D.
President, Association of Fish and Wildlife Agencies and Commissioner, Kentucky Department of Fish and Wildlife Resources

Larry Schweiger
President and CEO
National Wildlife Federation

Jamie Williams
President
The Wilderness Society

Robert Bendick
Director, U.S. Government Relations
The Nature Conservancy

Michael Brune
Executive Director
Sierra Club

Denise Bode
Chief Executive Officer
American Wind Energy Association

Jeff Clark
Executive Director
The Wind Coalition (TWC)

Carol Murphy
Executive Director
Alliance for Clean Energy New York (ACE NY)

Sarah Propst
Executive Director
Interwest Energy Alliance

Francis Pullaro
Executive Director
RENEW New England

Nancy Rader
Executive Director
California Wind Energy Association (CalWEA)

Rachel Shimshak
Executive Director
Renewable Northwest Project (RNP)

Beth Soholt
Executive Director
Wind on the Wires (WOW)

CC: Daniel Ashe, Director, US Fish and Wildlife Service
David Hayes, Deputy Secretary, US Department of the Interior
Steve Black, Counselor to the Secretary of the Interior

Draft FAQ Bullet Points – 8/17/12

1. Durability
    a. Grazing allotments on BLM land?
2. What are the Baseline assumptions for purposes of the DRECP EIR and EIS

Response: (b) (5) [redacted]

    a. How are existing projects taken into consideration in baseline, EIR/S No Action, Environmental Baseline under CEQA and NEPA?

Response: (b) (5) [redacted]

[redacted]

[redacted]

    b. Are there degrees of existing projects: operating/under construction; application complete; pending approval?

Response: (b) (5) [redacted]

3. Reserve Design
    a. What do we mean when we say reserve design?

Response: (b) (5) [redacted]

[redacted]

[redacted]

(b) (5) [redacted]

i. What do the "blue areas" mean?

Response: (b) (5) [redacted].

ii. What do "green areas" mean?

Response: (b) (5) [redacted]

b. Do we need/expect it all to be protected?

i. What is the process for permitting projects proposed in "blue areas"?

Response: (b) (5) [redacted]

ii. In "green areas"?

Response: (b) (5) [redacted]

iii. Are there other relevant designations?

Response: (b) (5) [redacted]

iv. Per Peter Weiner: (b) (5) [redacted]

Response: (b) (5) [redacted]

(b) (5) [redacted]

[redacted]

c. What happens if development outside the scope of DRECP (i.e. not renewable energy development) is proposed within the reserve design area?

i. Does it depend on the designation?

Response: (b) (5) [redacted]

ii. Does it depend on whether the project is on federal land versus private land?

Response: (b) (5) [redacted]

4. What is the process for proposed development in areas outside of DFA's but not within reserve design or otherwise protected?

Response: (b) (5) [redacted]

5. BGOs - SMART BGOs; Species specific BGOs...and how used in the planning process

Response: (b) (5) [redacted]

(b) (5) [redacted]

6. What is meant by "mitigation contribution" / "proportional reserve area" of development areas?

Response: (b) (5) [redacted]

7. How will agencies respond to and incorporate new data?[1]

a. How will agencies will respond to and incorporate scientific recommendations from the Independent Science Advisory Panel

Response: (b) (5) [redacted]

b. How will agencies respond to and incorporate issues addressed by the energy panel convened by the California Energy Commission

Response: (b) (5) [redacted]

c. How will agencies respond to and incorporate issues raised in workshops to be conducted by the Energy Commission in September and October 2012 & January 2013?

Response: (b) (5) [redacted]

How can stakeholders can provide input regarding the identification of appropriate boundaries and possible uses of lands identified in the DRECP?

d. Before plan is finalized?

Response: (b) (5) [redacted]

[1] This is from the Desert Working Group letter.

[2] Dudek. 2012. "DRECP External Science Review: Comments and Responses (In Progress)" [matrix]. Posted to DRECP project portal for ISP review June 18, 2012.

(b) (5) [redacted]

e. After plan is finalized?

(b) (5) [redacted]

f. Other key dates?

What is the status of local governments' involvement and critical role in the development of the DRECP?

Response: (b) (5) [redacted]

g. What actions are underway to obtain commitments from Counties for participation in the DRECP? What progress has been made?

Response: (b) (5) [redacted]

(b) (5) [redacted]

[redacted]

[redacted]

h. How can stakeholders help encourage County participation in the DRECP?

Response: (b) (5) [redacted]

i. Is participation by local governments in the DRECP essential? What are the consequences of non-participation by cities and counties?

Response: (b) (5) [redacted].

(b) (5) [redacted]

8. How does the DRECP relate to the Department of Interior Solar Programmatic Environmental Impact Statement?
    a. What is the relationship between the SPEIS decisions on lands made potentially available for utility-scale solar development and the alternatives being considered in the DRECP?
    b. How will "variance lands" in the SPEIS be treated in the DRECP?
        i. Per Peter Weiner: (b) (5) [redacted]
    c. How does mitigation and monitoring identified in the SPEIS relate to that which will be developed in the DRECP?
    d. Which document policies and procedures will be applied to which projects?
        i. Does it vary by resource?
        ii. Does it depend on when projects proposed?
            1. Per Peter Weiner:

(b) (5) [redacted]

(b) (5) [redacted]

[redacted]

9. How will pending applications outside of the PEIS be treated?
    a. Does it very by resource?
    b. By proposed area?
    c. By when project proposed?
10. How are pending wind applications (which were not covered by the PEIS) to be treated?
11. Are different types of renewable energy development treated differently by the DRECP? If so what are differences for:

Response: (b) (5) [redacted]

    a. Solar PV?
    b. Solar Thermal without storage?
    c. Solar Thermal with storage?
    d. Geothermal?
    e. Wind?

Look for glossary/definitions in Solar PEIS

DRAFT

2013 Proposed Renewable Energy Priority Projects (≈3118 MW)

* Connected Action Project

#	State	Project Name (Developer)	Capacity (MW)	Current NEPA Status	Target Decision Date
SOLAR Total MW = (b) (5) [redacted]					
[redacted]					
Wind Total MW = (b) (5) [redacted]					
[redacted]					
Geothermal Total MW = [redacted]					
[redacted]					

Yellow Highlight = (b) (5) [redacted]

*Connected Action Project

August 30, 2013

Weekly Report to the Secretary
Counselor to the Secretary
August 30, 2012

nonresponsive

(b) (5)

Eagle Conservation Plan Guidance

The final Eagle Conservation Plan Guidance is undergoing its last review by Exec Sec, the Deputy Secretary's Office, and Steve and me. The Deputy Secretary's office plans to convene a meeting early in September to close out on the ECP guidance. As we noted last week, the ECP guidance is essential to reduce the current uncertainty about the eagle rule by providing clear direction to the Service and project proponents on how the 2009 Eagle Rule will be implemented.

(b) (5)

(b) (5)

RENEWABLE ENERGY UPDATES

Desert Renewable Energy Conservation Plan

(b) (5)

nonresponsive

[redacted]

nonresponsive

nonresponsive

Comments Received on the July 25-26, 2012 DRECP Stakeholder Committee Meeting		
Name/Affiliation	**Comments**	**Notes**
Adriane Wodey, Soda Mountain Solar	*1) The Soda Mtn Solar 4,400-acre project in San Bernadino County, along I-15 (in the "dinosaur"), is incorrectly designated as "high biological sensitivity" and "high conflict DFA". It should be "unclassified land".* *2) The Soda Mtn project should be in a DFA in all alternatives. There are 3 yrs of site specific data on file w/ the BLM that supports their statements.* *3) Recommends that the DRECP carries forward the "pending projects" concept used in the Solar PEIS into its conservation assumptions -- expressly stating that the DRECP's conservation assumptions do not apply to BLM-approved projects or PEIS "pending project"sites unless the approved project is cancelled or the pending project application is withdrawn or rejected.* *4) Provides detailed comparison b/t DRECP biological data and project specific data.*	
Arthur Unger	1) Please do not devastate the California desert in order to create needed wind and solar energy until we install photovoltaic panels or wind machines on all former farmland that has high salt content or no longer have access to water, brownfields, capped landfills, where aviation prevents high buildings and on every unshaded roof, parking lot, railroad, canal, aqueduct, water bank and reservoir. 2) Do not sell or lease government land cheaply. 3) Electricity made in the desert, far from users, can lose over 5% of its power in transmission.	

Comments Received on the July 25-26, 2012 DRECP Stakeholder Committee Meeting		
Name/Affiliation	**Comments**	**Notes**
Betty Munson	1) Dismayed at the sight of the proliferation of wind turbines that have ruined the wide valley below Mt. San Jacinto and Mt. San Gorgonio and made laughable the Scenic Highway designation of SR 62 as it descends toward this maze. Grieves over the wind towers that ruined the poppy fields of Tehachapi. I refuse to go see what the elemental beauty of Jawbone Canyon now looks like. Appalled at the desecration of the Ivanpah Valley. 2) Most painful of all, the overwhelming need that erected these obscenities is artificial, their existence is futile, earnest people were duped into going along, and the damage done cannot be undone. No one has shown me any independent scientific study proving these projects will have any beneficial effects. 3) Now more spaces on more maps are being colored in, deciding for us where to erect even more wind and solar towers; where to scar more of the scenery in an area that largely relies on sightseeing; where to string corridors of pylons to carry so-called renewable energy to urban centers to be sold at high prices back to the rural user who cannot bear the burden; where to override what land use planning has already been done. 4) If DFA areas were studied for oil drilling, coal mining or even, heavens forbid, the use of visitors in off-highway vehicles, we would hear no end of the outcry. I can only hope there are enough desert dwellers and visitors to cry out as loudly, “Foul!” at the sight of the areas recommended for bulldozing and destruction in the name of saving the planet. 5) None of the DFAs will be improved by the shift to this kind of major industrial development. Whoever participates in this process is either fooling themselves they are somehow doing good, or has no understanding at all for the remaining open lands in the desert and the economic benefits they bestow on our citizens. I hope they can sleep at night. I hope they are not saying, well, I’m just doing my job. 6) The negative news stories grow more frequent. They relate the oversell of benefits, the hazards to human health in design and installation. They document the dangers to wildlife, the protection of which used to carry so-called environmentalists to extreme lengths preventing other kinds of development or human activity.	

Comments Received on the July 25-26, 2012 DRECP Stakeholder Committee Meeting		
Name/Affiliation	**Comments**	**Notes**
	7) Why waste time working on this if "variance lands" are to be included? Would development on variance lands be uncontrolled? A campaign to have SR247 between Yucca Valley and Barstow officially designated as a Scenic Highway is now under way. Would solar and wind development on all the variance lands, with its undeniable impact on viewshed, be ruled out? 8) Where is the common sense in all this? How much "management" and "planning" can fallible people inflict on other people, without somebody pointing out the Emperor has no clothes? I suppose it is better to be invited to the table as a stakeholder in all this disruption, but somehow that feels like we're dining with the devil even going along with the process. We are told public input is needed. Really? How far do we have to travel? Are they just going through the motions? Have we even got the right anymore to cry, "Foul!" 9) The desert dwellers see the DRECP as: Go through the environmental protection dosey-do ASAP, then let developers kill the animals and birds for a good long time until they are ready to abandon their projects to the long-suffering desert. 10) Some of the mortals, who in their wisdom, can select the least important ecosystems for the trustworthy and honest developers do not have a good track record. Their judgements so far are undermining the Eagle Protection Act, the protection of the desert tortoises and other species, and, oh yes, the property values of rural citizens and businesses. 11) Now there is even talk of siting these projects on land set aside for military training. We'll certainly have no say in that. 12) Where is the discussion about energy conservation? Where is the discussion about distributed energy production? Not in the DRECP. 13) Who said "renewable energy" and "conservation" in the same breath? It seems like this is on a par with mixing oil and water, or making pigs fly. Fast-tracked industrial scale development of renewable energy resources just is not appropriate with any goal of conservation or preservation. Period. NO to all the scenarios. Period.	

Comments Received on the July 25-26, 2012 DRECP Stakeholder Committee Meeting		
Name/Affiliation	**Comments**	**Notes**
California Desert Coalition	1) Strongly opposes any future designation of a utility corridor in the Morongo Basin. In the July 25 materials, a 250kV corridor is shown on the maps on pg 8 & 9. A Tx-line here would be strongly protested. 2) Should focus on rooftop solar and development on disturbed land. 3) Several non-profit groups had mapped hundreds of thousands of private acres in So. and Central CA with willing sellers. EPA has mapped "brown fields" that could be used for development. 4) Wildlife linkage areas must be protected. *5) Opposes siting any solar or wind development adjacent to Joshua Tree or in the Morongo Basin.* *6) More outreach is needed to the affected communities.* *7) Extend the comment period behond Aug. 8.* *8) Consider a scenario that doesn't develop the high desert.* *9) Adopt Alt. 2 or Alt. 1 without the Variance Lands.*	

Comments Received on the July 25-26, 2012 DRECP Stakeholder Committee Meeting		
Name/Affiliation	**Comments**	**Notes**
California Desert Coalition et al.	1) The DRECP represents the best way forward to balancing RE development and land conservation, but none of the July 25 alts do enough to conserve lands or protect local desert communities. *2) Would like more opportunities for communities to provide input on the alts and help build consensus.* *3) Variance Lands should be removed from the DRECP altogether; they haven't been analyzed for their conservation values, and doesn't lead to the most appropriate places for RE development. Variance Lands undermines the basis of Alt. 1, the "Low Resource Conflict Alternative."* 4) Believes in a zone- or focus area-only approach. *5) All DFAs on the Morongo Basin area should be removed from all alts.* *6) A DG-only Alt should be developed.* 7) Other entiti+E10es have *identified thousands of acres of previously disturbed lands that are more appropriate for utility scale RE development* , yet little further analysis has been done by agencies or developers. *Analyze those lands in the DRECP.* 8) Lots of public and private investment has been put towards desert conservation areas and development runs counter to the conservation investment. Development should be directed away from those lands. *9) BGOs need to be named as soon as possible for plan success.* 10) Industry development maps shouldn't be considered in the DRECP; the presence of resources should guide planning development.	

Comments Received on the July 25-26, 2012 DRECP Stakeholder Committee Meeting		
Name/Affiliation	**Comments**	**Notes**
California Desert Renewable Energy Working Group (Audubon CA, BrightSource, CBD, CEERT, Defenders, enXco, First Solar, Large-scale Solar Association, NRDC, NRG, PG&E, Sierra Club, SCE, SunPower, The Nature Conservancy, The Wilderness Society)	Reiterates their strong interest in a comprehensive development plan that meets conservation and RE development goals. Recommendations: *1) Provide stakeholders w/ a clear timeline and process chart that shows when DRECP issues will be addressed and where SH input will be provided for.* *2) Provide SHs w/ communication forums on i) Durability of mitigaiton, ii) BGOs and reserve design conservation strategy, iii) Mitigation and monitoring, iv) Governance, finance, and plan amendment process.* *3) Write Q & A sheets that provide: i) how agencies will respond to and incorporate new data into the plan, ii) respond to recommendations by the Independent Science Panel, iii) issues addressed by the recent Energy Panel.* *4) Provide SHs with i) description of actions and progress being made in obtaining county participation in the DRECP, ii) identify what assistance SHs can provide to encourage counties to participate, iii) identify consequences of county non-participation* *5) Clearly articulate the relationship b/t the Solar PEIS and the DRECP; especially the Variance Lands, mitigation monitoring, and which policies and procedures will be applied when and how to the pending applications for utility-scale RE projects.*	

Italics = Initial cut on whether comment may need Policy direction or other DRECP action
RE = renewable energy
SH = Stakeholder

Comments Received on the July 25-26, 2012 DRECP Stakeholder Committee Meeting		
Name/Affiliation	**Comments**	**Notes**
California Offroad Vehicle Association	*1) The REAT needs to consider establishing new OHV Open Use areas now while it still can. The DRECP should properly mitigate changes by the US Marine Corps's expansion plans into the Johnson Valley OHV Open Area. Appreciates the proposed SRMA lands in the eastern portion of the DRECP, but it's not enough to adequately plan for future recreation.* 2) Each existing and proposed ACEC should be specifically evaluated for suitability for locating and overlapping SRMA designation. 3) *Too early to wind down the full participation of the SH Committee. Rule sets in conservation lands must be done with full participation of the SH. Urges the continuation of SH meetings until a draft conservation area rule set has been presented to the SH Committee for thorough discussion.* 4) DRECP staff said it wouldn't leave tough issues until the end, but it seems that is what is happening.	

Italics = Initial cut on whether comment may need Policy direction or other DRECP action
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Comments Received on the July 25-26, 2012 DRECP Stakeholder Committee Meeting		
Name/Affiliation	**Comments**	**Notes**
California Wind Energy Association	1) The Plan has lost its original intended balance and leaves neither the development or conservation communities with any sense of certainty. The Plan lacks an explanation of the BGOs of its restricted areas. None of the five Alts properly balance the desire for reserve areas with the need to preserve California's potential for RE development to support the state's 2020 RPS goals and reduction of fossil fuel use under AB 32. Everyone is therefore left wondering what will be gained and what will be lost if and when this Plan is finalized. 2) With concrete proposals presented by the REAT for the first time just weeks ago, we now feel the process is being rushed to an untimely completion. *CalWEA therefore joins many other stakeholders (SH) in calling for more time to evaluate and reconsider the Alternatives presented before a preferred alternative is selected and evaluated in the EIR/EIS process.* *3) If more time is not available, the Plan needs to accommodate a reasonable amount of flexibility, both for conservation and development purposes. This will allow for continued exploration of the appropriate siting of facilities and reserves for years to come. The DRECP's objectives are too important to California's economy and leadership position on the environment for high-level mapping to be misconstrued as specific micro siting definition.* *4) CalWEA specifically requests a continuation of the stakeholder process, which requires more transparency and dialogue to understand the July maps. The maps hold little meaning w/out accompanying explanatory text, e.g., references have been made to "rule sets" that have not been drafted or shared with SH or public. A set of transparent working sessions on specific topics will help ensure stakeholders' understanding of the assumptions feeding into the Plan as well as help ensure decisionmakers that the REAT Agency Team has considered specific relevant information.* 5) How the alts fall short: *i) Alts only plan for 2040, failing to account for the doubling of RE required b/t 2040 and 2050.* The plans presented could preclude the additional RE development that may be needed. No assessment has been made of potential land availability in the 2040-2050 timeframe and the associated effects on the renewable energy market and the cost of achieving AB 32 goals.	

Comments Received on the July 25-26, 2012 DRECP Stakeholder Committee Meeting		
Name/Affiliation	**Comments**	**Notes**
	ii) The alts do not preserve sufficient access to CA's best wind energy resources. All Alts plan for far more geothermal and solar generation than wind capacity – Alt 3 contains 23x more solar capacity than wind. Less than 1,000 MW of wind capacity is planned for under three of the Alts. iii) The DFAs in Alt 5 (the alt most favorable to wind) capture just 16% of the DRECP area's best available wind resources, and are likely to support only a fraction of the 6,600 MW of wind capacity assumed. An unrealistic 63% of the high-quality wind areas would need to prove developable, whereas less than 10% is realistic. iv) The REAT has not provided any assurance that areas outside of the DFAs will be available for development, or what criteria projects proposed in those areas will have to meet. *v) The Alts don't meet the grid and market objectives discussed by subject experts.* The Energy Roundtable Panelists discussed the importance of: not constraining development areas to such a degree that "painfully high" renewable energy costs would result; the public's limited willingness to pay for the renewable energy required to meet AB 32 goals, and the multiple possible renewable energy pathways to achieving those goals, which suggests the importance of developing a flexible Plan. *vi) The Alts were not designed around clear BGOs, w/out which biological reserves and DFAs cannot be coherently delineated, nor can the USFWS and CDFG ensure that the DRECP will meet state and federal legal requirements for HCPs and NCCPs that will be the foundation of the DRECP.* *vii) The Methodology supporting the Alternatives fails to evaluate the specific impacts of wind energy projects,* e.g., the Briefing Materials assert conflicts between wind energy development and various terrestrial species and wildlife connectivity areas while admitting that an evaluation of wind compatibility has not been done; e.g., the REAT hasn't accounted for the limited ground disturbance footprint of wind projects, apparently presuming impact over the entire lease area of a project, rather than the 2-5% that is actually disturbed.	

Comments Received on the July 25-26, 2012 DRECP Stakeholder Committee Meeting		
Name/Affiliation	**Comments**	**Notes**
	- The DRECP's lead independent science advisor noted potential compatibility with linkage areas and "a lot of" biological resources. - A rigorous study has documented the compatibility of wind development with the DT. *viii) A proposed 10-mile exclusion area around potentially numerous, unidentified eagle nests in the DRECP area is over-broad, arbitrary, and not supported by scientific evidence.* It is based on a sampling method that is biased toward wind development areas, assumptions about eagle movements that are not supported by data, and fails to take into account other land uses within the 10-mile buffer area that will bear on the success of the "reserve" area. ix) *A proper wind alternative is lacking and must be developed and analyzed with the following assumptions.* *- Up to 12,500 MW of wind capacity in 2040 should be analyzed to occur both in a revised set of DFAs (as modifications to Alt 2, Alt 5, or other Wind DFAs), and, as importantly, in defined "Wind Evaluation Areas." (CalWEA's Modified DFA is slightly less acreage than the REAT's Alt 5 Wind DFA, but captures 44% of high priority wind resources in the DRECP area vs. 16% captured in the REAT alt.) The analysis should be based on an appropriate ground disturbance "footprint."* *- Don't exclude high-value wind resources in areas hosting sensitive species and with potential land-use conflicts, but presume further study of these areas to determine compatibility w/wind developments before being authorized.* *- As avian impacts to special-status species should be addressed on a separate, parallel track before permanent lines on maps are drawn. The analysis should assume that wind developments will meet any BGEPA requirements and ESA laws while needed research is conducted.*	

Comments Received on the July 25-26, 2012 DRECP Stakeholder Committee Meeting		
Name/Affiliation	**Comments**	**Notes**
	- All wind developments would be subject to site-specific eagle studies and permitting under a limited, interim permitting process under ESA laws with associated BGEPA clearance. A long-term, programmatic eagle permitting process would be established based on the results of a 3-4-year defined research effort with defined funding sources. Therefore, the DRECP analysis should assume that wind developments will meet any requirements under BGEPA and ESA laws. - All wind developments in a defined California condor study area would be subject to site-specific studies and any needed, non-lethal take permits, pending research following DRECP issuance when take coverage may become available.	
Carolyn Allen	1) Opposes large-scale solar projects on farmland. Agrees with Pat Flanagan's May 11, 2012 farmland comments. Farmland is finite and should be protected for the future. B/c RE projects are receiving federal assistanct, they should have to abide by the Farmland Protection Policy Act, California Ag. Protection Act, and County Right to Farm Act. 2) Supports DG and EE. 3) Living plants cool the environment while solar panels heat it. Ag land provides jobs, where solar facilties offer few (9 jobs are lost for every 4 created). Imperial Co. farmland provides bird and mammal wildlife and wetland habitat. 4) RE results in increased electrical costs and decreased grid reliability.	

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Comments Received on the July 25-26, 2012 DRECP Stakeholder Committee Meeting		
Name/Affiliation	**Comments**	**Notes**
Center for Biological Diversity and Wildlands Conservancy	*1) Concerned to see that industry proposals from CEERT and CalWEA were evaluated under the proposed alts, but none of the recommendations from the conservation community were evaluated. Include an evaluation of the conservation community's recommendations.* *2) The range of alts should also include: i) a range of RE production targets in the alts rather than all targeting 20, 324 MWs. ii) alts that have a multiplier of less than 3-5x b/c development would be on disturbed lands, needing less flexibility, iii) the Palen project is incorrectly identified as a "BLM Verified ROW approved".* *3) Egregious that the propsed alts have no BGOs as underpinnings. W/out the scientific foundation, the conservation planning process is undermined.* *4) Alts are not clear in the following areas: i) Unclear how proposed SRMAs were identified or what the allowed activities would be. Concerned that SRMAs overlap w/ ACECs established for conservation. ii) "Land allocation" isn't defined. iii) neither ACEC or NLCS provides durability of conservation in perpetuity or prohibit activities contrary to conservation. iv) unclear on how biological sensitivity was determined; if mitigation ratios are based on incomplete data, then absurd.* *5) Specific comments on Alts.* *Alt 1: Unwieldy with the inclusion of Variance Lands -- w/them, the alt no longer is a "Low Resource Conflict" alt.* *Alt 2: Fails to meet goal of keeping RE development close to load to minimize Tx. Appears to encourage sprawl.* *Alt 3: Inappropriately includes key conservation areas and core habitat and movement corridors for DT and MGS in the DFAs.* *Alt 4: Inappropriately includes key conservation areas and core habitat and movement corridors for rare and endangered species, microphyll woodlands, and other resource conflict areas in the DFAs.* *Alt 5: Suffers from Alts 2-4, seems like "kitchen sink", not a carefully considered alt.*	

Comments Received on the July 25-26, 2012 DRECP Stakeholder Committee Meeting		
Name/Affiliation	**Comments**	**Notes**
	6) Analysis tables show land cover, not natural communities. *Generalized Mitigation Contribution Areas (pg 63) provides no criteria on how it was determined. Mitigation must be tied to specific impacts being mitigated.* 7) Strongly objects to any DFAs with high conflict to resources. *8) Suggests that more straightforward and reasonable alternatives be in the EIR/S based on best available science. Convoluted alts should be avoided.*	
Center for Energy Efficiency & REN Tech 7-31-12 and 8-9-12	*1) If no SH meetings, then recommend policy workshops on: i) DRECP interaction with local governments, ii) Mitigation and conservation alts, iii) Durability of mitigation lands.* *2) Clarify how DRECP will affect existing siting applications and variance areas. Recommends focusing the clarification on implementation on public lands. Private lands can be discussed at local government workshop.* *3) Would like opportunity to provide specific info for areas so can be put into DFAs (e.g., Polygons 17, 18, and 26).* *4) Recommends Alt 2 with adjustments be the preferred alt -- it's geographically balanced and aligned with existing and proposed Tx with moderate mitigable resource conflicts. Adjustments include: i) adding Variance Lands ii) expand to include West Mohave areas of the "bowling alley", five areas shown in provided map, and OHV land previously identified iii) removing heavily parcelized areas of W. Mojave. If not removed, then the area shouldn't be counted in the DRECP acreage goal.* *5) Concerned that the discount factors summarized in Secion 2.2 greatly overestimates the amount of developable land, e.g., ag land in Imperial County and heavily parcelized land in W. Mojave.*	
Cherry Good	1) Opposes all scenarios presented at April 25 meeting. The scenarios are incomplete, failing to reflect proposed development projects (e.g., wind on Black Lava Butte and Flat Top Mesa). 2) Should not rush into a decision based on superficial studies. 3) Redirect govt. incentives toward location generation projects. 4) Consume less. *5) BLM clarify the level of protection given to ACECs. Black Lava Butte and Flat Top Mesa need protection from development. ACEC status would provide that.*	

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Chuck Bell, Lucerne Valley Economic Dev Assoc	1) Lucerne Valley is included in and is surrounded by DFAs in all alternatives. *2) DRECP hasn't consulted with residents or had local meetings and should.* *3) Extend comment period beyond August 8.* *4) The DFAs violate the Lucerne Valley Community Plan and San Bernadino County General Plan, significantly adversely affecting the community's current and future land uses, potentially eliminating economic progress.* 5) Utility-scale RE development is heavily subsidized and can't operate on their own but will displace other land uses that can support themselves. 6) Build more rooftop solar before developing the desert.	

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David Beaumont, CA Off-Road Vehicle Assoc.	1) Suggestions for Mechanized and Motorized Dependent Recreational Activities (MMDRA): *a) Need better maps that show the ground routes are needed.* *b) Wherever possible, SRMAs, LLPAs, and any other lands should be connected by MMDRA routes when when separated by Biological Conservation Lands (BCL).* *c) BCL should not be used to isolate lands or restrict access for MMRDA to areas otherwise legally accessible.* *d) Setbacks from the centerline for all routes of travel for mechanized and motorized vehicles in BCLs should be 100 feet.* *e) BCL should not be "roadless" areas.* *f) BCL should not be managed as Wilderness Desigations or as Lands with WIlderness Characteristics.* *g) MMDRA transportation infrastructure within SRMAs, BCL, and DFAs should be designed for persons with and without disabilities.* *h) Funds collected via the DRECP should be allocated through a grant process to MMDRA organizations so they can maintain or improve recreational amenities in the Plan area.* *i) Instead of closing areas of concern as a solution, adopt a management process. Much access w/in the Plan area has already been lost.* *j) Use of private land in the DRECP area shouldn't be negatively affected by the Plan.* *k) Concern that some areas currently designated as Wilderness will be subject to higher levels of conservation. If that is the plan, we ask that public access isn't further restricted.* *l) They are about to submit a 1:100,000 BLM Surface Mgmt Status Desert Access Guides to be used as a basis to overlay MMDRA interest onto. Please use the info in the following way:* *i) convey the desire to keep areas of interest open and accessible for MMDRA* *ii) to plan routes and maps for MMDRA* *m) They resubmitted their May 2012 letter which described what they desire in DFAs.*	

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David Lamfrom, National Parks Conservation Assoc	1) Letter serves as an addendum to their May 2012 letter. They support the joint letters by CBD/TWS and DOW/Sierra Club/NRDC. *2) The August 9 deadline for comments on alts is premature .* More time is needed for them to provide specificity, esp. regarding Variance Lands that were just introduced. Consult the Southcoast Wildlands and the Morongo Basin Open Space reports to protect critical, identified linkages. *3) Remove high-conflict projects and areas adjacent to Nat'l Parks from consideration, e.g., wind projects in the "dinosaur footprint" and Silurian Valley, and solar projects like Caithness Soda Mtns and Stateline. Other projects like Calico Solar, Hidden Hills solar, Black Butte Mesa wind are still under consideration and should be removed from this process b/c they are not located in DFAs or federal SEZs, and are remotely located away from other projects and have resource values that heightens their conflict and potential for litigation, and discourages community support for the Plan.* *4) While several alts improve reducing fragmentation of the desert, re-introducing Variance Lands angers the community, weakening support for the Plan. Including Variance Lands complicates the conservation alternatives like Alt 1, which now includes lands that could have Nat'l Parks and connected lands. NPCA asks that VL be removed if located outside of a DFA. Introducing them returns to the "scattershot" development approach. Recommends the removal or reduction of VL from Alt. 1, specifically lands identified by the Nat'l Park Service as being high conflict as stated in their May 23, 2012 letter (submitted for the Solar PEIS?).* *5) Lands that conflict with DT habitat and migratory birds, especially public lands, should be eliminated from consideration.* *6) Concerned about 20K MW to be developed across all alts -- it doesn't allow for increased EE, improved storage or transmission or account for DOD's use of lands per the MOU.* 7) Unjust that CA deserts shoulder the burden of CA's energy projection. Invest more in DG, especially as economies of scale improve for PV panels. 8) Give consideration to tribes and communities and reduce conflict with them.	

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	9) Would like more explanation of the ACEC lands being proposed. Would like to participate in mitigation discussions as stakeholders. *10) Recommends the development of an environmentally preferred alt. that doesn't include or severely limits VL, assumes at least 25% DG (not 10%), reducing the total needed acreage to <900,000 acres and the needed MWs to <20K MW.*	
Deanna Ripley-Lotee	1 Don't put RE development on lands that have been designated and set aside for DT and MGS. Should not sacrifice animals for human needs. 2) Development will decrease populations of birds of prey and bats, which, w/out predators, will increase the insect populations, creating problems for humans.	

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Defenders of Wildlife et al.	1.) Incomplete Picture. With the absence of BGOs, a true evaluation of the proposed alternatives is not feasible. It is impossible to know how proposed land use designations would need to change to meet BGOs given various development scenarios. Specifically, *it is unclear in the briefing material what is meant by a non-biological ACEC, how areas with overlapping ACEC and SRMA designation will be managed, and how these designations fit into the overall conservation reserve design. The DRECP must prioritize finalizing the BGOs and structuring a reserve design to meet these objectives for covered species, natural communities and ecological processes. Developing BGOs after identifying the development areas is counter to traditional conservation planning and their past recommendations. Concern is that DRECP won't be able to achieve conservation standards required under NCCPA.* *2) Unclear what "rule sets" will dictate how development will be sited within each DFA to avoid conflicts with biological resources. Need clarification on how rule sets will apply to lands outside of DFAs.* 3) Supports the precautionary principle, limit development to the most degraded areas first -- *Alt 1 appears most closely aligned with the statutory requirements of NCCPA.* 4) Not enough time to fully analyze the alts, however, *initial comments are:* *i) An analysis of the proposed variance lands from the preferred alternative in the BLM's Final Solar PEIS should be conducted for all alts. Need clarification of the relationship b/t the DRECP and Solar PEIS; explicitly state how Solar Energy Zones and Variance Lands will be modified by the DRECP to meet BGOs and the overall conservation standards of the NCCP Act as provided for in the Final Solar PEIS. Lands found to be unsuitable for development should be excluded from development per the final PEIS.*	

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	ii) All alternatives should include: *o An analysis of the biological values w/in the DFAs and should be presented as high, medium or low conflict relative to the Biological Reserve Design Context.* *o Avoidance of sensitive cultural resources and tribal lands.* *o DFAs most aligned with the existing transmission infrastructure.* *o Avoidance of large, undisturbed, contiguous habitat for wide-ranging species, especially the DT.* *o Upfront consideration of DOD issues to ensure that their concerns don't end up pushing development into environmentally sensitive areas.* *iii) Alt 1: We support development on disturbed lands first and foremost, as avoidance of impacts to biological resources is the best strategy to ensuring the DRECP meets the conservation standards of the NCCP Act. While Alt 1 is titled, "Disturbed and Degraded Lands," it also includes BLM's proposed variance lands. To conform to the title and concept of this alternative the only variance lands that should be included are those that have been identified as disturbed by the DRECP disturbed land mapping exercise. Alt 1 doesn't appear to include all available type-converted acreage in Imperial County and the Antelope Valley, and Victor Valley areas. Some of the disturbed acreage may have been excluded to reflect LA County's identified environmentally sensitive areas; however it is not evident why other disturbed areas in LA County and elsewhere were omitted. In view of the fact that the DRECP purports to include even 1-20 MW utility side ground mount DG development, it is important to identify all disturbed open areas, especially if close to urbanization or clearly explain why some type-converted lands were removed. Lastly, DRECP should exclude from this alternative all lands within Rose Valley, which is within the MGS Conservation Area (i.e., BLM-designated Wildlife Habitat Management Area).* *iv) Alt 2: At this time, can't support Alt 2 -- not enough info to assure plan would achieve the biological conservation standards under the NCCPA. The briefing materials provide no justification for the additional 500,000 acres of DFA land that have been included in this option, which could serve to increase RE development sprawl across undisturbed desert lands.*	

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	v) Alts 3 and 4: Concentrating DFAs and RE resources in one geographic area most likely makes it impossible to meet the conservation objectives for species whose habitat is primarily in that area. Both Alts are inconsistent with the conservation standards of the NCCPA. These scenarios also present significant challenges for Tx planning. *vi) Alt 5: W/out compelling rationale to open over 2 M acres to development and a clear picture of the rule sets that will apply to siting development in the DFAs, we can't support Alt 5. Including an alt w/ a total DFA acreage many times larger than what a reasonable build out of large-scale energy is likely to be to meet California's energy needs up to 2040 is problematic for meeting our wildlife and habitat protection goals, our Tx planning needs, and BLM's mandates under FLMPA. Alt 5 could promote extensive renewable energy development sprawl by allowing build out across millions of acres of undisturbed land.* *5) Concern with the accuracy of the Biological Reserve Design Context. Does it include the newly released information such as the W Mojave vegetation mapping, expert review of species models, and recommendations from the June 2012 Independent Science Panel? Accuracy of the Biological Reserve Design Context is essential to the success of the plan because it is the foundation for decisions regarding the location of proposed ACECs, SRMAs, and mitigation lands. If the foundation for these decisions in inaccurate, all of the alternatives will be misguided in their placement of DFAs and reserve areas.* *6) Table 4.3 (p 55) indicates overlap of each alt with non-biological resources and land use allocations. Included are ACECs with overlap ranging from 9,218 acres in Alt 1 to 135,443 acres in Alt 3. Clarify where these non-biological resource ACECs are located and what they were designated to protect. We understand that the proposed Solar PEIS calls for excluding ACECs from solar energy development. The DRECP alts should be consistent with the Solar PEIS and exclude development within ACECs.*	

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	7) MW Target. The CEC's RE calculator estimated a target of 20,324 MW for all alts, including the No Action Alternative. However, the No Action Alternative target MWs will be determined based on which proposed or planned projects become operational, not on the CEC calculator projection. Clarify how the No Action Alternative target MWs were scaled to be the same as the other alternatives. *8) Various assumptions in the CEC's DRECP acreage calculator are still flawed -- too little EE, too much population growth, double-counting of EVs. Make changes and then call it the "high electricity demand case" not "reference case".* *9) In the DEIR/S, include an alternative with a MW target for the DRECP that is no more than 75% the current CEC MW target. This would not only allow for more undisturbed desert lands to remain intact, but would also more readily fulfill the conservation standards of the NCCPA. Including a lower MW target alternative could also help re-focus our efforts on developing renewable energy in the built environment, pushing for more energy efficiency measures and avoiding unnecessary trade-offs in our deserts. Given that technology is likely to change, lessons are likely to be learned, and biological information will be improved, we urge DRECP to consider this as a reasonable alternative in drafting the Draft EIS/EIR. Without an alternative that considers a lower MW target, it is unlikely that the chosen alternatives provide a proper "full range" of alternatives, since the lowest one offered is still potentially high based upon our estimation of need.*	

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Donna Tisdale	1) Impacts to rural communities are not adequately considered in these major discussions and decisions. 2) The disproportionately impacted low-income, rural community of Boulevard (pop. 1,500+/-), in East San Diego County is just outside the DRECP boundaries, but some projects in our area are included-without the benefit of analysis. 3) The existing 25 Kumeyaay Wind turbines are making people sick and generate complaints w/in a 3+-mile radius. The cause of the 2009 catastrophic failure at Kumeyaay Wind has never been disclosed, despite repeated requests. 4) At least 5-7 additional wind projects and a dozen solar project are proposed nearby. 5) Concerned about basic human rights and state and federal laws that are supposed to ensure safe and healthy living environments, without prejudice, and protection of wildlife and recreation areas. 6) Sees a conflict of interest w/ David Hayes (DOI). The system is broken -- corrupted and not working. The usual suspects are getting richer at the expense of the impacted citizens and human and natural communities. DRECP is now part of the problem IT IS NOT PART OF THE SOLUTION. The monopoly utility model is taking us backwards instead of forward. The key is local, local, local-point of use projects that actually help reduce costs for participating utility rate payers instead of raising them. 7) This is a expensive effort to force industrial scale wind and solar and related infrastructure onto and through public and private rural lands is unnecessary and ill-advised. *8) Questions for DRECP and other decision makers:* *i.) Where is the evidence that massive wind and solar projects, with their necessary back up generation, actually reduce Green House Gas Emissions?* *ii.) What are the direct, indirect, and cumulative adverse economic impacts to utility rate payer and tax payers from DRECP, Cap and Trade, BLM's Solar PEIS, REAT, RETI, federal incentives, state incentives, local incentives, and who know what else?*	

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	iii). Will they result in unaffordable $7 gas, $4500 increase in utility rates per family, and an increasing outflow of companies and jobs trying to escape the unsustainable madness? iv.) How will these designations /energy zone overlays impact property values? v.) What are the related public health and safety costs of adverse impacts? vi.) Where are the independent scientifically valid and truly peer-reviewed studies on adverse health effects generated by noise, low frequency vibrations, electromagnetic and microwave radiation emissions? vii.) Where are the unbiased studies on the direct, indirect and cumulative impacts to wildlife from the increased noise, vibrations and EMF/RFR/Microwave Radiation generated by these massive and disruptive projects? viii.) Where are the independent non-industry biased and scientifically valid noise and vibration studies for the installation of industrial wind turbines near sensitive receptors-humans, wildlife, livestock? ix.) Where is the independent scientifically valid research on the electromagnetic/radiation pollution generated by 4,000 acre energy generation projects that abut rural homes and sensitive habitat? x.) How do you rationalize going forward when global calls for industrial wind moratoriums-pending health impact assessments? xi.) How do you respond to recommended turbine noise measurement and restriction recommendations in order to protect public health and safety? 9) There is much more to say, but *too little time to prepare and limited public testimony opportunities and time limitations.*	

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Edward L LaRue, Desert Tortoise Council	1) Most of the alternatives would facilitate and focus impacts on essential desert tortoise habitats in an egregious and unacceptable manner. 2) *It appears that DRECP is directing and facilitating new impacts to threatened and imperiled species beyond that which the plan can effectively mitigate. If the alternatives are implemented as currently presented, the Council would argue that you have not met either USFWS's or CDFG's mitigation standards.* *3) Particularly concerned that important habitats within the Desert Tortoise Research Natural Area (DTRNA) appear to be included in 4 of the 5 alts (all but Alt 4). Show future maps w/the boundaries of the DTRNA so relationship between DRECP's proposed alternatives and DTRNA can accurately be seen. Alts 3 and 5 would directly impact 80-to-90% of the DTRNA and Alts 1 and 2 would impact contiguous areas west and southwest of the DTRNA, likely resulting in adverse indirect impacts (see their submitted maps for detail). B/c Alts 1 and 2 could result in development of areas to the west that are upwind of DTRNA, we expect that windblown dust, introduction of exotic native plants, subsidies of tortoise predators (particularly ravens), and other indirect impacts are likely to affect tortoises within the DTRNA.* 4) It would constitute a significant impact under CEQA and an unacceptable impact to the Council to develop DFAs that directly or indirectly impact perhaps the only expanding population of tortoises in the entire West Mojave at the DTRNA. 5) *Alts 3 and 5, in particular, and Alternatives 1 and 2, less so, would concentrate RE development on the population segment of tortoises occurring in the W Mojave area, which is, arguably, already the most imperiled tortoise population segment within the DRECP planning area. Even if the DTRNA were not directly affected, concentrating renewable energy in the W Mojave significantly adds to the cumulative impacts of expanding military bases (both by the Army at Fort Irwin and by the Marines at Twentynine Palms), existing BLM vehicle open areas, cattle and sheep grazing allotments, and the proximity to expanding urban areas of the Antelope Valley, Victor Valley, Barstow, and Morongo Basin (Yucca Valley to Twentynine Palms as per Alts 3 and 5).* 6) The Council would not be so concerned if development were proposed on existing agriculture west of Hwy 14, urbanizing areas elsewhere in the Antelope Valley and Victor Valley, on roof tops w/in urban areas, and other compromised habitats. DFAs on or immediately adjacent to the DTRNA in occupied habitats represents a serious new threat that would not exist "but for" the DRECP.	

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	7) Maps should identify exisitng and proposed Tx lines/corridors proposed by any entity, not only DRECP. The public needs to know what choices there are for planned Tx corridors. *8) We strongly advocate that the preferred alternative given in the DEIS be modified in certain proactive ways so that the preferred alternative in the final EIS reflects those changes.* *9) There's an existing MOU b/t BLM and DTPC, NO renewable energy should be developed w/in the DTRNA.* *10) DTPC has purchased mitigation lands E and W of the DTRNA (see Attach 1), that should NOT be available for RE development.* *11) Given an existing MOU, implementing agreements, and other legal documents, DRECP is obligated to show the DTRNA as a legally-protected area on maps.* *12) The DRECP analysis must consider both the direct and indirect impacts to tortoises within the DTRNA that result from adopting all alternatives, and particularly Alts 1, 2, 3, and 5. If implemented, these are impacts that would not occur "but for" the DRECP, and would undermine decades of effective tortoise conservation w/in the only parcel of land fenced and therefore physically protected from OHV traffic and sheep grazing. And, maybe the only relatively large region in the W Mojave where tortoise recruitment is occurring.* *13) The Council needs maps showing site-specific mitigation parcels relative to the DFAs envisioned by the Alts. The Council would not support any development on mitigation parcels previously acquired to offset impacts to desert tortoise-occupied habitats.* *14) Explain meaning of "…administrative units where the existing or proposed recreation opportunities and recreation setting characteristics are recognized for their unique value, importance, and/or distinctiveness; especially compared to other areas used for recreation." Does DRECP or BLM plan to use this designation for enhanced recreation in DWMAs, which are the only places ostensibly designated to conserve and recover DT?* 15) For easier reference, assign Figure numbers to all maps in future documents. *16) Discourages adopting or rejecting any particular alt in its entirety. Typically, no one alt serves all needs; the best alt is often one where certain components of rejected alts are fit into the preferred alt that is eventually adopted.* *17) Concerned that there were no experts representing the MGS on the ISA, which overlaps in much of its range with Agassiz's desert tortoise -- MGS is imperiled enough already that it warrants heightened attention.* *18) Seriously concerned that RE development -- not conservation of imperiled species -- has been the primary driver of the planning process.*	

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Ellen Schafhauser	*1) Extend the comment period to August 26 or later.* 2) Supports the statements of Jane McEwan of the Desert Tortoise Preserve Committee. 3) Has been working as a desert tortoise biologist on many RE projects and Tx lines and has witnessed the habitat framentation of the American southwest. *4) Multiple alts. include DFAs that encompass most of the DTRNA (and other protected lands, such as Research Natural Areas, ACECs, critical habitat or lands acquired with public donations and mitigation funds) as well as large areas of critical habitat adjacent to the Rand Mtns and Fremont Valley. To develop in the DTRNA violates the public trust, breaches contractual obligations.* *5) Lands acquired for mitigation of other projects should also be expcluded from RE development. Alts 2-5 are being proposed despite obvious conflicts with conservation principles. Conflicts are reduced with Alt. 1, but including Variance Lands may result in the loss of connectivity between protected habitat and known populations of covered species.* *6) Future alternatives should overlay existing RE and Tx projects to allow for more accurate evaluation of the adequacy of the conservation lands. More definition of SRMA is needed.*	
Ernie Gommel	*1) I protest the shortening of the comment period and the elimination of public meetings of stakeholders regarding the five scenarios siting wind and solar development in our High Desert, particularly Lucerne Valley.* *2) A significant portion of Lucerne Valley has been designated as a DFA in all five alternative scenarios. This violates the San Bernardino County Master Plan. It is an inappropriate use of a rural, residential, and recreational area of the desert. We strongly protest this invasion of our homes.* The comment and input period MUST be extended beyond August 8. You must NOT INVADE our desert in this way!!	

