From: Webster, Stuart [mailto:Stuart.Webster@iberdrolaren.com]
Sent: Tuesday, December 14, 2010 3:11 PM
To: Whitehead, Dawn
Cc: Manville, Albert; Bean, Michael; Tuegel, Marty; russell.hooten@tpwd.state.tx.us; Ford, Jerome; Murphy, Robert; Clements, Pat; Lienesch, Laila; Schmidt, Paul R; Roppe, Jerry; Nguyen, Toan; Pitts, Dan; Johnson, Jan
Subject: Penascal post-construction monitoring reports and PSABPP

Afternoon Dawn,

Firstly, I want to convey my personal and professional thanks for your patience with respect to the attached reports and avian bat protection plan for the Penascal project. I confess my workload, travel, and some holiday time off is responsible for the extended delay in getting plan and reports reviewed by me and delivered to you.

That confession aside, I am pleased to provide for your review the attached plan and reports for the Penascal project; I have taken the liberty to include with this correspondence other FWS and TXPWD officials we briefed earlier this fall. The project specific avian and bat protection plan is provided as an update to the initial plan provided and reflects the addition of the second phase of the project. As you are likely aware, Iberdrola Renewables adopted a corporate-wide avian and bat protection plan structure in October of 2008; each of our operational projects are intended to have a project specific plan. Given the perception concerns related to Penascal that we've talked about, we would like to extend to the FWS the opportunity to review and comment on this particular project specific ABPP.

With this email, we are also transmitting the fall 2009 and spring 2010 post-construction monitoring reports for your review. For those of you I had the opportunity to brief, you may recall that the fall 2009 report is more a status report on activities conducted since March 2009 (monitoring for summer, fall and winter) but lacks standard reporting of fatality estimates. For reasons conveyed in the report, while the measured fatalities suggest a similar level of extrapolated fatalities as that of the spring, we were not able to estimate total fatalities to a sufficient level of confidence. However, for the spring monitoring period, we have made full statistical estimates on fatalities. We anticipate providing a full statistical extrapolation of fall activity with the monitoring done in 2010.

Please don't hesitate to contact me with questions, comments or concerns. Additionally, if the file sizes are too great I can post to an FTP site for your downloading them instead.

Best regards and have a great afternoon,

IBERDROLA
RENEWABLES

Stu S. Webster
Director, Permitting and Environmental

Iberdrola Renewables
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From Michael Azeka **Date** Friday, May 28, 2010 12:57:45 PM

To Gould, Rowan; Black, Steve; Bean, Michael; Strickland, Thomas

Cc Rene.Braud@horizonwind.com; Rich Rayhill; Quarles, Steve; PDTraylor@HHLAW.com; Winifred_Perkins@fpl.com

Subject FWS Wind Turbine Guidelines

Dear Director Gould,

I have been speaking with my colleagues who spent the last 2-1/2 years and committed many thousands of hours working diligently to craft an integrated set of wind energy guidelines designed to be practical, effective, difficult, but balanced. We agree that the resulting recommendations are extensive and expensive to address, but we were willing to voluntarily adhere to these guidelines because of the negotiated compromises they embody. We now hear that the Service is preparing to revisit them internally with neither the original FWS team nor Dave Stout who is intimately familiar with the extensive give and take that occurred over the 2 1/2 years.
Since the details of finalization and implementation are critical to the Guideline's use and the amount of adherence you will see from the wind companies using these guidelines, I urge you to either include Dave and the FWS team who spent those 2 1/2 years intimately involved with them, or adopt them with as little change as possible.

I also want to express my commendation of Dave Stout and his team who worked out all the difficult conflicts between the multiple stakeholders in drafting and achieving the agreement on the Guidelines. Please do not waste that knowledge and trust that Dave and his team built up with the wildlife conservation groups, wind companies, states, Fish & Wildlife Service, and wildlife researchers.

Sincerely,
Mike Azeka
Member, Wind Turbine Guidelines Federal Advisory Committee

Michael Azeka
Vice President
AES Wind Generation, Inc.
4542 Ruffner Street, Suite 200
San Diego, CA 92111-2239

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This email has been scanned for all viruses by the MessageLabs service.