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Frazier Haney, Save Our Desert	1) Save Our Desert, based in Pipes Canyon, California, and is currently working to protect Flat Top Mesa and Black Lava Butte from development as an industrial wind farm. So far, almost 3,000 people have signed a petition opposing this development. *The area is a unique landform with unique soils. Several special-status plants are known in the area. They are an important landscape linkage for species, and could be more important for species distribution shifts in response to climate change.* *2) The Pipes Canyon Buttes are home to significant cultural resources, including village, ceremonial, and possibly religious sites. The resources are close to being ready to be officially recorded.* 3) Industrial renewable energy development will fundamentally alter the nature of the rural communities. To date, much of the ire that has been raised by development projects throughout the rural desert areas has been due to misinformation or a lack of any communication with local communities about what planning efforts will mean to the way of life many people have worked extremely hard for. *Local communities need to be given a seat at the table for a development planning process that will affect their way of life.* In the instance of Pipes Canyon, the San Bernardino County's general plan calls for the area to retain a rural character. Industrial RE development would threaten the community character for tens of thousands of people in the local communities who came to the desert for its wide open spaces. *This is an unacceptable site for any industrial development. Protect the area as an ACEC under the planning umbrella of the DRECP.*	

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	4) We ask that the "Variance" process be removed entirely from any further planning considerations in the DRECP, because we can see that across the California Desert, "Variance" will pit small communities against the BLM and RE developers and cause massive conflict as local people fight to preserve their way of life. 5) We are encouraged by Deputy Secretary Hayes's July 25 comments in connection with the need to carefully consider all of the ecological implications inherent in utility-scale installations on wild desert lands. 6) We believe the DRECP is the right process to achieve both conservation in the desert region and our GHG reduction targets. We also believe that the underlying drivers of utility-scale RE must be questioned at every step of the process, and that all efforts need to be focused on energy conservation practices, distributed generation in the built environment, and a full scale effort to democratize our energy production. All efforts should be made to keep industrial development away from wild desert landscapes and rural communities.	
Greg Suba, CA Native Plant Society	In addition to their joint letter with other NGOs, they have add'l specific comments. With info from the new Vegetation Map database, it is now possible to generate more spatially accurate, finely-scaled disturbance and /or conservation values for mapped land units. *CNPS strongly urges the integration of the new Vegetation Map info into the development of the BGOs, Conservation Reserve design, and DFAs.* Examples provided.	

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H. Marie Brashear	1) Reconciliation between the BLM/Solar PEIS and the DRECP should happen now. 2) As best as can be told from the maps, the REAT/DRECP does not reflect the promise to recreationists that no part of the OHV areas would be included in the DFAs. 3) New maps were provided on August 30, 2012. Not even two weeks were allowed to develop informed comments. A subject this expansive and important, 30 days minimum should have been specified. Again, *inadequate review and comment time.* 4. We are concerned that the CEC is wasting time preparing rules and designating appropriate areas for PV solar installations. The CEC doesn't have the authority to regulate PV solar installations. *5. The five alts present too few scenarios. At a minimum there should be an alternative which does not develop RE resources on lands adjoining tourism based communities. Each of your five alternatives surrounds Lucerne Valley with DFAs. For this community there is NO acceptable alternative within the DRECP alternative scenarios.* 6) Millions of dollars have been spent developing and implementing the BLMs California Desert Plan. This Plan is the single largest HCP/NCCP in the nation. The DRECP is busily dismantling it. 7) The DRECP science advisors are not now and never have been "independent" and this should be remembered when commenting on the Plan. What should be remembered is that there is an existing HCP and a NCCP. 8) The Society for the Protection and Care of Wildlife does not believe that any of these alternatives protects all the wildlife waters or the wildlife corridors. *9) The Society believes the DRECP should (1) extend the comment period (2) Hold at least one meeting at or near the towns and communities near DFA zones (3) include additional scenarios (alternatives) including one which has no DFAs adjoining desert communities.* 10) There is currenly insufficient infrastructure to support the objectives of California. *As interim steps, the DRECP should give priority to i) fallow agriculture lands close to existing infrastructure. ii) Provide a low or no interest loan/grant available to private property owners located near existing infrastructure, to install alternative energy sources on their homes and/or businesses.* 11) The Society cannot support any of the current alternatives until significant changes have been made.	
ixlr88	Take your "Wind and Solar Development" to Antarctica!!! These are our homes, this is where we chose to live, when everyone thought we were crazy for living in the high desert. Now, when it suits your needs, you want to take away our privacy and solitude. It cannot be allowed!!!!	

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James Diven, RES Granite Wind	*1) Their project is located in either Polygon 36 or 42. Their project is mapped incorrectly.* *2) The alts. show the Granite Mtns as High Bio Sensitivity Public/Private --not clear how/why?. The 5 alts significantly inhibit and exclude wind energy projects from the entirety of the area -- explanation needed.* *3) How will DRECP "grandfather" the projects with PPAs or shown permitting progress?* *4) Unclear how science was used to develop proposed Biological Conservation Areas. Were surveys conducted by the agencies or were site specific surveys prepared by RE applicants incorporated? Provide the data sources used for the determinations and modeling.* *5) Granite Wind supports Scenario 6, why was it dropped?* *6) When will these 5 alts be modified to incorporate the comments from the Independent Science Advisors?* *7) Would like the specific Marxan inputs used for the 10-mile radius of the Granite Mtn project.*	
Jennifer Anisman	*1) Opposes the inclusion of the Desert Tortoise Research Natural Area as a "Development Focus Area" for large scale, wind and solar power generation plants. This plan disregards the fact that the California Desert Tortoise, our State reptile and a species that has survived since the age of the dinosaurs, has seen an unprecedented decrease of numbers over merely the last 25 years and is now an endangered species.* 2) The DTRNA has been carefully created and maintained by a diverse group of Californians and introduction of your plan in this area disregards the mitigation funds used to purchase much of the land within the DTRNA and reverses over 40 years of policy and expenditures to protect the habitat for the desert tortoise and other sensitive species. Our deserts our not "deserted" and the remaining delicate ecosystems count on human beings to protect it with integrity and foresight.	

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John Dugan	1) I am a residence of Pioneertown and past President of the home owners assoc. I have spent the last 10 yrs trying to keep the Old Town in good repair and clean for the tourist. We have taken great pride in our small community and love the western atmosphere. *This project does not fit in our community as the LADWP Green Path did not fit.* We have a movie's and video's shot here several times a year and this project would all but kill that. Not far from our quaint town are wind mill farms and a solar industry. Why would anyone want to destroy the pristine nature of this community. All I can promise is that we will support all legal action to stop this project.	
Judith Dean	Preserve the El Mirage Dry Lake bed. It has a long history and is important for land time trials.	

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Leslie John Barrett	1) Applauds the July 13 workshop -- it represented the best of collaboration and information sharing on what should be achieved through careful coordination and study. 2) The alts fail to utilize the abundant wind energy resources in the plan area. There is a bias that renewable wind energy development and species protection cannot co-exist, despite the lack of any studies to suggest this perceived incompatibility. *3) Recommends the No-Action Alt b/c no alts account for the best CA wind resources.* *4) Would like more explanation E47of the potential benefits of a project being sited within a DFA or the process for a project sited outside a DFA -- the merits or mitigation requirements.* 5) To date, no comprehensive studies have been completed to document where golden eagles forage and nest or whether there is a regular stream of non-resident golden eagles available to re-populate a nest should one become available. The wind energy industry has and proposes to make great efforts and provide extensive funding to better study, manage and enhance the populations of golden eagles in the desert. *6) The DRECP seeks to prohibit RE research on thousands of acres of BLM lands on the auspices that the golden eagle and renewable wind energy are incompatible, however OHV* *use is not discouraged in potential golden eagle habitat areas. No studies support this rationale; however, numerous studies to suggest that wind energy projects, even those few that have unfortunately resulted in the loss of golden eagles, generally have a minimal effect on the resident local golden eagle populations.* 7) Example, in Kern County, the flat land immediately west of State Route 14 and north of State Route 58 has both excellent wind and solar resources, yet is not in a DFA, but is designated SRMA. 8) Example, Stoddard Ridge in San Bernardino County is a wind resource area w/ DOD approval. Much is known of the golden eagles in this area and the fact that their nests and forging areas are to the south of the proposed wind energy project. Nevertheless, the DRECP proposes to include the wind project area in an ACEC despite the lack of any supporting information. The golden eagle foraging are to the south of the project is being considered a solar DFA.	

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	9) Vast areas of the California desert are being reclassified as ACEC w/out any studies to determine whether they truly are areas of critical ecological concern or whether limited wind energy development can co-exist. *10) Why is OHV use acceptable in the some new ACEC areas while wind enegy isn't? Wind development can be compatible with OHV use (e.g., El Paso hills, Riverside/Imperial County border south of the Chuckwallas).* 11) There is no reason why the ACEC designation should prohibit a responsible wind energy development application from offering to conduct independent studies to understand, and possibly mitigate for potential impacts. *12) Believes the ACEC designations were made through the arbitrary and random decisions w/out supporting info. The wind and solar industry stands ready to conduct studies to provide info to better manage the limited and sensitive resources.* 13) Appears to be a clear emphasis on solar DFAs over wind DFAs. This will increase electricity rates through an artificial distortion of the RE markets. Failing to provide wind energy development will also impact the reliability of the renewable energy generation system in S. CA. Diversity of renewable energy type and geographic location is critical to meeting the electrical demands of our citizens as was clearly stated repeatedly during the Energy Roundtable discussion. 14) There is little evidence to suggest that wind energy development is feasible in the populated areas north of the San Gabriel Mountains or Eastern Riverside County or southeastern Imperial County (due to DOD concerns). *15) When asked why potential wind energy zones are not shown by technology type in any of the alternative maps, the response was that they were too small an area to show independently. This is truly unfortunate for a comprehensive renewable energy plan in the best wind resource area of California.* 16) It will be a loss if wind energy generation is not a part of the DRECP.	

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Linda Gommel	*1) I protest the shortening of the comment period and the elimination of public meetings of stakeholders regarding the five scenarios siting wind and solar development in our High Desert, and particularly in Lucerne Valley.* *2) A significant portion of Lucerne Valley has been designated as a Development Focus Area in all five alternative scenarios. This violates the San Bernardino County Master Plan. It is an inappropriate use of a rural, residential, and recreational area of the desert. We strongly protest this invasion of our homes.* *3) The comment and input period MUST be extended beyond August 8.* 4) You must NOT INVADE our desert in this way!!	

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Mary Jane McEwan, Desert Tortoise Preserve Committee	1) Requests the time period for comments be extended until August 26, 2012 or later. 2) Title to substantial acreage the DTPC Inc. acquired w/in the DTRNA was transferred to the BLM with the understanding that it would continue to be protected under existing federal mandates. In addition to transferring lands in fee title to BLM, the DTPC also has conveyed and is conveying conservation easement deeds to the State of California as required by state Incidental Take Permits and Streambed Alteration Agreements. 3) Shocked and dismayed that multiple alts for DFAs encompass most of the DTRNA and a large area of critical habitat in the adjacent Rand Mountains and Fremont Valley. *Development in DTRNA threatens 40 years of land-use planning, management, and protection of threatened and endangered species by the BLM, USFWS, and CDFG.* It violates the public trust and sets up lawsuits for statutory violations and for breaching contractual obligations made under state and federal laws requiring mitigation by developers on past projects for the destruction of critical habitat for threatened and endangered species in other areas. By adopting any of the alternatives that create development pressures on habitat in and around the DTRNA, the DTPC Inc. and regulatory agencies are also exposed to significant legal liability for unauthorized trespass and degradation of conservation values of habitat that are to be strictly managed under conservation easement terms. 4) Provided a description of the history of the DTRNA and DTPC. 5) All lands acquired for mitigation of impacts for other development projects should be excluded from RE development. 6) Disconcerting that Alts 2, 3, 4, and 5 are being proposed *despite obvious conflicts with a number of conservation principles* (e.g., conservation of large, contiguous blocks of habitat for covered species, wildlife and habitat connectivity, conservation at the ecosystem level, and the maintenance of local ranges of environmental gradients to provide for shifting species distributions, such as may occur with climate change.)	

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	7) Although the extent of some of these conflicts is reduced in Alt 1, inclusion of Variance Lands may result in a loss of connectivity between important protected habitat and known populations of covered species. 8) Future drafts of alternatives should overlay existing renewable energy projects, as well as existing and proposed transmission lines, on the maps showing the DFAs and plan-wide conservation areas, to allow for a more accurate evaluation of the adequacy of conservation lands given current and future impacts due to renewable energy. 9) The implications of SRMAs should also be clarified. The provided definition is vague. Important that stakeholders and the public understand how plan-wide conservation areas on public lands will actually be managed. 10) The DRECP alts seem to reflect a fundamental disconnect with the DRECP's primary mission. 11) Much work is needed to provide a real set of alternatives for the DRECP where there's more consideration of wildlife connectivity and ecosystem level conservation and which accurately designates protected private and public lands and excludes them from DFAs. *12) DFAs should not include existing Research Natural Areas, ACECs, critical habitat or lands acquired with public donations and mitigation funds for the protection of habitat for the DT, burrowing owl, MGS, and other sensitive species.* 13) The DTRNA should be represented as a legally and legislatively protected area and excluded from any DRECP DFA.	

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Michael Azeka, AES Wind Generation	1) Many portions within the land designated as biologically sensitive w/in the Alts are not sensitive. Either better data or better policies that allow flexibility for future site-specific studies that confirm the actual conditions are needed. The Alts eliminate large swaths of land because some sensitive portions occur in otherwise non-sensitive sites, resulting in the elimination of vast windy areas of the state. 2) Concerned that the DRECP will be rushed to adoption with a plan that is inadequate, that insufficiently considers balanced goals, that is formed on incomplete science, and that results in severely hampering wind power for the next 28 years. For example, *the maps need refinement, not all mapping data has been received, the biological information is incomplete, and most avian studies are unsubstantiated. We are anxious that a poorly assembled plan and Alts will be pushed forward, and little wind energy will result.* *3) The DFAs include low wind speed lands that are not usable by the wind industry if the wind output is not commercially viable.* Low wind speeds result in more expensive electricity and less electricity generated. Simultaneously, the low cost and abundant supply of natural gas will set a low market price for electricity for most of the next 10 years, based on expert forecasts. Consequently, restricting wind power way from the higher wind speed sites will kill the economic viability of wind power in California, resulting in little growth of wind power, fewer jobs, less tax revenue, and less pollution-free and low water use electricity. *4) Based on these reas+E50ons, we request the DRECP Alts include substantially higher wind speed lands (> 6.5 m/second) so that a significant portion of California's renewable energy goals can be met by the lowest cost, most proven renewable electric source, wind power.*	

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Michael J Connor, Western Watersheds Project	1) B/c the very preliminary nature of the materials being presented for public review at this time, the absence of the clearly stated biological goals that are essential to understanding the likely effectiveness of the conservation strategies, and the minimal comment period it is impossible for the public to make informed comments at this time. *The CEC must ensure that adequate opportunities are provided for future public input into these alternatives as this process develops.* 2) The range of alts considered in the scenario document is inadequate since all of the alts including "no action" (i.e. a "no DRECP") include public lands and all include BLM lands identified in the Solar PEIS as available for energy development under the variance procedure. *T he range of alts is inadequate and unreasonable since all would impact existing known important species habitats, critical habitats, and ACECs* -- areas critical to the conservation strategies underlying the BLM's land use plans. These designations were developed in prior planning efforts. Any modification of these areas requires a full evaluation of the effects of these impacts on the conservation strategies underlying the California Desert Conservation Area ("CDCA") plan as amended by the various sub-plans. *3) The conservation areas identified in the maps include areas that already have projects under construction; for example, the ISEGS power plant in the northern Ivanpah Valley.* 4) DRECP must consider additional alternatives to rectify this failure to consider a range of reasonable alternatives. 5) Suggests the following additional alternatives: i) *Modify Alt 1 to remove all public lands from energy development unless they are isolated nature and prove to have low resource value to special-status plants or wildlife nor contain cultural resources or other sensitive resources. All public lands within the BLM's designated MGS conservation would be removed from further consideration.*	

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	ii) A "Meeting Target MW" Alternative. Currently, all the alternatives including no action have similar MW targets. This ignores the contribution that will made by projects already under construction and projects in the advanced planning stages. The Meeting Target MW Alternative will provide alternative analyses for each proposed alternative but will reduce the "Total MW" proportionate to the MW from these already permitted projects. *6) Can't support Alt 1 b/c of known resource conflicts and the use of over 82,000 acres of public lands as DFA. Alt 1 should be heavily modified or renamed since it includes areas of high resource conflict, e.g., it includes a solar DFA in the Rose Valley region within the BLM's MGS conservation area. Development in this area would impact connectivity between the Coso-Range-Olancha Core area and the Dixie Wash Core area as identified in Leitner, 2008.* The area also includes some of the most northwest records for desert tortoise. Connectivity in this area is already constrained by geography and by existing development. Conservation of all remaining habitat in this area is essential, and in addition may be paramount in providing for the resilience for both species in the face of climate change. The focus for energy developments should be on private or severely altered lands to minimize new disturbance and not further fragment fragile, native ecosystems. 7) Alts 2-5 increase the size of the DFAs by outrageous amounts w/out much of change in the expected MWs produced. They seem to be designed simply to allow sprawl across the desert. Absent biological goals and objectives, the conservation strategy is not evident at all. 8) *Alts 2 and 5 include parts of the DTRNA which is an internationally renowned preserve for DT and many other special-status species including the MGS.* Evidently, the CEC seems no longer aware that some of the private in-holdings in the DTRNA and surrounding area were acquired through CEC mitigation funds.	

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	9) All the alts should be use the DTRNA jewel of a preserve as the focus for an expanded conservation area not seeking to obliterate it or create an island in an industrial wasteland. In 1993 Federal Register notice for the proposed critical habitat determination for the desert tortoise Mojave population, the USFWS noted, "The Service does not propose the Desert Tortoise Natural Area (DTNA) and Joshua Tree National Monument, in California, as critical habitat since these two areas already receive adequate protection. However, because these two areas are important to the recovery of the tortoise, the Service may reconsider designating these areas as critical habitat should changes in current management activities occur." In the 1994 Final determination, the Service further notes "These lands are essential to the conservation of the species because they provide important links and contain large areas of contiguous habitat." The DRECP should take heed of those statements and drop these unreasonable, outrageous, and clearly litigable alternatives. *10) Both the W Mojave Emphasis and the SE Emphasis alternatives are deeply flawed since the impacts of developments in DFA in either of these areas cannot be simply mitigated elsewhere.* The California deserts are a complex, wonderful mixture of multiple ecotypes with many geographically restricted species. Focusing on one area of the desert may severely impact species that occur there that are rare or not found elsewhere. This makes developing a conservation strategy difficult and complicates mitigation. (provides Ivanpah mitigation as an example of how complicated it is to mitigate in the desert) *11) If the DRECP is to function as a serious conservation plan, t he DRECP should consider enhanced conservation measures for existing defined habitat conservation areas to ensure that these habitat areas are conserved to strengthen existing conservation strategies, e.g., the entire BLM MGS Conservation Area should be designated as an ACEC.* The DRECP needs to fully consider conservation needs before it can determine not only the size of sacrifice areas but whether in fact any areas of our fast-disappearing deserts can be sacrificed.	

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Pat Flanagan, Morongo Basin Conservation	Comments re: Polygon 11, E. of Big Bear - Economy and Aesthetics 1) Comments re: Polygon 11, EAST OF BIG BEAR. i) Aesthetics and Economy. Industrialization of the area will damage visual resources and can harm human health due to low frequency vibrations (esp. for those living w/in 1-2 km of turbines), which will greatly reduce property values. ii) Bio Resources - Loss of Connectivity. Under 'potential biological conflicts' (page 71) only the 21,587 acres of desert linkages is listed, leading to speculation that the mountain sections of the designs are not evaluated. *Specific questions:* *a) Are both linkage design connections (see map) considered in their entirety; or, are only those parts of the connections within the desert areas (east of Hwy 62) considered? Is the SB-LSB Connection considered at all?* *b) The total number of modeled DRECP species for this polygon is 23. Are these species included in the 23 focal species of the SB-LSB and the 25 focal species for the JT-29P connections? The focal species were chosen based on the diversity of their movement needs and living requirements. Are these criteria factored into the DRECP modeled species?* *c) To conserve biodiversity between the three wildland blocks: San Bernardino Mountains, Joshua Tree National Park, and Twentynine Palms Newberry-Rodman ACEC, the two linkage designs must be maintained over time. How does the DRECP plan to achieve this?* *d) The multiplier for wind ranges from 3-5 times the actual ground area disturbance. The nature of the disturbance – thousands of turbine pads with cleared areas and hundreds of miles of hillsides scarified by access roads – will fragment habitats across this topographically diverse landscape. Similar to industrial solar development, it is prudent to assume that it is unknown how this fragmentation will affect the biological values and linkage function across this large area. The loss of biological values and linkage function is unmitigatible.*	

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	e) Conservation of the land facets is critical to preserving the connective value of the corridors in an uncertain climate future. However, land facets have not been mapped for the *San Bernadino-Little SB and Joshua Tree-29 Palms Connections. To properly evaluate the land fragmentation caused by the construction of wind turbines over thousands of acres, land facets for these connections should be mapped.* iii) Wildland Fire Hazard. Wind turbines have caused wildfires in the recent past and should be evaluated. *Wind energy companies should be required to post a bond sufficient to cover the expenses of wildland fires caused through failure of their technology. Local residents & fire districts should not incur the expenses for fire response and damage related to turbine malfunction.* *2) Eliminate Polygon 27 from consideration because of its size (28,177 ac) and location. It completely blocks the land facets connecting the Mojave National Preserve-29 Palms and Newberry Rodman landscape blocks. There is no similar connective landscape for mitigation.* 3) The individual communities closely associated with ecologically valuable resource areas are the real conservators (See UNESCO Man and Biosphere Program). If the DRECP (and PEIS) do not value community needs, than conservation priorities may suffer from this neglect. Residents who once contributed their own funds to purchase private lands for protection and then spent hours restoring that land may find other uses for their energy, time, and money. *The DRECP should become aware of the lessons learned by countries that started industrial scale wind and solar development long before we did, and apply them as they evaluate the alternatives.* *4) Reach out to and involve the community members that will live with the results of your decisions.* You will become familiar with the local economy, the land use, conservation, and open space elements in General Plans. Outreach will help ensure that the DRECP is a conservation plan. 5) We support a scenario that doesn't develop renewable energy in the high-desert, tourism-based communities. While don't support utility-scale solar and wind development in the Morongo Basin, we do support RE and have not opposed small-scale RE projects. A*dopt Alt 1 after first deleting the Variance Lands or the adopt Alt 2.*	
Rachel McMahon, First Solar	*1) Clarify bio reserve design, off-limits areas, potential bio reserves & study areas;* *adopt definition of "pending projects" on fed & priv. lands.* *2) Revisit transmission assumptions.* *3) Keep Alt. 4 given Imperial Count'sy high solar resource, despite transmission limitations.*	

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Richard and Mary Thomas	*1) I protest the short comment period and the elimination of public meetings of stakeholders regarding the five scenarios siting wind and solar development in our High Desert, and particularly in Lucerne Valley. The comment and input period MUST be extended beyond August 8.* 2) A significant portion of Lucerne Valley has been designated as a DFA in all five alternatives. This violates the San Bernardino County Master Plan. It is an inappropriate use of a beautiful and historic rural, residential, and recreational area of the desert. 3) We strongly protest this invasion of our homes. You must NOT INVADE our desert in this way!!	
Robert Parker, Ridgecrest Chapter of the CA Turtle and Tortoise Club	1) Supports the idea of creating alt energy zones as it allows for the planning of the development of alternative energy in an organized manner. *2) Concerned with Alt 5 as this zone includes areas that impact valuable resources as well as areas that would be difficult, if not impossible to develop; e.g., the Desert Tortoise Natural Area, north of California City and the Rand Mountains-Fremont Valley Management area (Critical habitat for the desert tortoise).* The Desert Tortoise Preserve Committee has provided excellent comments that provide more complete information. The area also includes Koehn Lake, an area that has water in the winter and dries up in the summer. Anything built on the lake bed would sink into the mud in the winter. *3) I would appreciate more time to review the alternatives.*	
Sarah Kennington & Steve Bardwell	*1) Supports Alt 2 or Alt 1 without Variance Lands.* *2) Proposed wind projects like the Element Power project on Black Lava Buttes will harm their views and property values.* 3) Ill-sited projects will harm scenic and cultural values and wildlife habitat.	
Shannon Eddy, Large-Scale Solar Assoc.	*1) Alt.2 w/some additions from Alt. 5 is preferred given its diversity features.* *2) Clarify bio reserve categ./rules.* *3) Ensure modeling followed by groundtruthing.* *4) Regarding Variance Lands, be consistent w/Solar PEIS; pending project definition for federal lands be consist. w/ Solar PEIS, and similar for private lands.* *5) Local govt. role/permitting processes need update & clarification.*	

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Sheila Bowers	1) Rooftop and other urban DG options will provide sufficient energy per NREL study 2) Stop desert "wilderness killing" approach 3) Adopt Feed-in-Tariff	
Shelly Ellis	*1) Strongly opposes including the Desert Tortoise Research Natural Area (DTRNA) as part of the DFA.* Multiple alternatives for DFAs in the DRECP encompass most of the DTRNA, as well as a large area of critical habitat in the adjacent Rand Mountains and Fremont Valley. By recommending that power plant developers focus on areas that include the DTRNA and other public lands comprising critical habitat for threatened and endangered species, the participating government agencies threaten 40 years of land-use planning, management, and protection of threatened and endangered species by the BLM, the U.S. FWS and the CDFG. 2) DFAs should not include existing Research Natural Areas, ACECs, critical habitat or lands acquired with public donations and mitigation funds for the protection of habitat for the DT, burrowing owl, MGS and other sensitive species.	
Sierra Club et al	*Extend the comment period to August 17.*	
Sophia Anne Merk, National Public Lands News	*1) Extend the comment period to at least August 25.* *2) Include a No-Action Alternative; adhere to CDCA per amendments.* *3) Adhere to fed noticing rules.* *4) Be consistent w/ Solar PEIS.*	
Stephanie Weigel, Sonoran Institute	*1) For all maps: To provide a useful reference point, show State Hwy 62 thru the Morongo Basin.* *2) Add to maps - bio sensitive linkage areas NE of USMC 29Palms facility.* *3) Question: were the linkage design areas that are part of the SC Wildlands study the "JoshuaTree-29Palms Connection" used to define the biologically sensitive areas? There are several linkage designs branches in that area. I wonder why they don't show as biologically sensitive when similar areas to the west of 29 Palms do. While the JT-29 Palms data may not have been included in the initial release of the Desert Linkage Design, my disussions with Kristen Penrod indicate that they are an integral component of the overall connectivity analysis for the desert.*	

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Received the following letter from the following 107 persons or couples.		
Al Murdy	**Form letter 1** 1) Morongo Basin and its surrounding communities has a long heritage of commitment and action to protect desert lands. It's a unique collection of high-desert small towns and communities nestled amongst conserved lands: Joshua Tree National Park, Big Morongo Canyon Preserve, Pioneertown Mountains Preserve, and Bighorn Mountain Wilderness. In addition, these communities have pitched in their own money to acquire lands identified for protection, purchasing private lands and gifting them to Joshua Tree National Park. 2) Threats to undo this conservation are a serious concern for me, because this geography is a foundational element of the area's quality of life and economic base. The area's economy is significantly based on tourists who come to see the desert AS IT IS NOW. In recent years, the spotlight has been shone on the high desert as a place for development of renewable energy projects. While I support that effort in general, I believe that the siting of such development in locations like the Morongo Basin and its surrounding area would be disastrous to the local lifestyle and to the tourism-based economy. 3) Concerned citizens successfully opposed the ill-sited Green Path North transmission line proposed by LADWP to be built in undeveloped backcountry and along the viewshed of these high-desert communities. That inappropriate project could have been the door that opened the floodgates to more inappropriate energy development and transmission. That citizen effort led me to become a proactive participant in renewable energy siting decisions, first with the RETI process, then the Solar PEIS and now the DRECP. 4) The July 25 published scenarios of the DRECP were surprising. I am very disturbed and oppose the scenarios siting solar and wind development in the Morongo Basin on BLM lands next to Joshua Tree National Park and in undeveloped backcountry surrounding Big Morongo Canyon Preserve, Pioneertown Mountains Preserve, and Bighorn Mountain Wilderness. This siting and the addition of variance lands for more development is just inappropriate and inconsistent with the area's quality of life, its citizens' values, the tourism-based economy, and the San Bernardino County Master Plan.	

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	5) The DRECP process should involve some outreach to affected communities. There were no workshops or meetings held in the Morongo Basin area, and its citizens received no correspondence or communication of any kind. The alternative maps have changed with little or no explanation, and the iterations of these alternatives have not allowed ample time for thoughtful comment. Considering the long-term effect of the plan, the comment period should be extended beyond the August 8 deadline. *6) I urge you to consider a scenario that does not develop renewable energy in the high-desert, tourism-based communities. I encourage adoption of Alternative 1 after first deleting the variance lands or adoption of Alternative 2.*	
Almut Fleck	Form letter 1	
awillthor	Form letter 1	
Amara Alban	Form letter 1	
Angelica Sauceda	Form letter 1	
Angelina Schoenberger	Form letter 1	
Ann Murdy	Form letter 1	
Annica Kreuter	Form letter 1	
Anthony Angelotti	Form letter 1	
awillthor	Form letter 1	
Axel Buhck	Form letter 1	
Bernard Leibov	Form letter 1	
Beryl J. Holck	Form letter 1	
Bradford W. Berger	Form letter 1, paraphrased	
Brian Swope	Form letter 1	
Bruce Jones	Form letter 1	
Carol Koyer Glass	Form letter 1	
Carol Miller	Form letter 1	
Caroline Conway	Form letter 1	
Cathy Sheehe	Form letter 1, plus "Please do not develop in the Morongo Basin. All of the land that is “developed"	
Chip Ashley	Form letter 1	

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Chris Howell & Family	Mainly Form letter 1, but add: "Although we are using a form letter to present our opposition to these expansion plans, we have informed ourselves on this issue and feel strongly that the destruction of irreplaceable wildlands for industrial wind and solar development violates the conservation/multi-use ethic that should govern use of our natural resources. These projects drain ancient water tables, kill wildlife both above and below ground, and destroy the scenic vistas that draw thousands of tourists and tourist dollars to the high desert each year. Your current plan is shortsighted at best and serves the interests of energy investors who have no commitment to quality of life or any value other than profit. It's the equivalent of strip mining and has no place on wide swaths of undisturbed wildlife habitat." and subtract: "The DRECP process should involve some outreach to affected communities. There were no workshops or meetings held in the Morongo Basin area, and its citizens received no correspondence or communication of any kind. The alternative maps have changed with little or no explanation, and the iterations of these alternatives have not allowed ample time for thoughtful comment. Considering the long-term effect of the plan, the comment period should be extended beyond the August 8 deadline. I urge you to consider a scenario that does not develop renewable energy in the high-desert, tourism-based communities. I encourage adoption of Alternative 1 after first deleting the variance lands or adoption of Alternative 2."	
Claudia Sall	Form letter 1	
Cynthia Anderson	Form letter 1	
Cynthia Gage	Form letter 1	
Cynthia White	Form letter 1	
David Butterfield	Form letter 1	
David S. Miller	Form letter 1	
David Zantiny	Form letter 1	

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Deborah Bollinger	Form letter 1, plus "I am particularly concerned that Alternatives 3 and 5, polygon 11, will undermine local conservation efforts. This geography is a foundational element of the area's quality of life and economic base. Our economy is significantly based on tourists who come to see pristine desert with huge vistas and stunning wildflower displays. I expect that disturbance of fragile soil crusts by industrial-scale solar and wind developments will result in intrusion of invasive plants such as Sahara mustard, that are a serious threat to as-yet intact desert ecosystems. While I support the effort to develop renewable energy in general, I believe that the siting of such development in locations like the Morongo Basin and its surrounding area would have serious impacts on our quality of life and to the	
Deborah LaMonica	Form letter 1	
Debra Gala	Form letter 1	
Donald J Krouse	Form letter 1	
Doran Meyers	Form letter 1	
Dorothy DeGennaro	Form letter 1	
Ed Gala	Form letter 1	
Ed Keesling	Form letter 1	
Ed Tan	Form letter 1	
Eric Mueller	Form letter 1	
Eva Soltes	Form letter 1	
Francene Kaplan	Form letter 1	
Frazier Haney	Form letter 1, minus the last paragraph	
Greg Nylen	Form letter 1, plus "My family owns 10 acres of beautiful, unspoiled desert directly below Black Lava Butte near Pioneertown. We have spent many thousands of dollars creating a permanent campground on our property in large part because of the beauty of the nearby Butte. Black Lava Butte is a unique geological treasure and dominates the viewshed for our property and the surrounding areas. I am writing regarding the potential impact on some of the scenarios proposed in the DRECP that would permanently destroy the character of the areas surrounding the Butte."	
George Ollen	Form letter 1	
Greg Chakalian	Form letter 1	

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Gretchen Grunt, 29 Palms Creative Center & Gallery	Form letter 1	
Howard Knowlton	Form letter 1	
Jan Carter	Form letter 1	
Jane Humphries	Form letter 1	
Jill Giegerich	Form letter 1	
John DeSpain	Form letter 1	
John Rhone	Form letter 1	
Judith Marchyn	Form letter 1	
Julia G. Buckley	Form letter 1	
Karen and Allen	Form letter 1	
Karen Anne Thomas Moser	Form letter 1 plus "I beg of you, to help us preserve the views and wild animal life for which my family moved from Los Angeles County to make this beautiful desert our home."	
Karen Tracy	Form letter 1	
Kathleen Jennings	Form letter 1	
Katie Sandberg	Form letter 1	
Kell Brigan	Form letter 1	
Laird Davis	Form letter 1	
Lakey Kolb	Form letter 1	
Laraine Turk	Form letter 1	
Lauren McAvoy	Form letter 1	
LynAnne Felts	Form letter 1	

Italics = Initial cut on whether comment may need Policy direction or other DRECP action
RE = renewable energy
SH = Stakeholder

Comments Received on the July 25-26, 2012 DRECP Stakeholder Committee Meeting		
Name/Affiliation	**Comments**	**Notes**
Mark Junge	Form letter 1	
Mary Dorsey	Form letter 1	
Mary Effron	Form letter 1	
Mary Sojourner	Form letter 1	
Meredith Jones	Form letter 1	
MF and Sayoko McDermott	Form letter 1, paraphrased	
Michael Reisman	Form letter 1	
Mike Lipsitz	Form letter 1	
Patricia Leary	Form letter 1	
Paul Hadley	Form letter 1	
Phyllis Schwartz	Form letter 1	
Ralph Chakalian	Form letter 1	
Ray York	Form letter 1	
Rebecca Morales	Form letter 1	
Richard Gray	Form letter 1	

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Comments Received on the July 25-26, 2012 DRECP Stakeholder Committee Meeting		
Name/Affiliation	**Comments**	**Notes**
Richard Hammond	Form letter 1	
Robbi (Ruby Star?)	Form letter 1	
Robin Maxwell	Form letter 1	
Roger Smith	Form letter 1, plus "The usual mix of wealthy players and modest politicians now dancing together to the Green Energy Waltz in a Jobs for Americans costume and all subsidised by the tax payer because the stuff is so ineffecient it can't make it on it's own merits. The guy playing the tom tom at this political medicine show needs to be replaced."	
Ron Radziner	Form letter 1	
Ronald and Michelle Reitenauer	Form letter 1	
Ronald Cone	Form letter 1	
Russell Betts, Council Member, Desert Hot Springs	Form letter 1, paraphrased	
Russell M. Drake	Form letter 1	
Ruth Rieman	Form letter 1	
Sarah Kennington	Form letter 1	
Scott Cutler	Form letter 1	
Shauna Tucker	Form letter 1	

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Comments Received on the July 25-26, 2012 DRECP Stakeholder Committee Meeting		
Name/Affiliation	**Comments**	**Notes**
Sherry Harwin	Form letter 1	
Stephen Molton	Form letter 1	
Stephen T Andrews	Form letter 1	
Steve Bardwell	Form letter 1	
Steve Pratt	Form letter 1	
Steven L. Rieman	Form letter 1	
Susan Lang	Form letter 1	
Suzen Smallwood	Form letter 1	
Thomas Fjallstam	Form letter 1	
Valerie Davis	Form letter 1	
Valerie Driscoll	Form letter 1	
Victoria Fuller	Form letter 1	

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Comments Received on the July 25-26, 2012 DRECP Stakeholder Committee Meeting		
Name/Affiliation	**Comments**	**Notes**
Wendy Hadley	Form letter 1, paraphrased, plus "siting of such development in locations like the Morongo Basin and its surrounding area would be disastrous to the local lifestyle and to the tourism-based economy as well as the fragile environment out here. This is not the kind of energy planning that makes economic, environmental or cultural sense."	
William C. Morgan, Jr	Form letter 1	
Willam Dahl	Form letter 1	

Comments Received on the July 25-26, 2012 DRECP Stakeholder Committee Meeting	
Issue/Comment	**Commenter by Row #**
ACECs	
--Explain purpose and how proposed ACEC areas were selected	45, Barrett
--Explain what non-bio ACECs are	19, Good 22, NPCA 25, DOW
Alternatives	
--Alts - don't support Energy Roundtable workshop experts	12, CalWEA
--Prefer Alt 1.	
--Prefer Alt 2 or Alt 1 w/out Variance Lands	7, CA Desert Coalition 55, Flanagan 58, Kennington/Bardwell 67, Form letter 1
--Modify Alt 1 to remove all public land from DFAs	50, Connor
--Alts - prefer Alt. 2 with some Alt. 5/other additions	18, CEERT 59, S.Eddy
--Doesn't support Alts 3 or and 4	52, Connor
--Keep Alt. 4, SouthEast Focus Area	55, R. McMahon
--Alts - need more or different alternatives	13, CalWEA 16, CBD & Wildlands 22, NPCA 25, DOW 38, Brashear 50, Connor 63, Sophia Merck

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Issue/Comment	**Commenter by Row #**
--DG, EE, install more	4, Unger 5, Munson 6, Munson 8, CA Desert Coalition 15, Allen 19, Good 20, Bell 38, Brashear 60, Bowers
--Remove Variance Lands	7/8, CA Desert Coalition 22, NPCA 33, Schafhauser 35, Haney
--Supports No-Action Alt.	44, Barrett
--Liked Scenario 6, why eliminated?	40, Diven
--How are Independent Science Panel recs. incorporated?	9, CDREWG 25, DOW 40, Diven
BGOs needed	8, CA Desert Coalition 12/13, CalWEA 16, CBD & Wildlands 25, DOW
Data/Information requests	
--Provide timeline	9, CDREWG
--Clarify process with local governments	59, Eddy
--Revisit Tx assumptions	55, McMahon
--Clarify SRMAs	16, CBD & Wildlands 31, LaRue 33, Schafhauser
--How will new data be incorporated into the plan?	9, CDREWG
--Need more info on golden eagles	44, Barrett
--Use most recent vegetation mapping results	37, Suba

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Issue/Comment	**Commenter by Row #**
--How will currently proposed projects be treated?	18, CEERT 40, Diven
--Show existing projects and Tx on maps	33, Schafhauser
--Show proposed projects and Tx on maps	31, LaRue
--Show maps with DTRNA area	31, LaRue
--Better explantion of MW targets	25, DOW
--Analysis tables should show data by natural communities, not land cover	16, CBD & Wildlands
DFAs/Conservation Areas	

Comments Received on the July 25-26, 2012 DRECP Stakeholder Committee Meeting	
Issue/Comment	**Commenter by Row #**
--Disagreement with DFAs	3, Wodey 5, Munson 7/8, CA Desert Coalition 16, CBD & Wildlands 18, CEERT 19, Good 20, Bell 22, NPCA 25, DOW 29, Tisdale 31, LaRue 33, Schafhauser 34/46 Gommel 38, Brashear 39, ixlr88 40, Diven 41, Anisman 42, Dugan 44, Barrett 47, McEwan 49, Azeka 50, Connor 53, Flanagan 56, Thomas 56, Parker 58, Kennington/Bardwell 61, Ellis
--Disagreement with conservation areas	3, Wodey 16, CBD & Wildlands 40, Diven
--Eliminate Polygon 27	55, Flanagan
--Build on other lands	8, CA Desert Coalition

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Issue/Comment	**Commenter by Row #**
--Don't develop in the High Desert	7, CA Desert Coalition 54, Flanagan 67, Form letter 1
--Don't build in or near Morongo Basin or Joshua Tree	7/8, CA Desert Coalition 56, Thomas 67, Form letter 1
--Avoid development in the Desert Tortoise Natural Area/other lands purchased for r	24, Lotee 31, LaRue 33, Schafhauser 41, Anisman 48, McEwan 51, Connor 56, Thomas 61, Ellis
--Enhance conservation areas	50, Connor
--Linkage design	22, NPCA 53, Flanagan 64, Sweigel
--Could cause negative impacts to cultural areas	22, NPCA 35, Haney 58, Kennington/Bardwell
--Could cause negative impacts to wildlife	24, Lotee38, Brashear 58, Kennington/Bardwell
--Could cause negative impacts to scenic areas	58, Kennington/Bardwell
--Clarify Reserve Design or DFA definition	25, DOW 44, Barrett 55, R. McMahon
--Clarify how Reserve Design or DFA was development	40, Diven
--Include areas with wind speeds of 6.5+m/s in DFAs	49, Azeka
--Preserve El Mirage Dry Lake Bed	43, Dean
--Insufficient wind DFAs	44, Barrett
--Use most recent vegetation mapping results for DFA selection/dev.	37, Suba

Comments Received on the July 25-26, 2012 DRECP Stakeholder Committee Meeting	
Issue/Comment	**Commenter by Row #**
Farmland protection	15, Allen
Health impacts	5, Munson 29, Tisdale
Public Outreach	
--Follow federal noticing requirements for NEPA process	63, Sophia Merck
--More outreach to local communities (e.g., Morongo Valley)	7, CA Desert Coalition 20, Bell 34, 46, Gommel 35, Haney 55, Flanagan 67, Form letter 1
--Need more stakeholder/public outreach	9, CDREWG 10, CORVA 11, CalWEA 18, CEERT
Schedule, need more time to review alts., extend comment period	7/8, CA Desert Coalition 11, CalWEA 20, Bell 22, NPCA 25, DOW 29, TIsdale 33, Schafhauser 34 & 46, Gommel 38, Brashear 47, McEwan 50, Connor 56, Thomas 57, Parker 62, Sierra Club et al. 63, Merck
Solar PEIS	

Comments Received on the July 25-26, 2012 DRECP Stakeholder Committee Meeting	
Issue/Comment	**Commenter by Row #**
--Need description of DRECP-PEIS relationship	9, CDREWG 25, DOW 38, Brashear
--Be consistent with Solar PEIS	3, Wodey 55, R. McMahon 59, S. Eddy 63, S. Merck
Supports DRECP concept	35, Haney 57, Parker
Other	
Provided or will provide site specific data	3, Wodey 18, CEERT 40, Diven
Recreation	10/21, CORVA 38, Brashear
Learn from other countries	54, Flanagan
Wind impacts to the environment are overestimated/underestimated	12, CalWEA 53, Flanagan
Adopt feed-in-tariff	60, S. Bowers
Why restrict wind development and not OHV use?	44, Barrett
Wildfire concerns, caused by wind turbines	54, Flanagan

Black, Steve <steve_black@ios.doi.gov>

READ ME FIRST: Highlights from week of 8/27--confidential/deliberative

1 message

Scott, Janea <Janea_Scott@ios.doi.gov> Fri, Aug 31, 2012 at 1:16 PM
To: "Black, Steve" <steve_black@ios.doi.gov>

CONFIDENTIAL/DELIBERATIVE

DO NOT RELEASE UNDER FOIA

Hi Steve,

Welcome back! I hope you enjoyed your time off and that you had a terrific three day weekend!

Here is a brief summary from this week and a look ahead to the next couple weeks. I highlighted the meetings that are on Tuesday September 4th. Ruchi may have some additions as well.

- (b) (5) [redacted]
    - Eagles
        - Alex Pitts shared updated text on rule sets.
        - The plan for addressing eagles within the DRECP is on the REPG agenda (Thursday Sept 6th)
    - Consistency with the Solar PEIS
    - Durability Workshop on Wednesday September 5th.

- Final Eagle Conservation Plan Guidance
    - (b) (5) [redacted]

- (b) (5) [redacted]

[redacted]

[redacted]

[redacted]

[redacted]

- [redacted] (b) (5)

[redacted]

[redacted]

[redacted]

Take care,

Janea

Janea A. Scott

Deputy Counselor for Renewable Energy

Office of the Secretary

U.S. Department of the Interior

1849 C Street NW, rm 6124

Washington D.C. 20240

202.208.2977

8 attachments

(b) (5)

(b) (5)

(b) (5)

(b) (5)

Black, Steve <steve_black@ios.doi.gov>

Fw: Fwd: Follow-up to our discussion

1 message

Black, Steve <steve_black@ios.doi.gov> Thu, Sep 20, 2012 at 6:54 PM
To: "Boling, Ted" <Ted.Boling@sol.doi.gov>

FYI

From: Hayes, David
Sent: Thursday, September 20, 2012 06:17 PM
To: Scott, Janea; Black, Steve; Kornze, Neil G; Klein, Elizabeth A
Subject: Fwd: Follow-up to our discussion

I draw your attention to Jim Lyons' comments on the solar PEIS. Do we credit and discuss these issues adequately in the ROD?

Sent from my iPad

Begin forwarded message:

> **From:** Jim Lyons <JLyons@defenders.org>
> **Date:** September 20, 2012 6:13:29 PM EDT
> **To:** "Zichal, Heather R." (b) (6) [redacted] "Hayes, David" <David_Hayes@ios.doi.gov>
> **Cc:** Jim Lyons <JLyons@defenders.org>
> **Subject: Follow-up to our discussion**
>
> Heather/David –
>
> Thanks for taking the time to get together and for hosting lunch.
>
> Just a few follow-up thoughts from our discussion.
>
> **<u>Solar PEIS</u>**
>
> On the solar PEIS, Defenders continues to have significant concerns regarding how Desert tortoise (DT) will be address as the plan moves forward.
>
> Both the final PEIS and the biological opinion (BiOP) developed by the Fish and Wildlife Service point to the potential for huge impacts from renewable energy on DT. In fact, the BiOP states, "the

project-by-project and cumulative effects of the renewable energy program within the range of the Mojave population of the DT have the potential to reduce the amount of available, occupied and/or sustainable habitat by hundreds of thousands of acres". (Biop, 68) The recently revised Recovery plan makes clear the need to:

- Conserve intact desert tortoise habitat
- Connect functional habitat
- And secure lands /habitat for conservation.

And, to us, the final PEIS is at odds with this direction specifically because it would only exclude about 26% of the identified high priority DT habitat that is available for development in the so-called variance lands. We recommended – consistent with the direction in the recovery plan that all priority 1 and 2 DT habitat be excluded from variance lands. I think you heard David say that DOI didn't feel there was enough scientific information to establish strict standards for excluding additional lands from development. So, instead, the final PEIS calls for BLM and FWS to:

- "discourage" applications in the "highest priority areas" and
- "consider" cumulative effects and landscape level information to determine if the project will result in "acceptable impacts" on desert tortoise (with no definition of what's an "acceptable impact").

As a result, without further guidance, any development on the remaining 700,000 acres of priority habitat could proceed if it meets these qualifiers. The potential conflict with what is required for recovery of the DT (as spelled out in the recovery plan and BiOP on the PEIS) is obvious. And that lack of certainty is what drives conservationists and the industry "nuts".

That is why I ask that the Department first consider excluding priority 1 and 2 habitat areas from variance lands.

Alternatively, DOI could establish clear criteria to guide BLM and FWS decisions on proposed project applications before projects proceed. We suggested criteria, but it sounded like David thought they weren't scientifically sound. Of course, one could argue that the science behind the recovery plan and the BiOP require a different approach – that the agencies proceed with caution to implement the recovery activities sited above – i.e., by screening projects to conserve and connect high priority habitat.

Finally, DOI could commitment in the ROD to develop rules or standards within 180 days that provides specific criteria and guidance for evaluating projects in high priority habitat not excluded from development in the variance lands. This could permit further dialogue with the industry and conservation community to see if there isn't some areas of common agreement.

Hopefully, what I was suggesting came across – that these areas either be excluded from development or that clearer guidance and/or measures to protect high priority DT habitat be established moving forward. There are ways to get there, but a clear commitment to the standards or the process to reach those standards in the ROD is essential.

Eagles and Choke Cherry

Here, again, I would suggest a process both for developing clear guidance for protecting eagles and for moving forward with the Choke Cherry project.

On **eagles**, we've suggested a joint effort among conservationists, AWEA, wind energy companies, and others to find a way to structure guidance for eagle conservation plans, take permits, and an appropriate term for take permits for eagles. We recommended this in a letter to Sec. Salazar (attached). This dialogue could be facilitated by the Udall Center, the American Wind Wildlife Institute, or some other party or could be done through a FACA process. We did something similar to this in CA to help shape the solar program through an attorney and conservation leader named Michael Mantell which led to the basic structure for the solar PEIS.

If DOI decides to proceed without this input, I'd suggest that it's a missed opportunity – especially since the slowdown likely in wind development this next year provides an opportunity to bring people together to plot a new course forward that should help improve project siting and speed wind energy development. But, of course we'll work with the Department however they decide to proceed.

On the Choke Cherry project, my only caution is that it is a huge and complex project – 230K acres/ 1000 turbines - high potential impacts on sage grouse and eagles. BLM says it will rely on an eagle conservation plan to mitigate project impacts – yet the Final EIS was issued before the plan was completed.

As David noted, there are no good analytical tools to estimate eagle numbers yet the EIS projects 64 eagles would die each year if the project were built out as proposed. In addition, it is not yet clear that transmission (TWX) will be built, nor that CA will accept the power – NO PPA yet. The company has been willing to work with the conservation community to make adjustments to the project, but more time would help to assure that the project addresses eagle issues and sage grouse concerns in a comprehensive and appropriate manner. DOI could proceed in a "stepwise" fashion to develop the project in phases that might reduce short term impacts. But, without transmission, a PPA, or clarity on how to manage for eagles or sage grouse (in the larger context), it would not be unreasonable to ask the Department to wait, to work through remaining issues with the various stakeholders and developer, before a major commitment of resources is made – which could commence with a final ROD.

Pending Projects

Finally, I would note that we have reviewed 74 of the pending 94 solar projects proposed prior to development of the solar PEIS. In so doing we found 8 projects (totaling approx. 3300 MW) that rank as "low conflict" according to the BLM IMs. Another 28 were rated as "medium" conflict total over 10,000 MW as proposed. This is a substantial number of projects that, should they proceed, would produce 3-4 years of solar production at current rates of development. We should consider working together – with the industry – to expedite the processing of low-conflict projects (where

possible) and to review and work-out any issues (or those that we can) associated with the medium conflict projects while efforts to develop final guidance for the solar PEIS, regional mitigation plans, and a more comprehensive and scientifically-defensible DT recovery plan are undertaken. Eleven of these low and medium conflict projects are in solar zones delineated in the solar PEIS.

This approach, or something like it, would be a way to get currently pending (and grandfathered) projects processed, permitted and built while efforts to implement the solar program are underway. Since 1/3 of them are in zones, it would also be a way to learn how best to use the zone process to guide these and future solar project development.

We're very interested in having that conversation with you and DOI as well if the interest is there.

I hope you find these thoughts useful.

Thanks, again, for meeting.

Jim Lyons

Senior Director, Renewable Energy

Defenders of Wildlife

1130 17th Street N.W. Washington D.C. 20036-4604

Tel: 202-772-3202 | **Fax:** 202-682-1331

JLyons@defenders.org | www.defenders.org

Mobile: 443-995-3573

2 attachments

Joint eagle process letter8 22 2012.pdf
63K

ATT00001.htm
1K

August 22, 2012

The Honorable Ken Salazar
Secretary, United States Department of the Interior
1849 C Street NW
Washington, DC 20240

Dear Secretary Salazar:

Thank you for your efforts and commitment to meeting our nation's renewable energy and conservation goals. Each of our organizations is deeply committed to responsibly sited renewable energy development opportunities that avoid and minimize the impacts on wildlife and their habitats. We write to suggest a path forward for needed fundamental improvements to the bald and golden eagle permit process by the United States Fish and Wildlife Service (Service). Recently, many of the undersigned submitted separate comments responding to the Service's notices proposing changes to the existing eagle permit regulations. We strongly believe that by working together and with the Service, we could find workable solutions to improve the permitting process and conservation of bald and golden eagles.

The conservation community, the wind industry, states, federally recognized Indian tribes and federal agencies have a long history of working with the Department of the Interior (Department) to develop workable policy recommendations for the responsible siting of wind energy projects. For example, the Wind Turbine Guidelines Federal Advisory Committee brought together scientists, industry, conservationists, federally recognized tribes and representatives from states, to provide recommendations to the Service, which were substantially adopted to help wind energy project developers avoid and minimize the impacts of land-based wind projects on wildlife and their habitats.

In that spirit, we urge the Service to supplement the current notice-and-comment proceedings through continued and collaborative interaction with key stakeholders with the express purpose of examining the issues identified in the two notices regarding eagle permits and the draft eagle conservation plan guidance. There are several potential processes ranging from a negotiated rulemaking, advisory committee, or policy dialogue to less formal interactive technical workshops, a technical conference, an agency task force, and/or a scientific panel. The important denominator is that the process includes a variety of experts on eagles, the permitting process, the regulatory process and energy development. Such a process could explore, for example: additional science and data on assessing eagle populations; further mitigation options; advanced conservation practices; short- and long-term resource needs and administrative priorities; implementation of effective risk criteria; how eagle information gaps should be addressed and how responsibly sited wind farms are allowed to move forward in the interim while this process is on-going; other causes of eagle mortality in addition to wind energy; and generally how to create more certainty for both the species and the wind industry under a regulatory process for eagle permits.

We appreciate this opportunity to share our thoughts with you and look forward to working with you to ensure the best possible outcome for the conservation of the iconic bald and golden eagles and the further development of needed renewable energy. While we understand that the Service will need time to analyze the comments submitted and to evaluate the appropriate next steps, the undersigned will continue to collaborate and discuss these issues. We sincerely hope that the Service will work with us, and other interested parties who are seeking reasonable solutions, to develop a

workable, comprehensive and transparent approach to eagle conservation that we will collectively be able to support.

Thank you for considering our request. We look forward to your reply.

Sincerely,

Jamie Clark
President and CEO
Defenders of Wildlife

David Yarnold
President and CEO
National Audubon Society

Frances Beinecke
President
Natural Resources Defense Council

Jonathan W. Gassett, Ph.D.
President, Association of Fish and Wildlife Agencies and Commissioner, Kentucky Department of Fish and Wildlife Resources

Larry Schweiger
President and CEO
National Wildlife Federation

Jamie Williams
President
The Wilderness Society

Robert Bendick
Director, U.S. Government Relations
The Nature Conservancy

Michael Brune
Executive Director
Sierra Club

Denise Bode
Chief Executive Officer
American Wind Energy Association

Jeff Clark
Executive Director
The Wind Coalition (TWC)

Carol Murphy
Executive Director
Alliance for Clean Energy New York (ACE NY)

Sarah Propst
Executive Director
Interwest Energy Alliance

Francis Pullaro
Executive Director
RENEW New England

Nancy Rader
Executive Director
California Wind Energy Association (CalWEA)

Rachel Shimshak
Executive Director
Renewable Northwest Project (RNP)

Beth Soholt
Executive Director
Wind on the Wires (WOW)

CC: Daniel Ashe, Director, US Fish and Wildlife Service
David Hayes, Deputy Secretary, US Department of the Interior
Steve Black, Counselor to the Secretary of the Interior

Black, Steve <steve_black@ios.doi.gov>

Fwd: Follow-up to our discussion

1 message

Hayes, David <David_Hayes@ios.doi.gov> Thu, Sep 20, 2012 at 6:17 PM
To: "Scott, Janea" <Janea_Scott@ios.doi.gov>, "Black, Steve" <steve_black@ios.doi.gov>, "Kornze, Neil G" <nkornze@blm.gov>, "Klein, Elizabeth A" <Elizabeth_Klein@ios.doi.gov>

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Finally, I would note that we have reviewed 74 of the pending 94 solar projects proposed prior to development of the solar PEIS. In so doing we found 8 projects (totaling approx. 3300 MW) that rank as "low conflict" according to the BLM IMs. Another 28 were rated as "medium" conflict total over 10,000 MW as proposed. This is a substantial number of projects that, should they proceed, would produce 3-4 years of solar production at current rates of development. We should consider working together – with the industry – to expedite the processing of low-conflict projects (where possible) and to review and work-out any issues (or those that we can) associated with the medium conflict projects while efforts to develop final guidance for the solar PEIS, regional mitigation plans, and a more comprehensive and scientifically-defensible DT recovery plan are undertaken. Eleven of these low and medium conflict projects are in solar zones delineated in the solar PEIS.

This approach, or something like it, would be a way to get currently pending (and grandfathered)

projects processed, permitted and built while efforts to implement the solar program are underway. Since 1/3 of them are in zones, it would also be a way to learn how best to use the zone process to guide these and future solar project development.

We're very interested in having that conversation with you and DOI as well if the interest is there.

I hope you find these thoughts useful.

Thanks, again, for meeting.

Jim Lyons

Senior Director, Renewable Energy

Defenders of Wildlife

1130 17th Street N.W. Washington D.C. 20036-4604

Tel: 202-772-3202 | **Fax:** 202-682-1331

JLyons@defenders.org | www.defenders.org

Mobile: 443-995-3573

2 attachments

Joint eagle process letter8 22 2012.pdf
63K

ATT00001.htm
1K

August 22, 2012

The Honorable Ken Salazar
Secretary, United States Department of the Interior
1849 C Street NW
Washington, DC 20240

Dear Secretary Salazar:

Thank you for your efforts and commitment to meeting our nation's renewable energy and conservation goals. Each of our organizations is deeply committed to responsibly sited renewable energy development opportunities that avoid and minimize the impacts on wildlife and their habitats. We write to suggest a path forward for needed fundamental improvements to the bald and golden eagle permit process by the United States Fish and Wildlife Service (Service). Recently, many of the undersigned submitted separate comments responding to the Service's notices proposing changes to the existing eagle permit regulations. We strongly believe that by working together and with the Service, we could find workable solutions to improve the permitting process and conservation of bald and golden eagles.

The conservation community, the wind industry, states, federally recognized Indian tribes and federal agencies have a long history of working with the Department of the Interior (Department) to develop workable policy recommendations for the responsible siting of wind energy projects. For example, the Wind Turbine Guidelines Federal Advisory Committee brought together scientists, industry, conservationists, federally recognized tribes and representatives from states, to provide recommendations to the Service, which were substantially adopted to help wind energy project developers avoid and minimize the impacts of land-based wind projects on wildlife and their habitats.

In that spirit, we urge the Service to supplement the current notice-and-comment proceedings through continued and collaborative interaction with key stakeholders with the express purpose of examining the issues identified in the two notices regarding eagle permits and the draft eagle conservation plan guidance. There are several potential processes ranging from a negotiated rulemaking, advisory committee, or policy dialogue to less formal interactive technical workshops, a technical conference, an agency task force, and/or a scientific panel. The important denominator is that the process includes a variety of experts on eagles, the permitting process, the regulatory process and energy development. Such a process could explore, for example: additional science and data on assessing eagle populations; further mitigation options; advanced conservation practices; short- and long-term resource needs and administrative priorities; implementation of effective risk criteria; how eagle information gaps should be addressed and how responsibly sited wind farms are allowed to move forward in the interim while this process is on-going; other causes of eagle mortality in addition to wind energy; and generally how to create more certainty for both the species and the wind industry under a regulatory process for eagle permits.

We appreciate this opportunity to share our thoughts with you and look forward to working with you to ensure the best possible outcome for the conservation of the iconic bald and golden eagles and the further development of needed renewable energy. While we understand that the Service will need time to analyze the comments submitted and to evaluate the appropriate next steps, the undersigned will continue to collaborate and discuss these issues. We sincerely hope that the Service will work with us, and other interested parties who are seeking reasonable solutions, to develop a

workable, comprehensive and transparent approach to eagle conservation that we will collectively be able to support.

Thank you for considering our request. We look forward to your reply.

Sincerely,

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Defenders of Wildlife

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President and CEO
National Audubon Society

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President
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CC: Daniel Ashe, Director, US Fish and Wildlife Service
David Hayes, Deputy Secretary, US Department of the Interior
Steve Black, Counselor to the Secretary of the Interior

Black, Steve <steve_black@ios.doi.gov>

Fw: Fwd: the letter

1 message

Black, Steve <steve_black@ios.doi.gov> Fri, Oct 5, 2012 at 5:06 PM
To: KLdougla@energy.state.ca.us, Michael.Picker@gov.ca.gov
Cc: "Scott, Janea" <Janea_Scott@ios.doi.gov>

FYI -- let's discuss. Thanks.

From: Julie Falkner [mailto:JFALKNER@defenders.org]
Sent: Friday, October 05, 2012 04:54 PM
To: Black, Steve
Subject: Fwd: the letter

Steve. Here you go. I am out of the office on travel next week. If you need to contact me, please call my cell at (b) (6) [redacted].
All the best
Julie

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CC: Daniel Ashe, Director, US Fish and Wildlife Service
David Hayes, Deputy Secretary, US Department of the Interior
Steve Black, Counselor to the Secretary of the Interior

Black, Steve <steve_black@ios.doi.gov>

Fw: Fwd: the letter

1 message

Black, Steve <steve_black@ios.doi.gov> Fri, Oct 5, 2012 at 5:03 PM
To: "Pitts, Alexandra" <Alexandra_Pitts@fws.gov>

Do you have this?

From: Julie Falkner [mailto:JFALKNER@defenders.org]
Sent: Friday, October 05, 2012 04:54 PM
To: Black, Steve
Subject: Fwd: the letter

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David Hayes, Deputy Secretary, US Department of the Interior
Steve Black, Counselor to the Secretary of the Interior

Black, Steve <steve_black@ios.doi.gov>

Fwd: the letter

1 message

Julie Falkner <JFALKNER@defenders.org> Fri, Oct 5, 2012 at 4:54 PM
To: "Black, Steve" <steve_black@ios.doi.gov>

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CC: Daniel Ashe, Director, US Fish and Wildlife Service
David Hayes, Deputy Secretary, US Department of the Interior
Steve Black, Counselor to the Secretary of the Interior

Black, Steve <steve_black@ios.doi.gov>

request for eagle permit info from Clean Energy report

1 message

Pitts, Alexandra <Alexandra_Pitts@fws.gov> Wed, Nov 7, 2012 at 4:37 PM
To: "Scott, Janea" <Janea_Scott@ios.doi.gov>, "Black, Steve" <steve_black@ios.doi.gov>, "Cottingham, David" <david_cottingham@fws.gov>

FYI. CER is following up on the DOI letter about a stakeholder meeting (?) and asking how many permit requests we have in CA. HQ is handling the request and getting information from us.

Alexandra Pitts

Deputy Regional Director

Pacific Southwest Region

U.S. Fish and Wildlife Service

(916) 414 6484 (o)

(916) 804 4967 (c)

Black, Steve <steve_black@ios.doi.gov>

Eagles

1 message

Black, Steve <steve_black@ios.doi.gov> Fri, Nov 30, 2012 at 11:41 AM
To: Dan Ashe <d_m_ashe@fws.gov>
Cc: Betsy Hildebrandt <betsy_hildebrandt@fws.gov>, David Cottingham <David_Cottingham@fws.gov>, Janea Scott <Janea_Scott@ios.doi.gov>

Dan,

I have attached a draft information memo to the Secretary that I believe fairly reflects the outcome of our meeting with David and Laura on Monday. The purpose of this memo is to update the Secretary on where things stand from my perspective. (b) (5) [redacted] That and some pending project issues are included in the memo.

I intend to forward this to Ken Lane later today and would welcome your feedback. Please don't hesitate to call me if you have any questions. Thanks.

Steve

--
Steve Black
Counselor to the Secretary
U.S. Department of the Interior
1849 C Street, N.W., MS 7229
Washington, D.C. 20240
Phone: 202-208-4123
Fax: 202-208-4561
e-mail: steve_black@ios.doi.gov

Info Memo Eagles Nov2012 update.docx
27K

INFORMATION MEMORANDUM TO THE SECRETARY

FROM: Steve Black and Janea Scott
CC: Laura Davis, David J. Hayes, Ken Lane
RE: Eagles
DATE: November 27, 2012

(b) (5)

(b) (5)

[redacted]

(b) (5)

[redacted]

Black, Steve <steve_black@ios.doi.gov>

Re: Eagles -- updated memo

1 message

Lane, Kenneth <kenneth_lane@ios.doi.gov> Fri, Nov 30, 2012 at 8:30 AM
To: "Black, Steve" <steve_black@ios.doi.gov>

Steve, I don't know if there is a disconnect in the information in the building in these issues, but this is what we have been/are reporting in our WH weekly report.

UPDATE: Eagle Tenure/Fee Rule—FWS anticipates (b) (5) [redacted]

-

UPDATE: Eagle Conservation (Wind) Guidance—FWS anticipates (b) (5) [redacted]

-

(b) (5) [redacted]

-

[redacted]

On Wed, Nov 28, 2012 at 6:00 PM, Black, Steve <steve_black@ios.doi.gov> wrote:

> David and Laura,
>
> Janea and I revised our draft memo to the Secretary based on our meeting with Dan and others on Monday. We think this fairly reflects the discussion and decisions made at that meeting, but I would welcome your thoughts and any suggested changes before I share this with Dan.
>
> Thanks.
>
> Steve

--

Ken Lane
Deputy Chief of Staff
Office of the Secretary
U.S. Department of the Interior
1849 C Street, NW
Room 6140
Washington, DC 20240
202-208-7351

Black, Steve <steve_black@ios.doi.gov>

Fwd: FW: Eagles Memo to Secretary

1 message

Black, Steve <steve_black@ios.doi.gov> Tue, Dec 4, 2012 at 7:00 PM
To: Janea Scott <Janea_Scott@ios.doi.gov>

Here is Betsy's mark-up.

From: Hildebrandt, Betsy [mailto:betsy_hildebrandt@fws.gov]
Sent: Tuesday, December 04, 2012 3:58 PM
To: Steve Black
Cc: David Cottingham; D M Ashe; Laura Davis; Elizabeth Klein
Subject: Eagles Memo to Secretary

Hi Steve, thanks for the opportunity to review and edit. The attached represents edits from me and David Cottingham. I know you are eager to get this in so let me know if we should meet to discuss.

Thanks,

Betsy

--
Steve Black
Counselor to the Secretary
U.S. Department of the Interior
1849 C Street, N.W., MS 7229
Washington, D.C. 20240
Phone: 202-208-4123
Fax: 202-208-4561
e-mail: steve_black@ios.doi.gov

Info Memo Eagles Dec 4 update -- FWS comments (1).docx
358K

FWS COMMENTS – DEC 4

INFORMATION MEMORANDUM TO THE SECRETARY

FROM: Steve Black and Janea Scott
CC: Laura Davis, David J. Hayes, Ken Lane
RE: Eagles
DATE: November 27, 2012

(b) (5)

(b) (5)

(b) (5)

FWS COMMENTS – DEC 4

(b) (5) [redacted]

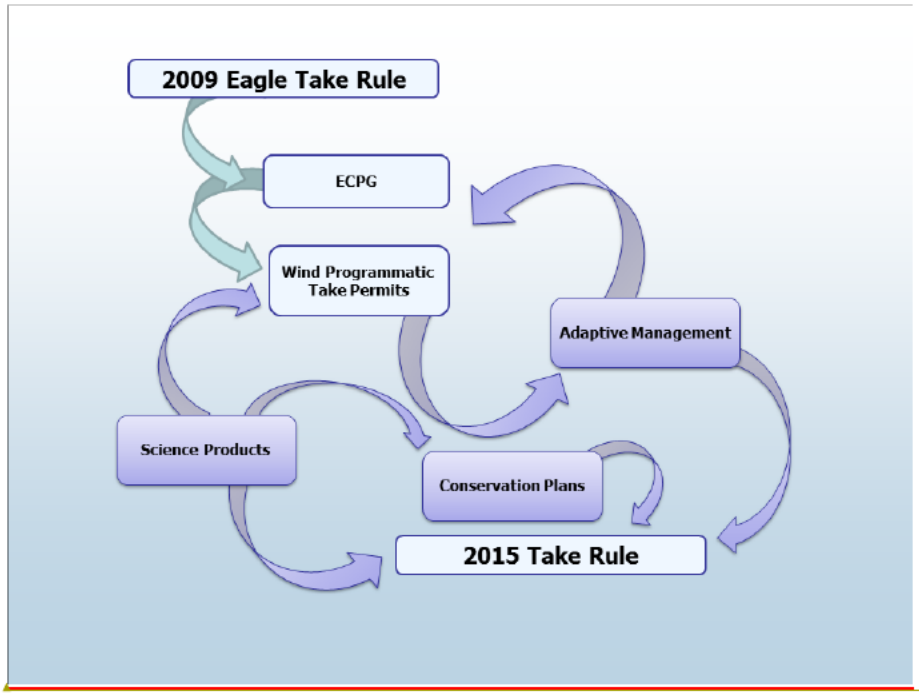
A Blueprint for Eagle Conservation and Wind Energy Development

Overview

The U.S. Fish and Wildlife Service (FWS or Service) supports the development of renewable energy resources as a means to reduce carbon emissions and their impacts on the landscape. Large scale renewable energy development, however, is not without challenge for the Service. In particular, the proliferation of industrial scale wind projects throughout the United States has required a focused effort to balance this much-needed energy resource with our trust responsibilities. The Service's mandate under the Bald and Golden Eagle Protection Act (BGEPA) is to ensure that the development of such resources is compatible with the preservation of bald and golden eagles. Because wind turbines can kill bald and golden eagles, the Service is working to better understand eagle populations, methods of avoidance and mitigation of eagle fatalities, and the (b) (5) [redacted] effects that wind turbines may be causing.

Strategy

The Service's strategy is to implement a defensible process for moving forward with eagle take permitting for wind facilities in a measured way now, and to learn from our experiences with these initial permits and the science products so that we can undertake an informed substantive rule revision and NEPA analysis in 2015. The concept relies on a structured, ordered architecture such that the pieces come together in sequence and support one-another.



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Near-Term

In the near-term, the Service is working with the wind industry on methods to avoid, minimize and mitigate takes of eagles at specific project sites. In addition, the Service is assisting proponents in the development of eagle management plans and in their application for incidental take permits. All of this work is informed by the best available science.

- **Applying the Eagle Rule to Permits for Wind Facilities**. In 2009, the Service promulgated rules governing review and approval of permits that authorize take of bald and golden eagles when the take is associated with, but not the purpose of, an otherwise lawful activity, and cannot practicably be avoided. The regulations authorize permits for "programmatic" take, which can potentially include recurring multiple incidents. The Service established an Eagle Management Team (EMT) to address the challenge of burgeoning wind development to eagles. (b) (5) [redacted]

(b) (5) [redacted]

- **Eagle Conservation Plan Guidance (ECPG).** The ECPG outlines a process for data collection and analysis that could lead to the Service issuing a programmatic eagle take permit. The Service submitted a revised draft of ECPGv2 to the Department where it is currently in review. This draft incorporates significant changes to ECPGv1 in response to the public and peer-review comments. The ECPG includes a robust adaptive management framework so that the considerable uncertainty at many stages of the process can be reduced over time.
- **The Advanced Notice of Public Rulemaking and the "Tenure Rule."** When the Service promulgated the eagle rule in 2009, we received little comment from industries or environmental groups. After circulating the draft ECPG in 2011, the Service received extensive comments from the wind industry on the final rule itself, including comments regarding the preservation standard, permit term, and process for obtaining a permit. In April 2012, in response to these comments the Service took two actions: 1) we issued a proposed rule to extend the maximum tenure of programmatic permits under the Eagle Take Rule from 5 to 30 years, and 2) we published an Advanced Notice of Public Rulemaking (ANPR) announcing the intent to consider revising the Eagle Take Rule and soliciting responses to several key issues raised in the ECPG comments. The final revisions to the tenure rule will be ready to submit to OMB shortly. (b) (5) [redacted]
- **Discussions with industry and environmental organizations:** In August 2012, sixteen organizations (8 wind industry and 8 environmental organizations) wrote to Secretary Salazar requesting that the Service "…supplement the current notice-and-comment proceedings (on the tenure proposed rule and ANPR) through continued and collaborative interaction with key stakeholders with express purpose of examining the issues identified in the two notices regarding eagle permits and the draft eagle conservation plan guidance." The Service is working with representatives of these groups to explore potential processes and topics to address through a collaborative process.
- **DRECP:** The purpose of the Desert Renewable Energy Conservation Plan (DRECP) is to conserve covered species and their habitats while streamlining environmental review and permitting of renewable energy projects in the Mohave and Colorado deserts of California. The Service can authorize take of golden eagles in a habitat conservation plan (HCP) as long as the HCP meets BGEPA conservation standards. California also protects golden eagles as "fully protected species" under the California Department of Fish and Game (CDF&G) Code (Section 3511). The Service is working closely with CDF&G as well as other state and federal agencies to develop a process to authorize incidental take of eagles at renewable energy projects as part of DRECP and to collect eagle interaction information on new and existing renewable energy projects. (b) (5) [redacted]

Long-Term

Science. The Service and USGS have partnered on eight priority science initiatives designed to improve knowledge of golden eagle population biology, improve eagle survey and population monitoring capabilities overall, and to frame the adaptive management process for eagle take

permits. Projects are being undertaken jointly by USGS and the Service, and in some cases involve external partners as well. These are the specific projects.

- Golden eagle monitoring strategy - develop a Comprehensive Survey and Monitoring Plan to manage golden eagles.
- Golden eagle occurrence prediction - model predictions of the occurrence of golden eagles in the western United States to help the Service identify important geographic areas and habitats for golden eagles during the breeding and non-breeding seasons.
- Post-construction fatality estimation - development of landscape-level population approach to estimating cumulative mortality from carcass surveys accounting for carcass removal, and non-detection, given presence.
- Occupancy modeling - late summer occupancy modeling.
- Adaptive management framework - development of an adaptive management framework for wind energy permitting with regard to take of bald and golden eagles.
- Golden eagle status review - golden eagle population trends in the western United States, 1968-2010.
- Golden eagle dispersal - natal dispersal distances of bald and golden eagles in the coterminous US as inferred from band encounters.
- Golden eagle survival and mortality - assessment of annual survival rates, transmitter effects and causes of mortality of golden eagles in the western US (and Mexico) as inferred from satellite transmitters.

In addition to these projects, the Service is working through the American Wind-Wildlife Institute (AWWI) to collect better information about eagle and other migratory bird and bat fatalities at currently-operating wind energy facilities. We anecdotally receive fatality reports from a few operating wind projects. We lack a comprehensive estimate of avian or wildlife fatalities at wind projects. Having a better understanding of eagle mortality at wind projects will vastly improve our capability to develop advanced conservation and mitigation practices.

Conservation and Management. The Service will develop national golden eagle and bald eagle conservation and management plans by 2014. These plans will incorporate information garnered from the research described above. They will use best available scientific information on the status of eagle populations and identify conservation strategies to assure long-term survival of bald and golden eagle populations.

FWS COMMENTS – DEC 4

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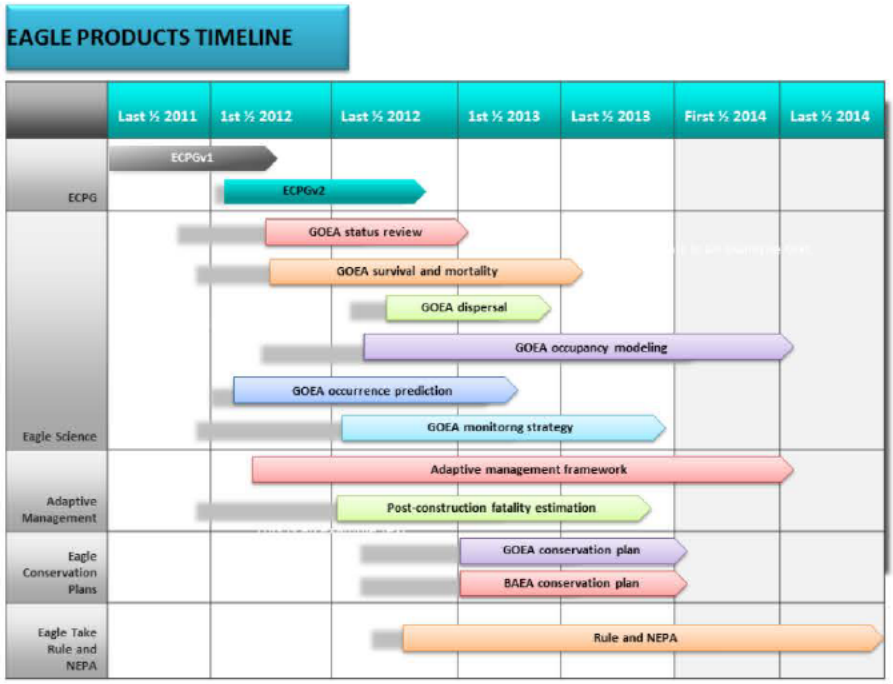

Black, Steve <steve_black@ios.doi.gov>

Re: New Eagle Documents

1 message

Michael Bean <michael_bean@ios.doi.gov> Tue, Dec 4, 2012 at 4:30 PM
To: "Black, Steve" <steve_black@ios.doi.gov>

I'm about to board a flight to phoenix.

Sent from my iPad

On Dec 4, 2012, at 3:45 PM, "Black, Steve" <steve_black@ios.doi.gov> wrote:

> Hi Michael,
>
> FYI please see the attached. We have a 4:30 call today (in 45 mins) with
> David C. and Alex re these drafts. Do you have any interest and
> availability to join us? I apologize for the late notice; if we miss you,
> I would welcome your input and counsel on the recommended approach.
>
> Thanks.
>
> ---------- Forwarded message ----------
> From: Alexandra Pitts <alexandra_pitts@fws.gov>
> Date: Mon, Dec 3, 2012 at 8:12 PM
> Subject: FW: New Eagle Documents
> To: Steve Black <steve_black@ios.doi.gov>, James Kenna <jkenna@blm.gov>,
> khunting@dfg.ca.gov, Karen Douglas <KLdougla@energy.ca.gov>
> Cc: Jerome Ford <jerome_ford@fws.gov>, Amedee Brickey <
> amedee_brickey@fws.gov>, Michael Fris <michael_fris@fws.gov>, Marie
> Strassburger <marie_strassburger@fws.gov>, ren_lohoefener@fws.gov,
> david_cottingham@fws.gov, Janea Scott <janea_scott@ios.doi.gov>, Brian
> Millsap <brian_a_millsap@fws.gov>, Amy Fesnock <afesnock@blm.gov>, Thomas
> Pogacnik <tpogacni@blm.gov>
>
>
> Hi All: I apologize for the large number of attachments, but….
>
>
>
> Included are two versions of an alternative approach to eagle permitting
> for the DRECP. During our call tomorrow at 1:30 PST we would like to
> discuss the 2 alternatives and decide if we will go with one of them or
> stay with the framework approach. We have also a sent response to
> Steve's comments on the framework, and the FAQs and rule sets that go with
> both approaches. Steve., I've included an updated research table. I
> understand we still need to discuss how to approach this DOI wide. Thanks
> A
>
>
>
> *From:* Cox, Dan [mailto:dan_cox@fws.gov]

> *Sent:* Monday, December 03, 2012 4:44 PM
> *To:* Alexandra Pitts
> *Cc:* Amedee Brickey; Marie Strassburger; Diane Elam; 'Michael_Fris; Darrin
> Thome
> *Subject:* New Eagle Documents
>
>
>
> here they are, there may be more files than you wanted...
>
>
>
> --
> Dan Cox
>
> US Fish and Wildlife Service
>
> Section 10 (HCP) Coordinator
>
>
>
> 2800 Cottage Way
>
> Sacramento, Ca 95825
>
> (916) 414-6539
>
> dan_cox@fws.gov
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> --
> Steve Black
> Counselor to the Secretary
> U.S. Department of the Interior
> 1849 C Street, N.W., MS 7229
> Washington, D.C. 20240
> Phone: 202-208-4123
> Fax: 202-208-4561
> e-mail: steve_black@ios.doi.gov
> <An Alternative Approach to Golden Eagle Conservation and Permitting DRECP_12_3_12_v1.0.docx>
> <BLM_Golden Eagle Conservation and Permitting DRECP_12_3_12.docx>
> <ResearchTable_11_2_12.xlsx>
> <Framework Document_11_30_12.docx>
> <GOEA DRECP Rule Set_draft_11_30_12.doc>
> <DRECP Golden Eagle MOU_DFG_FWS_ 11_2_12_.docx>
> <FAQsREGARDING THE DRECP_12_03_2012.docx>

Black, Steve <steve_black@ios.doi.gov>

FW: Eagles Memo to Secretary

1 message

Steve Black <steve_black@ios.doi.gov> Tue, Dec 4, 2012 at 4:06 PM

FYI – let's discuss.

From: Hildebrandt, Betsy [mailto:betsy_hildebrandt@fws.gov]
Sent: Tuesday, December 04, 2012 3:58 PM
To: Steve Black
Cc: David Cottingham; D M Ashe; Laura Davis; Elizabeth Klein
Subject: Eagles Memo to Secretary

Hi Steve, thanks for the opportunity to review and edit. The attached represents edits from me and David Cottingham. I know you are eager to get this in so let me know if we should meet to discuss.

Thanks,

Betsy

Info Memo Eagles Dec 4 update -- FWS comments (1).docx
358K

project site is located northeast of the intersection of U.S. Highway 7/US–441 and Sample Road. The property surrounds on three sides the existing Seminole Coconut Creek Trust Property, currently housing the Coconut Creek Casino. The Proposed Action consists of transferring the 45± acres of property and the subsequent development of a hotel/resort and other ancillary uses (Proposed Project). At full build-out, the proposed hotel/resort facility would total approximately 47,000 square-feet (sf) of retail space, 54,000 sf of dining, a 2,500 seat showroom, and a 1,000-room hotel. The hotel tower would not exceed 275 feet above ground level. Access to the project site would be provided via one driveway along Sample Road, one driveway along SR–7/US–441, and one driveway along NW 54th Avenue. The following alternatives are considered in the DEIS:

- Alternative A—Proposed Project;
  - Sub-Alternative A–1—No Coconut Creek Approvals or Agreements;
- Alternative B—Reduced Intensity Alternative;
- Alternative C—No Action by Federal Government;
  - Sub-Alternative C–1—No Coconut Creek Approvals or Agreements.

Environmental issues addressed in the DEIS include geology and soils, water resources, air quality, biological resources, cultural and paleontological resources, socioeconomic conditions (including environmental justice), transportation and circulation, land use, public services, noise, hazardous materials, aesthetics, cumulative effects, and indirect and growth inducing effects.

Directions for Submitting Comments: Please include your name, return address, and the caption: "DEIS Comments, Seminole Tribe of Florida Fee-to-Trust Project," on the first page of your written comments.

Locations where the DEIS is Available for Review: The DEIS is available for review at the Broward County Northwest Regional Library located at 3151 University Drive, Coral Springs, Florida, 33065 and the City of Coconut Creek City Hall located at 4800 West Copans Road, Coconut Creek, Florida, 33063. The DEIS is also available online at: *http://www.seminoleeis.com.*

To obtain a compact disk copy of the DEIS, please provide your name and address in writing or by voicemail to Chester McGhee, Environmental Protection Specialist, Bureau of Indian Affairs, Eastern Regional Office. Contact information is listed below in the **FOR FURTHER INFORMATION CONTACT** section of this notice. Individual paper copies of the DEIS will be provided upon payment of applicable printing expenses by the requestor for the number of copies requested.

Public Comment Availability: Comments, including names and addresses of respondents, will be available for public review at the BIA mailing address shown in the **ADDRESSES** section of this notice, during regular business hours, 8 a.m. to 4:30 p.m., Monday through Friday, except holidays. Before including your address, telephone number, email address, or other personal identifying information in your comment, you should be aware that your entire comment—including your personal identifying information—may be made publicly available at any time. While you can ask us in your comment to withhold your personal identifying information from public review, we cannot guarantee that we will be able to do so.

Authority: This notice is published pursuant to Sec. 1503.1 of the Council of Environmental Quality Regulations (40 CFR parts 1500 through 1508) and Sec. 46.305 of the Department of Interior Regulations (43 CFR part 46), implementing the procedural requirements of the NEPA of 1969, as amended (42 U.S.C. 4371, et seq.), and is in the exercise of authority delegated to the Assistant Secretary—Indian Affairs by 209 DM 8.

Dated: August 9, 2012.

Donald E. Laverdure,

Acting Assistant Secretary—Indian Affairs.

[FR Doc. 2012–21507 Filed 8–30–12; 8:45 am]

BILLING CODE 4310–W7–P

DEPARTMENT OF THE INTERIOR

Bureau of Land Management

[MT–LLB05000–LL14300000–FQ0000; MTM 40412]

Public Land Order No. 7792; Partial Revocation, Power Site Reserve No. 109; Montana

Correction

In notice document 2012–18888 appearing on pages 46111–46112 of the issue of Thursday, August 2, 2012 make the following correction:

On page 46112, in the first column, in the 8th line from the top of the page, "Sec. 5, NE¼; SW¼." should read "Sec. 5, NE¼SW¼.".

[FR Doc. C1–2012–18888 Filed 8–30–12; 8:45 am]

BILLING CODE 1505–01–D

DEPARTMENT OF THE INTERIOR

Bureau of Land Management

[SDM 013790]

Public Land Order No. 7793; Partial Revocation of Public Land Order No. 1535; South Dakota

Correction

In notice document 2012–18885 appearing on page 46112 of the issue of Thursday, August 2, 2012 make the following correction:

On page 46112, in the second column, in the 22nd line from the bottom of the page, "NW¼;SE¼;." should read "NW¼SE¼.".

[FR Doc. C1–2012–18885 Filed 8–30–12; 8:45 am]

BILLING CODE 1505–01–D

DEPARTMENT OF THE INTERIOR

National Park Service

[NPS–NER–HPPC–10888; 4320-pplb-318]

Final Environmental Impact Statement for the Susquehanna to Roseland 500-kilovolt Transmission Line, Appalachian National Scenic Trail; Delaware Water Gap National Recreation Area and Middle Delaware National Scenic and Recreational River

AGENCY: National Park Service, Interior.

ACTION: Notice of Availability.

SUMMARY: Pursuant to Section 102(2)(C) of the National Environmental Policy Act of 1969 and the Council on Environmental Quality regulations, the National Park Service (NPS) has prepared a Final Environmental Impact Statement (Final EIS) for the permit for the Susquehanna to Roseland 500-kilovolt (kV) transmission line to pass through three units of the National Park System: The Appalachian National Scenic Trail, Delaware Water Gap National Recreation Area, and Middle Delaware National Scenic and Recreational River. This Final EIS describes and analyzes six alternatives for the transmission line that will guide the decision to grant or deny the construction and Right-of-Way (ROW) permits requested by the applicants.