From Webster, Stuart **Date** Sunday, November 07, 2010 8:49:57 PM
To Bean, Michael
Cc
Subject RE: Follow up to our 21 Oct meeting

image001.gif (3 KB HTML)

Afternoon Michael,

I'll keep you advised accordingly.

Best regards and have a great evening,

Stu S. Webster
Director, Permitting and Environmental

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From: Bean, Michael [mailto:Michael_Bean@ios.doi.gov]
Sent: Sunday, November 07, 2010 3:35 AM
To: Webster, Stuart
Subject: RE: Follow up to our 21 Oct meeting

Stu: I note from the summary that the 2010 data are not yet available. If you learn that they have become available, would you please let me know? Thanks. -- Michael Bean

From: Webster, Stuart [Stuart.Webster@iberdrolaren.com]
Sent: Friday, November 05, 2010 9:37 PM
To: Bean, Michael
Subject: RE: Follow up to our 21 Oct meeting

Evening Michael,

Attached is the latest annual report to the FWS from the contractor, WEST (you met one of their brightest, Wally Erikson, at the meeting). I've also attached a summary of the results to date (authored by Wally).

Thank you for your consideration and have a great weekend,

Stu S. Webster
Director, Permitting and Environmental

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From: Bean, Michael [mailto:Michael_Bean@ios.doi.gov]
Sent: Friday, November 05, 2010 6:21 AM
To: Webster, Stuart
Subject: RE: Follow up to our 21 Oct meeting

Stu: Thank you for your thoughtful email. Please do send me the "summary detail and latest study" referenced in the second paragraph below. I would like to look more closely into this.

Michael J. Bean
Counselor to the Assistant Secretary for Fish, Wildlife and Parks
Room 3152
Department of the Interior
Washington, DC 20240
202-208-4416
202-372-7139 (fax)

From: Webster, Stuart [mailto:Stuart.Webster@iberdrolaren.com]
Sent: Wednesday, November 03, 2010 7:42 PM
To: Bean, Michael
Subject: Follow up to our 21 Oct meeting

Afternoon Michael,
I want to thank you again for being at the meeting with Secretary Salazar. I assume you get that a lot with varying degrees of sincerity so let me reiterate – I genuinely appreciated you being there. I recognize that you understand our concerns as laid out in the brief we provided prior to the meeting. I've been thinking about the discussion and much of the comments we provided elicited a request for more specifics, and while that is a valid request I would be remiss to not respectfully point out we've asked the same of the Service and BLM. I truly mean no disrespect and do appreciate the circumstance the agencies are in. In thinking about your request for specifics, I would like to provide the following:

- The notion that the golden eagle is, to quote from our meeting, "in significant decline," is not substantiated by any data that the FWS has brought forth. It is my understanding that a methodology developed by WEST (published in *Journal of Wildlife Management 71(2):395-402: 2007)* has been employed for four years and is meant to assemble sufficient quality data to estimate population trends over a 20-yr period with some statistical rigor. While not statistically significant, the general trend for different eagle populations is a negative trend line (i.e., decline). This is the only reference that is made when queried about why such drastic measures on wind energy need to be taken for the golden eagle. I can provide a summary detail and the latest study,

prepared by the study's author, upon your request.

- As I currently understand it, the intended purpose of what I will collectively refer to as the 2010 guidance documents issued by DC and some regions are to facilitate a means of assuring responsible yet expedient review of the "fast track" renewable energy projects. These documents, however well intentioned, were clearly done in a vacuum as they have fundamentally unworkable, economically unreasonable, and biologically impractical elements throughout that negate any benefits, perceived or real, intended to enable renewable energy projects. I can elaborate on these elements upon your request.