SUPPLEMENTARY INFORMATION: The Appalachian National Scenic Trail, Delaware Water Gap National Recreation Area, and the Middle Delaware National Scenic and Recreational River are famed for the recreational, scenic, natural, and cultural resources they contain. Each year, Delaware Water Gap National Recreation Area receives 5.2 million recreational visitors, and the Delaware

River is one of the primary recreational attractions in the park. Approximately 27 miles of the Appalachian National Scenic Trail occur within the boundaries of Delaware Water Gap National Recreation Area; the Appalachian National Scenic Trail attracts 4 million visitors each year.

The existing transmission line ROW predates the establishment of the Appalachian National Scenic Trail in 1937, Delaware Water Gap National Recreation Area in 1965, and the Middle Delaware National Scenic and Recreational River in 1978. The applicants, PPL Electric Utilities Corporation and the Public Service Electric and Gas Company, request NPS permission to expand the size of the current ROW, access the ROW through existing natural and cultural areas, construct new and taller power line towers, and remove and replace the existing 230-kV Bushkill-to-Kittatinny (B–K) Line with a new double-circuit 500-kV transmission line (the S–R line). The purpose of the Final EIS is to respond to the applicants' need in light of the purposes and resources of the affected units of the National Park System, as expressed in statutes, regulations, and policies.

The NPS has developed the Final EIS under section 102(2)(C) of the National Environmental Policy Act of 1969 (as amended), and consistent with NPS laws, regulations, and policies, and the purposes of these three parks. The Final EIS describes and analyzes six alternatives (1, 2, 2b, 3, 4, and 5). The applicants have proposed construction of a 500-kV transmission line from the Susquehanna Substation (Berwick, Pennsylvania) to the Roseland Substation (Roseland, New Jersey). The construction and ROW permits would allow the construction through Delaware Water Gap National Recreation Area, Middle Delaware National Scenic and Recreational River, and Appalachian National Scenic Trail in Pennsylvania and New Jersey. The alternatives follow existing ROWs to reduce the impacts from construction and operation of the transmission line.

Under Alternative 1 (no action), the permit to allow construction of the applicant's proposal would be denied and current conditions would be presumed to continue. Alternative 2 (applicant's proposed route) would cross approximately 4.3 miles of NPS lands along the existing B–K Line corridor and require the cleared ROW to be expanded to 350 feet wide. Alternative 2b (applicant's alternate route) would follow the same route as Alternative 2, but would be constructed within the applicant's existing deeded ROW without expansion. Alternative 3 would cross approximately 5.4 miles of NPS lands along a different existing transmission line corridor and would require a ROW 350 feet in width. Alternative 4 would cross approximately 1.5 miles of NPS lands along another existing transmission line corridor and would require a ROW 350 feet in width. This alternative would not cross the Middle Delaware National Scenic and Recreational River. Alternative 5 would follow the same route as Alternative 4, but would not include a 0.6-mile stretch of NPS land west of the Bushkill substation. Alternative 2 is the NPS preferred alternative and Alternative 1 is the environmentally preferable alternative.

The Final EIS analyzes the impacts of the alternatives in detail for geologic resources (including topography and paleontology), flood plains, wetlands, vegetation, landscape connectivity, wildlife habitat and wildlife, special-status species, rare and unique communities, archeological resources, historic structures, cultural landscapes, socioeconomics, infrastructure, access and circulation, visitor use and experience, visual resources, soundscapes, wild and scenic rivers, park operations, and health and safety.

The Draft EIS was released in November 2011 and was available for public and agency review and comment beginning with publication of the Notice of Availability in the **Federal Register**. Comments were accepted during the 60-day public comment period. After this public review, NPS identified the preferred alternative and revised this document in response to public comments.

The Final EIS is now available. Interested persons and organizations may obtain the Final EIS online at *http://parkplanning.nps.gov/dewa.* A 30-day no-action period will follow this Notice of Availability in the **Federal Register**. After this period, the alternative or actions constituting the approved plan will be documented in a Record of Decision that will be signed by the Regional Director of the Northeast Region of the NPS. Notice of approval of the EIS would be published similarly.

Dated: August 15, 2012.

Dennis R. Reidenbach,

Regional Director, Northeast Region, National Park Service.

[FR Doc. 2012–20697 Filed 8–30–12; 8:45 am]

BILLING CODE 4312–JG–P

DEPARTMENT OF THE INTERIOR

National Park Service

[NPS–NERO–CEBE–11101; 4240–SZM]

Notice of Public Meetings for Cedar Creek and Belle Grove National Historical Park Advisory Commission

AGENCY: National Park Service, Interior.

ACTION: Notice of Meetings.

SUMMARY: Notice is hereby given in accordance with the Federal Advisory Committee Act that meetings of the Cedar Creek and Belle Grove National Historical Park Advisory Commission will be held to discuss the implementation of the Park's general management plan.

Date: September 20, 2012.

Location: Warren County Government Center, 220 North Commerce Avenue, Front Royal, VA 22360.

Date: December 20, 2012.

Location: Strasburg Town Hall Council Chambers, 174 East King Street, Strasburg, VA 22657.

Date: March 21, 2013.

Location: Middletown Town Council Chambers, 7875 Church Street, Middletown, VA 22645.

Date: June 20, 2013.

Location: Warren County Government Center, 220 North Commerce Avenue, Front Royal, VA 22630.

Agenda

The Commission meetings will consist of the following:

1. General Introductions
2. Review and approval of Commission Meeting Notes
3. Reports and Discussions
4. Old Business
5. New Business
6. Closing Remarks

All meetings are open to the public and begin at 8:30 a.m.

FOR FURTHER INFORMATION CONTACT: Diann Jacox, Superintendent, Cedar Creek and Belle Grove National Historical Park, P.O. Box 700, Middletown, Virginia 22645, telephone (540) 868–9176.

SUPPLEMENTARY INFORMATION: All meetings are open to the public. Topics to be discussed include: visitor services and interpretation—including directional and interpretive signage and visitor facilities, land protection planning, historic preservation, and natural resource protection.

The Park Advisory Commission was designated by Congress to advise on the preparation and implementation of the park's general management plan. Individuals who are interested in the

Black, Steve <steve_black@ios.doi.gov>

Service eagle papers

1 message

Cottingham, David <david_cottingham@fws.gov> Fri, Feb 1, 2013 at 5:00 PM
To: Janea Scott <Janea_Scott@ios.doi.gov>, Steve Black <steve_black@ios.doi.gov>, Jerome Ford <jerome_ford@fws.gov>, Betsy Hildebrandt <betsy_hildebrandt@fws.gov>, "Mott, Sarah P" <Sarah_P_Mott@fws.gov>, David Cottingham <david_cottingham@fws.gov>, David Cottingham <david.cottingham@starpower.net>

Steve and all --

I'm attaching 2 versions of eagle briefing papers -- a short one dated Nov 23 and a longer version dated rev 2 Sept 28. We need to determine which one, if either, would be most appropriate to update and hand out at the meeting on FEb 11

Steve and Janea -- please let me know which you think is most appropriate and we'll start editing it.

thanks

have a good weekend.

dC

--
David Cottingham
Senior Advisor to the Director
US Fish and Wildlife Service
Room 3341 Main Interior
Washington DC 20240

Office: 202-208-4331
Cell: 202-372-7578

2 attachments

Eagle Briefing Document rev 2 Sept 28.docx
657K

Eagle Briefing Document - Nov 23.docx
427K

November 23, 2012

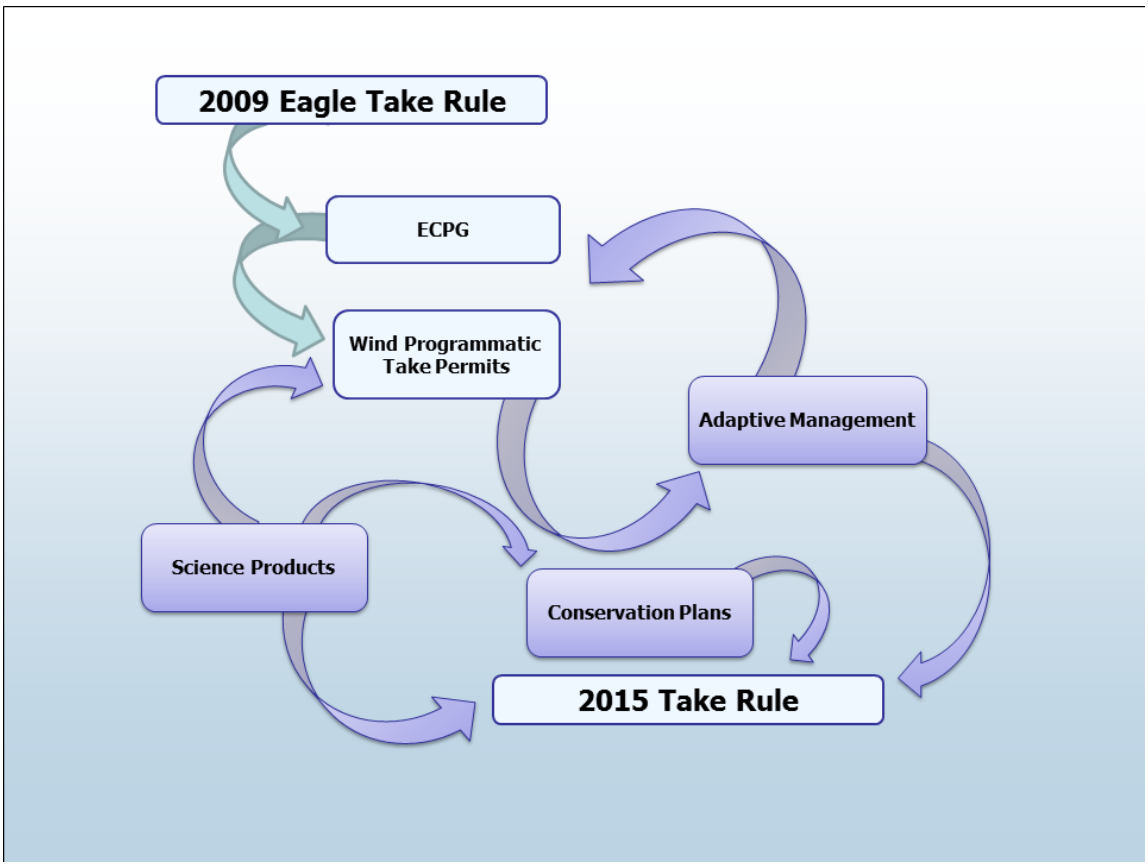
A Blueprint for Eagle Conservation and Wind Energy Development

Overview

The U.S. Fish and Wildlife Service (FWS or Service) supports the development of renewable energy resources as a means to reduce carbon emissions and their impacts on the landscape. Large scale renewable energy development, however, is not without challenge for the Service. In particular, the proliferation of industrial scale wind projects throughout the United States has required a focused effort to balance this much-needed energy resource with our trust responsibilities. The Service's mandate under the Bald and Golden Eagle Protection Act (BGEPA) is to ensure that the development of such resources is compatible with the preservation of bald and golden eagles. Because wind turbines can kill bald and golden eagles, the Service is working to better understand eagle populations, methods of avoidance and mitigation of eagle fatalities, and the overall population effects that wind turbines may be causing.

Strategy

The Service's strategy is to implement a defensible process for moving forward with eagle take permitting for wind facilities in a measured way now, and to learn from our experiences with these initial permits and the science products so that we can undertake an informed substantive rule revision and NEPA analysis in 2015. The concept relies on a structured, ordered architecture such that the pieces come together in sequence and support one-another.



Near-Term

In the near-term, the Service is working with the wind industry on methods to avoid, minimize and mitigate takes of eagles at specific project sites. In addition, the Service is assisting proponents in the development of eagle management plans and in their application for incidental take permits. All of this work is informed by the best available science.

- **Applying the Eagle Rule to Permits for Wind Facilities**. In 2009, the Service promulgated rules governing review and approval of permits that authorize take of bald and golden eagles when the take is associated with, but not the purpose of, an otherwise lawful activity, and cannot practicably be avoided. The regulations authorize permits for "programmatic" take, which can potentially include recurring multiple incidents. The Service established an Eagle Management Team (EMT) to address the challenge of burgeoning wind development to eagles. The EMT concluded that it was of conservation benefit to permit wind facilities for their take of eagles where the take meets the preservation standard of the Act and requirements in 50 CFR 22.26. The alternative was continued growth of wind development without an effective way to evaluate and authorize take resulting from operation of industrial-scale wind projects while the Service took several years to promulgate new rules.
- **Eagle Conservation Plan Guidance (ECPG)**. The ECPG outlines a process for data collection and analysis that could lead to the Service issuing a programmatic eagle take permit. The Service submitted a revised draft of ECPGv2 to the Department where it is currently in review. This draft incorporates significant changes to ECPGv1 in response to the public and peer-review comments. The ECPG includes a robust adaptive management framework so that the considerable uncertainty at many stages of the process can be reduced over time.
- **The Advanced Notice of Public Rulemaking and the "Tenure Rule."** When the Service promulgated the eagle rule in 2009, we received little comment from industries or environmental groups. After circulating the draft ECPG in 2011, the Service received extensive comments from the wind industry on the final rule itself, including comments regarding the preservation standard, permit term, and process for obtaining a permit. In April 2012, in response to these comments the Service took two actions: 1) we issued a proposed rule to extend the maximum tenure of programmatic permits under the Eagle Take Rule from 5 to 30 years, and 2) we published an Advanced Notice of Public Rulemaking (ANPR) announcing the intent to consider revising the Eagle Take Rule and soliciting responses to several key issues raised in the ECPG comments. The final revisions to the tenure rule will be ready to submit to OMB shortly. However, the Service is considering a request to postpone action on the tenure rule until it determines whether it will address permit tenure as part of the comprehensive review of the 2009 permit rule (see next point).
- **Discussions with industry and environmental organizations:** In August 2012, sixteen organizations (8 wind industry and 8 environmental organizations) wrote to Secretary Salazar requesting that the Service "…supplement the current notice-and-comment proceedings (on the tenure proposed rule and ANPR) through continued and collaborative interaction with key stakeholders with express purpose of examining the issues identified in the two notices regarding eagle permits and the draft eagle conservation plan guidance." The Service is working with representatives of these groups to explore potential processes and topics to address through a collaborative process.

- **DRECP:** The purpose of the Desert Renewable Energy Conservation Plan (DRECP) is to conserve covered species and their habitats while streamlining environmental review and permitting of renewable energy projects in the Mohave and Colorado deserts of California. The Service can authorize take of golden eagles in a habitat conservation plan (HCP) as long as the HCP meets BGEPA conservation standards. California also protects golden eagles as "fully protected species" under the California Department of Fish and Game (CDF&G) Code (Section 3511). The Service is working closely with CDF&G as well as other state and federal agencies to develop a process to authorize incidental take of eagles at renewable energy projects as part of DRECP and to collect eagle interaction information on new and existing renewable energy projects. The details of the eagle component of the DRECP are not yet completed.

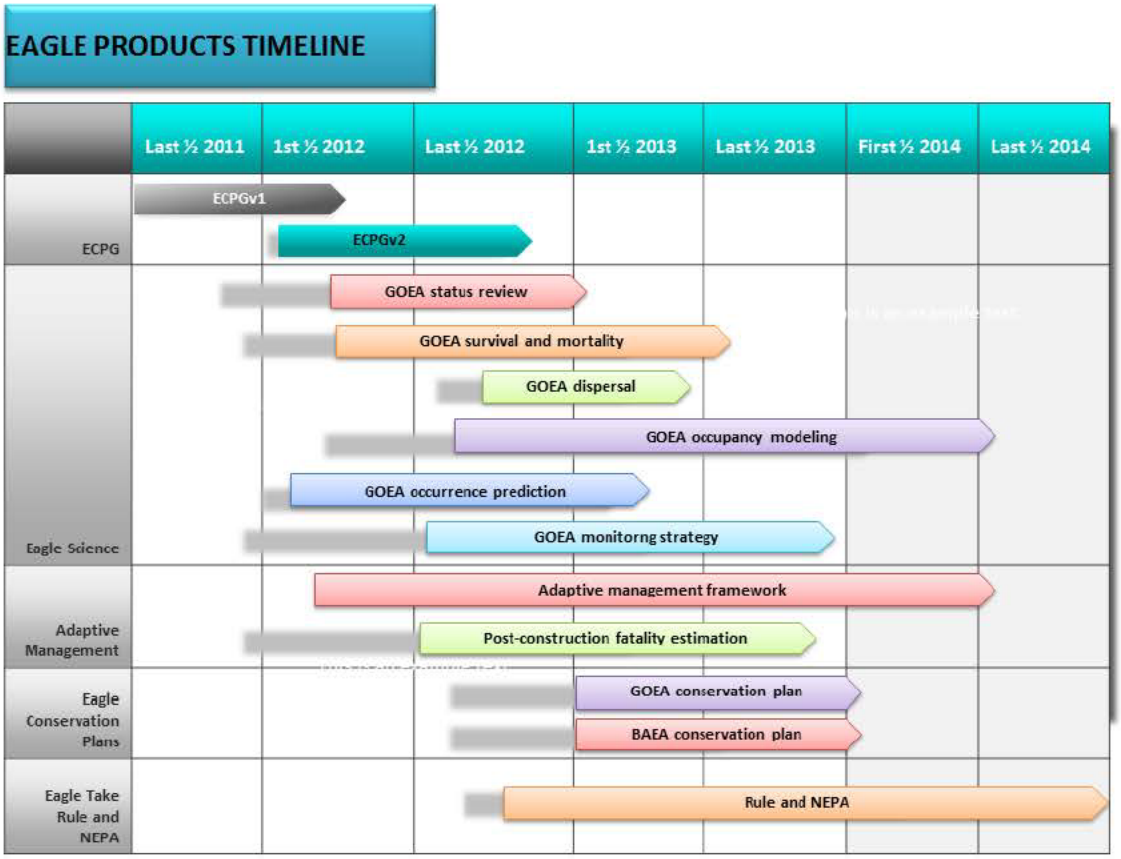
Long-Term

Science. The Service and USGS have partnered on eight priority science initiatives designed to improve knowledge of golden eagle population biology, improve eagle survey and population monitoring capabilities overall, and to frame the adaptive management process for eagle take permits. Projects are being undertaken jointly by USGS and the Service, and in some cases involve external partners as well. These are the specific projects.

- Golden eagle monitoring strategy - develop a Comprehensive Survey and Monitoring Plan to manage golden eagles.
- Golden eagle occurrence prediction - model predictions of the occurrence of golden eagles in the western United States to help the Service identify important geographic areas and habitats for golden eagles during the breeding and non-breeding seasons.
- Post-construction fatality estimation - development of landscape-level population approach to estimating cumulative mortality from carcass surveys accounting for carcass removal, and non-detection, given presence.
- Occupancy modeling - late summer occupancy modeling.
- Adaptive management framework - development of an adaptive management framework for wind energy permitting with regard to take of bald and golden eagles.
- Golden eagle status review - golden eagle population trends in the western United States, 1968-2010.
- Golden eagle dispersal - natal dispersal distances of bald and golden eagles in the coterminous US as inferred from band encounters.
- Golden eagle survival and mortality - assessment of annual survival rates, transmitter effects and causes of mortality of golden eagles in the western US (and Mexico) as inferred from satellite transmitters.

In addition to these projects, the Service is working through the American Wind-Wildlife Institute (AWWI) to collect better information about eagle and other migratory bird and bat fatalities at currently-operating wind energy facilities. We anecdotally receive fatality reports from a few operating wind projects. We lack a comprehensive estimate of avian or wildlife fatalities at wind projects. Having a better understanding of eagle mortality at wind projects will vastly improve our capability to develop advanced conservation and mitigation practices.

Conservation and Management. The Service will develop national golden eagle and bald eagle conservation and management plans by 2014. These plans will incorporate information garnered from the research described above. They will use best available scientific information on the status of eagle populations and identify conservation strategies to assure long-term survival of bald and golden eagle populations.



Eagle Conservation and Wind Development – the U.S Fish and Wildlife Service's and U.S. Geological Survey's Strategy

Overview

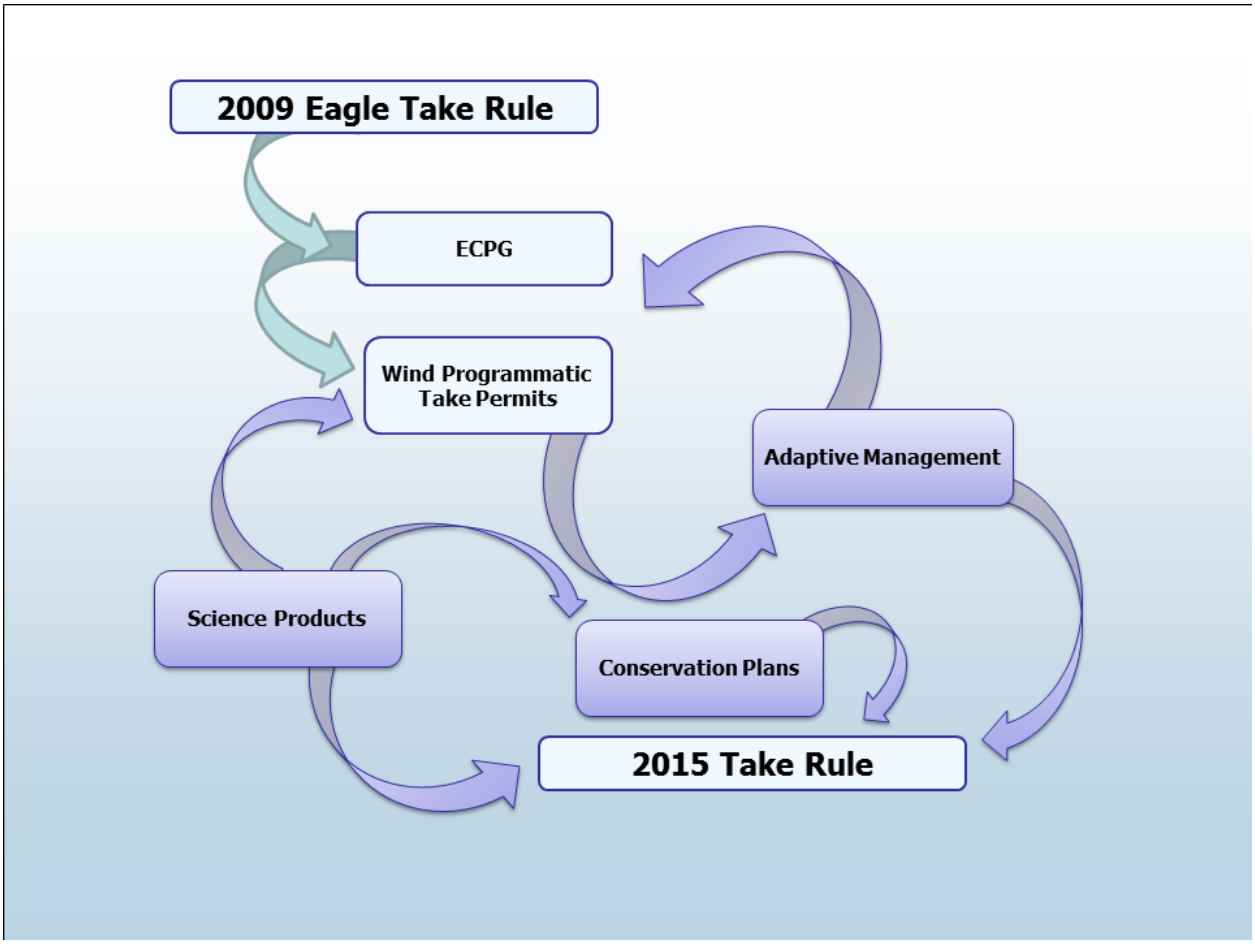
The rapid proliferation of industrial scale wind projects throughout the U.S. creates new challenges for the U.S. Fish and Wildlife Service. Our mandate in the Bald and Golden Eagle Protection Act (BGEPA) is to ensure that bald and golden eagle populations thrive. We know that wind farms can kill bald and golden eagles. Yet we lack specific information on eagle populations, how to avoid and mitigate for eagle fatalities, and the overall population effects that increased fatalities at wind turbines may be causing.

When the Service removed bald eagles from the Endangered Species List in 200XX, we recognized the need to have a system to authorize incidental (unintentional) take of eagles. The Service promulgated the 2009 Eagle Permit Rule and accompanying environmental assessment to address this situation. We now acknowledge that some aspects of the rule make it difficult to accommodate relatively rare incidental take of eagles at a specific wind project that may be in operation for twenty-five to thirty years.

Working with colleagues at the U.S. Geologic Survey and other agencies, we have developed the comprehensive strategy described below to:

1. Provide guidance to wind industry how to avoid, minimize and mitigate takes of eagles and apply for incidental take permits;
2. Improve the scientific knowledge to help us manage eagle populations better;
3. Develop an effective process for authorizing appropriate wind projects;
4. Develop management plans for eagle populations; and
5. Promulgate revised eagle take regulations

FIGURE 1 – NEEDS MINOR EDITS



Regulating Eagle Takes

The Eagle Permit Rule. In 2009, the U.S. Fish and Wildlife Service (Service) promulgated new rules for eagles (the Eagle Permit Rule(s); 50 CFR 22.26 and 22.27) to allow permits that authorize take of bald and golden eagles when the take is associated with, but not the purpose of, an otherwise lawful activity, and cannot practicably be avoided. The regulations also authorize permits for "programmatic" take, which can potentially include recurring multiple incidents. The Service anticipated that most permits would be for short-term disturbance of eagles or to authorize programmatic take where conservation measures were being implemented to yield a net benefit to eagles.

Applying the Eagle Rule to Programmatic Permits for Wind Facilities. Soon after we finalized the rule, there was a substantial increase in the development of wind power for renewable energy purposes. Eagles are vulnerable to blade-strike mortality at wind turbines. The increased growth in the number of wind projects was of concern to the Service. In response, the Service established an Eagle Management Team (EMT) to recommend how to responsibly balance these competing interests and address the challenge of burgeoning wind development to eagles. The EMT concluded that it was of conservation benefit to permit wind facilities for their take of eagles where the take meets the preservation standard of the Act and requirements in 50

CFR 22.26. The alternative was continued growth of wind development without consideration of the effects on eagles while the Service took several years to promulgate a new rule.

The Conceptual Plan. The Service, aided by solicitors and initial science advisors from the U.S. Geological Survey (USGS), developed a plan to build on the 2009 Eagle Permit Rule and Final Environmental Assessment (FEA) and move forward with programmatic take permits for qualifying wind facilities. The plan called for:

(1) developing the Eagle Conservation Plan Guidance (ECPG) to provide assistance in applying the provisions of the Eagle Permit Rule to wind development in a risk-averse manner;
(2) developing an adaptive management framework to expedite learning about risk assessment and risk reduction at wind facilities;
(3) a science initiative to improve understanding of golden eagle biology;
(4) developing management plans for both bald eagles and golden eagles to establish quantitative population goals; and
(5) using knowledge from steps 2 through 4, revising the Eagle Permit Rule and NEPA in 2014 to address programmatic take in a comprehensive manner.

The end product of this process would be an amended Eagle Permit Rule in 2015. The Service circulated a draft of the ECPG in February 2011. That draft (ECPGv1) was subjected to a 90-day public comment process and was peer-reviewed by a scientific panel convened by The Wildlife Society.

The Advanced Notice of Public Rulemaking and the "Tenure Rule." The public comments on the ECPGv1 identified a number of substantive issues which were addressed in a revision to the ECPG (ECPGv2). However, two issues could not be addressed and were of particular concern to the Service and Department: (1) the public's concern over the lack of a plan for addressing problems with the Eagle Take Rule as applied to programmatic take permits for new wind facilities and (2) the wind industry's concerns that the five-year maximum tenure of permits under the Eagle Take Rule is fundamentally unworkable because of the 20-30 year life of most wind projects. The Service initially planned to consider the issue of permit tenure as part of the revision to the Eagle Permit Rule in 2014 – which would have allowed NEPA analysis of the implications of long-term programmatic permits. Instead, the Service and Department moved forward with a proposed rule to extend the maximum tenure of programmatic permits under the Eagle Take Rule to 30 years and published an Advanced Notice of Public Rulemaking (ANPR) announcing the intent to revise the Eagle Take Rule and soliciting responses to several key issues raised in the ECPG comments. Both notices were published in April 2012.

Current Status of Eagle Products

ECPG. The ECPG outlines a process for data collection and analysis that could lead to the Service issuing a programmatic eagle take permit. The Service submitted a revised draft of ECPGv2 to the Department where it is currently in review. This draft incorporates significant changes to ECPGv1 in response to the public and peer-review comments. The ECPG includes a robust adaptive management framework so that the considerable uncertainty at many stages of the process can be reduced over time.

Science. The Service and USGS have partnered on eight priority science initiatives designed to improve knowledge of golden eagle population biology, improve eagle survey and population monitoring capabilities overall, and to frame the adaptive management process for eagle take permits. Projects are being undertaken jointly by USGS and the Service, and in some cases involve external partners as well. These are the specific projects.

1. *GOEA monitoring strategy - develop a Comprehensive Survey and Monitoring Plan to Manage Golden Eagles*. This project will provide important information on effective protocols for surveying golden eagle populations at prospective wind project sites to improve the accuracy of risk predictions for a proposed wind project to golden eagles.

2. *GOEA occurrence prediction - model predictions of the occurrence of golden eagles in the western USA to help the USFWS identify important geographic areas and habitats for golden eagles during the breeding and non-breeding seasons*. This project will provide data on winter occurrence and distribution of golden eagles in the western United States to aid the Service and wind project developers in better categorizing potential projects according to eagle risk early in the planning process.

3. *Post-construction fatality estimation - development of super-population approach to estimating cumulative mortality from carcass surveys accounting for carcass removal, and non-detection, given presence.* Efforts here are intended to result in a methodology to meet statistical objectives of post-construction fatality estimates for eagles at operating wind facilities.

4. *Occupancy modeling - late summer occupancy modeling.* This work is a companion effort with science project 2 above to provide tools for predicting relative summer use of an area by golden eagles.

5. *Adaptive management framework - development of an adaptive management framework for wind energy permitting with regard to take of bald and golden eagles.* This project will develop the formal analytical structure of the adaptive management process. Project elements include: (1) fatality prediction models, (2) an improved model for estimating sustainable eagle take rates, (3) specifying a process for using post-construction data collected under science project 3 to update the fatality predictions using real data; and (4) specifying a process for using post-construction data collected under science project 3 to improve the predicative capability of the pre-construction fatality prediction model for future wind projects.

6. *GOEA status review - golden eagle population trends in the western United States, 1968-2010.* This analysis uses hierarchical statistical models to analyze summer golden eagle data from two sources to develop a composite prediction of population trends and population size by eagle management unit. Uncertainty over population trends of golden eagles has been a major concern of the Service in moving forward with eagle take permits, and population size estimates are crucial to grounding estimates of sustainable take rates.

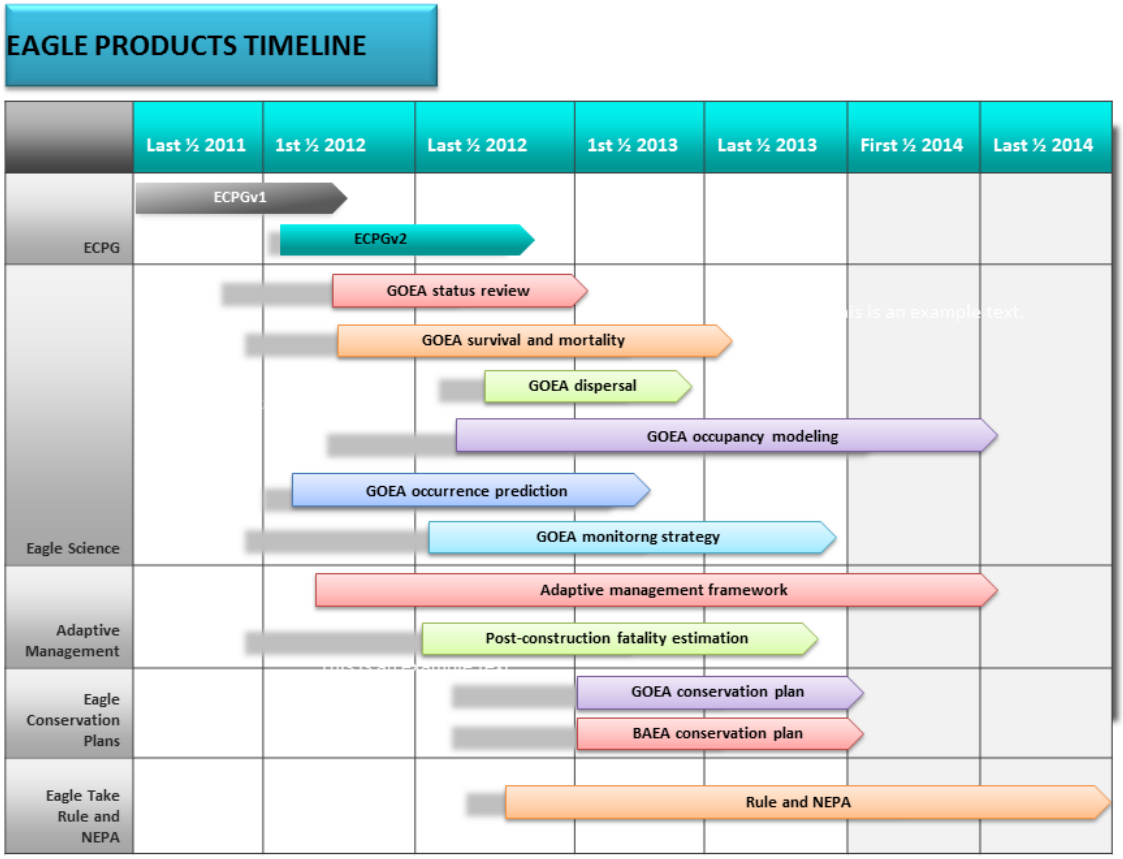
7. *GOEA dispersal - natal dispersal distances of bald and golden eagles in the coterminous US as inferred from band encounters*. The Service relied on estimates of natal dispersal to establish the effect-area for analysis of impacts of eagle take permits at the local-area population scale in the FEA and ECPG. The analysis presented in the FEA was coarse, and needs to be updated with more robust analytical procedures.

8. *GOEA survival and mortality - assessment of annual survival rates, transmitter effects and causes of mortality of golden eagles in the western US (and Mexico) as inferred from satellite transmitters.* Uncertainty over annual golden eagle survival rates and causes of mortality has been a major obstacle to several aspects of the Service's eagle permitting program. Demographic models must account for this uncertainty and thus are currently very imprecise. Moreover, because golden eagle take thresholds are currently set at zero, all permitted take must be offset by compensatory mitigation. That mitigation should target known existing sources of manageable mortality. This project aims to identify those causes of mortality to aid in effective targeting of compensatory mitigation.

Tenure Rule and ANPR. Public comments on the interlinked tenure rule and ANPR are currently being summarized by the Division of Migratory Bird Management staff. The Division of Migratory Bird Management will brief the Director soon on the implications of comments on the ANPR and the tenure rule and provide recommendations for moving forward. No work has formally begun on the substantive rule revision, although arguably much of the work outlined above will contribute to that process (see interrelationships between products below).

Eagle Management Plans. Preparing bald and golden eagle management plans is a top priority for the Service after the ECPG has been approved. The same people are working on the ECPG and management plans. Accordingly, no substantial progress on the plans can begin until those staff have completed revisions to the ECPG and associated training.

FIGURE 2 – TIMELINE – NEEDS MINOR EDITING



Interrelationships Among Eagle Products

None of the eagle permitting products is designed to stand alone. The conceptual plan is to implement a defensible process for moving forward with eagle programmatic take permitting for wind facilities in a measured way now, and to learn from our experiences with these initial permits and the science products so that we can undertake an informed substantive rule revision and NEPA analysis in 2014. The concept relies on a structured, ordered architecture such that the pieces come together in sequence and support one-another.

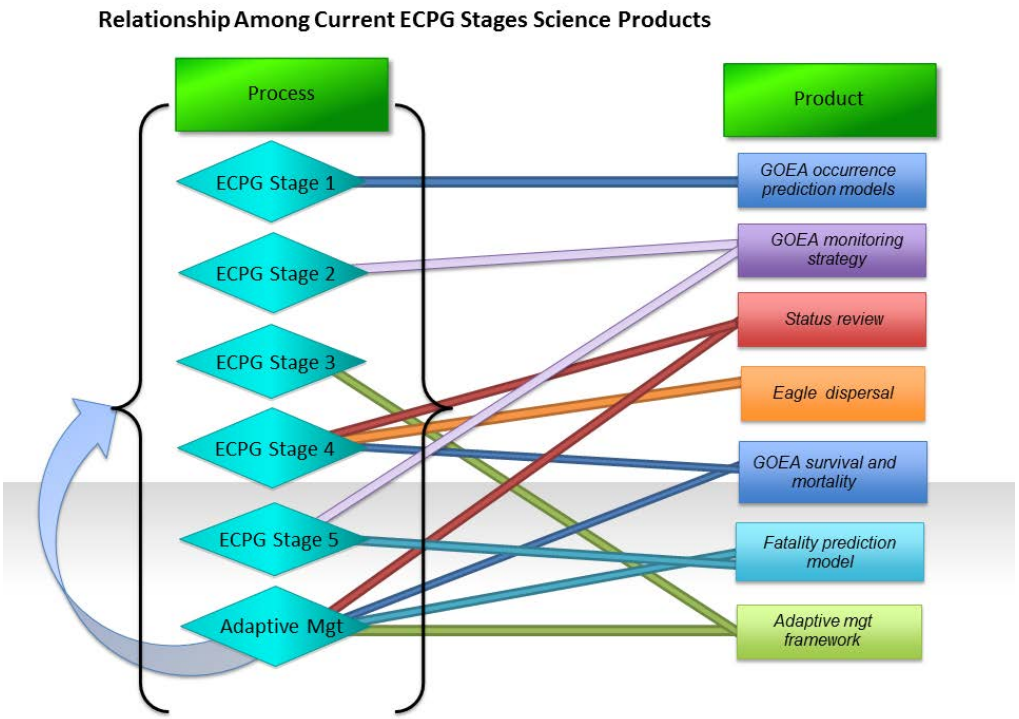


Figure 3. Primary relationships between science products under development by USGS and the Service, and the ECPG.

The ECPG is the cornerstone for implementation of the plan in the near-term. Many of the science projects are specifically intended to better inform decisions in the various stages of the ECPG or in the adaptive management process (Figure 1) and inform important changes to the regulations. The science products will provide immediate benefits to Service staff and wind developers who use the ECPG. Finally, all of the above will provide a substantial and solid basis for the Eagle Permit Rule revision and associated NEPA analysis.

Black, Steve <steve_black@ios.doi.gov>

Re: revised eagle strategy

1 message

Cottingham, David <david_cottingham@fws.gov> Mon, Feb 4, 2013 at 5:15 PM
To: Jerome Ford <jerome_ford@fws.gov>, Betsy Hildebrandt <betsy_hildebrandt@fws.gov>, Steve Black <steve_black@ios.doi.gov>, "Mott, Sarah P" <Sarah_P_Mott@fws.gov>, "Millsap, Brian A" <Brian_A_Millsap@fws.gov>

damn Bison Connect. don't hit tab

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> David Cottingham
> Senior Advisor to the Director
> US Fish and Wildlife Service
> Room 3341 Main Interior
> Washington DC 20240
>
> Office: 202-208-4331
> Cell: 202-372-7578

--
David Cottingham
Senior Advisor to the Director
US Fish and Wildlife Service
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Washington DC 20240

Office: 202-208-4331
Cell: 202-372-7578

Eagle Briefing Document - Feb 2013 draft 1docx.docx
359K

February 4, 2013 DRAFT

U.S. FISH AND WILDLIFE SERVICE
~~A~~ Blueprint for Eagle Conservation and Wind Energy Development

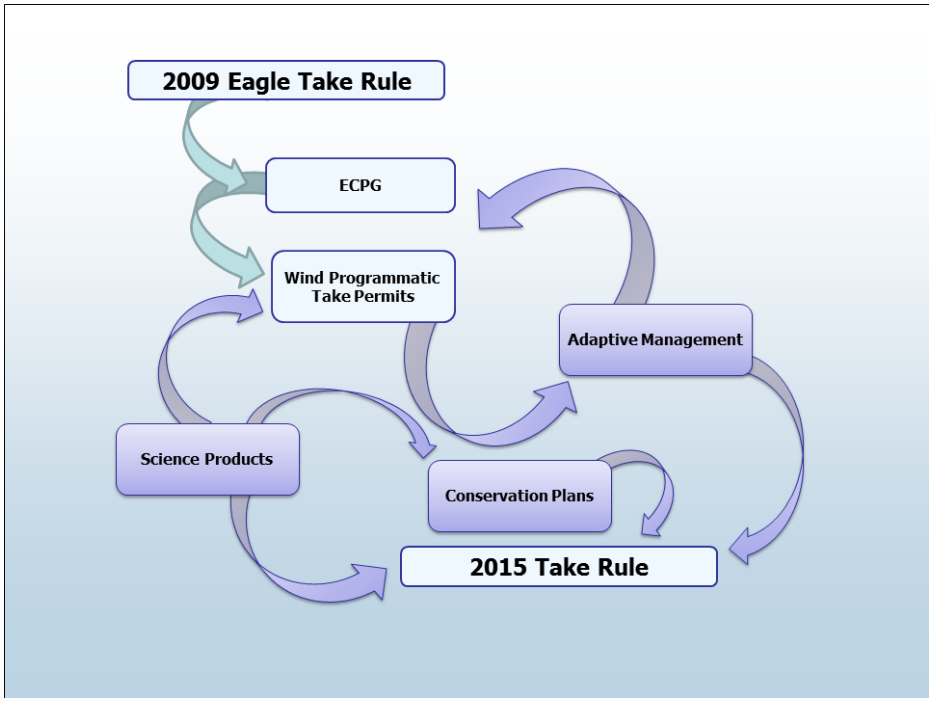
Overview

The U.S. Fish and Wildlife Service (FWS or Service~~-~~) actively supports the conservation and management of bald and golden eagles as authorized in the Bald and Golden Eagle Protection Act (BGEPA). With the recovery of bald eagles and their removal from their being listed under the Endangered Species Act (ESA), the Service developed a new approach to managing eagle populations. One of the dilemmas the Service faced was creating a process to conserve both eagle species including ways to authorize non-intentional takes of eagles.

The Service supports ~~the~~ development of renewable energy resources as a means to reduce carbon emissions and their impacts on the landscape. Large scale renewable energy development, however, is not without challenge for the Service. In particular, the proliferation of industrial scale wind projects throughout the United States has required a focused effort to balance this much-needed energy resource with our trust responsibilities. The Service's mandate under ~~the Bald and Golden Eagle Protection Act (~~BGEPA~~)~~ is to ensure that ~~the~~ development of such resources is compatible with the preservation of bald and golden eagles. Because wind turbines can kill bald and golden eagles, the Service and its partners are ~~is working~~ conducting research to better understand eagle populations, methods of avoidance and mitigation of eagle fatalities, and the overall population effects that wind turbines may be causing.

Strategy

The Service's strategy is to implement a defensible process for ~~moving forward with~~ authorizing eagle take ~~permitting for~~ at wind facilities in a measured way now, and to learn from our experiences with these initial permits and the science products so that we can undertake an informed substantive rule revision and NEPA analysis. ~~in 2015.~~ The ~~concept~~ strategy relies on a structured, ordered architecture such that the pieces come together in sequence and support one-another.



**** need to update schematic. 1) Change "Conservation Plans" to "Management Plans" 2) Insert the permit duration rule**

Near-Term

In the near-term, the Service is working with the wind industry on methods to avoid, minimize and mitigate takes of eagles at specific project sites. In addition, the Service is assisting proponents in the development of eagle ~~management~~ conservation plans and in their applications for incidental take permits. All of this work is informed by the best available science.

- **Applying the Eagle Rule to Permits for Wind Facilities**. In 2009, the Service promulgated rules governing review and approval of permits that authorize take of bald and golden eagles when ~~the~~ take is associated with, but not the purpose of, an otherwise lawful activity, and cannot practicably be avoided. The regulations authorize permits for "programmatic" take, which can potentially include recurring multiple incidents. The Service established an Eagle Management Team (EMT) to address the challenge of burgeoning wind development to eagles. ~~The EMT concluded that it was of conservation benefit to permit wind facilities for their take of eagles where the take meets the preservation standard of the Act and requirements in 50 CFR 22.26. The alternative was continued growth of wind development without an effective way to evaluate and authorize take resulting from operation of industrial-scale wind projects while the Service took several years to promulgate new rules.~~

To date, 15 entities have applied for programmatic take permits using the 2009 regulations. The Service is working with other entities to prepare eagle conservation plans.

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- **Eagle Conservation Plan Guidance (ECPG).** The ECPG outlines a process for data collection and analysis that could lead to the Service issuing a programmatic eagle take permit. The Service submitted a revised draft of ECPGv2 to the Office of Managmetne and Budget for inter-agency review. ~~Department where it is currently in review.~~ This draft incorporates significant changes to ECPGv1 in response to the public and peer-review comments. The ECPG includes a robust adaptive management framework so that the considerable uncertainty at many stages of the process can be reduced over time.
- **The Advanced Notice of Public Rulemaking and the "Tenure Rule."** When the Service promulgated the eagle rule in 2009, we received little comment from industries or environmental groups. After circulating the draft ECPG in 2011, the Service received extensive comments from the wind industry on the final rule itself, including comments regarding the preservation standard, permit term, and process for obtaining a permit. In April 2012, in response to these comments the Service took two actions:
  - ~~1) w~~We issued a proposed rule to extend the maximum tenure of programmatic permits under the Eagle Take Rule from 5 to 30 years, and
  - ~~2) w~~We published an Advanced Notice of Public Rulemaking (ANPR) announcing the intent to consider revising the Eagle Take Rule and soliciting responses to several key issues raised in the ECPG comments. The final revisions to the tenure rule will be ready to submit- to OMB shortly. ~~However, the Service is considering a request to postpone action on the tenure rule until it determines whether it will address permit tenure as part of the comprehensive review of the 2009 permit rule (see next point).~~

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- **Discussions with industry and environmental organizations:** In August 2012, sixteen organizations (8 wind industry and 8 environmental organizations) wrote to Secretary Salazar requesting that the Service "…supplement the current notice-and-comment proceedings (on the tenure proposed rule and ANPR) through continued and collaborative interaction with key stakeholders with express purpose of examining the issues identified in the two notices regarding eagle permits and the draft eagle conservation plan guidance." The Service is working with representatives of these groups to explore potential processes and topics to address through a collaborative process. The Service proposes to hold a series of public workshops during 2013 to gain additional input prior to proposing a regulation revision in 2014.
- **DRECP:** The purpose of the Desert Renewable Energy Conservation Plan (DRECP) is to conserve covered species and their habitats while streamlining environmental review and permitting of renewable energy projects in the Mohave and Colorado deserts of California. The Service can authorize take of golden eagles in a habitat conservation plan (HCP) as long as the HCP meets BGEPA conservation standards. California also protects golden eagles as "fully protected species" under the California Department of Fish and Wildlife ~~Game~~ (CDF&~~G~~W) Code . ~~(Section 3511).~~ The Service is working closely with CDF&W, ~~G~~ as well as other state and federal agencies, to develop a process to authorize incidental take of eagles at renewable energy projects as part of DRECP and to collect eagle interaction information on new and existing renewable energy projects. The details of the eagle component of the DRECP are not yet completed.

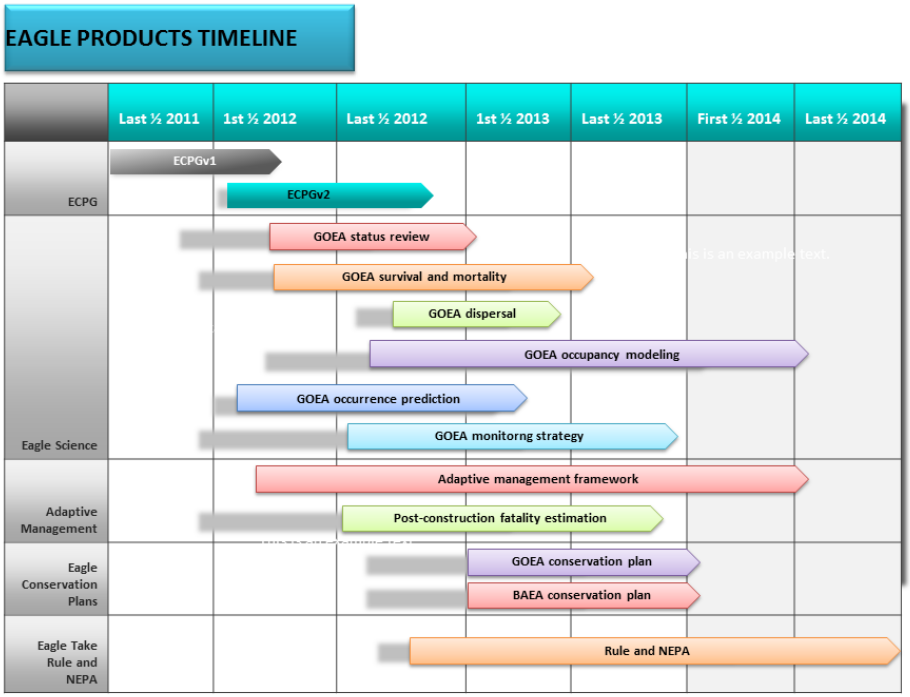
Long-Term

Science. The Service and U.S.Geological Survey (USGS) have partnered on eight priority science initiatives ~~designed~~ to improve knowledge of golden eagle population biology, ~~improve~~ eagle survey and population monitoring capabilities overall, and to frame the adaptive management process for eagle take permits. Projects are being undertaken jointly by USGS and the Service, and in some cases involve external partners. ~~as well.~~ These are the specific projects. [NOTE: these were 2012 projects. Aren't there more in 2013?]

- Golden eagle monitoring strategy - develop a Comprehensive Survey and Monitoring Plan to manage golden eagles.
- Golden eagle occurrence prediction - model predictions of the occurrence of golden eagles in the western United States to help the Service identify important geographic areas and habitats for golden eagles during the breeding and non-breeding seasons.
- Post-construction fatality estimation - development of landscape-level population approach to estimating cumulative mortality from carcass surveys accounting for carcass removal, and non-detection, given presence.
- Occupancy modeling - late summer occupancy modeling.
- Adaptive management framework - development of an adaptive management framework for wind energy permitting with regard to take of bald and golden eagles.
- Golden eagle status review - golden eagle population trends in the western United States, 1968-2010.
- Golden eagle dispersal - natal dispersal distances of bald and golden eagles in the coterminous US as inferred from band encounters.
- Golden eagle survival and mortality - assessment of annual survival rates, transmitter effects and causes of mortality of golden eagles in the western US (and Mexico) as inferred from satellite transmitters.

In addition to these projects, the Service is working through the American Wind-Wildlife Institute (AWWI) to collect better information about eagle and other migratory bird and bat fatalities at currently-operating wind energy facilities. We ~~anecdotally~~ opportunistically receive fatality reports from ~~a few~~ operating wind projects. We lack a comprehensive estimate of avian or wildlife fatalities at wind projects. Having a better understanding of eagle mortality at wind projects will vastly improve our capability to develop advanced conservation and mitigation practices.

Conservation and Management. The Service will develop national golden eagle and bald eagle conservation and management plans by 2014. These plans will incorporate information garnered from the research described above. They will use best available scientific information on the status of eagle populations and identify conservation strategies to assure long-term survival of bald and golden eagle populations.



NEED TO UPDATE: 1) it's 2013; check ECPG v 2 2) add public workshops for rule

Black, Steve <steve_black@ios.doi.gov>

Re: revised eagle strategy

1 message

Black, Steve <steve_black@ios.doi.gov> Tue, Feb 5, 2013 at 12:12 PM
To: "Cottingham, David" <david_cottingham@fws.gov>
Cc: Jerome Ford <jerome_ford@fws.gov>, Betsy Hildebrandt <betsy_hildebrandt@fws.gov>, "Mott, Sarah P" <Sarah_P_Mott@fws.gov>, "Millsap, Brian A" <Brian_A_Millsap@fws.gov>

Thanks David. Per your request, I have attached my suggested edits to the earlier draft as well. I worked on this on the plane, so my apologies for not integrating my edits with yours.

Steve

On Mon, Feb 4, 2013 at 5:15 PM, Cottingham, David <david_cottingham@fws.gov> wrote:

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--
Steve Black
Counselor to the Secretary
U.S. Department of the Interior
1849 C Street, N.W., MS 7229
Washington, D.C. 20240
Phone: 202-208-4123
Fax: 202-208-4561
e-mail: steve_black@ios.doi.gov

Eagle Briefing Document - Nov 23_swb edits.docx
422K

November 23, 2012

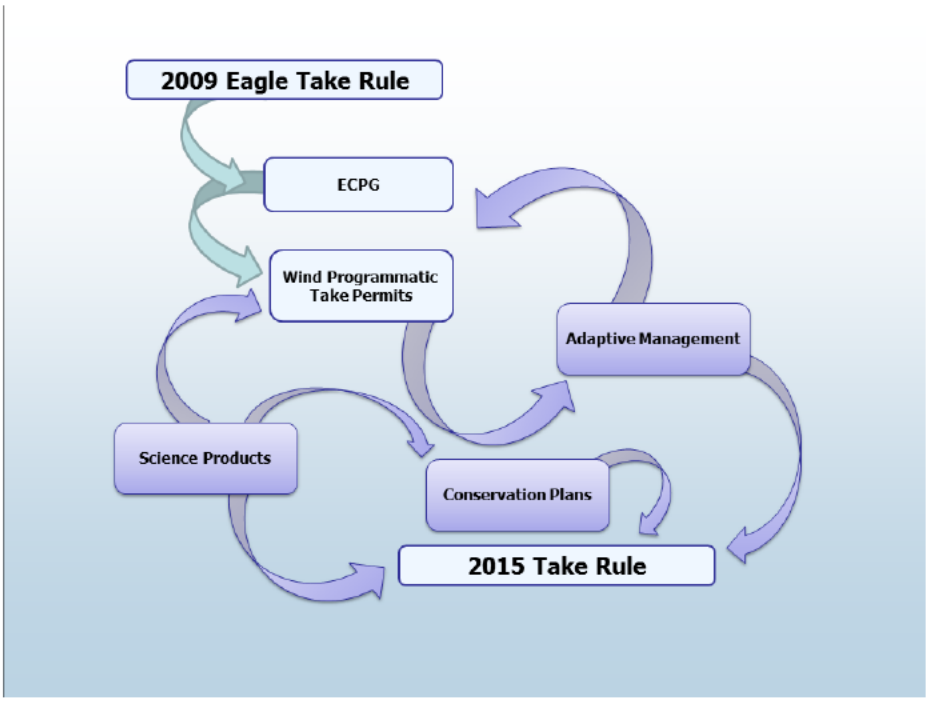
A Blueprint for Eagle Conservation and Wind Energy Development

Overview

The U.S. Fish and Wildlife Service (FWS or Service) supports the development of renewable energy resources as a means to reduce carbon emissions and their impacts on the landscape. Large scale renewable energy development, however, is not without challenge for the Service. In particular, the (b) (5) [redacted] of industrial scale wind projects throughout the United States has required a focused effort to balance this much-needed energy resource with our (b) (5) [redacted] responsibilities (b) (5) [redacted] The Service's mandate under the Bald and Golden Eagle Protection Act (BGEPA) is to ensure that the development of such resources is compatible with the preservation of bald and golden eagles. Because wind turbines can kill bald and golden eagles, the Service is working to better understand eagle populations, methods of avoidance and mitigation of eagle fatalities, and the (b) (5) [redacted] effects that wind turbines may be causing (b) (5) [redacted]

Strategy

The Service's strategy is to implement a defensible process for moving forward with (b) (5) [redacted] eagle take permitting for wind facilities in a measured way (b) (5) [redacted] and to learn from our experiences with these initial permits and the science products (b) (5) [redacted] so that we can undertake an informed substantive rule revision and NEPA analysis (b) (5) 2015. The (b) (5) [redacted] relies on a structured, ordered architecture such that the (b) (5) [redacted] come together in sequence and support one-another.



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This draft incorporates significant changes to [redacted] (b) (5) in response to the public and peer-review comments. The ECPG includes a robust adaptive management framework so that the considerable uncertainty at many stages of the process can be reduced over time.

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(b) (5) [redacted]

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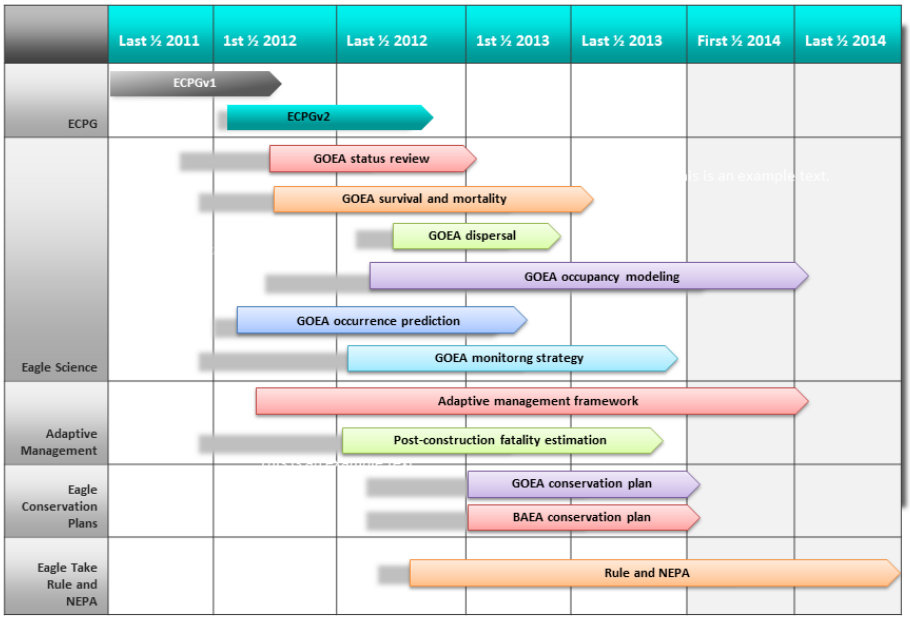
EAGLE PRODUCTS TIMELINE



Black, Steve <steve_black@ios.doi.gov>

Re: Materials for Feb 11 meeting

1 message

Cottingham, David <david_cottingham@fws.gov> Fri, Feb 8, 2013 at 5:34 PM
To: James Anderson <james_anderson@ios.doi.gov>, Elizabeth Klein <Elizabeth_Klein@ios.doi.gov>, Janea Scott <Janea_Scott@ios.doi.gov>, Steve Black <steve_black@ios.doi.gov>, Jerome Ford <jerome_ford@fws.gov>, David Cottingham <david_cottingham@fws.gov>, Betsy Hildebrandt <betsy_hildebrandt@fws.gov>, Dan Ashe <d_m_ashe@fws.gov>

SORRY --

I sent a redline version of the Eagle Briefing Document. Please disregard it and use the one attached here.

DC

On Fri, Feb 8, 2013 at 5:27 PM, Cottingham, David <david_cottingham@fws.gov> wrote:

> I'm attaching briefing documents for the Deputy Secretary and Director for the briefing.
>
> 1. briefing memo including: Attachment 1 -- agenda and Att 4 -- meeting participants
> 2. Attachment 2 -- Aug 2012 letter from industry
> 3. Attachment 3 -- Response from Dan
> 4. FWS eagle conservation strategy
> 5. Eagle rule revision process
>
> I've also sending:
>
> - comments from AWEA
> - comments in a joint enviro letter on the ANPR
> - BGEPA regulations on take
>
> I'll check emails over the weekend if you have questions.
>
> David
> --
> **David Cottingham**
> **Senior Advisor to the Director**
> **US Fish and Wildlife Service**
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> **Washington DC 20240**
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> **Office: 202-208-4331**
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US Fish and Wildlife Service

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Eagle Briefing Document - Feb 2013 FINAL.docx
42K

U.S. FISH AND WILDLIFE SERVICE
Blueprint for Eagle Conservation and Wind Energy Development

Overview

The U.S. Fish and Wildlife Service (FWS or Service) actively supports the conservation and management of bald and golden eagles as authorized in the Bald and Golden Eagle Protection Act (BGEPA). With the recovery of bald eagles and their removal from their being listed under the Endangered Species Act (ESA), the Service developed a new approach to managing eagle populations. One of the dilemmas the Service faced was creating a process to conserve both eagle species including ways to authorize non-intentional takes of eagles.

The Service supports development of renewable energy resources as a means to reduce carbon emissions and their impacts on the landscape. Large scale renewable energy development, however, is not without challenge for the Service. In particular, the development of industrial scale wind projects throughout the United States has required a focused effort to balance this much-needed energy resource with our statutory responsibilities to conserve migratory birds. The Service's mandate under BGEPA is to ensure that development of such resources is compatible with the preservation of bald and golden eagles. Because wind turbines can kill bald and golden eagles, the Service and its partners are conducting research to better understand eagle populations, methods of avoidance and mitigation of eagle fatalities, and the effects of wind turbines on eagle populations.

Strategy

The Service's strategy is to implement a defensible process for moving forward with authorizing incidental or programmatic eagle take at wind facilities in a measured way in the near future and to learn from our experiences with these initial permits and the science products developed through a focused research program so that we can undertake an informed substantive rule revision and NEPA analysis by 2015. The strategy relies on a structured, ordered architecture such that results of the research, monitoring, and data analysis come together in sequence and support one-another.

Near-Term

In the near-term, the Service is working with the wind industry on methods to avoid, minimize and mitigate takes of eagles at specific project sites. In addition, the Service is assisting proponents in the development of eagle conservation plans and in their applications for incidental take permits. All of this work is informed by the best available science.

- **Applying the Eagle Rule to Permits for Wind Facilities**. In 2009, the Service promulgated rules governing review and approval of permits that authorize take of bald and golden eagles when take is associated with, but not the purpose of, an otherwise lawful activity, and cannot practicably be avoided. The regulations authorize permits for "programmatic" take, which can potentially include recurring multiple incidents. The Service established an Eagle Management Team (EMT) to address the challenge of wind development to eagles.
- **Eagle Conservation Plan Guidance (ECPG)**. The ECPG outlines a process for adaptive management, data collection, and analysis that could lead to the Service issuing a

programmatic eagle take permit. The Service recently submitted a draft of ECPGv2 to the Office of Management and Budget for inter-agency review. This draft incorporates significant changes to draft ECPG circulated in 2011 in response to the public and peer-review comments. The ECPG includes a robust adaptive management framework so that the considerable uncertainty at many stages of the process can be reduced over time.

- **The Advanced Notice of Public Rulemaking and the "Tenure Rule."** When the Service promulgated the eagle rule in 2009, we received little comment from industries or environmental groups. After circulating the draft ECPG in 2011, the Service received extensive comments from the wind industry on the final rule itself, including comments regarding the preservation standard, permit term, and process for obtaining a permit. In April 2012, in response to these comments the Service took two actions:
    - We issued a proposed rule to extend the maximum tenure of programmatic permits under the Eagle Take Rule from 5 to 30 years, and
    - We published an Advanced Notice of Public Rulemaking (ANPR) announcing the intent to consider revising the Eagle Take Rule and soliciting responses to several key issues raised in the ECPG comments. The final revisions to the tenure rule will be ready to submit to OMB shortly.
- **Discussions with industry and environmental organizations:** In August 2012, sixteen organizations (8 wind industry and 8 environmental organizations) wrote to Secretary Salazar requesting that the Service "…supplement the current notice-and-comment proceedings (on the tenure proposed rule and ANPR) through continued and collaborative interaction with key stakeholders with express purpose of examining the issues identified in the two notices regarding eagle permits and the draft eagle conservation plan guidance." The Service is working with representatives of these groups to explore potential processes and topics to address through a collaborative process. The Service proposes to hold a series of public workshops during 2013 to gain additional input prior to proposing a regulation revision in 2014.
- **DRECP:** The purpose of the Desert Renewable Energy Conservation Plan (DRECP) is to conserve covered species and their habitats while streamlining environmental review and permitting of renewable energy projects in the Mohave and Colorado deserts of California. The Service can authorize take of golden eagles in a habitat conservation plan (HCP) as long as the HCP meets BGEPA conservation standards. California also protects golden eagles as "fully protected species" under the California Department of Fish and Wildlife (CDF&W) Code . The Service is working closely with CDF&W, as well as other state and federal agencies, to develop a process to authorize incidental take of eagles at renewable energy projects as part of DRECP and to collect eagle interaction information on new and existing renewable energy projects. The proposed framework for coverage of golden eagles in the DRECP is outlined in Appendix K of the comparative analysis published in December 2012.

Long-Term

Science. The Service and U.S. Geological Survey (USGS) have partnered on eight priority science initiatives to improve knowledge of golden eagle population biology, eagle survey and population monitoring capabilities overall, and to frame the adaptive management process for eagle take permits. Projects are being undertaken jointly by USGS and the Service, and in some cases involve external partners. These are the specific projects.

- Golden eagle monitoring strategy - develop a Comprehensive Survey and Monitoring Plan to manage golden eagles.
- Golden eagle occurrence prediction - model predictions of the occurrence of golden eagles in the western United States to help the Service identify important geographic areas and habitats for golden eagles during the breeding and non-breeding seasons.
- Post-construction fatality estimation - development of landscape-level population approach to estimating cumulative mortality from carcass surveys accounting for carcass removal, and non-detection, given presence.
- Occupancy modeling - late summer occupancy modeling.
- Adaptive management framework - development of an adaptive management framework for wind energy permitting with regard to take of bald and golden eagles.
- Golden eagle status review - golden eagle population trends in the western United States, 1968-2010.
- Golden eagle dispersal - natal dispersal distances of bald and golden eagles in the coterminous US as inferred from band encounters.
- Golden eagle survival and mortality - assessment of annual survival rates, transmitter effects and causes of mortality of golden eagles in the western US (and Mexico) as inferred from satellite transmitters.

In addition to these projects, the Service is working through the American Wind-Wildlife Institute (AWWI) to collect better information about eagle and other migratory bird and bat fatalities at currently-operating wind energy facilities. We opportunistically receive fatality reports from operating wind projects. We lack a comprehensive estimate of avian or wildlife fatalities at wind projects. Having a better understanding of eagle mortality at wind projects will vastly improve our capability to develop advanced conservation and mitigation practices.

Conservation and Management. The Service will develop national golden eagle and bald eagle conservation and management plans by 2014. These plans will incorporate information garnered from the research described above. They will use best available scientific information on the status of eagle populations and identify conservation strategies to assure long-term survival of bald and golden eagle populations.

§ 22.26 Permits for eagle take that is associated with, but not the purpose of, an activity.

(a) *Purpose and scope* . This permit authorizes take of bald eagles and golden eagles where the take is compatible with the preservation of the bald eagle and the golden eagle; necessary to protect an interest in a particular locality; associated with but not the purpose of the activity; and

(1) For individual instances of take: the take cannot practicably be avoided; or

(2) For programmatic take: the take is unavoidable even though advanced conservation practices are being implemented.

(b) *Definitions* . In addition to the definitions contained in part 10 of this subchapter, and §22.3, the following definition applies in this section:

Eagle means a live bald eagle (*Haliaeetus leucocephalus*), live golden eagle (*Aquila chrysaetos)*, a bald eagle egg, or a golden eagle egg.

(c) *Permit conditions* . In addition to the conditions set forth in part 13 of this subchapter, which govern permit renewal, amendment, transfer, suspension, revocation, and other procedures and requirements for all permits issued by the Service, your authorization is subject to the following additional conditions:

(1) You must comply with all avoidance, minimization, or other mitigation measures determined by the Director as reasonable and specified in the terms of your permit to compensate for the detrimental effects, including indirect effects, of the permitted activity on the regional eagle population;

(2) You may be required to monitor eagle use of important eagle-use areas where eagles are likely to be affected by your activities for up to 3 years after completion of the activity or as set forth in a separate management plan, as specified on your permit. Unless different monitoring protocols are required under a separate management plan approved by the Service and denoted on the permit, monitoring consists of periodic site visits, during the season(s) when eagles would normally be present, to the area where the take is likely to occur, and noting whether eagles continue to nest, roost, or forage there. The periodic monitoring is required for the duration of the activity that is likely to cause take (during the season(s) that eagles would normally be present). The frequency and duration of required monitoring *after* the activity is completed will depend on the form and magnitude of the anticipated take and the objectives of associated conservation measures, not to exceed what is reasonable to meet the primary purpose of the monitoring, which is to provide data needed by the Service regarding the impacts of human activity on eagles for purposes of adaptive management. Monitoring will not be required beyond 3 years after completion of an activity that was likely to cause take. For ongoing activities and enduring site features that continue to be likely to result in take, periodic monitoring may be required for as long as the data are needed to assess impacts to eagles.

(3) You must submit an annual report summarizing the information you obtained through monitoring to the Service every year that your permit is valid and for up to 3 years after

completion of the activity or termination of the permit, as specified in your permit. If your permit expires or is suspended or revoked before the activity is completed, you must submit the report within 60 days of such date. Reporting requirements include:

(i) Whether eagles are observed using the important eagle-use areas designated on the permit; and

(ii) Description of the human activities conducted at the site when eagles are observed.

(4) While the permit is valid and for up to 3 years after it expires, you must allow Service personnel, or other qualified persons designated by the Service, access to the areas where eagles are likely to be affected, at any reasonable hour, and with reasonable notice from the Service, for purposes of monitoring eagles at the site(s).

(5) The authorizations granted by permits issued under this section apply only to take that results from activities conducted in accordance with the description contained in the permit application and the terms of the permit. If the permitted activity changes after a permit is issued, you must immediately contact the Service to determine whether a permit amendment is required in order to retain take authorization.

(6) You must contact the Service immediately upon discovery of any unanticipated take.

(7) The Service may amend, suspend, or revoke a programmatic permit issued under this section if new information indicates that revised permit conditions are necessary, or that suspension or revocation is necessary, to safeguard local or regional eagle populations. This provision is in addition to the general criteria for amendment, suspension, and revocation of Federal permits set forth in §§13.23, 13.27, and 13.28.

(8) Notwithstanding the provisions of §13.26 of this subchapter, you remain responsible for all outstanding monitoring requirements and mitigation measures required under the terms of the permit for take that occurs prior to cancellation, expiration, suspension, or revocation of the permit.

(9) You must promptly notify the Service of any eagle(s) found injured or dead at the activity site, regardless of whether the injury or death resulted from your activity. The Service will determine the disposition of such eagles.

(10) The authorization granted by permits issued under this section is not valid unless you are in compliance with all Federal, tribal, State, and local laws and regulations applicable to take of eagles.

(d) *Applying for an eagle take permit* . (1) You are advised to coordinate with the Service as early as possible for advice on whether a permit is needed and for technical assistance in assembling your permit application package. The Service may provide guidance on developing complete and adequate application materials and will determine when the application form and materials are ready for submission.

(2) Your application must consist of a completed application Form 3-200-71 and all required attachments. Send applications to the Regional Director of the Region in which the disturbance would occur—Attention: Migratory Bird Permit Office. You can find the current addresses for the Regional Directors in §2.2 of subchapter A of this chapter.

(e) *Evaluation of applications* . In determining whether to issue a permit, we will evaluate:

(1) Whether take is likely to occur based on the magnitude and nature of the impacts of the activity, which include indirect effects. For potential take in the form of disturbance, this evaluation would include:

(i) The prior exposure and tolerance to similar activity of eagles in the vicinity;

(ii) Visibility of the activity from the eagle's nest, roost, or foraging perches; and

(iii) Whether alternative suitable eagle nesting, roosting, and/or feeding areas that would not be detrimentally affected by the activity are available to the eagles potentially affected by the activity.

(2) Whether the take is:

(i) Compatible with the preservation of the bald eagle and the golden eagle, including consideration of indirect effects and the cumulative effects of other permitted take and other additional factors affecting eagle populations;

(ii) Associated with the permanent loss of an important eagle use area;

(iii) Necessary to protect a legitimate interest in a particular locality; and

(iv) Associated with, but not the purpose of, the activity.

(3) Whether the applicant has proposed avoidance and minimization measures to reduce the take to the maximum degree practicable, and for programmatic authorizations, the take is unavoidable despite application of advanced conservation practices developed in coordination with the Service.

(4) Whether issuing the permit would preclude the Service from authorizing another take necessary to protect an interest of higher priority, according to the following prioritization order:

(i) Safety emergencies;

(ii) Native American religious use for rites and ceremonies that require eagles be taken from the wild;

(iii) Renewal of programmatic take permits;

(iv) Non-emergency activities necessary to ensure public health and safety; and

(v) Other interests.

(5) Any additional factors that may be relevant to our decision whether to issue the permit, including, but not limited to, the cultural significance of a local eagle population.

(f) *Required determinations* . Before we issue a permit, we must find that:

(1) The direct and indirect effects of the take and required mitigation, together with the cumulative effects of other permitted take and additional factors affecting eagle populations, are compatible with the preservation of bald eagles and golden eagles;

(2) The taking is necessary to protect a legitimate interest in a particular locality;

(3) The taking is associated with, but not the purpose of, the activity;

(4) The taking cannot practicably be avoided; or for programmatic authorizations, the take is unavoidable;

(5) The applicant has avoided and minimized impacts to eagles to the extent practicable, and for programmatic authorizations, the taking will occur despite application of advanced conservation practices; and

(6) Issuance of the permit will not preclude issuance of another permit necessary to protect an interest of higher priority as set forth in paragraph (e)(4) of this section.

(g) We may deny issuance of a permit if we determine that take is not likely to occur.

(h) *Permit duration* . The duration of each permit issued under this section will be designated on its face, and will be based on the duration of the proposed activities, the period of time for which take will occur, the level of impacts to eagles, and mitigation measures, but will not exceed 5 years.

[74 FR 46877, Sept. 11, 2009]

§ 22.27 Removal of eagle nests.

(a) *Purpose and scope* . (1) A permit may be issued under this section to authorize removal or relocation of:

(i) An active or inactive nest where necessary to alleviate a safety emergency;

(ii) An inactive eagle nest when the removal is necessary to ensure public health and safety;

(iii) An inactive nest that is built on a human-engineered structure and creates a functional hazard that renders the structure inoperable for its intended use; or

(iv) An inactive nest, provided the take is necessary to protect an interest in a particular locality and the activity necessitating the take or the mitigation for the take will, with reasonable certainty, provide a clear and substantial benefit to eagles.

(2) Where practicable and biologically warranted, the permit may require a nest to be relocated, or a substitute nest provided, in a suitable site within the same territory to provide a viable nesting option for eagles within that territory, unless such relocation would create a threat to safety. However, we may issue permits to remove nests that we determine cannot or should not be relocated. The permit may authorize take of eggs or nestlings if present. The permit may also authorize the take of adult eagles (e.g., disturbance or capture) associated with the removal or relocation of the nest.

(3) A programmatic permit may be issued under this section to cover multiple nest takes over a period of up to 5 years, provided the permittee complies with comprehensive measures that are developed in coordination with the Service, designed to reduce take to the maximum degree technically achievable, and specified as conditions of the permit.

(4) This permit does not authorize intentional, lethal take of eagles.

(b) *Conditions* . (1) Except for take that is necessary to alleviate an immediate threat to human or eagle safety, only inactive eagle nests may be taken under this permit.

(2) When an active nest must be removed under this permit, any take of nestlings or eggs must be conducted by a Service-approved, qualified, and permitted agent, and all nestlings and viable eggs must be immediately transported to foster/recipient nests or a rehabilitation facility permitted to care for eagles, as directed by the Service.

(3) Possession of the nest for any purpose other than removal or relocation is prohibited without a separate permit issued under this part authorizing such possession.

(4) You must submit a report consisting of a summary of the activities conducted under the permit to the Service within 30 days after the permitted take occurs, except that for programmatic permits, you must report each nest removal within 10 days after the take and

submit an annual report by January 31 containing all the information required in Form 3-202-16 for activities conducted during the preceding calendar year.

(5) You may be required to monitor the area and report whether eagles attempt to build or occupy another nest at another site in the vicinity for the duration specified in the permit.

(6) You may be required under the terms of the permit to harass eagles from the area following the nest removal when the Service determines it is necessary to prevent eagles from re-nesting in the vicinity.

(7) You must comply with all avoidance, minimization, or other mitigation measures determined by the Director as reasonable and specified in the terms of your permit to compensate for the detrimental effects, including indirect effects, of the permitted activity on—and for permits issued under paragraph (a)(1)(iv) of this section, to provide a net benefit to—the regional eagle population.

(8) The Service may amend or revoke a programmatic permit issued under this section if new information indicates that revised permit conditions are necessary, or that suspension or revocation is necessary, to safeguard local or regional eagle populations.

(9) Notwithstanding the provisions of §13.26 of this subchapter, you remain responsible for all outstanding monitoring requirements and mitigation measures required under the terms of the permit for take that occurs prior to cancellation, expiration, suspension, or revocation of the permit.

(10) The authorization granted by permits issued under this section is not valid unless you are in compliance with all Federal, tribal, State, and local laws and regulations applicable to take of eagles.

(c) *Applying for a permit to take eagle nests* . (1) If the take is necessary to address an immediate threat to human or eagle safety, contact your local U.S. Fish and Wildlife Service Regional Migratory Bird Permit Office (*http://www.fws.gov/permits/mbpermits/addresses.html*) at the earliest possible opportunity to inform the Service of the emergency.

(2) Your application must consist of a completed application Form 3-200-72 and all required attachments. Send applications to the Regional Director of the Region in which the disturbance would occur—Attention: Migratory Bird Permit Office. You can find the current addresses for the Regional Directors in §2.2 of subchapter A of this chapter.

(d) *Evaluation of applications* . In determining whether to issue a permit, we will evaluate:

(1) Whether the activity meets the requirements of paragraph (a)(1) of this section;

(2) The direct and indirect effects of the take and required mitigation, together with the cumulative effects of other permitted take and additional factors affecting eagle populations;

(3) Whether there is a practicable alternative to nest removal that will protect the interest to be served;

(4) Whether issuing the permit would preclude the Service from authorizing another take necessary to protect an interest of higher priority, as set forth in paragraph (e)(5) of this section;

(5) For take that is not necessary to alleviate an immediate safety emergency, whether suitable nesting and foraging habitat is available to accommodate eagles displaced by the nest removal; and

(6) Any additional factors that may be relevant to our decision whether to issue the permit, including, but not limited to, the cultural significance of a local eagle population.

(e) *Required determinations* . Before issuing a permit under this section, we must find that:

(1) The direct and indirect effects of the take and required mitigation, together with the cumulative effects of other permitted take and additional factors affecting eagle populations, are compatible with the preservation of the bald eagle or the golden eagle;

(2) For inactive nests:

(i) The take is necessary to ensure public health and safety;

(ii) The nest is built on a human-engineered structure and creates a functional hazard that renders the structure inoperable for its intended use; or

(iii) The take is necessary to protect a legitimate interest in a particular locality, and the activity necessitating the take or the mitigation for the take will, with reasonable certainty, provide a clear and substantial benefit to eagles;

(3) For active nests, the take is necessary to alleviate an immediate threat to human safety or eagles;

(4) There is no practicable alternative to nest removal that would protect the interest to be served; and

(5) Issuing the permit will not preclude the Service from authorizing another take necessary to protect an interest of higher priority, according to the following prioritization order:

(i) Safety emergencies;

(ii) Native American religious use for rites and ceremonies that require eagles be taken from the wild;

(iii) Renewal of programmatic nest-take permits;

(iv) Non-emergency activities necessary to ensure public health and safety;

(v) Resource development or recovery operations (under §22.25, for golden eagle nests only);

(vi) Other interests.

(6) For take that is not necessary to alleviate an immediate threat to human safety or eagles, we additionally must find that suitable nesting and foraging habitat is available to the area nesting population of eagles to accommodate any eagles displaced by the nest removal.

(f) *Tenure of permits* . The tenure of any permit to take eagle nests under this section is set forth on the face of the permit and will not be longer than 5 years.

[74 FR 46877, Sept. 11, 2009]

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Washington, D.C. 20240

OCT 23 2012

Ms. Jamie Clark
President and CEO
Defenders of Wildlife
1130 17th Street, NW
Washington, DC 20036

Dear ~~Ms. Clark~~ Jamie:

Thank you for your letter of August 22, 2010 to Secretary of the Interior Ken Salazar, co-signed by several of your peers, suggesting a path forward regarding renewable energy development and impacts to bald and golden eagles. The Secretary asked the U.S. Fish and Wildlife Service (Service) to respond directly to you.

Because the 2009 eagle take regulations involve all activities that may affect eagle populations, the Service recognizes the importance of working with all interested parties in this era of increased renewable energy development. The Service would like to invite you or a designee to a one-to-two-day meeting during which you and other partners would work with Service staff to develop a collaborative process to ensure the long-term sustainability of eagle populations and responsible renewable energy development.

Please reply to Mr. Jerome Ford, Assistant Director, Migratory Birds, with your availability during the week of December 10, 2012. I look forward to this important conversation.

Sincerely,

DIRECTOR

Attention: Division of Policy and Directives Management
U.S. Fish and Wildlife Service
4401 North Fairfax Drive, MS 2042–PDM
Arlington, VA 22203-1610

Re: Comments of the American Wind Energy Association on Eagle Permits; Revisions to Regulations Governing Take Necessary To Protect Interests in Particular Localities; Docket No. FWS–R9–MB–2011–0094

Submitted via Federal Rulemaking Portal: http://www.regulations.gov

In September 2009, the United States Fish and Wildlife Service (FWS or Service) published a final rule (Eagle Permit Rule) establishing new permit regulations under the Bald and Golden Eagle Protection Act (Eagle Act or Eagle Act) for nonpurposeful take of eagles.[1] These regulations relate to permits to take eagles where the take is associated with, but not the purpose of, otherwise lawful activities. The regulations provide for both standard permits and programmatic permits.

On April 13, 2012, the FWS published an Advanced Notice of Proposed Rulemaking (ANOPR)[2] that seeks input on how the Eagle Permit Rule can be improved to create a more efficient permit process while continuing to provide adequate protection for eagles. The ANOPR states that FWS is particularly interested in public ideas and suggestions that would help clarify the permit issuance criteria, help determine appropriate compensatory mitigation, and better define the Eagle Act's

[1] 74 FR 46836.
[2] 77 FR 22278; 50 CFR 22.26.

preservation standard. In addition, FWS states that it will accept public input on other aspects of the permit governed by the Eagle Permit Rule that may be improved by revision of the existing regulations.

Ensuring that the Eagle Permit Rule is workable for the wind industry while providing for the protection of bald and golden eagles is of paramount importance to the American Wind Energy Association (AWEA).[3] We recognize the conservation mission of the Service and have been a partner with the agency, and others within the Department of the Interior (DOI), on a variety of wildlife conservation efforts and look forward to continuing that strong relationship. In that same spirit, AWEA appreciates the opportunity to provide the following comments to the ANOPR.

I. Background

The Eagle Act (16 U.S.C. 668–668d) prohibits take of bald eagles and golden eagles except pursuant to Federal regulations.[4] The Eagle Act regulations at title 50, part 22, of the Code of Federal Regulations (CFR), define the ''take'' of an eagle to include the following broad range of actions: ''pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, destroy, molest, or disturb'' (50 CFR 22.3). The Eagle Act allows the Secretary of the Interior to authorize certain otherwise prohibited activities through regulations.

The Secretary is authorized to prescribe regulations permitting the ''taking, possession, and transportation of [bald eagles or golden eagles] . . . for the scientific or exhibition purposes of public museums, scientific societies, and zoological parks, or for the religious purposes of Indian

[3] AWEA is the national trade association representing a broad range of entities with a common interest in encouraging the deployment and expansion of wind energy resources in the United States. AWEA members include wind turbine manufacturers, component suppliers, project developers, project owners and operators, financiers, researchers, renewable energy supporters, utilities, marketers, customers and their advocates.

[4] Section 668a of the Bald and Golden Eagle Protection Act (Eagle Act) states:

> Whenever, after investigation, the Secretary of the Interior shall determine that it is compatible with the preservation of the bald eagle or the golden eagle to permit the taking, possession, and transportation of specimens thereof for the scientific or exhibition purposes of public museums, scientific societies, and zoological parks, or for the religious purposes of Indian tribes, or that it is necessary to permit the taking of such eagles for the protection of wildlife or of agricultural or other interests in any particular locality, he may authorize the taking of such eagles pursuant to regulation which is hereby authorized to prescribe. 16 U.S.C. § 668a.

tribes, or . . . for the protection of wildlife or of agricultural or other interests in any particular locality,'' provided such permits are ''compatible with the preservation of the bald eagle or the golden eagle'' (16 U.S.C. 668a).

On September 11, 2009, FWS published a final rule that established new permit regulations under the Eagle Act for nonpurposeful take of eagles (74 FR 46836)—the Eagle Permit Rule. Those regulations at 50 CFR 22.26 provide for permits to take bald eagles and golden eagles where the taking is associated with, but not the purpose of, an activity. The regulations provide for both standard permits and programmatic permits.

Through the ANOPR, FWS solicits public input on aspects of the permit program governed by 50 CFR 22.26 that may be improved by revision of the regulations.

II. The Criteria for Issuance of Programmatic Permits Should Be the Same as That Required for Issuance of Standard Individual Permits.

Under the Eagle Permit Rule,[5] as noted, either standard permits or programmatic permits may be granted for the nonpurposeful take of bald and golden eagles.[6] Standard permits "authorize individual instances of take that *cannot practicably be avoided*."[7] "Practicable" in this context means "capable of being done after taking into consideration, relative to the magnitude of the impacts to eagles: (1) the cost of remedy comparative with proponent resources; (2) existing technology; and (3) logistics in light of overall project purposes."[8]

Programmatic take is defined as "take that is recurring, is not caused solely by indirect effects, and that occurs over the long term or in a location or locations that cannot be specifically identified."[9]

[5] 50 CFR 22.26.
[6] 74 FR 46836, September 11, 2009.
[7] *Id.* (emphasis added).
[8] 50 CFR 22.26.
[9] 50 CFR 22.3

Programmatic permits[10] "authorize recurring take that is *unavoidable* even after implementation of advanced conservation practices."[11]

The criteria for issuance of standard versus programmatic permits therefore differ rather substantially. Under the criteria for a standard permit, ''take that cannot practicably be avoided'' can be authorized; in contrast, a programmatic permit requires that the take be ''unavoidable.'' In addition, programmatic permit seekers must show that the take is "essentially unavoidable" despite implementation of "exceptionally comprehensive measures" developed in cooperation with the Service to reduce the take below current levels.[12]

Because the issuance criteria for programmatic permits makes no mention of "practicability," the standard does not technically require the Service to take into consideration, relative to the magnitude of the impacts to eagles: (1) the cost of remedy compared to proponent resources; (2) existing technology; and (3) logistics in light of overall project purposes, when imposing "exceptionally comprehensive" advanced conservation practices (ACPs) on programmatic permit holders. Because the programmatic permit criteria lacks any language describing the term "unavoidable," apart from the fact that such take requires implementation of ACPs, the Service potentially has great latitude to impose overly burdensome conservation requirements on permit holders that are disproportionate to actual impacts on eagles without considering other relevant factors.

The Service in acknowledgement of the high hurdle that an applicant faces that seeks a programmatic permit has stated: "Recipients of programmatic permits must perform more rigorous

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[10] Most take authorized under § 22.26 has been in the form of disturbance; however, permits may authorize lethal take that is incidental to an otherwise lawful activity, such as would be the case with wind turbines. Since publication of the 2009 final rule, the Service has issued approximately 50 permits under the new regulations. However, it has not yet issued any programmatic permits.

[11] 74 FR 46841, September 11, 2009 (emphasis added). ''Advanced conservation practices'' (ACPs) are defined at 50 CFR 22.3 as ''scientifically supportable measures that are approved by the Service and represent the best available techniques to reduce eagle disturbance and ongoing mortalities to a level where remaining take is unavoidable.'' This definition distinguishes programmatic take from any other take that has indirect effects that continue to cause take after the initial action. The Service can issue programmatic permits for disturbance as well as for take resulting in mortalities, based on implementation of advanced conservation practices developed in coordination with FWS.

[12] 74 FR 46838, September 11, 2009.

monitoring than is required for standard, individual take permits."[13] However, the preamble accompanying the Eagle Permit Rule states ''applicants for both types of permits must take all practicable steps to avoid and minimize take,''[14] adding some confusion to the difference between standard and programmatic permits. This language implies that programmatic permittees should be held to the same workable standard as standard individual take permittees, which allow a level of take "that cannot practicably be avoided," rather than being subject to "exceptionally comprehensive measures" that would make any remaining take essentially unavoidable.

In apparent reconsideration of this difference that separates these permits, the Service asks in the ANOPR whether the regulations should be revised so that the issuance criterion for programmatic permits is the same as for standard permits; in other words, whether the project proponent has to reduce take to the maximum degree practicable for the issuance of either type of permit.

AWEA thinks the standards should be the same for both standard and programmatic permits and does not see a rationale for having different standards, except that programmatic permits are granted for a longer duration, thereby allowing for recurring take for the life of the permit. However, ACPs compensate for this difference between standard and programmatic permits, thereby promoting eagle conservation throughout the permit duration.[15] In order to ensure that any ACPs required by a programmatic permit are not disproportionate to the impacts on eagles, the Service should also redefine ACPs as "scientifically supportable measures that are approved by the Service to reduce eagle disturbance and ongoing mortalities to a level where remaining take *cannot practicably be avoided*" to ensure consistency with programmatic permit issuance criteria.