I would like to illustrate with one of our projects, Tule in San Diego County, which I would not say is thematically unique. The BLM-CA has extended the intent of their Instruction Memorandum 2010-156 to streamline review of projects (i.e., no issuance of official BLM action such as Record of Decision w/o FWS concurrence on project) and officially halted work on a significant percentage of 16 renewable energy projects due to concerns related to golden eagle (26 Aug 2010 memo – attached). Our Tule project was one of four deemed an immitigable risk and as such the BLM will not publish our Draft EIS document (which has been completed and is ready to print since late August) for the public's review until FWS provides some concurrence, the form of said concurrence has not been well defined to me in meetings to date. I was told by the acting BLM Director that since the project had some likelihood of killing an eagle that the BLM could be held liable for the taking and thus cannot issue authorization. When I asked how, based on the same that there was no sense in further consideration or informed decision-making on the matter. In full disclosure, this project has eagle nests around it to varying distances – no early agency consultation suggested it was a significant issue until August of this year (the project has been under environmental due diligence for five+ years now). To add fuel to the controversy, linearly there is a new eagle nest (showed up in March 2010) 100s of meters from one of the turbine locations (it's also along a cliff edge and therefore ~100 meters "below" the turbine, which sits on a ridgeline, a ridgeline that happens to be the best wind for the project, a ridgeline that is the only portion of the project on tribal land, and a project that until March 2010, was the poster child project for stimulus dollars. Challenging doesn't begin to describe it.

The point I want to raise is that a determination of environmental affect is being made prematurely – the NEPA process is not completed and the BLM feels they *cannot* issue the DEIS because of the nest proximity issue. We have made clear our understanding that the project may be given a "no action preferred alternative" but such a determination is not to be decided by one biologist of one agency that has told me the 26 August determinations were not based on anything other than their own opinion/interpretation of the golden eagle interim guidelines and Instruction Memorandum. While I appreciate the workload issues, unreasonable demands of an understaffed set of agencies, and heavy demand for this Administration to deploy renewable energy on public lands, this is simply an unreasonable action (or lack thereof) by BLM. FWS, who I think genuinely understand where we are coming from and appreciate the level of effort we've done to date, don't feel empowered or otherwise able to communicate to the BLM that while a determination has not been made to date, the project's Draft EIS should be published so the NEPA process continues, thereby allowing for full investigation of data and circumstance to conclude a determination at the appointed time in the process.

Out of respect for your time I'll only provide further detail if you request it. My current status is I'm asking for our third FWS meeting to discuss the relative merits of our ABPP developed to date for the project (specifically golden eagles). We've developed an adaptive management structure and proposed development of a decision-making structure for the adaptive management program. We understand the nature and intent of the guidelines and the statutory issues that dominate the back of minds in trying to work through to some workable solution but my opinion is the only way we're going to get there is to have a project's due diligence (NEPA) go forward. That the project has a probability of having the environmental attributes that the guidelines attempt to characterize as unreasonable risk to eagles will force the issue on a practical level and in the public forum so that we can have substantive dialog. Anything short of that will only add fuel to the fire of rhetorical debate.

Michael , I don't mean to bring project-specific issues and concerns to your attention, which is rightfully considering the broader view of things, so let me be clear that I am not asking you to involve yourself to this project effort. We are working with the Region 8 Director and his staff and thus far while we are at significant risk of not qualifying the project for ITC we remain hopeful that things will somehow work out. The same cannot be said for other project proponents. My intent here is instead of hobbling together all the various and sundry pieces of information and place it in the context of an industry-wide issue, as I alluded to above, this example is happening throughout the industry. Turbine sales are in default because the developer no longer has a viable project; PPA negotiations were all but done on another project but the utility pulled away with concerns over the golden eagle policy; project proponents are committing to measures that most other developers genuinely don't understand how to factor in to their economics; and no significant wind energy projects made it on the fast track process but plenty of environmental concerns have now been raised as a result of the heavy push of solar with what the NGO community perceives as insufficient environmental due diligence.
Thanks again for your attentiveness to these issues. I wish to express in no uncertain terms that I make no habit of claiming the sky is falling. The evidence is clear that this is a significant issue for renewable energy being successful in the United States.