<u>AWEA Recommendation:</u>

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[13] 74 FR 46842, September 11, 2009.
[14] *Id*.
[15] We note that, when applying ACPs, the Service should do so relative to the magnitude of the impacts to eagles because "whether something is practicable is relative to the risk of not doing it." *Id*. If the adverse impact is small, it may be impracticable to undertake enormously costly measures to avoid it, but if the impact will be extremely detrimental, increased measures may be deemed reasonable and practicable.

AWEA believes the issuance criteria for programmatic permits should be the same as for standard permits; as such, for either permit type, the project proponent need only have to reduce take to the maximum degree practicable. Thus, the programmatic permit issuance criteria should be redefined in keeping with the practicable avoidance standard, as should the definition of ACPs.

A. Applying the Same Workable Issuance Criteria for Programmatic Permits as for Standard Permits Better Aligns the Requirements for Issuing Eagle Take Permits with Those for Incidental Take Permits Under the ESA.

When the Service proposed the Eagle Permit Rule to allow incidental take of eagles, it assured the public that the "permitting process we are proposing under the Eagle Act would be *less burdensome* for the public" than the ESA's incidental take process, which applied to the bald eagle until it was delisted.[16] However, the issuance criteria for programmatic permits under the Eagle Permit Rule are more burdensome, less certain, and more costly with respect to the eagle plan/eagle take permit process for bald and golden eagles than criteria for issuing an incidental take permit (ITP) process for much more imperiled species under the ESA.

The ESA follows a more workable issuance standard for permit applicants than the process under Eagle Permit Rule. Under the ESA, an ITP can be granted if the "applicant will, to the maximum extent practicable, minimize and mitigate the impacts of such [incidental] taking."[17] While a programmatic eagle take permit cannot be issued unless ACPs specified by the Service are first applied,[18] there is no comparable constraint of applying ACPs or on reducing take to an "unavoidable" level to obtain an ITP under the ESA and its implementing rules. Given that the species protected under the ESA are more imperiled than eagles, no permitting scheme for eagles should impose more stringent requirements than the ESA.

<u>AWEA Recommendation:</u>

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[16] 72 Fed. Reg. 31141 (June 5, 2007) (emphasis added).
[17] 16 U.S.C. § 1539(a)(2)(B)(ii).
[18] *Id.* The ACPs must apply the "best available techniques to reduce eagle disturbances and ongoing mortalities to a level where remaining take is unavoidable." 50 C.F.R. § 22.3; *see id.* at § 22.26(a)(2).

The criteria for issuing programmatic permits under Eagle Act should, consistent with the requirement for an ESA ITP, only require minimization and mitigation to the extent that take cannot practicably be avoided.

B. At Present, the Eagle Permit Rule and the Draft Eagle Guidance Erroneously Conclude that Eagle Act Requires that the Take of Eagles Must First be Avoided and Then Minimized and Mitigated so That Any Remaining Take is Unavoidable.

In the Eagle Permit Rule and subsequent Draft Eagle Guidance, the Service interpreted the word "necessary" in Section 668a of the Eagle Act[19] to mean that take has been avoided and minimized to the point that "take cannot practicably be avoided" for standard permits, but for a programmatic eagle take permit, that take must be reduced through ACPs to the point that remaining take is "unavoidable."[20] This interpretation of Eagle Act is translated into the Draft Eagle Guidance's requirements for onerous studies, analyses, and consultations with the Service designed to create a scientific record demonstrating that eagle take has been avoided, then minimized, and then mitigated to the point that a remaining take is unavoidable. While the wind industry has always embraced the general responsibility to avoid, minimize, and mitigate the take of at risk species, the manner in which these duties are imposed in the Eagle Permit Rule and the Draft Eagle Guidance are overly burdensome and not consistent with the underlying act.

As the "necessary" language from Eagle Act does not apply to the clause on which the eagle take permit program is based, it does not require the Service's reading that the incidental take of eagles must first be avoided and then minimized and mitigated so that any remaining take is unavoidable. Instead, the relevant Eagle Act language in the second clause of section 668a allows, as noted, eagle takes on whatever terms the "Secretary of the Interior shall determine . . . is necessary . . . for the protection of . .

[19] "Whenever, after investigation, the Secretary of the Interior shall determine that it is compatible with the preservation of the bald eagle or the golden eagle to permit the taking, possession, and transportation of specimens thereof for the scientific or exhibition purposes of public museums, scientific societies, and zoological parks, or for the religious purposes of Indian tribes, or that it is necessary to permit the taking of such eagles for the protection of wildlife or of agricultural or other interests in any particular locality, he may authorize the taking of such eagles pursuant to regulation which is hereby authorized to prescribe."
[20] 50 C.F.R. §§ 22.3, 22.26(a) and (e) and (f).

. agricultural or other interests."[21] Thus, the word "necessary" in that clause of the section permits activities (such as a wind energy project) that are considered to be in the public interest (as is renewable energy development) and does not require the onerous process set forth by the current programmatic permit issuance criteria.

AWEA Recommendation:

AWEA requests that the Service reexamine its interpretation of Eagle Act, particularly Section 668a, and allow more flexible and efficient solutions on eagle take matters, consistent with the language in the Eagle Act, than is provided for in either the Eagle Permit Rule or the Draft Eagle Guidance.

C. The Service Should Not Consider a Proponent's Resources in Determining Whether a Measure is Practicable and Similarly Should Avoid Unreasonable Risk-Level Designations for Project Sites That Could be Prevented Through More Defined Criteria.

As noted, AWEA recommends modifying the issuance criteria for programmatic permits so that the criteria is in line with standard permit issuance criteria, thus authorizing recurring take that cannot practicably be avoided. However, AWEA also urges the Service to go one step further and redefine the word "practicable." As it stands, "practicable" means "capable of being done after taking into consideration, relative to the magnitude of the impacts to eagles: (1) the cost of remedy comparative with proponent resources; (2) existing technology; and (3) logistics in light of overall project purposes."[22] AWEA approves of factors (2) and (3) being considered, but does not agree that the definition should include any consideration of an applicant's financial or other resources.

The requirement for such case-by-case consideration of an individual proponent's resources is arbitrary and will have unjust and unnecessary disparate effects. Such consideration of financial resources could result in too high a bar for large projects with many resources, resulting in more stringent requirements for project proponents with more financial means, regardless of the risk posed

[21] We also note that section 22.23 of the Eagle Permit Rule grants the Service broad authority to issue a permit to allow the intentional killing of "depredating eagles" (*i.e.*, eagles that are interfering with livestock or other agricultural interests). 50 C.F.R. § 22.23. This provides another example of the fact that the USFWS is not limited by its constrained reading of Eagle Act in section 22.26 of the Eagle Permit Rule.

[22] 50 CFR 22.26.

by them to eagles. Further, costly measures, which are merely based on the characteristics of the company developing a project, could disincentivize large developers from developing wind energy projects. It is also unfair to consider an applicant's resources, because a parent company's resources should be irrelevant to what the economics of an individual project can bear in order to be profitable.

The Service thus should not consider the means of individual permit applicants when determining whether a measure is practicable when issuing programmatic permits. It should instead consider the reasonableness of such measures by balancing their costs and their ability to mitigate actual measurable impacts as compared to the overall benefit and utility of the project at issue. For example, the Service could achieve better conservation results by differentiating and requiring mitigation measures that are proven to work versus those with benefits that are merely speculative and requiring research to validate additional mitigation options.

To the extent that the Service amends the current issuance criteria for programmatic permits to align with the "practicable avoidance" criteria for standard permits, as AWEA suggests, the term "practicable" should therefore be redefined as "capable of being done after taking into consideration, relative to the magnitude of the impacts to eagles: (1) the cost of the remedy for an actual measurable impact as compared to the overall benefit and utility of the project with respect to public interest; (2) existing technology; and (3) logistics in light of overall project purposes."

The definition of ACPs,[23] in keeping with the practicability standard for programmatic permits that AWEA proposes here, should also be amended. First, to be "practicable," the Service must not impose ACPs based on "best-available techniques." The implementation of objectively best-available techniques is often simply not feasible for many project proponents and, therefore, not practicable. In short, while AWEA agrees that existing technologies should be one factor considered when applying

[23] 74 FR 46841, September 11, 2009. ''Advanced conservation practices'' (ACPs) are defined at 50 CFR 22.3 as ''scientifically supportable measures that are approved by the Service and represent the best available techniques to reduce eagle disturbance and ongoing mortalities to a level where remaining take is unavoidable.''

ACPs, we disagree that the requirement should be so stringent as to require the use of *best-available* techniques. In addition, the language of the ACP definition should be amended as follows: "scientifically-supportable measures that are approved by the Service to reduce eagle disturbance and/or ongoing mortalities to a level where remaining take cannot practicably be avoided." This language would ensure consistency with the new "practicability" standard for programmatic permits, if adopted.

Under the eagle regulatory framework, project sites are often categorized based on the level of risk they pose to eagles. While this categorization scheme has merits in some instances, designations are not made on the basis of specifically defined criteria. For example, few specific criteria are established for what constitutes a "low-risk" project and, therefore, it is very challenging for a developer to receive such a designation. This creates uncertainty and may contribute to designations being made on the basis of irrelevant, unreasonable factors. Accordingly, providing more details regarding what constitutes a "low-risk" project would help companies better evaluate their eagle portfolio risk and select suitable development sites, while concomitantly lowering the work burden and budget of the Service.

AWEA Recommendation:

The Service should not consider the financial or other resources of permit applicants when determining whether a measure is practicable and should instead base its determination on whether the measure is reasonable. To that end, the Service should amend the definition of "practicable" accordingly. The Service should also amend the definition of ACPs to ensure consistency with the change to the definition "practicable." Finally, the Service should revise the criteria for designating the risk level of certain development sites, as some of these categorization decisions are made on the basis of irrelevant factors instead of specifically defined criteria.

III. A More Inflexible Conservation Standard for Less Imperiled Species

The conditions for eagle take permits in the Eagle Permit Rule are in stark contrast to those for ESA incidental take permits (ITPs), which explicitly provide "No Surprises assurances." ESA ITPs "were designed by Congress to authorize incidental take, not to be mandatory recovery tools" and do not require no-net-loss of individual members of a listed species.[24] In fact, under the ESA's No Surprises Policy, an applicant for an ESA ITP may negotiate for long-term regulatory assurances that no additional mitigation will be required under the plan even if the needs of the species change over the life of the permit.[25] In recognition of this fundamental fact of economic life, Interior Secretary Babbitt adopted the so-called No Surprises assurances in the 1990s. No Surprises assurances provide considerable certainty that the costs for ESA compliance will not increase over time due to future unforeseen events.

No Surprises assurances suggest that a deal-is-a-deal and that the Service will not seek further concessions from someone who has secured an ITP.[26] Once an ITP has been issued and its terms and conditions are being fully complied with, the permit holder may rest assured that the agreed upon cost of conservation and mitigation will not change.[27] If the status of a species addressed under an HCP unexpectedly worsens because of unforeseen circumstances, the Federal government, other government agencies, or other non-Federal landowners who have not yet developed a Habitat Conservation Plan (HCP) have the obligation to implement additional conservation measures.[28] Specifically, under the ESA, for any "unforeseen" changes in circumstances that are not explicitly included in the original permit, the government and/or other non-permitted landowners must bear

[24] HCP Handbook at 3-20.
[25] 63 FR 8867, Feb. 23, 1998.
[26] The No Surprises Rule assures the holder of a post-March 1998 ITP that, if unanticipated "unforeseen circumstances" occur, the USFWS "will not require" the ITP holder to commit "additional land . . . or financial compensation . . . beyond the level" agreed to in the HCP "without consent of the permittee." 50 C.F.R. § 17.22(b)(5)(iii) and 17.32(b)(5)(iii); *see* 63 Fed. Reg. 8862-64, 8866-69 (Feb. 23, 1998). And, even with respect to foreseen circumstances, though the parties might negotiate an ESA ITP that has some increasing costs over time, at least the negotiation "process will enable the applicant to assess the potential economic impacts of adjustments before agreeing to the HCP." 65 Fed. Reg. 35253 (June 1, 2000).
[27] *Id.*
[28] *Id.*

the costs of additional mitigation. The permit holder is only expected to implement additional conservation and mitigation measures to respond to changes in circumstances that were originally provided for in the HCP's operating conservation program.[29] Such measures would have already been factored into the estimated project costs, providing cost predictability to developers throughout the life of the permit. We note that the implementation of the ESA No Surprises policy had the intended effect of reviving private sector investment in projects that had a nexus with the ESA in the late 1990s and through the 2000s.

The ESA protects America's most imperiled species, which undergo a lengthy listing process to be listed as either "threatened" or "endangered."[30] It has been called the "pitbull" of environmental laws as it has halted major federal construction projects and closed entire forests to harvesting.[31] Despite this reputation as arguably the strictest federal environmental statute that protects the most threatened or endangered species, the ESA still provides No Surprises assurances for developers once they obtain a permit, assuming adequate mitigation measures for the life of the permit are provided for on the front end. Accordingly, we see no reason why the Service would not apply No Surprises assurances to eagles, which are less imperiled species than those listed under the ESA.

Neither bald eagles nor golden eagles, which are protected by the Eagle Act, are listed as "threatened" or "endangered" under the ESA. Still, species conservation under the Eagle Permit Rule is more stringent than that for listed species under the ESA, as it does not provide No Surprises assurances for developers. AWEA recognizes both the biological and historically symbolic significance of eagles and fully supports their careful conservation. However, the Service should hold eagle conservation to, at a maximum, the same conservation standard as the nation's most imperiled species, thereby allowing developers to negotiate No Surprises assurances in exchange for

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[29] *Id.* at 8868.
[30] 16 U.S.C. § 1533(a)(1).
[31] Patrick W. Ryan and Galen Schuler, "The Endangered Species Act—A Primer," 1998 Perkins Coie LLP, available at http://www.mrsc.org/subjects/environment/esa/esaprime.aspx.

predetermined mitigation measures in response to pre-defined potential changes in circumstances. We see no reason why the Eagle Permit Rule cannot provide the same certainty for non-listed species, such as eagles.

***AWEA Recommendation*:**

The Service should learn from the success of the ESA's No Surprises policy and, consistent with the requirement for an ESA ITP, promote cost certainty by extending No Surprises assurances to eagle take permits. Specifically, the Service should hold permits for the take of eagles to no greater than those for listed species under the ESA. In addition, consistent with the No Surprises policy allowed for ESA ITPs, before granting an eagle take permit, the Service should negotiate with permit applicants to pre-determine any mitigation measures that would potentially be imposed should specific changes in circumstances arise.

IV. Compensatory Mitigation.

In the ANOPR, the Service asks: (1) under what circumstances should permittees be required to provide compensatory mitigation; and (2) to what degree should any required mitigation offset the detrimental impacts to eagles. The following sections address these two questions, respectively.

A. When Avoidance and Minimization Measures Are Insufficient to Eliminate All Predicted Take, Then Compensatory Mitigation May Be Required.

AWEA believes that, if avoidance and minimization measures are insufficient to eliminate all predicted take, then it is reasonable to require compensatory mitigation. However, where compensatory mitigation is required, the proposed level of mitigation that must be achieved should be based on actual data.

Currently, under the Draft Eagle Guidance, the project proponent must often pay compensatory mitigation that offsets the "predicted number of fatalities per year . . . estimated from the product of

exposure rate and collision probability."[32] This model assumes that an eagle will not detect and avoid a wind turbine and, therefore, seems to calculate *risk* of an eagle-turbine collision. However, some behavioral research indicates that bald eagles in Alaska changed their flight patterns after the construction of a 3-turbine wind farm to avoid turbine blades, but did not avoid the wind project vicinity entirely.[33] This example demonstrates how the Service's approach in requiring compensatory mitigation for mere risk may be misguided.

With respect to the types of take caused by wind turbines (wound or kill), the Eagle Act only makes it unlawful to take an actual eagle.[34] Simply creating a risk of eagle take is not unlawful, and accordingly, even under a "no net loss of eagles" policy, compensatory mitigation should be tied to the actual measureable level of take of eagles or to a predicted level of take under fair assumptions. Thus, by calculating the risk of eagle take through a formula that does not account for eagle avoidance of turbine blades, and then requiring compensatory mitigation to completely offset the level of assumed take, the Service sets the compensatory mitigation level too high and requires compensation for in effect "phantom" take that may never occur.

AWEA Recommendation:

The Service should not set the level of compensatory mitigation based on the risk of an eagle take. Instead, compensatory mitigation should be tied to the actual measureable level of take of eagles or to a predicted level of take under fair assumptions.

B. Degree of Mitigation Required to Offset Actual Measureable Impacts on Eagles.

As mentioned in Part A of this section, compensatory mitigation should compensate for actual measureable take or a predicted level of take under fair assumptions that can demonstrate a direct

[32] Draft Eagle Guidance at 61.
[33] Sharp, L., C. Herrmann, R. Friedel, K. Kosciuch, and R. MacIntosh. 2010. Comparison of pre- and post-construction bald eagle use at the Pillar Mountain wind project, Kodiak, Alaska, Spring 2007 and 2010. Presentation at the National Wind Coordination Collaborative Research Results Meeting 8, Denver, Colorado, October 20, 2010.
[34] *Accord Babbitt v. Sweet Home Chapter of Communities for a Great Oregon*, 515 U.S. 687, 691 n.2 (1995) (the "harm" form of ESA take "emphasize[s] that actual death or injury of a protected animal is necessary for a violation").

numerical offset value. AWEA suggests that this offset could be accomplished by reducing take from another source (reducing mortality) or, in theory, by increasing eagle carrying capacity either through increases in productivity (number of fledged young) or post-fledging survival. To maintain fairness and general uniformity with respect to compensatory mitigation measures imposed, the Service, with input from potential stakeholders, should develop a menu of scientifically justifiable options for numerically offsetting take at wind energy facilities.

Some of the mitigation options that AWEA suggests be included in the "menu" of scientifically justifiable mitigation measures are listed below:[35]

- Allow research to count as a percentage of mitigation (for a period of time) to ensure it gets done in a timely manner.
- Evaluate feasibility of reducing eagle fatalities from other sources.
- Reduce mortality from vehicle collisions by removing road kill carcasses from roads.
- Shift to non-toxic ammunition (hunter education/voluntary lead abatement).
- Reduce stock tank drowning.
- Reduce unintentional poisoning.
- Implement reward system to reduce poaching.
- Mark fences to reduce collisions.
- Reduce impacts of secondary trapping (e.g., by covering bait).
- Evaluate cost-effectiveness of funding programs.
- Fund eagle rehabilitation centers.
- Fund livestock depredation compensation programs and compensate landowners that protect eagles.
- Decommission or repower old wind projects.

[35] American Wind and Wildlife Institute, "Eagles and Wind Energy: Identifies Research Priorities," May 2012.

- Improve management of public recreational activities (e.g., off-road vehicle management, climbing) that reduce eagle productivity.

This list is not exhaustive, so other measures that will increase either eagle productivity or adult survival and thereby offset eagle take at wind energy facilities should also be considered and made available for public comment.

The Service should, in addition, identify the metrics to evaluate the effectiveness of compensatory mitigation measures, including costs, and develop options at a geographic scale appropriate for the eagle management unit (for example, by Bird Conservation Regions (BCR) or some other relevant management scale). The Service should also recognize that in many instances mitigation within a given BCR may be more effective than limiting it to within 10 miles of a project. However, the Service should clarify that any compensatory mitigation measures will only be imposed as direct mortality offsets.

AWEA Recommendation:

With input from stakeholders, the Service should offer compensatory mitigation measures such as those listed above. The Service should also incorporate financial limits into compensatory mitigation schemes to provide more assurances and cost certainty for industry.

V. Eagle Preservation Standard.

The Service asks for input as to whether the current eagle preservation standard is appropriate or whether it should be further refined or otherwise modified. The Eagle Act requires the Service to determine that any take of eagles it authorizes is "compatible with the preservation of bald eagles or golden eagles." In the preamble to the Eagle Permit Rule, and in the Final Environmental Assessment of the regulations, the Service defined that standard to mean "consistent with the goal of stable or increasing breeding populations." In other words, the standard calls for

"no net loss" of eagles. In addition, in the Draft Eagle Guidance and the preamble to the Eagle Permit Rule, the Service has interpreted this standard as it applies to regional or local populations.

AWEA believes that this standard, or at least the Service's interpretation of this standard, should be refined for two reasons. First, as it has been interpreted, the standard unnecessarily requires "no net loss" conservation of each regional population of golden eagles or bald eagles. Second, the current standard, as interpreted, erroneously provides more stringent conditions for obtaining an Eagle Take Permit than required by the Eagle Act.

A. The Current Eagle Preservation, As Interpreted, Unnecessarily Requires "No Net Loss" Conservation of Each Regional Population of Golden Eagles or Bald Eagles.

In the Draft Eagle Guidance and the preamble to the Eagle Permit Rule, the Service has made it clear that it will issue an eagle take permit only if issuance is consistent with stabilizing each regional population of golden eagles and bald eagles across the U.S. In other words, the Service has translated its duty under the Eagle Act to preserve the species of golden eagle and bald eagle as a whole into a duty to preserve each regional eagle population wherever it currently exists.

In contrast, the standard for an ITP under the ESA is that the approved taking cannot "appreciably reduce the likelihood of the survival and recovery of the species in the wild."[36] This is the legislative restatement of the regulatory standard for compliance with "Section 7(a)(2) of the Act, that is, whether or not the taking would jeopardize the continued existence of the species."[37] In other words, ESA section 10 allows "permits for the incidental taking . . . provided the action will not jeopardize the continued existence of the species."[38] Since these ESA provisions only prohibit jeopardizing the entire listed species unit, the Service has made it clear that it applies ESA section 7 (and, in turn, ESA section 10(a)(2(B)(iv)) only to impacts that are likely to jeopardize the entire species

[36] 16 U.S.C. § 1539(a)(2)(B)(iv).
[37] H.R. Rep. No. 97-567 at 31, 1982 U.S.C.C.A.N. 2831.
[38] H.R. Conf. Rep. No. 97-835 at 29, 1982 U.S.C.C.A.N. 2870.

with extinction, and that adverse effects to a single population of that species often are not enough to demonstrate jeopardy.[39]

Because smaller populations are inherently more vulnerable than the entire species, as AWEA noted previously in its comments on the Draft Eagle Guidance, the Service has made it more difficult to obtain an eagle take permit than required by the Eagle Act.[40] AWEA thus urges the Service to make clear that the Eagle Act's preservation standard of "no net loss" applies to the national population of the eagle species.

AWEA Recommendation:

The Service should refine its interpretation of the eagle preservation standard to apply to the national population of eagles, and should therefore issue an eagle take permit if issuance would not reduce the likelihood of survival of the species of golden eagles and bald eagles nationally, rather than individual local or regional populations.

VI. Establishing an Inter-Agency Consultation Process for Eagle Permitting.

AWEA encourages the Service to take steps to streamline and expedite the process for making eagle permitting decisions. The lengthy and uncertain permitting process for wind development projects significantly compromises the industry's ability to attract financing and bring much needed clean energy to market, and eagle permitting constitutes just one of a multitude of permitting hurdles developers face in moving projects forward. Given this set of circumstances, AWEA recommends the establishment of an inter-agency consultation process similar to that provided by ESA section. Such a consultation process would be helpful for any development projects that have a federal nexus, including BLM, U.S. Army Corps of Engineers, and Forest Service projects.

AWEA Recommendation:

[39] *E.g.,* Memorandum from USFWS Director H. Dale Hall to Regional Directors, et al., "Recovery Units and Jeopardy Determinations under Section 7 of the Endangered Species Act" 1-2 (Mar. 6, 2006).
[40] Comments of the American Wind Energy Association on Draft Eagle Conservation Plan Guidance, at 23.

Implement an inter-agency consultation process for eagle permitting to allow the government to take permitting actions in a more expeditious fashion.

VII. Conclusion

AWEA respectfully requests that the Service consider our comments and make appropriate changes in the final rule. Please do not hesitate to contact us if you should have any questions regarding these comments.

Sincerely,

John Anderson
Director of Siting Policy

Tom Vinson
Senior Director of Federal
Regulatory Affairs

Chris Long
Manager of Offshore Wind and Siting Policy

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BRIEFING MEMORANDUM FOR THE DEPUTY SECRETARY

FROM: Director, U.S. Fish and Wildlife Service

SUBJECT: Meeting with wind industry and environmental groups regarding eagle conservation and management – Monday, February 11 at 4 pm

I. Introduction and Background

In April 2012 the Service published two notices requesting comment on proposals to: 1) revise the 2009 regulations to authorize incidental take of eagles (advanced notice of proposed rulemaking (ANPR)) and 2) extend the duration of eagle take permits up to 30 years and charge a fee to permit applicants. In August, representatives of eight environmental organizations and eight wind industry groups wrote to Secretary Salazar (attachment 1) asking that we engage with them in a collaborative dialog about the two proposals. Dan Ashe replied that we would be happy to engage with the groups and potentially others as we moved ahead with the proposals (attachment 2).

Since November, Service staff met several times with representatives of these groups to discuss various processes we might employ for such a dialog, including a series of facilitated workshops (now proposed), chartering a Federal advisory committee, or negotiated rule making. Service staff also worked closely with the Department's Center for Alternative Dispute Resolution (CADR) and Solicitor's Office regarding this.

II. Update

You are meeting with leadership of many of these organizations on Monday February 11 at 4:00 pm in 5160 (see attachment 3 for list of attendees and people who will attend by phone). At that meeting, you and I will describe where we are with processing various aspects of our comprehensive eagle conservation and management strategy:

- OMB is currently coordinating an inter-agency review of version 2 of the Eagle Conservation Plan Guidelines (ECPG)
- Multiple research projects are underway to gather information on golden eagle populations, improve eagle mortality/fatality risk assessments,
- The Service is developing a process to engage members of the public in reviewing and revising the 2009 eagle permit rule, and
- The Service and Department are developing a final rule to address the duration of and fees associated with eagle take permits

While initially jointly asking for a collaborative dialog, wind industry and environmental organizations have since raised several issues that they say are essential to their intent:

- The wind industry wants very much to talk about an "interim solution" to eagle permitting while we revise the regulation. They want "assurance" from the Service that in exchange for assessing risks to eagles and consulting with the Service about conservation measures they could immediately implement, the Service would not require them to apply for a permit. Should an eagle be taken after they implemented the conservation practices, they want the Service to use its enforcement discretion to not recommend that the Justice Department prosecute them for taking eagle(s).
- The environmental community has adamantly opposed the Department/Service promulgating the final rule to extend the permit duration up to 30 years. Several have indicated that if we promulgate the rule: 1) they will likely sue us; and 2) they may not participate in a collaborative dialog.

III. Talking Points

- Thank you for meeting with us today and demonstrating the leadership you have on these issues.
- Eagle conservation is very important to the Department and Service
- Since de-listing bald eagles, we had to find reasonable ways of protecting eagles while authorizing unintentional takes of eagles. We know takes are going to occur, but we want to do everything we can to avoid and minimize unintentional takes.
- With that in mind the Service developed its 2009 eagle take regulations.
- After the Service put out the 2011 Eagle Conservation Plan Guidance, we heard from all of you that the Guidance and 2009 regulations needed some improvement.
- We responded by publishing two things last year
    - ANPR requesting comments on the 2009 regulations
    - Proposed rule to extend the duration of eagle take permits from 5 years to up to 30 years
- In August, you requested that we engage with your organizations "…through continued and collaborative interaction…"
- Director Dan Ashe is going to give you a brief overview of the Service's comprehensive eagle conservation and research strategy and update you on where we are with regard to various program elements.

Attachments

1. Meeting agenda
2. Letter from wind industry and environmental group representatives
3. Director Ashe response
4. Meeting participants in-person and by phone
5. Fish and Wildlife Service Eagle Conservation and Management Strategy
6. Eagle rule revision workshop process proposal

ATTACHMENT 1

AGENDA

EAGLE CONSERVATION

FEBRUARY 11, 2013

Main Interior Building, Room 5160

4:00 pm

Welcome and Introductions	Deputy Secretary Hayes	5
General Comments	Industry representative	5
	Environmental representative	5
Comprehensive FWS eagle strategy	Director Ashe	5
Discussion	Group	10
Eagle rule revision process	Director Ashe	10
Discussion	Group	10
Coverage for Eagles in the DRECP	Director Ashe	5
Wrap up and next steps	Deputy Secretary Hayes	5
	Director Ashe	
	Group	5

ATTACHMENT 4

Attending the meeting (as of Feb 7, 2013)

Frances Beinecke	Natural Resources Defense Council
Katie Umekubi	Natural Resources Defense Council
Jamie Williams	The Wilderness Society
Tom Vinson	American Wind Energy Association
John M Anderson	American Wind Energy Association
Jim Lindsay	Next Era Energy Resources, LLC
Jaime Steve	Pattern Energy
David J. van Hoogstraten	BP Wind Energy North America, Inc.
Jim Lyons	Defenders of Wildlife
Julie Falkner	Defenders of Wildlife
Derek Rieman	EDP Renewables, North America
Richard Glick	Iberdrola Renewables, LLC
David Yarnold	Audubon
Justin Allegro	National Wildlife Federation
John Kostyack	National Wildlife Federation
Jamie Rappaport Clark	Defenders of Wildlife

Participating by phone (as of Feb 7, 2013):

Johanna Wald	Natural Resources Defense Council
Todd Mattson	Element Power
Michael Horn	GE Energy - Renewables
Rene Braud	American Wind Energy Association
Sam Enfield	MAP
Kimberly Wells	BP Wind Energy North America, Inc.
Brandy Gibson	BP Wind Energy North America, Inc.
Joseph Grennan	RES Americas Inc.
Roby Roberts	EDP Renewables, North America
Stu S. Webster	Iberdrola Renewables
Rick Miller	EDF Renewable Energy

Black, Steve <steve_black@ios.doi.gov>

Materials for Feb 11 meeting

1 message

Cottingham, David <david_cottingham@fws.gov> Fri, Feb 8, 2013 at 5:27 PM
To: James Anderson <james_anderson@ios.doi.gov>, Elizabeth Klein <Elizabeth_Klein@ios.doi.gov>, Janea Scott <Janea_Scott@ios.doi.gov>, Steve Black <steve_black@ios.doi.gov>, Jerome Ford <jerome_ford@fws.gov>, David Cottingham <david_cottingham@fws.gov>, Betsy Hildebrandt <betsy_hildebrandt@fws.gov>, Dan Ashe <d_m_ashe@fws.gov>

I'm attaching briefing documents for the Deputy Secretary and Director for the briefing.

1. briefing memo including: Attachment 1 -- agenda and Att 4 -- meeting participants
2. Attachment 2 -- Aug 2012 letter from industry
3. Attachment 3 -- Response from Dan
4. FWS eagle conservation strategy
5. Eagle rule revision process

I've also sending:

- comments from AWEA
- comments in a joint enviro letter on the ANPR
- BGEPA regulations on take

I'll check emails over the weekend if you have questions.

David
--
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US Fish and Wildlife Service
Room 3341 Main Interior
Washington DC 20240

Office: 202-208-4331
Cell: 202-372-7578

8 attachments

briefing paper -- Group of 16 meeting -- draft 1 (2).docx
25K

Joint eagle process letter8 22 2012.pdf
65K

Ashe letter to Clark- Oct 23.pdf
137K

Eagle Briefing Document - Feb 2013 draft 2.docx
361K

Workshop plan diagram.pptx
70K

AWEA Eagle ANOPR Comments July 2012.pdf
459K

joint comments Aud DoW NRDC et al FWS eagle ANPR 7 12 12.pdf
186K

2009 Eagle Permit Rule Statutory Language.docx
21K

February 7, 2013 DRAFT

U.S. FISH AND WILDLIFE SERVICE
~~A~~ Blueprint for Eagle Conservation and Wind Energy Development

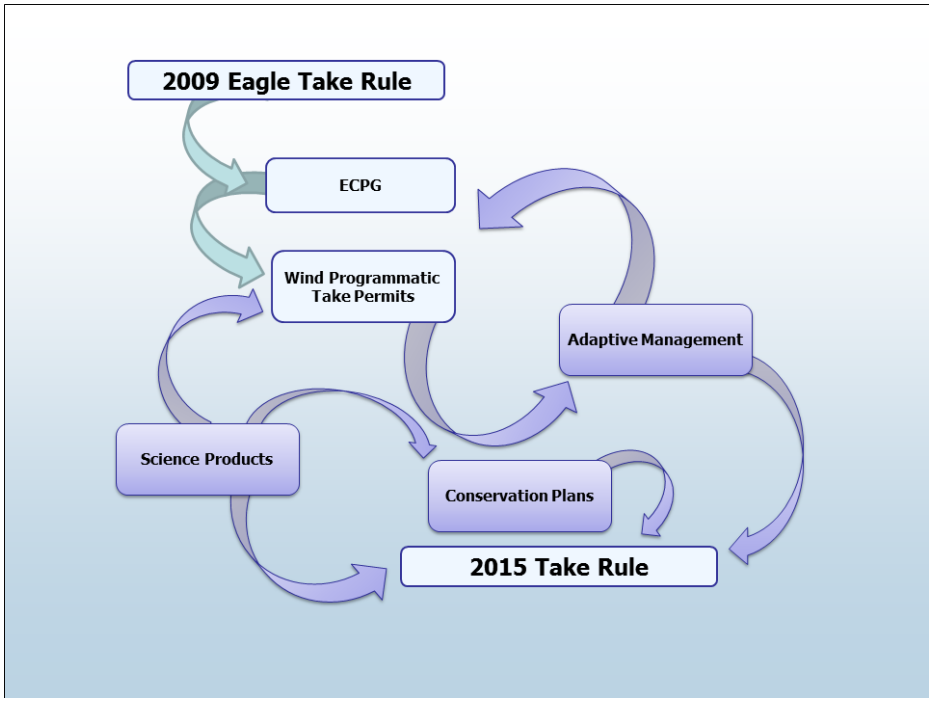
Overview

The U.S. Fish and Wildlife Service (FWS or Service~~-~~) actively supports the conservation and management of bald and golden eagles as authorized in the Bald and Golden Eagle Protection Act (BGEPA). With the recovery of bald eagles and their removal from their being listed under the Endangered Species Act (ESA), the Service developed a new approach to managing eagle populations. One of the dilemmas the Service faced was creating a process to conserve both eagle species including ways to authorize non-intentional takes of eagles.

The Service supports ~~the~~ development of renewable energy resources as a means to reduce carbon emissions and their impacts on the landscape. Large scale renewable energy development, however, is not without challenge for the Service. In particular, the development ~~proliferation~~ of industrial scale wind projects throughout the United States has required a focused effort to balance this much-needed energy resource with our ~~trust~~ statutory responsibilities to conserve migratory birds. The Service's mandate under ~~the Bald and Golden Eagle Protection Act (~~BGEPA~~)~~ is to ensure that ~~the~~ development of such resources is compatible with the preservation of bald and golden eagles. Because wind turbines can kill bald and golden eagles, the Service and its partners are ~~is working~~ conducting research to better understand eagle populations, methods of avoidance and mitigation of eagle fatalities, and the ~~overall population~~ effects ~~that~~ of wind turbines on eagle populations. ~~may be causing.~~

Strategy

The Service's strategy is to implement a defensible process for moving forward with authorizing incidental or programmatic eagle take ~~permitting for~~ at wind facilities in a measured way in the near future ~~now,~~ and to learn from our experiences with these initial permits and the science products developed through a focused research program so that we can undertake an informed substantive rule revision and NEPA analysis by 2015. ~~in 2015.~~ The ~~concept~~ strategy relies on a structured, ordered architecture such that results of the research, monitoring, and data analysis ~~the pieces~~ come together in sequence and support one-another.



**** need to update schematic. 1) Change "Conservation Plans" to "Management Plans" 2) Insert the permit duration rule**

Near-Term

In the near-term, the Service is working with the wind industry on methods to avoid, minimize and mitigate takes of eagles at specific project sites. In addition, the Service is assisting proponents in the development of eagle ~~management~~ conservation plans and in their applications for incidental take permits. All of this work is informed by the best available science.

- **Applying the Eagle Rule to Permits for Wind Facilities**. In 2009, the Service promulgated rules governing review and approval of permits that authorize take of bald and golden eagles when ~~the~~ take is associated with, but not the purpose of, an otherwise lawful activity, and cannot practicably be avoided. The regulations authorize permits for "programmatic" take, which can potentially include recurring multiple incidents. The Service established an Eagle Management Team (EMT) to address the challenge of ~~burgeoning~~ wind development to eagles. ~~The EMT concluded that it was of conservation benefit to permit wind facilities for their take of eagles where the take meets the preservation standard of the Act and requirements in 50 CFR 22.26. The alternative was continued growth of wind development without an effective way to evaluate and authorize take resulting from operation of industrial-scale wind projects while the Service took several years to promulgate new rules.~~

- **Eagle Conservation Plan Guidance (ECPG).** The ECPG outlines a process for adaptive management, data collection, and analysis that could lead to the Service issuing a programmatic eagle take permit. The Service recently submitted a ~~revised~~ draft of ECPGv2 to the Office of Managmetne and Budget for inter-agency review. ~~Department where it is currently in review.~~ This draft incorporates significant changes to draft ECPG ~~v1~~circulated in 2011 in response to the public and peer-review comments. The ECPG includes a robust adaptive management framework so that the considerable uncertainty at many stages of the process can be reduced over time.
- **The Advanced Notice of Public Rulemaking and the "Tenure Rule."** When the Service promulgated the eagle rule in 2009, we received little comment from industries or environmental groups. After circulating the draft ECPG in 2011, the Service received extensive comments from the wind industry on the final rule itself, including comments regarding the preservation standard, permit term, and process for obtaining a permit. In April 2012, in response to these comments the Service took two actions:
  - ~~1) w~~We issued a proposed rule to extend the maximum tenure of programmatic permits under the Eagle Take Rule from 5 to 30 years, and
  - ~~2) w~~We published an Advanced Notice of Public Rulemaking (ANPR) announcing the intent to consider revising the Eagle Take Rule and soliciting responses to several key issues raised in the ECPG comments. The final revisions to the tenure rule will be ready to submit- to OMB shortly. ~~However, the Service is considering a request to postpone action on the tenure rule until it determines whether it will address permit tenure as part of the comprehensive review of the 2009 permit rule (see next point).~~
- **Discussions with industry and environmental organizations:** In August 2012, sixteen organizations (8 wind industry and 8 environmental organizations) wrote to Secretary Salazar requesting that the Service "…supplement the current notice-and-comment proceedings (on the tenure proposed rule and ANPR) through continued and collaborative interaction with key stakeholders with express purpose of examining the issues identified in the two notices regarding eagle permits and the draft eagle conservation plan guidance." The Service is working with representatives of these groups to explore potential processes and topics to address through a collaborative process. The Service proposes to hold a series of public workshops during 2013 to gain additional input prior to proposing a regulation revision in 2014.
- **DRECP:** The purpose of the Desert Renewable Energy Conservation Plan (DRECP) is to conserve covered species and their habitats while streamlining environmental review and permitting of renewable energy projects in the Mohave and Colorado deserts of California. The Service can authorize take of golden eagles in a habitat conservation plan (HCP) as long as the HCP meets BGEPA conservation standards. California also protects golden eagles as "fully protected species" under the California Department of Fish and Wildlife ~~Game~~ (CDF&~~G~~W) Code . ~~(Section 3511).~~ The Service is working closely with CDF&W, ~~G~~ as well as other state and federal agencies, to develop a process to authorize incidental take of eagles at renewable energy projects as part of DRECP and to collect eagle interaction information on new and existing renewable energy projects. ~~The details of the eagle component of the DRECP are not yet completed.~~ The proposed framework for coverage of golden eagles in the DRECP is outlined in Appendix K of the comparative analysis published in December 2012.

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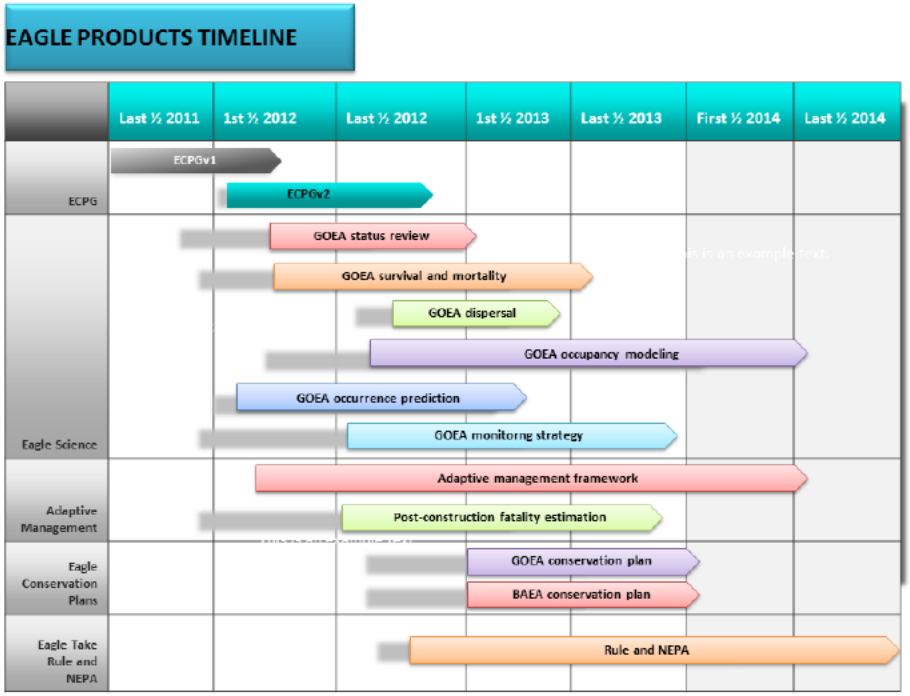
Long-Term

Science. The Service and U.S.Geological Survey (USGS) have partnered on eight priority science initiatives ~~designed~~ to improve knowledge of golden eagle population biology, ~~improve~~ eagle survey and population monitoring capabilities overall, and to frame the adaptive management process for eagle take permits. Projects are being undertaken jointly by USGS and the Service, and in some cases involve external partners. ~~as well.~~ These are the specific projects.
(b) (5) [redacted]

- Golden eagle monitoring strategy - develop a Comprehensive Survey and Monitoring Plan to manage golden eagles.
- Golden eagle occurrence prediction - model predictions of the occurrence of golden eagles in the western United States to help the Service identify important geographic areas and habitats for golden eagles during the breeding and non-breeding seasons.
- Post-construction fatality estimation - development of landscape-level population approach to estimating cumulative mortality from carcass surveys accounting for carcass removal, and non-detection, given presence.
- Occupancy modeling - late summer occupancy modeling.
- Adaptive management framework - development of an adaptive management framework for wind energy permitting with regard to take of bald and golden eagles.
- Golden eagle status review - golden eagle population trends in the western United States, 1968-2010.
- Golden eagle dispersal - natal dispersal distances of bald and golden eagles in the coterminous US as inferred from band encounters.
- Golden eagle survival and mortality - assessment of annual survival rates, transmitter effects and causes of mortality of golden eagles in the western US (and Mexico) as inferred from satellite transmitters.

In addition to these projects, the Service is working through the American Wind-Wildlife Institute (AWWI) to collect better information about eagle and other migratory bird and bat fatalities at currently-operating wind energy facilities. We ~~anecdotally~~ opportunistically receive fatality reports from ~~a few~~ operating wind projects. We lack a comprehensive estimate of avian or wildlife fatalities at wind projects. Having a better understanding of eagle mortality at wind projects will vastly improve our capability to develop advanced conservation and mitigation practices.

Conservation and Management. The Service will develop national golden eagle and bald eagle conservation and management plans by 2014. These plans will incorporate information garnered from the research described above. They will use best available scientific information on the status of eagle populations and identify conservation strategies to assure long-term survival of bald and golden eagle populations.


EAGLE PRODUCTS TIMELINE
Last ½ 2011
1st ½ 2012
Last ½ 2012
1st ½ 2013
Last ½ 2013
First ½ 2014
Last ½ 2014
ECPG
ECPGv1
ECPGv2
Eagle Science
GOEA status review
GOEA survival and mortality
GOEA dispersal
GOEA occupancy modeling
GOEA occurrence prediction
GOEA monitoring strategy
Adaptive Management
Adaptive management framework
Post-construction fatality estimation
Eagle Conservation Plans
GOEA conservation plan
BAEA conservation plan
Eagle Take Rule and NEPA
Rule and NEPA

(b) (5) [redacted]

Public Comments Processing
Attention: FWS-R9-MB-2011-0094
Division of Policy and Directives Management
U.S. Fish and Wildlife Service
4401 North Fairfax Drive, Mail Stop 2042-PDM
Arlington, VA 22203–1610

Re: Fish and Wildlife Service Advance Notice of Proposed Rulemaking- Eagle Permits; Revisions to Regulations Governing Take Necessary To Protect Interests in Particular Localities (Docket No. FWS-R9-MB-2011-0094)

Submitted electronically on July 12th to http://www.regulations.gov

Please accept and fully consider these comments on the Advanced Notice of Public Rulemaking on eagle permitting (Docket No. FWS-R9-MB-2011-0094, Revisions to Regulations Governing Take Necessary to Protect Interests in Particular Localities) on behalf of the National Audubon Society, Natural Resources Defense Council, Defenders of Wildlife, The Wilderness Society, the Sierra Club, and 88 Audubon Chapters and State Offices. We appreciate the opportunity to comment on this docket and the important issues it raises concerning the obligations imposed by the Bald and Golden Eagle Protection Act (BGEPA), mitigation requirements and options, permit issuance criteria, and the eagle preservation standard.