Best regards and have a great evening,

Stu S. Webster
Director, Permitting and Environmental

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Results of the 2009 Survey of Golden Eagles (*Aquila chrysaetos*) in the Western United States

Prepared For:

U.S. Fish & Wildlife Service
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January 7, 2010

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estimated from the mark-recapture sampling. Solid lines represent scaled detection functions, which were integrated to estimate average probability of detection within the search width. The average probability of detection within the search width ($\hat{P}$) was estimated by integrating the solid line and dividing by the search width. Histograms show the relative numbers of observations in distance intervals. 32

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Figure 7. Estimates and 90% confidence intervals of the total number of juvenile Golden Eagles within the each Bird Conservation Region (BCR) and across the entire study area (excluding military lands, elevations > 10,000 ft, large water bodies and large urban areas) in the late summer (August 15 – September 15) of 2003, and 2006 – 2009. Estimates for 2003 are denoted by a different symbol to highlight that survey transects and protocol were different that year. The BCRs are: 9 (Great Basin), 10 (Northern Rockies), 16 (Southern Rockies / Colorado Plateau), and 17 (Badlands and Prairies). No juveniles were observed in BCR 16 in 2007, so a confidence interval is not presented. 34

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Executive Summary

In 2003, the U.S. Fish and Wildlife Service (USFWS) contracted with Western EcoSystems Technology, Inc. (WEST) to help design and conduct a survey of Golden Eagles across the western U.S. The goals of the survey included developing and testing methods for estimating the population size and tracking population trends. Following the first survey year, the goal has been to use the methods to monitor Golden Eagle populations within the study area. The first survey was conducted in late summer of 2003. Funding for the survey was not available in 2004 or 2005. The survey was then repeated in 2006, 2007, 2008 and 2009. This report describes the methods and results of the 2009 survey, along with a trend analysis on data collected since 2006.

The study area consisted of Bird Conservation Regions 9 (Great Basin), 10 (Northern Rockies), 16 (Southern Rockies / Colorado Plateau), and 17 (Badlands and Prairies) within the U.S. (Figure 1). These regions covered much of the western U.S. and included habitat types ranging from low-elevation sagebrush and grassland basins to high-elevation coniferous forests and mountain meadows. Within these regions, areas containing Department of Defense lands, urban areas, large bodies of water (> 30,000 ha), and areas above 10,000 ft were excluded from the survey.

We flew aerial line transect surveys using mark-recapture (double-count) procedures to estimate population sizes of Golden Eagles in the study area between August 15 – September 15, in all years. These surveys began after all juvenile Golden Eagles were expected to have fledged. A new systematic sample of primary and alternate transects was generated after the 2003 survey to increase sample sizes and provide alternate transects in case of forest fires or localized weather events. The same sample of transects has been used for all surveys beginning in 2006.

In 2009 we flew 216 transects totaling 17,597 km. We observed 152 Golden Eagle groups on 75 transects for a total of 181 birds: 92 adults; 17 juveniles; 31 sub-adults; 5 unknown immature individuals; 31 unknown adults (adult or sub-adult birds); and 5 of unknown age class. We estimated a total of 20,722 Golden Eagles (90% confidence interval: 16,317 – 25,948) occurred within the study area (excluding military lands, elevations > 10,000 ft, large water bodies and large urban areas) during the late summer of 2009. Based on the ratio of Golden Eagles aged as juveniles to the total number of Golden Eagles observed, we estimated a total of 1,962 (90% confidence interval; 1,120 – 2,930) juvenile Golden Eagles were present in the study area during the survey.

A trend analysis on the number of Golden Eagles observed along each transect from 2006 to 2009 found no significant trends (i.e., 90% credible intervals contained 0.0) in total numbers (all age classes) of Golden Eagles observed in individual BCRs or across BCRs during 2006 – 2009. The trend analysis did indicate there has been a significant decline in the total number of juvenile Golden Eagles observed in the Southern Rockies / Colorado Plateau (16) during 2006 – 2009 however, there were no significant trends in the numbers of juvenile Golden Eagles observed in the other three BCRs or across the entire study area during the same period.

Acknowledgements

Several people and organizations helped complete the 2009 survey. Bill Howe, U.S. Fish and Wildlife Service, served as technical leader for the project. The National Park Service worked closely with us and allowed transects to be flown over many National Parks. Jordan Harrison, Fawn Hornsby, Luke Martinson, Charlie Porter, Victoria Poulton, Troy Rintz, Dale Stahlecker and Joel Thompson conducted field surveys. Bobby Laird and Dave Savage piloted aircraft for the surveys. Arnold and Wanda Willems, Lyman and Margie McDonald, and Nora Savage provided ground transportation. Robert Murhpy, U.S. Fish and Wildlife Service, provided comments and edits on an earlier draft of this report.

Introduction

Before the annual Golden Eagle survey began in 2003, the size of the Golden Eagle population within the U.S. was generally unknown, as were trends in that population over time. Other than work conducted by researchers at the U.S. Geological Survey (USGS) Snake River Field Station in Boise, Idaho, few long-term monitoring studies of Golden Eagle populations have been conducted in the U.S. (Leslie 1992, Bittner and Oakley 1999, McIntyre and Adams 1999, McIntyre 2001).

Kochert and Steenhof (2002) found only four long-term studies of nesting Golden Eagles in the U.S. These studies were scattered across Alaska, Idaho, California and Colorado. Populations evaluated in Colorado, California and Idaho were described as declining, presumably because of loss of habitat and prey populations (Leslie 1992, Steenhof et al. 1997, Bittner and Oakley 1999). However, these four study populations represent only a small proportion of the total Golden Eagle population in the western U.S.

In 1999, Kochert et al. found that territory occupancy in Idaho declined following several fires that resulted in loss of shrub habitats and concurrent declines in jackrabbit populations. Invasions of exotic plant species and altered fire frequencies have the potential to decrease the amount of shrub land and jackrabbit populations across much of the west. A Golden Eagle population in California experienced declines in territory occupancy following extensive urbanization (Bittner and Oakley 1999, Kochert et al. 2002). As human activity and development increases throughout the west, associated pressures on Golden Eagle populations are also expected to increase. In addition, questions remain about the potential effect of climate change on jackrabbit and Golden Eagle populations. Areas expected to show the most dramatic changes due to climate change include semi-arid and arid landscapes. Although the affects of climate change on Golden Eagle populations is currently somewhat speculative, its significance in the western U.S. may supersede that of human activity and development in coming decades. Recently, the U.S. Fish and Wildlife Service (USFWS) recognized the need to collect baseline data on the number of Golden Eagles in the western U.S. in order to assess the magnitude and potential effects of these threats to Golden Eagle populations.

In 2003, the U.S. Fish and Wildlife Service (USFWS) contracted with Western EcoSystems Technology, Inc. (WEST) to help design and conduct a survey of Golden Eagles across the western U.S. The goal of the 2003 survey was to develop and test methods for estimating the population size and tracking population trends. The intention of the USFWS was to fund the survey as a pilot study, after which the methods would be evaluated and implemented for continued population monitoring. The goal was to be able to detect a 3% decline per year over a 20 year period with statistical power ≥ 0.8 using a 90% confidence interval (CI; equivalent to an alpha level of $\alpha = 0.1$).

The first survey was conducted in late summer of 2003 (Good et al. 2004, 2007). The results of the 2003 survey indicated that sample sizes needed to increase in order to obtain sufficient observations for statistical analysis. A new systematic sample of primary and alternate transects was generated after the 2003 survey to increase sample sizes and

provide alternate transects in case of forest fires or localized weather events. Unfortunately, funding for the survey was not available during 2004 and 2005. Funding was available during 2006, 2007, 2008 and 2009, and the survey was repeated in each of those years. This report describes the results of the 2009 survey, along with a trend analysis on survey data collected from 2006 – 2009. The 2003 survey data was not included in the trend analysis due to differences in survey transects and protocol.

Study Area

The study area consisted of Bird Conservation Regions 9 (Great Basin), 10 (Northern Rockies), 16 (Southern Rockies / Colorado Plateau), and 17 (Badlands and Prairies) (North American Bird Conservation Initiative - NABCI - 2000) within the U.S. These regions covered much of the western U.S. and included habitat types ranging from low-elevation sagebrush and grassland basins to high-elevation coniferous forests and mountain meadows (Figure 1).

No-fly-zones (military lands, elevations > 10,000 ft, large water bodies [>30,000 ha] and large urban areas) representing 6.7% of the study area were excluded from the survey. Most transects in the systematic sample drawn after the 2003 survey were 100 km long. Transects < 100 km were located near the edge of the study area or no-fly-zones.