For many years, our organizations have been deeply engaged in efforts to protect the publicly-owned lands and resources under the jurisdiction of the Department of the Interior. While this proposed rule has a much broader potential reach, touching virtually all aspects of eagle conservation efforts, we do recognize that FWS has pointed towards renewable energy development as the underlying impetus for this rulemaking. Our organizations strongly support the development of responsibly sited and effectively mitigated renewable energy projects, including wind generation projects, to meet the challenge of climate change by reducing cumulative greenhouse gas emissions. However, renewable energy development is not appropriate everywhere and must be managed in such a way that, to the maximum extent possible, protects wildlife, wildlands and other natural resources while ensuring full compliance with all applicable laws.

As stated in our joint comments on the Proposed Rule in Docket No. FWS-R9-MB-2011-0054, we believe that the matters in these two dockets must be considered and resolved simultaneously. Our concerns and recommendations center on the need for a legally sound and scientifically credible framework for authorizing programmatic take of eagles at wind facilities and address the following:

- There is a need for a comprehensive and fully transparent approach, in accordance with National Environmental Policy Act (NEPA) and Administrative Procedure Act (APA), an approach that provides full and robust environmental review, greater clarity in the guidance documents provided by the US Fish and Wildlife Service (FWS), and guarantees of opportunity for public engagement. Further, there is a need for the demonstration and documentation of the successful implementation of such a process for a 5-year programmatic permit.
- Any changes considered to the eagle preservation standard must be both legally sound and scientifically credible. The preservation standard is the essential thrust of BGEPA, and in considering any changes to its interpretation or definition it will be essential to meet this

statutory mandate. With respect to the science, the FWS should develop a more comprehensive approach, decreasing the emphasis presently given to breeding adults.

- Absent the demonstration of a biological need, permit issuance criteria for eagle take should not be changed from the current standard which is limited to "unavoidable" take. The management of potential on-going, sustained take that is allowed under a programmatic permit requires a strong standard as embodied in the current language.
- There is an urgent need for an overarching national eagle conservation management plan with corresponding regional management plans to guide implementation of the Draft Eagle Conservation Plan Guidance. The lack of clarity in the absence of this guiding framework impedes all stages of site assessment and mitigation planning.
- As the FWS considers how to address its question on defining the circumstances under which mitigation is required, it must concurrently weigh the effect of its decision on permit term limits in Docket No. FWS-R9-MB-2011-0054. The Precautionary Principle directs sound policy toward avoidance, including abandonment of the project, detection and curtailment, or other developing measures as the preferred mitigation in the face of uncertainty, and substantially increased, not decreased, mitigation requirements as permit terms are made more generous. From a species management perspective, creating mitigation exemptions in combination with a framework for 30-year permit terms would be unsound at this time.
- Any consideration given to exempting a facility from mitigation requirements must be based upon clear scientific evidence justifying the decision, considering both site level risk and status of the regional eagle population. Mitigation exemptions must be based upon risk assessments, not upon the rated capacity of the facility being permitted, and the rationale for the assessed level of risk must be provided.
- The Draft Eagle Conservation Plan Guidance is grounded in the use of pre-construction monitoring data to assess risk. If the FWS moves toward the use of pre-construction monitoring data to identify sites where no mitigation requirements will be imposed, it must simultaneously institute use of the same pre-construction data to identify circumstances at the other end of the continuum - sites where no wind development will be allowed due to elevated risk levels.
- A recent analysis of pre-construction monitoring data suggests that current monitoring protocols may provide information useful for predicting sites that pose little or no risk of eagle mortality over short time horizons; however, other sources suggest that there are still deficiencies in monitoring data collection that must be rectified. Before such an approach can be developed, there needs to be peer review of the findings, improved adherence to appropriate data collection protocols, and the development of additional information on disturbance and on longer run impacts.
- In many cases there will be a need for compensatory mitigation to offset unavoidable take before a permit can be issued. The critical preservation function played by compensatory mitigation demands confidence that the mitigation options utilized will provide benefits commensurate to the take being permitted. Commensurateness should reflect the scale, duration and demographics of take impacts at the site, and this is not assured to date as disparate options are considered. The Service must avoid mitigation options that may not provide benefit streams commensurate with the ongoing, persistent take they are intended to offset and in all cases must meet the eagle preservation standard in BGEPA.
- Furthermore, compensatory mitigation options must provide additionality in conservation outcomes and should have a high probability of success in order to be approved as measures to compensate for take. The proposed rule contains no assurances of additionality and no explicit

processes for evaluating performance of new options, steps which must be put in place as the menu of mitigation options is expanded.

- Options to minimize take through operational mitigation (Advanced Conservation Practices) are sorely needed. Consistent with this, we urge the FWS to encourage test applications of measures such as seasonal operational mitigation at sites on eagle migration routes, verified radar detection and curtailment, and other developing methods of avoidance so that performance data can be developed. Similarly, newly refined methods for risk modeling should be tested for efficacy in improved siting.
- Population management needs to be undertaken at a regional level and regional conservation plans are urgently needed.
- Data challenges must be addressed, including not only steps to fill large data gaps for golden eagles but also strategies sufficient to cover the looming termination of current bald eagle monitoring programs. Funding mechanisms for public domain scientific data must be established.
- If data shortfalls are not solved, then management decisions must err on the side of being more, rather than less, protective of both species.

Further details on these recommendations are provided below.

Need for a Comprehensive and Fully Transparent Approach

First, we must reiterate a concern highlighted in our joint comments on the Proposed Rule in Docket No. FWS-R9-MB-2011-0054 (incorporated herein by reference); namely, the desire for FWS to address these complex issues in a comprehensive, coordinated and fully transparent manner. Unfortunately, to date, agency actions dealing with BGEPA have been disjointed and confusing. This includes FWS' failure to complete the Draft Eagle Conservation Plan Guidance, environmental review and/or issuance of the first programmatic eagle take permit applied for by West Butte Wind Power, LLC, and National Golden Eagle Management Guidance as set forth in the Finding of No Significant Impact issued in conjunction with the 2009 Eagle Permit Rulemaking. This also includes the bifurcated process that FWS has now used to propose additional changes to the eagle permitting regulations, through this advanced notice and the Proposed Rule in Docket No. FWS-R9-MB-2011-0054.

We recommend that FWS immediately incorporate the proposed rulemaking with issues set forth in this advanced notice of proposed rulemaking, thus ensuring that issues within each will be examined simultaneously. We further urge FWS to take a comprehensive and fully transparent approach to eagle conservation issues, in accordance with the requirements of the APA and NEPA. Such a process would incorporate, at a minimum:

- Consolidated and coherent rulemakings with a full and robust environmental review process and greater clarity on associated guidance documents;
- Firm guarantees that the public will be afforded the opportunity to engage in permit issuance decisions and oversight throughout the duration of each permit;
- Clear articulation, in a legally sound and scientifically justifiable manner, of how any proposed changes will ensure the preservation of eagles—especially in the face of acknowledged uncertainty; and
- Demonstration and documentation of the successful implementation of such a process for a 5-year programmatic permit.

Eagle Preservation Standard

In 1940, confronted with the potential extinction of our National symbol, Congress acted to avert this threat and make the bald eagle a "ward of the National Government" by enacting the Eagle Act.[1] In 1962, Congress extended the protections of the Eagle Act to golden eagles, both because the golden eagle population was in decline and to afford greater protection for the bald eagle.[2] It is against this backdrop that we must examine any modifications of the authority created to ensure the continued persistence of these important trust species.

FWS is bound by the preservation standard set forth in BGEPA,[3] which endeavors to achieve and maintain stable or increasing breeding populations of bald and golden eagles. This advanced notice seeks comment on whether "consistent with the goal of stable or increasing breeding populations" is an appropriate interpretation of the preservation standard. While we appreciate FWS' original clarification of the preservation standard in the 2009 rulemaking, new data and analysis have clarified the significance of sub-adults and floaters to eagle populations—as described in more detail below under *Population Management* – and we recommend that the term "breeding" is deleted as a modifier to "populations" in the definition of the preservation standard. This change would allow for greater consideration of juveniles, sub-adults and floaters in determining overall population status and trends. In order to continue to recognize the fundamental importance of breeding pairs, though, we also recommend the addition of the following clarifying text: "with no significant decline in nesting pairs."

We propose amending the interpretation of BGEPA's preservation standard to "consistent with the goal of stable or increasing populations with no significant declines in nesting pairs" because it will focus efforts on a more accurate and scientifically credible determination of eagle populations while continuing to provide necessary guidance and assurance in allowing limited eagle take while sustaining a population necessary to preserve each species. In the Final EA for the 2009 rulemaking, FWS discussed the inclusion of "consistent with the goal of," which "will allow take that is compatible with long-term stability or growth of eagle populations" and thus assures that appropriate levels of take may be assigned.[4] The term "breeding" was incorporated in order to clarify "the significance of the number of breeding pairs for maintaining or growing populations, versus floaters (non-breeding adults)"—an issue that has since been revisited.[5]

The preservation standard is the essential thrust of BGEPA, and in considering any changes to its interpretation or definition we would also like to highlight the necessity of meeting this statutory mandate. Unfortunately, FWS has yet to demonstrate that it is able to ensure that programmatic eagle take is compatible with the preservation of the species.

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[1] H.R. Rep. No. 2104, 76th Cong., 3d Sess. 1 (1940).

[2] Pub. L. No. 87-884, 76 Stat. 1246.

[3] 16 U.S.C. § 668a. In compliance with the preservation standard, unless permitted, BGEPA prohibits the "take" of any eagle—part, nest, or egg thereof—where "take" also includes to pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb. 16 U.S.C. § 668c.

[4] Final Environmental Assessment, Proposal to Permit Take as Provided Under the Bald and Golden Eagle Protection Act, 177 (April 2009).

[5] Hunt, W.G. 1998. Raptor Floaters at Moffat's Equilibrium. Oikos 82(1): 191-197.

Need for national and regional eagle conservation management plans
As reflected in comments submitted with regard to the first request for an eagle take permit[6] as well as comments submitted on the 2011 Draft Eagle Conservation Plan Guidance,[7] there is an urgent need for a legally sound and scientifically credible framework for authorizing the programmatic take of eagles. Such a framework would help ensure that the necessary data are supplied, proper risk modeling is completed, and mechanisms are established for ensuring the preservation of affected eagle populations. Already it is apparent that incomplete data in permit applications is going to be an issue; a clearer management framework with regionally specific guidance for developers could greatly improve this. Clear definition of what constitutes a satisfactory application, what constitutes compliance with BGEPA, and the consequences for non-compliance must be provided in regional and national eagle conservation management plans. Establishing sound mitigation regimes and proper estimation of cumulative impacts will necessitate a framework comprised of regional conservation plans.

Permit issuance criteria
In the advanced notice, FWS seeks clarification on whether the eagle permit regulations should revise the permit issuance criteria for programmatic permits—currently required to be "unavoidable take"—to parallel that described for standard permits, or consistent with "take that cannot practicably be avoided." In this case, the burden is placed squarely on FWS to demonstrate why this issue is problematic.[8] Without further illustration of a biological need it is our opinion that the issuance criteria should *not* be changed. Not only has a mechanism already been identified and defined to demonstrate when take is "unavoidable," Advanced Conservation Practices, but the mere notion of on-going, sustained take that is allowed under a programmatic permit requires a heightened standard to demonstrate consistency with the preservation standard. We further agree that "applicants for both types of permits must take all practicable steps to avoid and minimize take"[9] and do not believe that this is inconsistent with the programmatic permit issuance criteria that take is "unavoidable."

While BGEPA expressly prohibits the take of bald and golden eagles, it does allow FWS to permit the otherwise unlawful take of eagles—in the form of mortality—in very *limited* circumstances. The stress on *limited* is an issue expressly acknowledged throughout the 2009 rulemaking as well as the reliance on "unavoidable" take for programmatic permits, and both are clearly articulated in the Description of the Rulemaking,

> We anticipate that permits issued under this regulation will usually authorize take that occurs in the form of disturbance; however, *in some limited cases*, a permit may authorize lethal take that results from but is not the purpose of an otherwise lawful activity. Programmatic take (take that is recurring and not in a specific, identifiable

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[6] Comments on the Environmental Assessment for an Application for Programmatic Take of Golden Eagles [at West Butte Wind Farm], submitted to FWS February 17, 2012, by Defenders of Wildlife. Comments on the DEA for the West Butte Wind Project, submitted to FWS February 17, 2012, by Natural Resources Defense Council. Comments on DEA for West Butte Wind Project, submitted to FWS February 17, 2012, by National Audubon Society, Audubon California, Audubon Society of Portland, and Lane County Audubon Society.
[7] Eagle Conservation Plan Guidance Comments, submitted to FWS May 19, 2011, by National Audubon Society, Defenders of Wildlife, Natural Resources Defense Council, National Wildlife Federation, The Wilderness Society, Sierra Club, and numerous Audubon Chapters and Friends
[8] *See N.Y. Public Interest Research Group, Inc. v. Johnson*, 427 F.3d 172, 182-83 (2nd Cir. 2005) for a discussion on the requirement that an agency explain a change in position and its reasons for changing its policy.
[9] Eagle Permits; Take Necessary To Protect Interests in Particular Localities; Final Rules, 74 Fed. Reg. 46836, 46838 (Sept. 11, 2009).

> timeframe and/or location) will be authorized *only where it is unavoidable* despite implementation of comprehensive measures developed in cooperation with the FWS to reduce the take below current levels…This type of authorization can be extended to industries, such as electric utilities or transportation industries, that currently take eagles in the course of otherwise lawful activities but *who can work with the FWS to develop and implement additional, exceptionally comprehensive measures to reduce take* to the level where it is essentially unavoidable (*emphasis added*).[10]

Programmatic permits for lethal take undoubtedly envision a different type of impact on eagle populations, an effect that carries a much higher possibility of harm and uncertainty. Not only is the possibility of harm greater, but also the nature of the harm is quite different than that presented for standard permits. Rather than presenting discrete "one-time" take or a defined impact, as a standard permits does, programmatic permits by their very nature are "activities that may disturb or otherwise take eagles on an on-going operational basis" and "occurs over the long term and/or in a location or locations that cannot by specifically identified."[11] This is precisely the reason that FWS incorporated the use of Advanced Conservation Practices, or "scientifically supportable measures approved by the FWS that represent the best available techniques to reduce eagle disturbance and ongoing mortalities to a level where remaining take is unavoidable," to ensure that programmatic permits would be compatible with the preservation of eagles.[12]

Continuing to allow only "unavoidable" take for programmatic permits—especially considering that there has not yet been any demonstration and documentation of successful implementation of such a process for issuing and administering a programmatic eagle take permit—further is entirely consistent with first taking all practicable measures to avoid and minimize take. Such a requirement is cornerstone to the well-accepted mitigation hierarchy, outlined in FWS' official mitigation policy as a tiered approach for first incorporating avoidance, then minimization measures and finally requiring compensatory mitigation for large-scale impacts with greater, unavoidable impacts.[13] We place extreme importance on continuing to incorporate sound, smart from the start planning and siting, which include avoidance measures and the best available minimization measures, prior to addressing the standard for and requirements stemming from the actual "take" of the species.

Circumstances requiring mitigation

In the advanced notice, the FWS requests comments on the following questions: *"Under what circumstances should permittees be required to provide compensatory mitigation? To what degree should any required mitigation offset the detrimental effects to eagles?"* Implicit in these questions is an underlying question as to whether there are circumstances in which not requiring mitigation is consistent with the eagle preservation standard that the FWS is obligated to implement.

In addressing this matter, we are first compelled to address those circumstances in which mitigation must always be assumed to be mandatory. These circumstances would include: Eagle Management Units in which the populations have been determined as not able to sustain take, Important Bird Areas

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[10] *Id.* at 46838.
[11] *Id.* at 46841.
[12] 50 C.F.R. § 22.3 (2011).
[13] U.S. Fish and Wildlife Service Manual (501 FW 2). *See also* 74 Fed. Reg. at 46852 and 46 Fed. Reg. 7656 (Feb. 24, 1993).

(IBAs)[14] and other special protection areas recognized for their importance to bald or golden eagles, eagle migration corridors, and areas of high value habitat, particularly areas known for eagle usage for foraging, nesting, or concentrated migration activity prior to the applicant's interest in developing a wind facility. The circumstances described above are excluded from further consideration here as potential prospects for reduced mitigation requirements.

Determining mitigation needs in the context of Docket No. FWS-R9-MB-2011-0054
As the FWS considers how to address its question as to the circumstances under which mitigation is required, it must consider the effect of its decision under Docket No. FWS-R9-MB-2011-0054 with respect to permit term limits. As noted by the FWS and others, uncertainties over eagle population status and effectiveness of mitigation options require a cautious approach. As the prospect of making permit terms more generous by a 6-fold margin is considered and associated uncertainties correspondingly magnified, the Precautionary Principle would tilt sound policy away from allowing mitigation exemptions. The probability that the obligations of BGEPA can be met under a 30 year permit declines unless the FWS imposes substantially increased mitigation requirements.

Determining mitigation needs from pre-construction monitoring data
Without a foundation in sound science, no waivers from mitigation obligations can be granted. Furthermore, consideration for exempting a facility from mitigation requirements must be based upon a determination of risk which must be based upon scientific data. For example, eagle use of the area should be documented via FWS-approved pre-construction monitoring protocols to predict disturbance and site mortality. If results indicate that the use falls below thresholds which have been empirically demonstrated, using USFWS-approved pre-construction monitoring protocols, to predict site mortality and disturbance, then discussions can be entertained on waiving mitigation obligations. Facility characteristics alone (such as rated capacity or number of turbines) should not serve as a basis for mitigation exemptions. Mitigation requirements must be justified relative to site-related risks and status of the regional eagle population(s).

We also wish to emphasize that if preconstruction data provide a rationale for defining areas where mitigation may not be necessary, these same data must also be used to assess the obverse: identifying sites where risk levels are so high that the appropriate course of action is avoidance, not mitigation. As articulated in our 2011 comments on the Draft Eagle Conservation Plan Guidance, we believe that another Tier for sites with unmitigable risk needs to be created. And, by extension, pre-construction data would provide the basis for those determinations. A piecemeal approach of applying pre-construction data for the purpose of identifying low risk sites without a balancing consideration identifying high risk sites would be inconsistent with the protection obligations under BGEPA.

It is conceivable that, with further scientific justification, it will be reasonable to establish standards that define those circumstances under which mitigation will not be required of project developers. At present there is insufficient data on disturbance to make an empirical case for this, but emerging data on mortality suggest that such data can be compiled and can provide scientific justification for developing such a standard in the future. A recent synthesis[15] of the relationship between pre-

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[14] IBAs are part of an international program to scientifically identify priority areas where threatened, restricted-range, biome-restricted and congregatory birds occur. These locations provide essential habitat to one or more species of birds during some portion of the year (nesting areas, crucial migration stop-over sites, or wintering grounds). For more information, go to http://web4.audubon.org/bird/iba/.
[15] A preliminary analysis which had not been peer-reviewed.

construction monitoring data and post-construction mortality concluded that, below a certain usage threshold, low pre-construction eagle use was related to low post-construction mortality.[16] This preliminary finding suggests that current monitoring protocols are capable of providing useful advance indications of levels of risk at proposed wind farm locations and that it may be feasible to identify low risk sites in this way once more data are developed and, importantly, proper data collection protocols are enforced. Unfortunately, there are still deficiencies in the methods used for avian monitoring for sites that lie on migratory pathways. Surveys for migrating golden eagles on the eastern ridges have typically been undertaken too early in the autumn, missing the peak migration movements altogether[17] and thus, we'd suggest, grossly underestimating eagle use of the sites. Such fundamental mis-measurement problems must be corrected *before* critical population management decisions can be tied to these data.

Before this approach can provide the basis for permit decisions, further work is needed. Additional information on disturbance and on longer run impacts are needed so that take risks can be fully examined. In addition, far too much uncertainty exists today to apply such a screening tool in the case of a 30 year permit.

The degree to which impacts must be mitigated

The benefits provided by compensatory mitigation are inherently more uncertain than those provided by avoidance of high risk sites and by operational mitigation (aka Advanced Conservation Practices). Avoided take is, by definition, equivalent in scale, kind, and duration to the take that would have occurred without these avoidance and minimization measures. This equivalency is not inherent in compensatory mitigation measures. Compensatory mitigation measures may benefit different demographic groups than those harmed by facility take, may under-perform and hence provide less benefit than the projected take levels, or may decay over time and so provide declining compensatory benefits while the take impacts continue at a constant level from year to year. In the face of these benefit uncertainties, to ensure that take impacts are fully offset and thus the obligation of the eagle preservation standard are met, the FWS must set a greater than 1:1 ratio of benefit to take for compensatory mitigation measures and monitoring mechanisms must be established for tracking predicted vs. actual benefits. Until such time as actual field performance data is compiled, equivalency standards for compensatory mitigation must be more stringent than the computed levels of take estimated at a site.

Expanding the mitigation menu: emphasizing avoidance and operational mitigation measures

As the FWS seeks to identify new mitigation options for eagle conservation, strong emphasis should be given to operational mitigation and site avoidance measures. For reasons discussed elsewhere in these comments, the preservation benefits of avoidance and operational mitigation are more assuredly matched to the take threats at a site than are compensatory mitigation measures. Hence, the FWS's preservation obligations are more conclusively achieved when avoidance and operational mitigation are employed.

Some of the difficulties of expanding the mitigation portfolio are lessening as new science and improved technology are providing needed data which can inform risk estimation and population management decisions. For example, curtailment and improvements to siting offer important and underutilized

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[16] Data analysis by WEST Inc. as reported in *Eagles and Wind Energy: Identifying Research Priorities,* AWWI, May 2012, page 14.

[17] Personal communication, FWS staff, June 2012.

mitigation tools for facilities located along migration corridors where high concentrations of birds and limited periods of risk promise high conservation benefit in return for limited business risk. Emerging data collected using high frequency GPS-GSM telemetry suggest the viability of targeting curtailment schedules on the basis of wind speed parameters during seasonal migration and the value of altering siting to reduce risk while minimizing cost to energy developers. In addition, the data suggest greater predictability of eagle flight paths during high risk, high wind speed times, suggesting greater predictive power of risk analysis models precisely during the higher risk timeframes when model performance is most critical. These findings provide a basis for delineating season- and weather-related strategies to minimize risk by selective curtailments during high risk periods, with those high risk periods being defined on the basis of new telemetered data. The FWS should fast-track the field testing of operational mitigation actions during high risk weather and season conditions and site-specific siting strategies.[18] The same technology can also demonstrate how stereotyped flight behavior relative to topographical features can be used to improve turbine siting (unpublished data).

In addition, sites where post-construction take levels substantially exceeded expectations, and where these levels exceed levels consistent with the regional conservation plan, must be subject to more stringent operational mitigation constraints. Data collection – by the FWS – must occur in these circumstances to develop the data to frame the mitigation plan.

Broadening the menu of compensatory mitigation measures

With limited developer resources and a FWS obligation to protect bald and golden eagle populations, it is important to avoid investments in mitigation measures which have a low probability of success. This would include the use of mitigation funds to rehabilitate injured eagles (which usually are not released back in to the wild, and thus wouldn't contribute to regional population numbers). It would also include many educational campaigns designed to alter citizen or business behavior without providing any inducement for behavior change (for example educational campaigns to reduce the use of lead ammunition). The additional conservation impacts could too easily fall short of projections through failures to reach or to influence the intended audience, or due to behavior attrition over time. The conservation framework for eagles cannot be grounded on highly uncertain and potentially ephemeral mitigation options.

We also caution against reliance on mitigation measures whose success relies upon outcomes and actors beyond the influence of either FWS or the wind industry. Such a framework, essentially unenforceable, introduces a new set of uncertainties and risk, and could create a false vision of take offsets that cannot be realized.

It is imperative that approved mitigation measures provide additionality of benefits specific to the regional eagle population. Proof of additionality will require evidence that "mitigation" activities are attributable to the actions of the wind project developer and not to extrinsic market forces. Reliance on mitigation options for which it will be impossible to document a net conservation benefit is unacceptable and insufficient for ensuring that obligations under BGEPA are met. This concern is relevant in circumstances where the mitigation option targets mortality sources extrinsic to the wind industry and the option merely provides funding to external programs. As an example, funding roadside carrion removal, which focuses on an important source of mortality, may provide little benefit

[18] Duerr A.E., T.A. Miller TA, M. Lanzone, D. Brandes, and J. Cooper J. 2012. Testing an emerging paradigm in migration ecology shows surprising differences in efficiency between flight modes. PLoS ONE 7(4): e35548. doi:10.1371/journal.pone.0035548.

additionality if no mechanisms are created to ensure that the funds do not merely displace comparable sources of funding for the same activity. Without such safeguards, it is likely that the mitigation strategy will accomplish more in shifting a cost burden to the wind industry than it achieves in reducing a known source of mortality to eagles.

While addressing additionality requirements could be handled by creating monitoring systems to track indicators of additionality, we are concerned at the prospect of the FWS, or the wind industry, needing to establish reliable new monitoring mechanisms for an expanded set of actors and actions when it is unclear that adequate resources exist for core administrative responsibilities for implementing the Draft Eagle Conservation Plan Guidance and the voluntary wind guidelines. It is important to keep the emphasis on mitigation actions controlled by the project developers, supplemented by a funding mechanism to drive mitigation dollars to habitat projects. In addition, we recommend that a portion of all eagle conservation mitigation funding should be dedicated to an eagle database to support the development of a robust decision support system useful to the FWS, industry, and other conservation biologists.

Need for Additional Research to Improve Mitigation Effectiveness

Based on the recognition of the limitations in current eagle population knowledge and the effectiveness of current mitigation tools, a period of mitigation testing lies ahead. Until we have amassed a body of information establishing actual performance in the field, it will be necessary to base decisions on preliminary estimates of effectiveness and then to continually reassess the actual effectiveness of the measures being piloted and adjust assumptions used in future rounds of planning. This holds true for measures classified as Advanced Conservation Practices (ACPs) as well as non-ACP mitigation actions. To facilitate rapid progress and greater certainty in allowing the use of new mitigation measures, rapidly shared information on field performance must be required, so that this adaptive management is feasible.

Population management requires full life cycle approach

To manage eagle populations, the FWS must understand and manage risks for migration, winter roosting, and foraging activities as well as breeding. Winter survival and/or condition upon completion of migration has direct consequences for fecundity, fitness, and thus demography. Hence, non-breeding behavior events are highly relevant to population success and management must encompass a full life cycle approach.

Scientific data are increasingly demonstrating that the demographic impacts of wind facilities differ depending upon the types of eagle activities impacted by a wind facility (foraging, nesting, migration, etc.). Juvenile birds have been found to be most at risk at sites where foraging use predominates. However, during migration the reverse can be true: breeding golden eagles appear more likely to use flight behavior that places the birds at greater collision risk than immature eagles. The risk differential arises from differences in flight patterns between mature and immature birds. The migration strategies of breeding adults make increased use of lower altitude, slope soaring behaviors that increase the likelihood of movement through rotor swept zones.[19]

More fundamentally, management of eagle populations requires monitoring more than the breeding population and their nesting success. Sub-adults and “floaters” that have not established territories are

[19] *Ibid.*

critical to buffer the loss of breeding adults. [20] This class of eagles also serves as an indicator of decreased productivity and incipient population declines.[21] Floaters are under-represented in current survey data, thus the age class of eagles whose status and trend is least well known and under-represented by traditional survey techniques and baseline data is also potentially the most important to buffer population changes. The accurate assessment of the floating segment is critical for assessing status of populations.

Given these findings, we believe it is imperative that the FWS:

- assess risks throughout the eagle life cycle in order to fully capture demographically linked risk profiles
- develop context-sensitive management plans that reflect expected differences in demographic risk based upon eagle use of the area in and surrounding the facility site
- evaluate and implement all management within the context of regional management plans.

Addressing areas of data insufficiency and providing funding mechanisms for essential science

It is not possible to determine how effectively the FWS is managing for stable or increasing populations without the essential information on status and trends. Impaired assessment, in turn, makes adaptive management infeasible. The FWS simply will not be able to demonstrate the adequacy of its actions in upholding BGEPA without the foundational scientific data to document population status and effectiveness of FWS actions.

The problem of data insufficiency is widely recognized and commented upon with respect to golden eagles. The nation's experts have identified data gaps with respect to population size, distribution, food and habitat availability impacts on reproductive output and survivorship, critical migration corridor areas, pre-adult dispersal, human disturbance impacts and critical habitat factors across all seasons and age classes (breeding, floaters, migration, and wintering), age-specific survival rates and causes of mortality, population sizes and trends, population demography, natal dispersal within and among regions.[22] Given that these fundamental data have not yet been developed, there are, at best, weak scientific justifications for management decisions made today regarding golden eagles. Furthermore, to manage populations over the long-term, post-construction monitoring is strongly recommended. The information gathered would guide more effective siting and mitigation strategies going forward.

New resources for eagle monitoring must be established and these resources must be sufficient to address both the sunsetting of bald eagle monitoring programs and to provide new funding for the understudied golden eagle. As the FWS is establishing a new fee structure for wind project permitting, we urge that it address the need for a national eagle research and monitoring fund to direct moneys to the most critical data gaps and research priorities, including topics such as post-construction mortality, and to ensure sufficient access to decision-relevant information to allow these data to be used to guide future wind facility siting and operations.

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[20] Kochert, M.N., Steenhof, K.*, 2002, Golden eagles in the U.S. and Canada- Status, trends, and conservation challenges: Journal of Raptor Research, v.* 36, no. Supplement 1, p. 32-40

[21] Nielson, R. M., T. Rintz, L. McManus, and L. L. McDonald. 2012. A survey of golden eagles (Aquila chrysaetos) in the western U.S.: 2011 Annual Report. A report for the U.S. Fish & Wildlife Service. WEST, Inc., Laramie, Wyoming. U.S. Fish & Wildlife Service. 2011. Draft Eagle Conservation Plan Guidance. Available at http://www.fws.gov/windenergy/docs/ECP_draft_guidance_2_10_final_clean_omb.pdf

[22] Katzner et al, *Status, Biology, and Conservation Priorities for North America's Eastern Golden Eagle (Aquila chrysaetos), Auk* volume *129(1):1*, 2011, and North American Golden Eagle Science Meeting, 2010.

Conclusion
We appreciate the opportunity to comment on the regulations governing take permits for bald and golden eagles, and we urge the FWS to fully consider the issues with respect to the need for conservation management plans, strong assurances of mitigation effectiveness and management oversight of same, the importance of emphasizing avoidance and ACPs over compensatory options, and, above all, the need for a legally sound and scientifically credible framework. For the reasons described above, we believe the FWS must simultaneously consider, and resolve, the issues in this docket with those of Docket No. FWS-R9-MB-2011-0054 to ensure that obligations under BGEPA are met. The issues discussed herein are amplified in the context of a potential 30 year programmatic take permit framework, and the risks of adverse consequences to bald and golden eagles greatly amplified.

Our organizations are fully committed to working with FWS, industry, and other stakeholders to identify and incorporate a collaborative, legally sound and scientifically credible framework for addressing these issues.

Thank you for your thorough consideration of these comments.

Sincerely,

Mike Daulton
Vice President, Government Relations
National Audubon Society

Juliette Falkner
Senior Policy Analyst, Renewable Energy and
Wildlife
Defenders of Wildlife

Katie Umekubo
Western Renewable Energy Project Attorney
Natural Resources Defense Council

Liese Dart
Policy Advisor Wildlife and Clean Energy
The Wilderness Society

Barbara Boyle
Senior Representative, Beyond Coal Campaign
Sierra Club

Audubon Chapters and State Offices

AR
Audubon Arkansas
Audubon Society of Central Arkansas

AZ
Maricopa Audubon Society

CA
Audubon California
Ferncrest Audubon Society
Napa-Solano Audubon Society
Ohlone Audubon Society
Palomar Audubon Society
Peregrine Audubon Society
Sacramento Audubon Society
Santa Barbara Audubon Society
Sierra Foothills Audubon Society
Yosemite Area Audubon Society

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Arkansas Valley Audubon Society
Roaring Fork Audubon Society

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Golden Eagle Audubon Society
Portneuf Valley Audubon Society

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Bay County Audubon Society
Duval Audubon Society
Citrus County Audubon Society
Clearwater Audubon Society
Halifax River Audubon
Lake Region Audubon
Manatee County Audubon Society
South Florida Audubon Society
Space Coast Audubon Society
St. Lucie Audubon Society
St. Petersburg Audubon Society
Venice Area Audubon Society
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Orleans Audubon Society

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Audubon Maryland
Audubon Society of Central Maryland
Chesapeake Audubon Society
Southern Maryland Audubon Society

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Audubon Minnesota
Central Minnesota Audubon Society
St. Paul Audubon Society

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Audubon Missouri
Ozark Gateway Audubon Society

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Audubon Mississippi

MT
Upper Missouri Breaks Audubon

NE
Audubon Nebraska
Wachiska Audubon Society

NC
Audubon North Carolina
Audubon Society of Forsyth County
New Hope Audubon Society
Elisha Mitchell Audubon
T. Gilbert Pearson Audubon Society

NJ
Monmouth County Audubon Society

NM
Audubon New Mexico
Sangre de Cristo Audubon Society

NY
Audubon New York
Adirondack Audubon Society
Buffalo Audubon Society
Genesee Valley Audubon Society
Great South Bay Audubon Society
Jamestown Audubon Society
Northern Catskills Audubon Society

OH
Audubon Society of Ohio

OR
Umpqua Valley Audubon Society

PA
Greater Wyoming Valley Audubon Society
Northeast Pennsylvania Audubon Society
Quittapahilla Audubon Society
Wyncote Audubon Society

SC
Audubon South Carolina

TX
Houston Audubon Society

VA
Audubon Society of Northern Virginia

VT
Ascutney Mountain Audubon Society

WA
Black Hills Audubon Society
Kitsap Audubon Society
Pilchuck Audubon Society
Vancouver Audubon Society

WI
Green Rock Audubon Society
Madison Audubon Society
Wisconsin Audubon Council

WY
Meadowlark Audubon Society

August 22, 2012

The Honorable Ken Salazar
Secretary, United States Department of the Interior
1849 C Street NW
Washington, DC 20240

Dear Secretary Salazar:

Thank you for your efforts and commitment to meeting our nation's renewable energy and conservation goals. Each of our organizations is deeply committed to responsibly sited renewable energy development opportunities that avoid and minimize the impacts on wildlife and their habitats. We write to suggest a path forward for needed fundamental improvements to the bald and golden eagle permit process by the United States Fish and Wildlife Service (Service). Recently, many of the undersigned submitted separate comments responding to the Service's notices proposing changes to the existing eagle permit regulations. We strongly believe that by working together and with the Service, we could find workable solutions to improve the permitting process and conservation of bald and golden eagles.

The conservation community, the wind industry, states, federally recognized Indian tribes and federal agencies have a long history of working with the Department of the Interior (Department) to develop workable policy recommendations for the responsible siting of wind energy projects. For example, the Wind Turbine Guidelines Federal Advisory Committee brought together scientists, industry, conservationists, federally recognized tribes and representatives from states, to provide recommendations to the Service, which were substantially adopted to help wind energy project developers avoid and minimize the impacts of land-based wind projects on wildlife and their habitats.

In that spirit, we urge the Service to supplement the current notice-and-comment proceedings through continued and collaborative interaction with key stakeholders with the express purpose of examining the issues identified in the two notices regarding eagle permits and the draft eagle conservation plan guidance. There are several potential processes ranging from a negotiated rulemaking, advisory committee, or policy dialogue to less formal interactive technical workshops, a technical conference, an agency task force, and/or a scientific panel. The important denominator is that the process includes a variety of experts on eagles, the permitting process, the regulatory process and energy development. Such a process could explore, for example: additional science and data on assessing eagle populations; further mitigation options; advanced conservation practices; short- and long-term resource needs and administrative priorities; implementation of effective risk criteria; how eagle information gaps should be addressed and how responsibly sited wind farms are allowed to move forward in the interim while this process is on-going; other causes of eagle mortality in addition to wind energy; and generally how to create more certainty for both the species and the wind industry under a regulatory process for eagle permits.

We appreciate this opportunity to share our thoughts with you and look forward to working with you to ensure the best possible outcome for the conservation of the iconic bald and golden eagles and the further development of needed renewable energy. While we understand that the Service will need time to analyze the comments submitted and to evaluate the appropriate next steps, the undersigned will continue to collaborate and discuss these issues. We sincerely hope that the Service will work with us, and other interested parties who are seeking reasonable solutions, to develop a

workable, comprehensive and transparent approach to eagle conservation that we will collectively be able to support.

Thank you for considering our request. We look forward to your reply.

Sincerely,

Jamie Clark
President and CEO
Defenders of Wildlife

David Yarnold
President and CEO
National Audubon Society

Frances Beinecke
President
Natural Resources Defense Council

Jonathan W. Gassett, Ph.D.
President, Association of Fish and Wildlife Agencies and Commissioner, Kentucky Department of Fish and Wildlife Resources

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President and CEO
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Jamie Williams
President
The Wilderness Society

Robert Bendick
Director, U.S. Government Relations
The Nature Conservancy

Michael Brune
Executive Director
Sierra Club

Denise Bode
Chief Executive Officer
American Wind Energy Association

Jeff Clark
Executive Director
The Wind Coalition (TWC)

Carol Murphy
Executive Director
Alliance for Clean Energy New York (ACE NY)

Sarah Propst
Executive Director
Interwest Energy Alliance

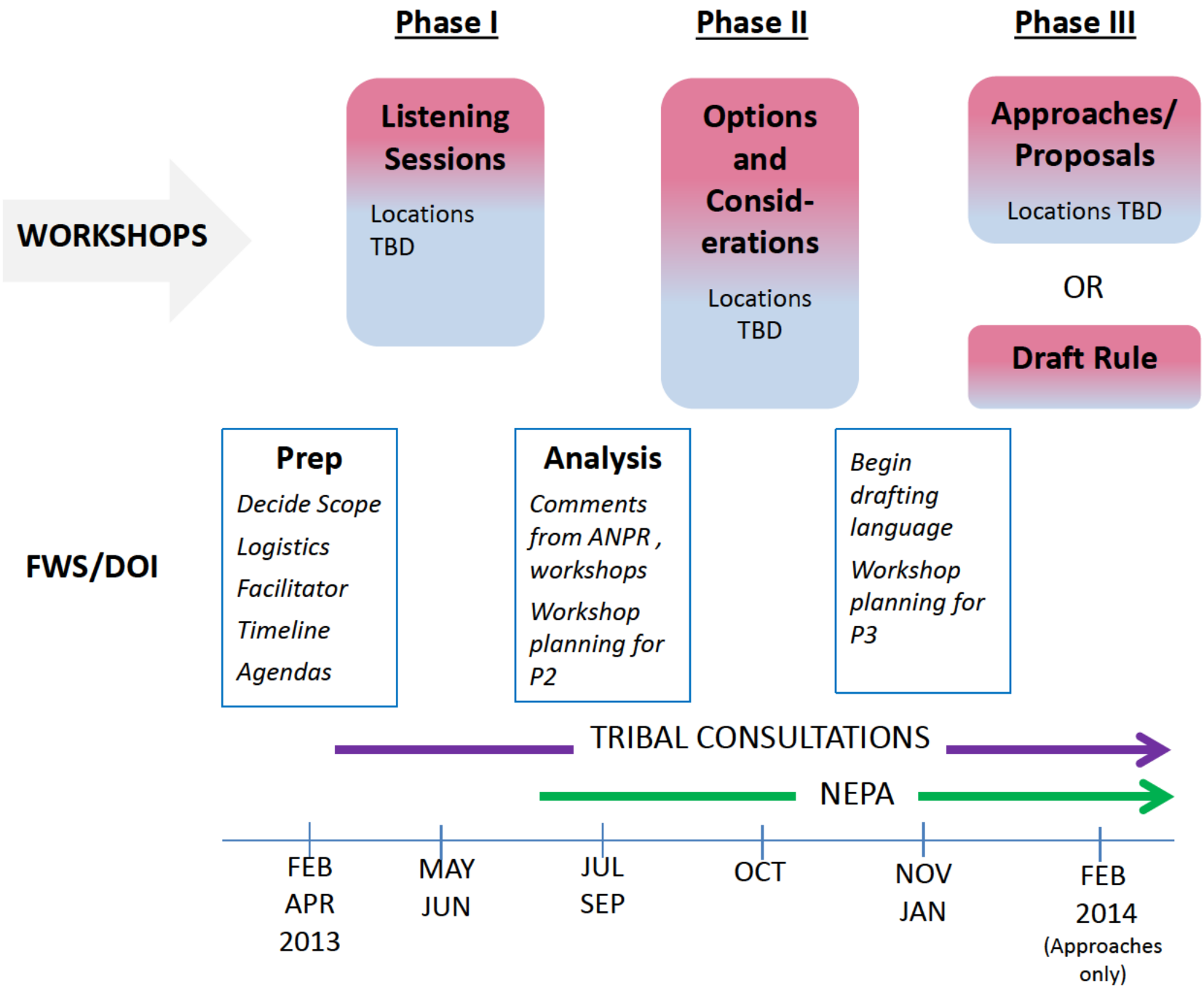
Francis Pullaro
Executive Director
RENEW New England

Nancy Rader
Executive Director
California Wind Energy Association (CalWEA)

Rachel Shimshak
Executive Director
Renewable Northwest Project (RNP)

Beth Soholt
Executive Director
Wind on the Wires (WOW)

CC: Daniel Ashe, Director, US Fish and Wildlife Service
David Hayes, Deputy Secretary, US Department of the Interior
Steve Black, Counselor to the Secretary of the Interior


Phase I
Phase II
Phase III
WORKSHOPS
Listening Sessions
Locations TBD
Options and Consid-erations
Locations TBD
Approaches/ Proposals
Locations TBD
OR
Draft Rule
FWS/DOI
Prep
Decide Scope
Logistics
Facilitator
Timeline
Agendas
Analysis
Comments from ANPR , workshops
Workshop planning for P2
Begin drafting language
Workshop planning for P3
TRIBAL CONSULTATIONS
NEPA
FEB APR 2013
MAY JUN
JUL SEP
OCT
NOV JAN
FEB 2014 (Approaches only)

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Washington, D.C. 20240

OCT 23 2012

Ms. Jamie Clark
President and CEO
Defenders of Wildlife
1130 17th Street, NW
Washington, DC 20036

Dear ~~Ms. Clark~~ Jamie:

Thank you for your letter of August 22, 2010 to Secretary of the Interior Ken Salazar, co-signed by several of your peers, suggesting a path forward regarding renewable energy development and impacts to bald and golden eagles. The Secretary asked the U.S. Fish and Wildlife Service (Service) to respond directly to you.

Because the 2009 eagle take regulations involve all activities that may affect eagle populations, the Service recognizes the importance of working with all interested parties in this era of increased renewable energy development. The Service would like to invite you or a designee to a one-to-two-day meeting during which you and other partners would work with Service staff to develop a collaborative process to ensure the long-term sustainability of eagle populations and responsible renewable energy development.

Please reply to Mr. Jerome Ford, Assistant Director, Migratory Birds, with your availability during the week of December 10, 2012. I look forward to this important conversation.

Sincerely,

DIRECTOR

Black, Steve <steve_black@ios.doi.gov>

Eagle letter

1 message

Scott, Janea <janea_scott@ios.doi.gov> Fri, Feb 8, 2013 at 3:50 PM
To: Steve Black <steve_black@ios.doi.gov>

---------- Forwarded message ----------
From: **Cottingham, David** <david_cottingham@fws.gov>
Date: Fri, Feb 8, 2013 at 11:40 AM
Subject: letter
To: Janea Scott <Janea_Scott@ios.doi.gov>

the joint letter and our response

--
David Cottingham
Senior Advisor to the Director
US Fish and Wildlife Service
Room 3341 Main Interior
Washington DC 20240

Office: 202-208-4331
Cell: 202-372-7578

2 attachments

Joint eagle process letter8 22 2012.pdf
65K

Ashe letter to Clark- Oct 23.pdf
137K

August 22, 2012

The Honorable Ken Salazar
Secretary, United States Department of the Interior
1849 C Street NW
Washington, DC 20240

Dear Secretary Salazar:

Thank you for your efforts and commitment to meeting our nation's renewable energy and conservation goals. Each of our organizations is deeply committed to responsibly sited renewable energy development opportunities that avoid and minimize the impacts on wildlife and their habitats. We write to suggest a path forward for needed fundamental improvements to the bald and golden eagle permit process by the United States Fish and Wildlife Service (Service). Recently, many of the undersigned submitted separate comments responding to the Service's notices proposing changes to the existing eagle permit regulations. We strongly believe that by working together and with the Service, we could find workable solutions to improve the permitting process and conservation of bald and golden eagles.