Methods

Survey Methodology

Survey methodology, equipment, observer training and experience, and the survey transects have been consistent since 2006. We flew aerial line transect surveys using mark-recapture (double-count) procedures to estimate the number of Golden Eagles in the study area between August 15 and September 15. This survey occurred after all juvenile Golden Eagles are expected to have had fledged and before most Golden Eagles had begun their fall migration (Fuller et al. 2001). Our survey methods and target sample sizes were based largely on recommendations in Fuller et al. (2001) and Good et al.(2004). See Appendix A for a detailed description of the survey protocol.

Surveys were conducted in Cessna 205 and 206 fixed-wing aircraft. The aircrafts' speed and altitude above ground level (AGL) were dictated by the flying conditions. Flying conditions were roughly defined as follows: 1) Relatively Safe - surveys within relatively flat and open terrain, and 2) Less Safe - surveys within relatively rugged terrain (steep topography, coniferous forests, and deep canyons). Within areas providing relatively safe flying conditions, surveys were conducted at an approximate air speed of 161 km/hr (100 mph) and an approximate altitude of 107 m (350 ft) above ground level (AGL). Surveys that involved less safe flying conditions were conducted at approximately 161 km/hr (100 mph) and an approximate altitude of 150 m (500 ft) AGL.

Survey protocol dictated that as much as possible of each primary transect was to be flown. However, if more than 25 km of a primary transect could not be surveyed, for

example due to a forest fire, the nearest available alternate transect was to be flown. If < 25 km of a transect had to be abandoned, the survey crew documented the amount of transect not flown and kept a running total of lengths of transects not surveyed. Once this sum exceeded 25 km the crew surveyed the nearest available alternate transect. This protocol ensured we reached the target total length of transects surveyed (~17,500 km) in an objective and efficient manner.

Surveys began at sunrise and were terminated by 1300 H each day. Early morning transects were flown from east to west in order to provide the best possible light for detecting Golden Eagles. Golden Eagles sighted while on transect were verified by flying off transect to the bird location(s). Birds were circled at relatively low altitudes (50 m – 75 m AGL) to confirm species identification, assign age classes, and record locations. Effort was made to keep visual contact with flying birds in order to prevent them from being counted more than once on the same transect. Random movement of birds from one transect to another, although unlikely because the distance between transects (> 57 km) is large compared to the width of the area surveyed along a transect (2 km), should not have affected density estimates.

Measuring Perpendicular Distances to Birds. We used two methods for estimating the perpendicular distances to flying and perched Golden Eagles from the transect line. For perched birds, the aircraft was flown off transect and the location of each Golden Eagle group was recorded using a Global Positioning System (GPS). For birds observed flying, we flew to the location where the eagle was first observed and recorded the coordinates using a GPS. Methods for measuring distances of observed Golden Eagle groups from the transect line have been consistent since 2006. All GPS coordinates, including the actual flight path on a 10 second interval, were recorded in a laptop computer using Garmin's nRoute software (Garmin International, Inc., 1200 E. 151st St., Olathe, KS 66062).

Mark-Recapture (Double-Count) Methodology. Two survey crews operated simultaneously in the study area. Each crew consisted of three observers – two were seated side-by-side in the back seat, and the third sat in the front right seat. Mark-recapture trials were operated on the right side of the aircraft to estimate the proportion of Golden Eagles missed during the surveys (following Seber 1982, Pollock and Kendall 1987, Manly et al. 1996, McDonald et al. 1999). The observer in the front right seat was also responsible for guiding the pilot to the survey transects and recording flight paths and observations into a laptop computer. Observers alternated seats between flights in order to rotate observer positions throughout the surveys.

Standard line transect methodology required that Golden Eagles were sighted at their original locations, and that perpendicular distances of Golden Eagles from the transect line were measured with minimal error and without bias (Buckland et al. 2001). The mark-recapture procedure had the additional requirement that observers on the right side of the aircraft detected birds independently of one another. To ensure observer independence we installed a cardboard wall that served as a visual barrier between the front and rear seat observers. In addition, when a Golden Eagle group was detected by one of the double-observers on the right side of the aircraft sufficient time (~ 5 to 20

seconds) was allowed to pass before the observation was communicated to the other observers. This allowed both observers in the mark-recapture trials time to see the Golden Eagle group independently. The observed Golden Eagle group was then verified and recorded. Communication of all observations during the flight allowed verification that the observed birds were Golden Eagles and ensured that observers did not confuse two different Golden Eagle groups for the same observation.

Aging Golden Eagles. We classified Golden Eagles into one of six age classes: Juvenile, Sub-adult (older immature), Adult, Unknown Adult (Adult or older Immature), Unknown Immature (Juvenile or older Immature), and Unknown. Aircraft were flown off transect and each bird was circled in order to determine its age class. Birds were placed in age classes based upon criteria presented by Clark (2001), Clark and Wheeler (2001), Bloom and Clark (2002), and a workshop conducted prior to the start of surveys. Aging criteria have been consistent across all surveys conducted during 2003 – 2009. Refer to Appendix A for a detailed description of the aging criteria.

Training. All observers were experienced in Golden Eagle identification. All observers and pilots participated in a two-day training session prior to the survey. The goals of the training were fourfold 1) standardizing survey methodology, 2) improving and standardizing observers' abilities to identify and age Golden Eagles from the air, 3) providing each observer with safety training, and 4) increasing the number of Golden Eagle observations for building more robust detection functions.

Training for the 2009 survey included flying a total of 13 training surveys on 11 different transects on August 13th and 14th near Laramie, Wyoming. Transects were 100 km in length, and were placed within areas where Golden Eagles were likely to be observed.

Statistical Analysis: Estimating densities and population totals

Standard line transect (or distance) sampling methods correct for a combination of "perception bias" and "availability bias", assuming that all individuals at the minimum available sighting distance are available to be seen and are detected (Buckland et al. 2001). However, in many cases detection of animals at the minimum available sighting distance is not certain and usually less than 100% (Borchers et al. 2006). Borchers et al. (2006) present a line transect analysis method when detection of animals at the minimum available sighting distance is less than 100% and/or not known. This method uses a combination of standard line transect and mark-recapture analyses. For the remainder of this report we refer to this combination as the 'mark-recapture distance analysis'.

Based on the distance sampling design, the Golden Eagle density was calculated from the number of detected Golden Eagle groups using the following formula (Buckland et al. 2001),

$$\hat{D} = \frac{n\hat{E}(s)}{2(W_2 - W_1)L\hat{P}}, \qquad [1]$$

where n was the number of observed Golden Eagle groups, $\hat{E}(s)$ was the expected or average group size, W_1 and W_2 were the minimum and maximum search distances, respectively, L was the total length of transects flown, and $\hat{P}$ was the estimated average probability of detection within the area searched $= 2(W_2 - W_1)L$.

We used the mark-recapture distance analysis method of Borchers et al. (2006) to estimate the average probability of detection ($\hat{P}$). Under the mark-recapture distance design, a distance analysis was used to model the shape of the detection function. To calibrate the detection function, a mark-recapture analysis was used to estimate height of the detection function at some distance from the aircraft. Thus, the overall shape of the detection function was estimated from all observed distances, and height of the detection function was estimated using the mark-recapture component of the survey. The scaled detection function was then integrated over the search width to estimate $\hat{P}$ (Borchers et al. 2006).

A non-monotonic kernel estimator (Wand and Jones 1995) was used to model the shapes of detection functions for the 2009 survey. The kernel method was used for the Golden Eagle survey data in collected in 2006 – 2008 (Good et al. 2009, Nielson et al. 2010), and for other surveys (see Chen 2000 for a review). The general kernel density estimator was

$$\hat{f}(x) = (nh)^{-1} \sum_{i=1}^{n} K\left(\frac{x - x_i}{h}\right), \qquad [2]$$

where x was a perpendicular distance within the range of observed distances, x_i was one of the n observed distances, h was a smoothing parameter, or 'bandwidth', and K was a kernel function satisfying the condition $\int K(x)dx = 1$.