The conservation community, the wind industry, states, federally recognized Indian tribes and federal agencies have a long history of working with the Department of the Interior (Department) to develop workable policy recommendations for the responsible siting of wind energy projects. For example, the Wind Turbine Guidelines Federal Advisory Committee brought together scientists, industry, conservationists, federally recognized tribes and representatives from states, to provide recommendations to the Service, which were substantially adopted to help wind energy project developers avoid and minimize the impacts of land-based wind projects on wildlife and their habitats.

In that spirit, we urge the Service to supplement the current notice-and-comment proceedings through continued and collaborative interaction with key stakeholders with the express purpose of examining the issues identified in the two notices regarding eagle permits and the draft eagle conservation plan guidance. There are several potential processes ranging from a negotiated rulemaking, advisory committee, or policy dialogue to less formal interactive technical workshops, a technical conference, an agency task force, and/or a scientific panel. The important denominator is that the process includes a variety of experts on eagles, the permitting process, the regulatory process and energy development. Such a process could explore, for example: additional science and data on assessing eagle populations; further mitigation options; advanced conservation practices; short- and long-term resource needs and administrative priorities; implementation of effective risk criteria; how eagle information gaps should be addressed and how responsibly sited wind farms are allowed to move forward in the interim while this process is on-going; other causes of eagle mortality in addition to wind energy; and generally how to create more certainty for both the species and the wind industry under a regulatory process for eagle permits.

We appreciate this opportunity to share our thoughts with you and look forward to working with you to ensure the best possible outcome for the conservation of the iconic bald and golden eagles and the further development of needed renewable energy. While we understand that the Service will need time to analyze the comments submitted and to evaluate the appropriate next steps, the undersigned will continue to collaborate and discuss these issues. We sincerely hope that the Service will work with us, and other interested parties who are seeking reasonable solutions, to develop a

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Thank you for considering our request. We look forward to your reply.

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CC: Daniel Ashe, Director, US Fish and Wildlife Service
David Hayes, Deputy Secretary, US Department of the Interior
Steve Black, Counselor to the Secretary of the Interior

Black, Steve <steve_black@ios.doi.gov>

Fw: eagle letter

1 message

Scott, Janea <Janea_Scott@ios.doi.gov> Thu, Aug 23, 2012 at 11:09 AM
To: "Black, Steve" <steve_black@ios.doi.gov>

FYI

From: Julie Falkner [mailto:JFALKNER@defenders.org]
Sent: Thursday, August 23, 2012 10:04 AM
To: Klein, Elizabeth A; Scott, Janea
Subject: eagle letter

Good morning Liz and Janea: I hope you are both well. Attached is a letter submitted by several NGOs and wind energy associations requesting that the FWS take a more comprehensive approach to solving the eagle permitting issues and consider doing so with the stakeholders input.

Please let me know if you have any questions or would care to discuss. We appreciate your interest in this important mater.

Julie

Juliette Falkner

Senior Policy Analyst, Renewable Energy and Wildlife

Defenders of Wildlife

1130 17th Street N.W. Washington D.C. 20036-4604

Tel: 202-772-0293 | **Fax:** 202-682-1331

jfalkner@defenders.org | www.defenders.org

Joint eagle process letter8 22 2012.pdf
65K

August 22, 2012

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Secretary, United States Department of the Interior
1849 C Street NW
Washington, DC 20240

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CC: Daniel Ashe, Director, US Fish and Wildlife Service
David Hayes, Deputy Secretary, US Department of the Interior
Steve Black, Counselor to the Secretary of the Interior

Black, Steve <steve_black@ios.doi.gov>

Fwd: Follow-up to our discussion

1 message

Hayes, David <David_Hayes@ios.doi.gov> Thu, Sep 20, 2012 at 6:17 PM
To: "Scott, Janea" <Janea_Scott@ios.doi.gov>, "Black, Steve" <steve_black@ios.doi.gov>, "Kornze, Neil G" <nkornze@blm.gov>, "Klein, Elizabeth A" <Elizabeth_Klein@ios.doi.gov>

I draw your attention to Jim Lyons' comments on the solar PEIS. Do we credit and discuss these issues adequately in the ROD?

Sent from my iPad

Begin forwarded message:

From: Jim Lyons <JLyons@defenders.org>
Date: September 20, 2012 6:13:29 PM EDT
To: "Zichal, Heather R." (b) (6) [redacted]>, "Hayes, David" <David_Hayes@ios.doi.gov>
Cc: Jim Lyons <JLyons@defenders.org>
Subject: Follow-up to our discussion

Heather/David –

Thanks for taking the time to get together and for hosting lunch.

Just a few follow-up thoughts from our discussion.

Solar PEIS

On the solar PEIS, Defenders continues to have significant concerns regarding how Desert tortoise (DT) will be address as the plan moves forward.

Both the final PEIS and the biological opinion (BiOP) developed by the Fish and Wildlife Service point to the potential for huge impacts from renewable energy on DT. In fact, the BiOP states, "the project-by-project and cumulative effects of the renewable energy program within the range of the Mojave population of the DT have the potential to reduce the amount of available, occupied and/or sustainable habitat by hundreds of thousands of acres". (Biop, 68) The recently revised Recovery plan makes clear the need to:

- Conserve intact desert tortoise habitat
- Connect functional habitat

- And secure lands /habitat for conservation.

And, to us, the final PEIS is at odds with this direction specifically because it would only exclude about 26% of the identified high priority DT habitat that is available for development in the so-called variance lands. We recommended – consistent with the direction in the recovery plan that all priority 1 and 2 DT habitat be excluded from variance lands. I think you heard David say that DOI didn't feel there was enough scientific information to establish strict standards for excluding additional lands from development. So, instead, the final PEIS calls for BLM and FWS to:

- "discourage" applications in the "highest priority areas" and
- "consider" cumulative effects and landscape level information to determine if the project will result in "acceptable impacts" on desert tortoise (with no definition of what's an "acceptable impact").

As a result, without further guidance, any development on the remaining 700,000 acres of priority habitat could proceed if it meets these qualifiers. The potential conflict with what is required for recovery of the DT (as spelled out in the recovery plan and BiOP on the PEIS) is obvious. And that lack of certainty is what drives conservationists and the industry "nuts".

That is why I ask that the Department first consider excluding priority 1 and 2 habitat areas from variance lands.

Alternatively, DOI could establish clear criteria to guide BLM and FWS decisions on proposed project applications before projects proceed. We suggested criteria, but it sounded like David thought they weren't scientifically sound. Of course, one could argue that the science behind the recovery plan and the BiOP require a different approach – that the agencies proceed with caution to implement the recovery activities sited above – i.e., by screening projects to conserve and connect high priority habitat.

Finally, DOI could commitment in the ROD to develop rules or standards within 180 days that provides specific criteria and guidance for evaluating projects in high priority habitat not excluded from development in the variance lands. This could permit further dialogue with the industry and conservation community to see if there isn't some areas of common agreement.

Hopefully, what I was suggesting came across – that these areas either be excluded from development or that clearer guidance and/or measures to protect high priority DT habitat be established moving forward. There are ways to get there, but a clear commitment to the standards or the process to reach those standards in the ROD is essential.

Eagles and Choke Cherry

Here, again, I would suggest a process both for developing clear guidance for protecting eagles and for moving forward with the Choke Cherry project.

On **eagles**, we've suggested a joint effort among conservationists, AWEA, wind energy companies, and others to find a way to structure guidance for eagle conservation plans, take permits, and an appropriate term for take permits for eagles. We recommended this in a letter to Sec. Salazar (attached). This dialogue could be facilitated by the Udall Center, the American Wind Wildlife Institute, or some other party or could be done through a FACA process. We did something similar to this in CA to help shape the solar program through an attorney and conservation leader named Michael Mantell which led to the basic structure for the solar PEIS.

If DOI decides to proceed without this input, I'd suggest that it's a missed opportunity – especially since the slowdown likely in wind development this next year provides an opportunity to bring people together to plot a new course forward that should help improve project siting and speed wind energy development. But, of course we'll work with the Department however they decide to proceed.

On the Choke Cherry project, my only caution is that it is a huge and complex project – 230K acres/ 1000 turbines - high potential impacts on sage grouse and eagles. BLM says it will rely on an eagle conservation plan to mitigate project impacts – yet the Final EIS was issued before the plan was completed.

As David noted, there are no good analytical tools to estimate eagle numbers yet the EIS projects 64 eagles would die each year if the project were built out as proposed. In addition, it is not yet clear that transmission (TWX) will be built, nor that CA will accept the power – NO PPA yet. The company has been willing to work with the conservation community to make adjustments to the project, but more time would help to assure that the project addresses eagle issues and sage grouse concerns in a comprehensive and appropriate manner. DOI could proceed in a "stepwise" fashion to develop the project in phases that might reduce short term impacts. But, without transmission, a PPA, or clarity on how to manage for eagles or sage grouse (in the larger context), it would not be unreasonable to ask the Department to wait, to work through remaining issues with the various stakeholders and developer, before a major commitment of resources is made – which could commence with a final ROD.

Pending Projects

Finally, I would note that we have reviewed 74 of the pending 94 solar projects proposed prior to development of the solar PEIS. In so doing we found 8 projects (totaling approx. 3300 MW) that rank as "low conflict" according to the BLM IMs. Another 28 were rated as "medium" conflict total over 10,000 MW as proposed. This is a substantial number of projects that, should they proceed, would produce 3-4 years of solar production at current rates of development. We should consider working together – with the industry – to expedite the processing of low-conflict projects (where possible) and to review and work-out any issues (or those that we can) associated with the medium conflict projects while efforts to develop final guidance for the solar PEIS, regional mitigation plans, and a more comprehensive and scientifically-defensible DT recovery plan are undertaken. Eleven of these low and medium conflict projects are in solar zones delineated in the solar PEIS.

This approach, or something like it, would be a way to get currently pending (and grandfathered)

projects processed, permitted and built while efforts to implement the solar program are underway. Since 1/3 of them are in zones, it would also be a way to learn how best to use the zone process to guide these and future solar project development.

We're very interested in having that conversation with you and DOI as well if the interest is there.

I hope you find these thoughts useful.

Thanks, again, for meeting.

Jim Lyons

Senior Director, Renewable Energy

Defenders of Wildlife

1130 17th Street N.W. Washington D.C. 20036-4604

Tel: 202-772-3202 | **Fax:** 202-682-1331

JLyons@defenders.org | www.defenders.org

Mobile: 443-995-3573

2 attachments

Joint eagle process letter8 22 2012.pdf
63K

ATT00001.htm
1K

August 22, 2012

The Honorable Ken Salazar
Secretary, United States Department of the Interior
1849 C Street NW
Washington, DC 20240

Dear Secretary Salazar:

Thank you for your efforts and commitment to meeting our nation's renewable energy and conservation goals. Each of our organizations is deeply committed to responsibly sited renewable energy development opportunities that avoid and minimize the impacts on wildlife and their habitats. We write to suggest a path forward for needed fundamental improvements to the bald and golden eagle permit process by the United States Fish and Wildlife Service (Service). Recently, many of the undersigned submitted separate comments responding to the Service's notices proposing changes to the existing eagle permit regulations. We strongly believe that by working together and with the Service, we could find workable solutions to improve the permitting process and conservation of bald and golden eagles.

The conservation community, the wind industry, states, federally recognized Indian tribes and federal agencies have a long history of working with the Department of the Interior (Department) to develop workable policy recommendations for the responsible siting of wind energy projects. For example, the Wind Turbine Guidelines Federal Advisory Committee brought together scientists, industry, conservationists, federally recognized tribes and representatives from states, to provide recommendations to the Service, which were substantially adopted to help wind energy project developers avoid and minimize the impacts of land-based wind projects on wildlife and their habitats.

In that spirit, we urge the Service to supplement the current notice-and-comment proceedings through continued and collaborative interaction with key stakeholders with the express purpose of examining the issues identified in the two notices regarding eagle permits and the draft eagle conservation plan guidance. There are several potential processes ranging from a negotiated rulemaking, advisory committee, or policy dialogue to less formal interactive technical workshops, a technical conference, an agency task force, and/or a scientific panel. The important denominator is that the process includes a variety of experts on eagles, the permitting process, the regulatory process and energy development. Such a process could explore, for example: additional science and data on assessing eagle populations; further mitigation options; advanced conservation practices; short- and long-term resource needs and administrative priorities; implementation of effective risk criteria; how eagle information gaps should be addressed and how responsibly sited wind farms are allowed to move forward in the interim while this process is on-going; other causes of eagle mortality in addition to wind energy; and generally how to create more certainty for both the species and the wind industry under a regulatory process for eagle permits.

We appreciate this opportunity to share our thoughts with you and look forward to working with you to ensure the best possible outcome for the conservation of the iconic bald and golden eagles and the further development of needed renewable energy. While we understand that the Service will need time to analyze the comments submitted and to evaluate the appropriate next steps, the undersigned will continue to collaborate and discuss these issues. We sincerely hope that the Service will work with us, and other interested parties who are seeking reasonable solutions, to develop a

workable, comprehensive and transparent approach to eagle conservation that we will collectively be able to support.

Thank you for considering our request. We look forward to your reply.

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Steve Black, Counselor to the Secretary of the Interior

Black, Steve <steve_black@ios.doi.gov>

Fw: Fwd: the letter

1 message

Black, Steve <steve_black@ios.doi.gov> Fri, Oct 5, 2012 at 5:06 PM
To: KLdougla@energy.state.ca.us, Michael.Picker@gov.ca.gov
Cc: "Scott, Janea" <Janea_Scott@ios.doi.gov>

FYI -- let's discuss. Thanks.

From: Julie Falkner [mailto:JFALKNER@defenders.org]
Sent: Friday, October 05, 2012 04:54 PM
To: Black, Steve
Subject: Fwd: the letter

Steve. Here you go. I am out of the office on travel next week. If you need to contact me, please call my cell at (b) (6) [redacted]
All the best
Julie

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Black, Steve <steve_black@ios.doi.gov>

Fw: Fwd: the letter

1 message

Black, Steve <steve_black@ios.doi.gov> Fri, Oct 5, 2012 at 5:03 PM
To: "Pitts, Alexandra" <Alexandra_Pitts@fws.gov>

Do you have this?

From: Julie Falkner [mailto:JFALKNER@defenders.org]
Sent: Friday, October 05, 2012 04:54 PM
To: Black, Steve
Subject: Fwd: the letter

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Black, Steve <steve_black@ios.doi.gov>

Eagle background paper for Mon Nov 26 meeting

1 message

Cottingham, David <david_cottingham@fws.gov> Fri, Nov 23, 2012 at 3:25 PM
To: David Hayes <David.Hayes@ios.doi.gov>, "Ashe, D M" <D_M_Ashe@fws.gov>, "Hildebrandt, Betsy" <betsy_hildebrandt@fws.gov>, "Klein, Elizabeth A" <Elizabeth_Klein@ios.doi.gov>, "Scott, Janea" <Janea_Scott@ios.doi.gov>, "Black, Steve" <steve_black@ios.doi.gov>, "Marsters, Lizzie" <Lizzie_Marsters@ios.doi.gov>, laura Davis <laura.davis@ios.doi.gov>, "Sisk, Jennifer R" <Jennifer_Sisk@ios.doi.gov>, "Ojeda-dodds, Gisella N" <gisella_ojeda-dodds@ios.doi.gov>, "Ford, Jerome" <jerome_ford@fws.gov>, "Chandler, Sabrina" <sabrina_chandler@fws.gov>

All --

the attached paper succinctly describes many of the Service's activities regarding bald and golden eagles. It provides a background for discussion at the meeting on Monday Nov 26.

Please let me know if you have questions I should address prior to the meeting.

Have a good weekend.

David

Eagle Briefing Document - Nov 23.docx
419K

Black, Steve <steve_black@ios.doi.gov>

Fw: Eagle background paper for Mon Nov 26 meeting

1 message

Black, Steve <steve_black@ios.doi.gov> Mon, Nov 26, 2012 at 11:19 AM
To: "Lane, Kenneth" <Kenneth_Lane@ios.doi.gov>

FYI

From: Cottingham, David [mailto:david_cottingham@fws.gov]
Sent: Friday, November 23, 2012 03:25 PM
To: David Hayes <David.Hayes@ios.doi.gov>; Ashe, D M; Hildebrandt, Betsy; Klein, Elizabeth A; Scott, Janea; Black, Steve; Marsters, Lizzie; laura Davis <laura.davis@ios.doi.gov>; Sisk, Jennifer R; Ojeda-dodds, Gisella N; Ford, Jerome; Chandler, Sabrina
Subject: Eagle background paper for Mon Nov 26 meeting

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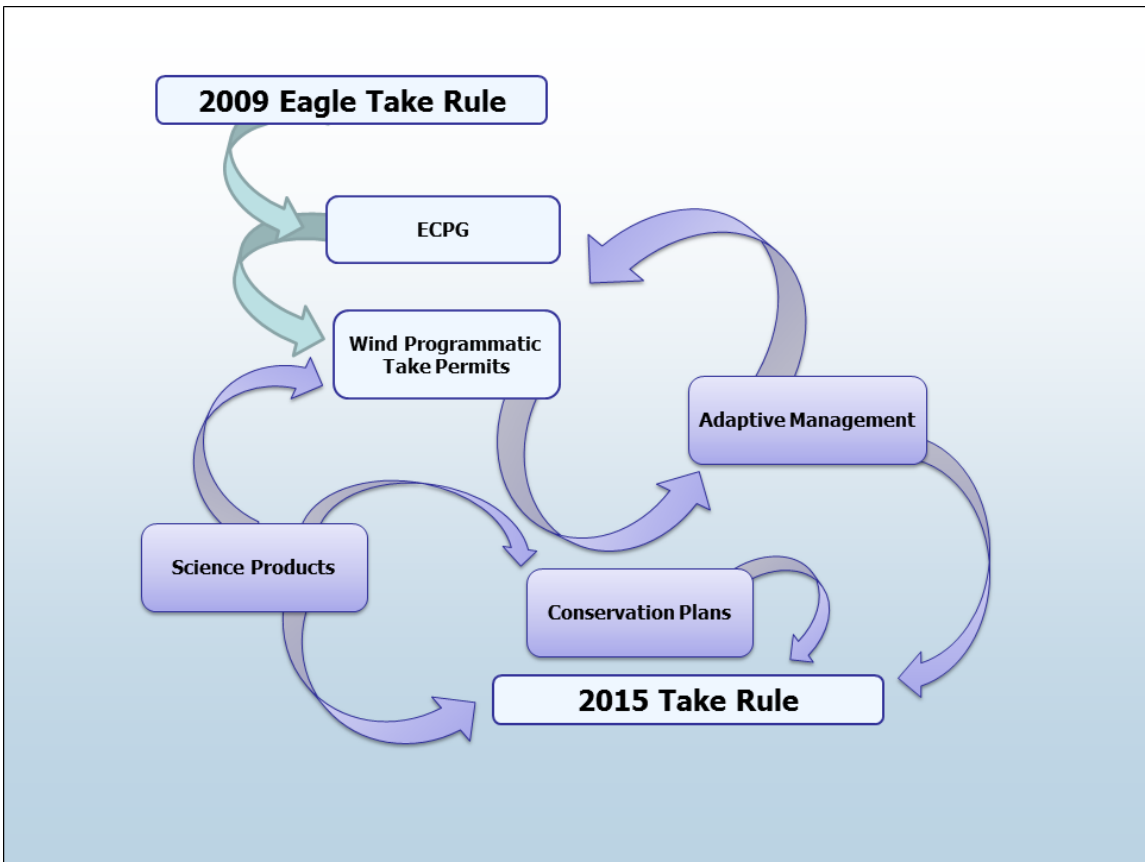
A Blueprint for Eagle Conservation and Wind Energy Development

Overview

The U.S. Fish and Wildlife Service (FWS or Service) supports the development of renewable energy resources as a means to reduce carbon emissions and their impacts on the landscape. Large scale renewable energy development, however, is not without challenge for the Service. In particular, the proliferation of industrial scale wind projects throughout the UnitedStates has required a focused effort to balance this much-needed energy resource with our trust responsibilities. The Service's mandate under the Bald and Golden Eagle Protection Act (BGEPA) is to ensure that the development of such resources is compatible with the preservation of bald and golden eagles. Because wind turbines can kill bald and golden eagles, the Service is working to better understand eagle populations, methods of avoidance and mitigation of eagle fatalities, and the overall population effects that wind turbines may be causing.

Strategy

The Service's strategy is to implement a defensible process for moving forward with eagle take permitting for wind facilities in a measured way now, and to learn from our experiences with these initial permits and the science products so that we can undertake an informed substantive rule revision and NEPA analysis in 2015. The concept relies on a structured, ordered architecture such that the pieces come together in sequence and support one-another.



Near-Term

In the near-term, the Service is working with the wind industry on methods to avoid, minimize and mitigate takes of eagles at specific project sites. In addition, the Service is assisting proponents in the development of eagle management plans and in their application for incidental take permits. All of this work is informed by the best available science.

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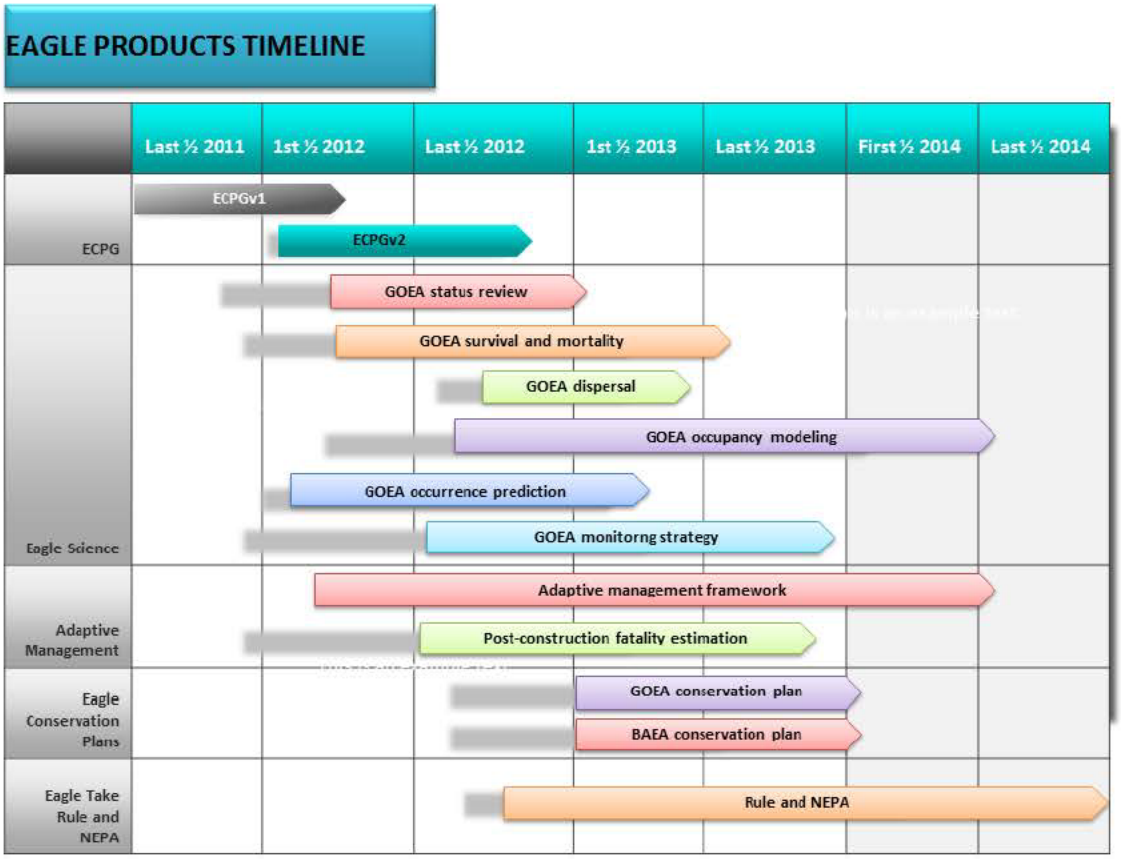

Black, Steve <steve_black@ios.doi.gov>

FW: Eagle background paper for Mon Nov 26 meeting

1 message

Black, Steve <steve_black@ios.doi.gov> Mon, Nov 26, 2012 at 10:30 AM
To: "Kemkar, Neal" <Neal_Kemkar@ios.doi.gov>

As discussed.

From: Cottingham, David [mailto:david_cottingham@fws.gov]
Sent: Friday, November 23, 2012 3:26 PM
To: David Hayes; Ashe, D M; Hildebrandt, Betsy; Klein, Elizabeth A; Scott, Janea; Black, Steve; Marsters, Lizzie; laura Davis; Sisk, Jennifer R; Ojeda-dodds, Gisella N; Ford, Jerome; Chandler, Sabrina
Subject: Eagle background paper for Mon Nov 26 meeting

All --

the attached paper succinctly describes many of the Service's activities regarding bald and golden eagles. It provides a background for discussion at the meeting on Monday Nov 26.

Please let me know if you have questions I should address prior to the meeting.

Have a good weekend.

David

Eagle Briefing Document - Nov 23.docx
419K

A Blueprint for Eagle Conservation and Wind Energy Development

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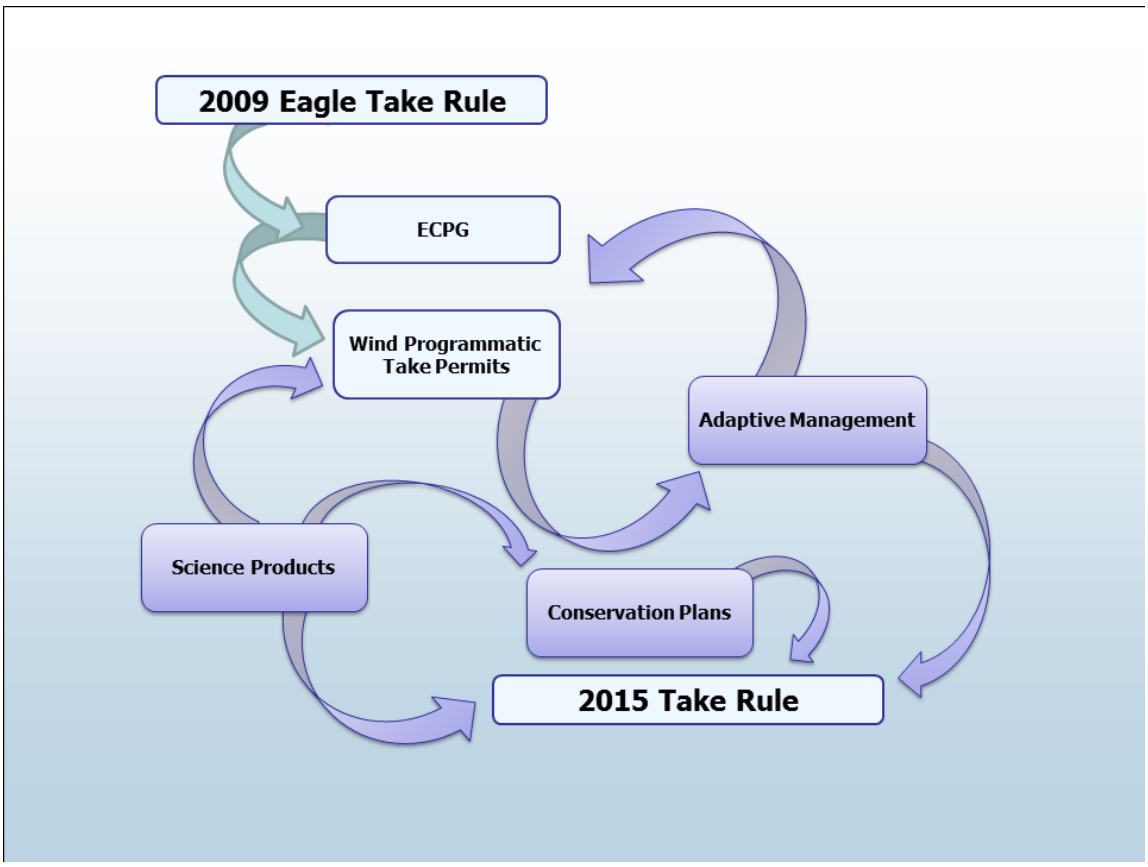

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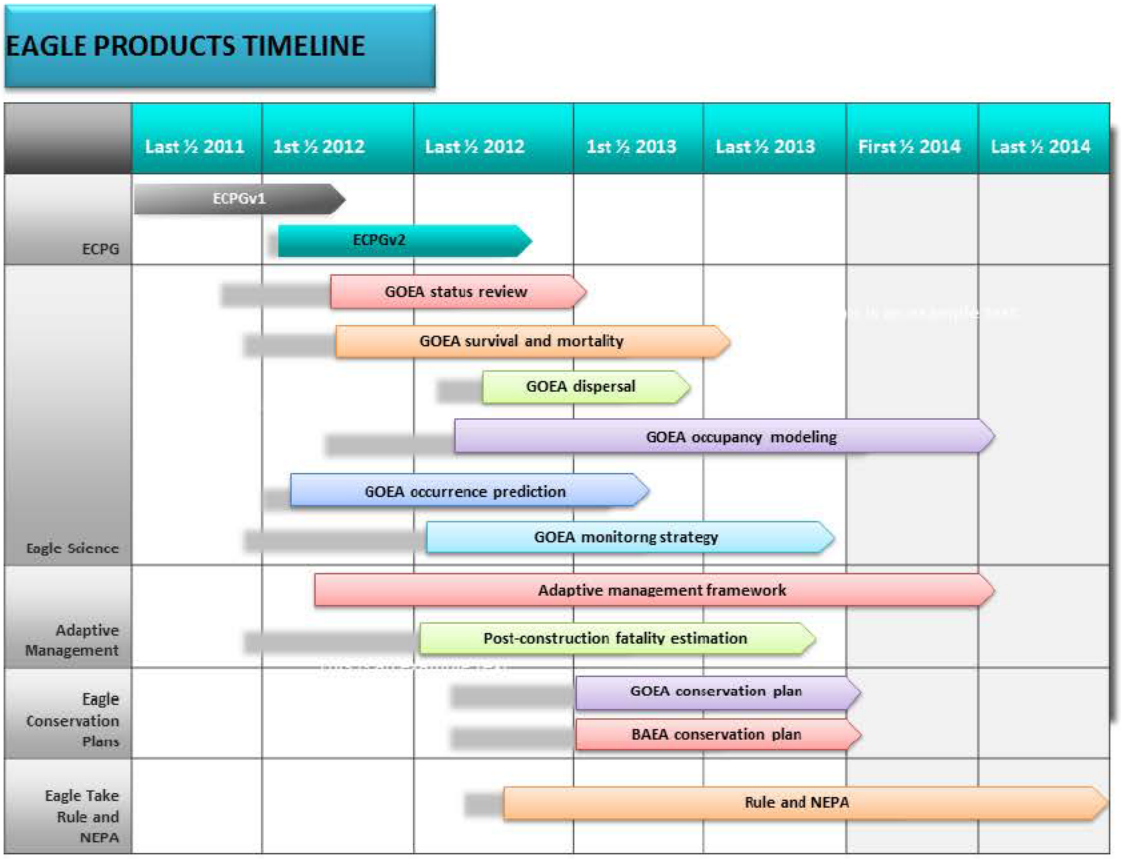

Black, Steve <steve_black@ios.doi.gov>

Fwd: FW: Eagles Memo to Secretary

1 message

Black, Steve <steve_black@ios.doi.gov> Tue, Dec 4, 2012 at 7:00 PM
To: Janea Scott <Janea_Scott@ios.doi.gov>

Here is Betsy's mark-up.

From: Hildebrandt, Betsy [mailto:betsy_hildebrandt@fws.gov]
Sent: Tuesday, December 04, 2012 3:58 PM
To: Steve Black
Cc: David Cottingham; D M Ashe; Laura Davis; Elizabeth Klein
Subject: Eagles Memo to Secretary

Hi Steve, thanks for the opportunity to review and edit. The attached represents edits from me and David Cottingham. I know you are eager to get this in so let me know if we should meet to discuss.

Thanks,

Betsy

--
Steve Black
Counselor to the Secretary
U.S. Department of the Interior
1849 C Street, N.W., MS 7229
Washington, D.C. 20240
Phone: 202-208-4123
Fax: 202-208-4561
e-mail: steve_black@ios.doi.gov

Info Memo Eagles Dec 4 update -- FWS comments (1).docx
358K

INFORMATION MEMORANDUM TO THE SECRETARY

FROM: Steve Black and Janea Scott
CC: Laura Davis, David J. Hayes, Ken Lane
RE: Eagles
DATE: November 27, 2012

(b) (5)

[redacted]

(b) (5)

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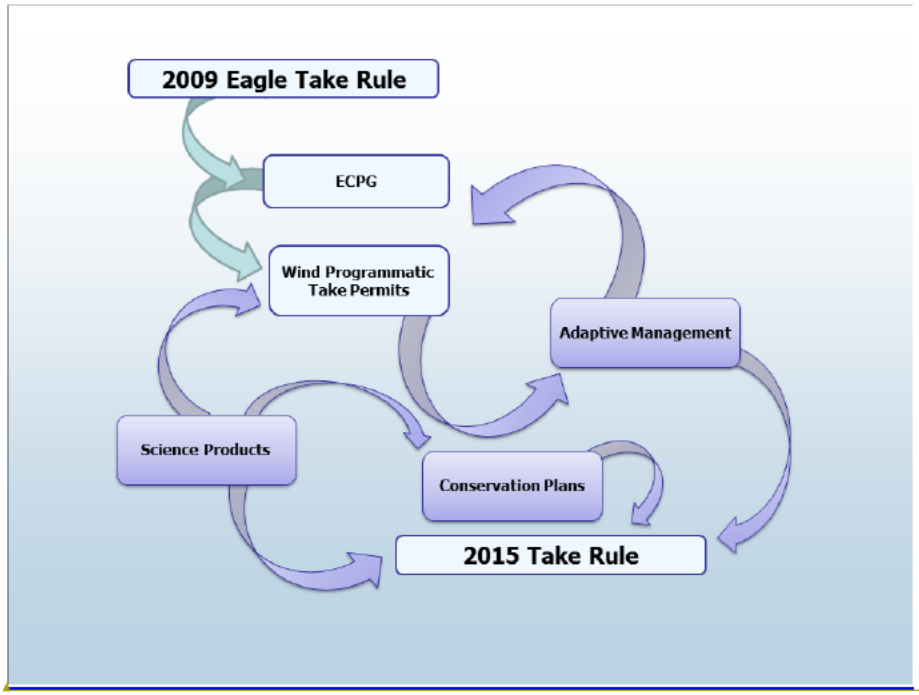

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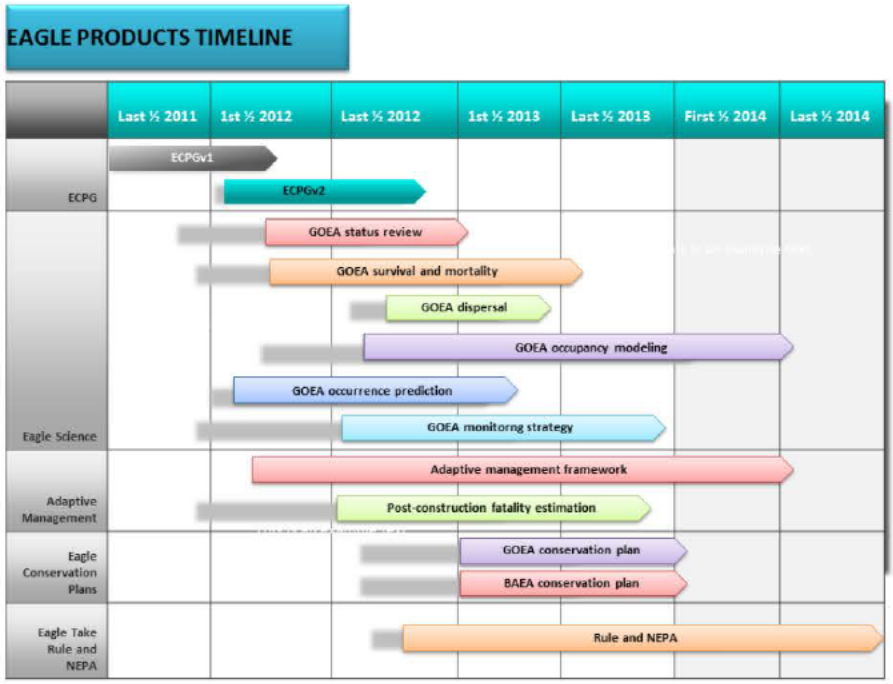

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FWS COMMENTS – DEC 4

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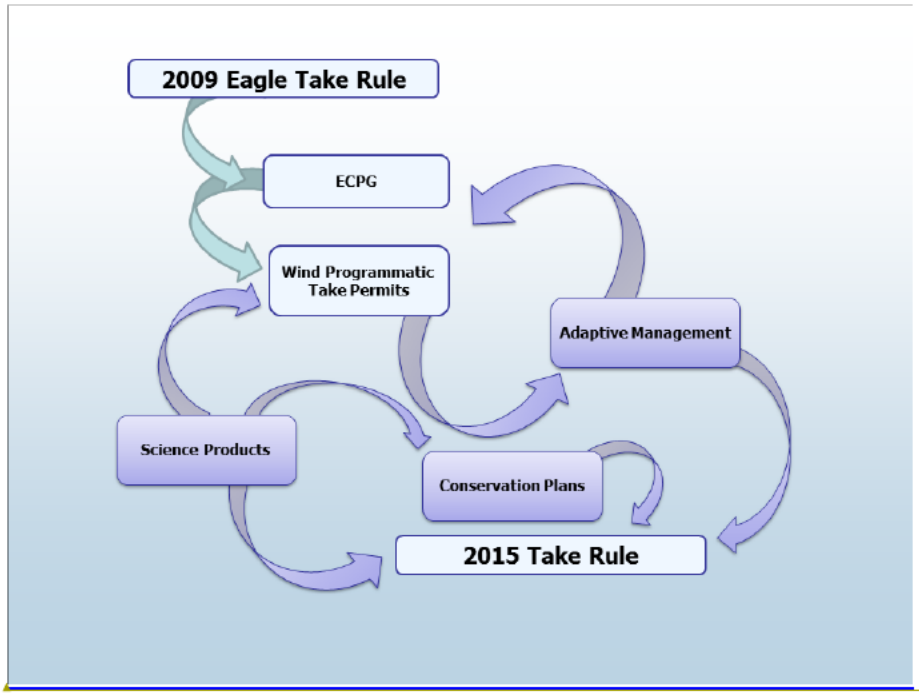

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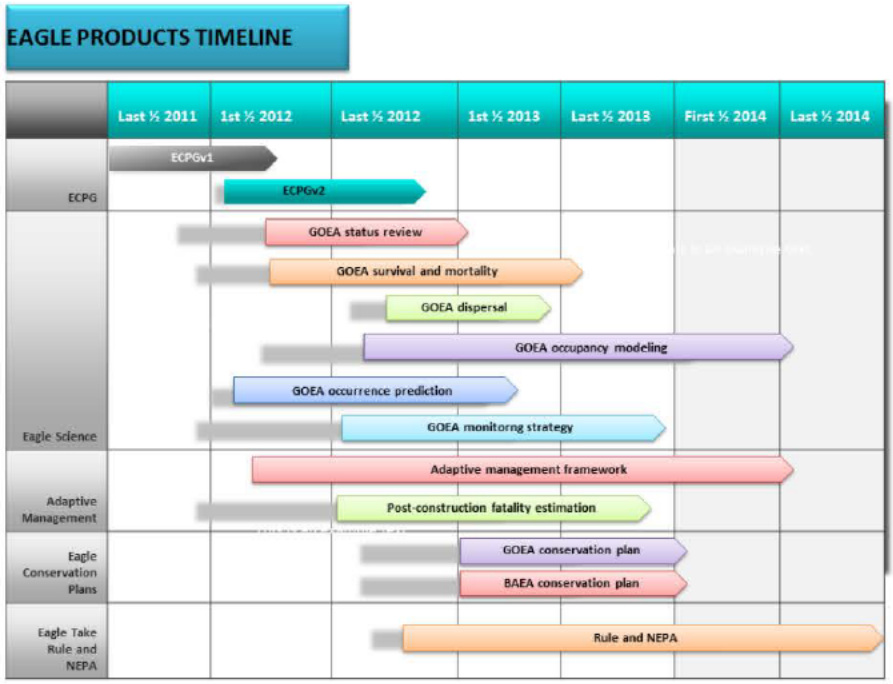

August 22, 2012

The Honorable Ken Salazar
Secretary, United States Department of the Interior
1849 C Street NW
Washington, DC 20240

Dear Secretary Salazar:

Thank you for your efforts and commitment to meeting our nation's renewable energy and conservation goals. Each of our organizations is deeply committed to responsibly sited renewable energy development opportunities that avoid and minimize the impacts on wildlife and their habitats. We write to suggest a path forward for needed fundamental improvements to the bald and golden eagle permit process by the United States Fish and Wildlife Service (Service). Recently, many of the undersigned submitted separate comments responding to the Service's notices proposing changes to the existing eagle permit regulations. We strongly believe that by working together and with the Service, we could find workable solutions to improve the permitting process and conservation of bald and golden eagles.

The conservation community, the wind industry, states, federally recognized Indian tribes and federal agencies have a long history of working with the Department of the Interior (Department) to develop workable policy recommendations for the responsible siting of wind energy projects. For example, the Wind Turbine Guidelines Federal Advisory Committee brought together scientists, industry, conservationists, federally recognized tribes and representatives from states, to provide recommendations to the Service, which were substantially adopted to help wind energy project developers avoid and minimize the impacts of land-based wind projects on wildlife and their habitats.

In that spirit, we urge the Service to supplement the current notice-and-comment proceedings through continued and collaborative interaction with key stakeholders with the express purpose of examining the issues identified in the two notices regarding eagle permits and the draft eagle conservation plan guidance. There are several potential processes ranging from a negotiated rulemaking, advisory committee, or policy dialogue to less formal interactive technical workshops, a technical conference, an agency task force, and/or a scientific panel. The important denominator is that the process includes a variety of experts on eagles, the permitting process, the regulatory process and energy development. Such a process could explore, for example: additional science and data on assessing eagle populations; further mitigation options; advanced conservation practices; short- and long-term resource needs and administrative priorities; implementation of effective risk criteria; how eagle information gaps should be addressed and how responsibly sited wind farms are allowed to move forward in the interim while this process is on-going; other causes of eagle mortality in addition to wind energy; and generally how to create more certainty for both the species and the wind industry under a regulatory process for eagle permits.

We appreciate this opportunity to share our thoughts with you and look forward to working with you to ensure the best possible outcome for the conservation of the iconic bald and golden eagles and the further development of needed renewable energy. While we understand that the Service will need time to analyze the comments submitted and to evaluate the appropriate next steps, the undersigned will continue to collaborate and discuss these issues. We sincerely hope that the Service will work with us, and other interested parties who are seeking reasonable solutions, to develop a

workable, comprehensive and transparent approach to eagle conservation that we will collectively be able to support.

Thank you for considering our request. We look forward to your reply.

Sincerely,

Jamie Clark
President and CEO
Defenders of Wildlife

David Yarnold
President and CEO
National Audubon Society

Frances Beinecke
President
Natural Resources Defense Council

Jonathan W. Gassett, Ph.D.
President, Association of Fish and Wildlife Agencies and Commissioner, Kentucky Department of Fish and Wildlife Resources

Larry Schweiger
President and CEO
National Wildlife Federation

Jamie Williams
President
The Wilderness Society

Robert Bendick
Director, U.S. Government Relations
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Sarah Propst
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Francis Pullaro
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Nancy Rader
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California Wind Energy Association (CalWEA)

Rachel Shimshak
Executive Director
Renewable Northwest Project (RNP)

Beth Soholt
Executive Director
Wind on the Wires (WOW)

CC: Daniel Ashe, Director, US Fish and Wildlife Service
David Hayes, Deputy Secretary, US Department of the Interior
Steve Black, Counselor to the Secretary of the Interior