Perpendicular distances from line transects have a boundary at or near the transect line (i.e., there are no observations less than the minimum observable sighting distance). Because the kernel density estimator does not perform well near discontinuities (such as a sharp boundary), both Chen (1999) and Venables and Ripley (2002) recommend reflecting the observed distances to both sides of the transect line for density estimation after shifting all observed distances by the left-truncation distance, W_1. Reflecting observed distances involved multiplying observed distances by -1 and adding them to the dataset. This resulted in a total of $2n$ positive and negative distances that were used to estimate the kernel function. Following kernel estimation, only the portion of the detection function to the right of the zero line was used. A Gaussian kernel function (Wand and Jones 1995) and the direct plug-in bandwidth selection method (Sheather and Jones 1991) were used on the Golden Eagle observations. The direct plug-in estimator of bandwidth is regarded as the best compromise between bias and variance among the available methods (Wand and Jones 1995, Venables and Ripley 2002). The kernel is a nonparametric function requiring fewer assumptions and allowing for greater flexibility in the detection function compared to the semi-parametric models available in the program Distance. Observers frequently rotated positions in the aircraft, and analysis of the data from 2006 – 2009 have not indicated that shapes of detection functions differ between front and back seat observers, so all observations from the three observer

positions in the aircraft were used to estimate the shapes of the detection functions, $\hat{f}(x)$ (equation [2]).

The same sample of primary and alternate transects was used for all surveys in 2006 – 2009. In addition, survey protocol has remained constant and observer training and experience has been consistent since 2006. Thus, we pooled all data from 2006 – 2009 to estimate the shapes of the detection functions, and to scale those detection functions using the mark-recapture data (described below).

Analysis of the mark-recapture sampling on the right side of all survey flights where three observers were present involved estimating the probability of detection by the front seat observer (observer 1), given the back seat observer (observer 2) detected a Golden Eagle group at distance x_i (labeled $p_1(x_i)$). Vice versa, probability of detection by the back seat observer given detection by the front seat observer was also estimated (labeled $p_2(x_i)$). Logistic regression (McCullagh and Nelder 1989) was used to estimate p_1 and p_2 using equations similar to,

$$p_j(x_i) = \frac{\exp(\beta_{0j} + \beta_{1j} x_i)}{1 + \exp(\beta_{0j} + \beta_{1j} x_i)}, \qquad [3]$$

where β_{0j} was the intercept coefficient for observer j, and β_{1j} was the slope coefficient for observer j. We considered the following logistic regression models: (1) intercept term only (i.e., mark-recapture success was constant at all distances), (2) intercept term and a coefficient for distance from the transect line, and (3) intercept term and both linear and quadratic coefficients for off-transect distance. For each observer position we chose the model with the lowest value of the second-order variant of Akaike's Information Criterion (AICc) (Burnham and Anderson 2002). AICc was calculated as AICc = -2log(*Likelihood*) + $2kn/(n-k-1)$, where k was the number of parameters in the model (including intercept term), n was the number of observations used to fit the model, *Likelihood* was the value of the logistic likelihood evaluated at the maximum likelihood estimates, and 'log' was the natural logarithm.

Following logistic regression, we estimated the probability of detection by at least one observer on the right side of the aircraft. Let 1, 2, and 3 denote observer positions in the front-right, back-right, and back-left of the aircraft, respectively. Based on the final mark-recapture model and assuming independence between observers 1 and 2, the probability of detection on the right side of the aircraft at distance x_i by at least one observer when two observers were present on the right side, was calculated as

$$\hat{p}.(x_i) = \hat{p}_1(x_i) + \hat{p}_2(x_i) - \hat{p}_1(x_i)\left[\hat{p}_2(x_i)\right]. \qquad [4]$$

Based on the final mark-recapture model, the probability of detection on the right side of the aircraft when only one observer was present on the right side (front-right; 2008 only; Nielson et al. 2010), was

$$\hat{p}_1(x_i), \qquad [5]$$

and the probability of detection for observer 3 (back-left) was

$$\hat{p}_2(x_i). \qquad [6]$$

Although we strove for independence between observers at all distances, to properly scale the detection functions estimated using equation[2] we needed to identify a distance at which detections between observers on the right side of the aircraft were independent and not influenced by unmeasured covariates (Borchers et al. 2006). We assumed detections were independent and did not depend on unmeasured covariates at the distance where the detection rates were highest. At that distance, the mark-recapture detection probability should equal the kernel estimated detection probability, and so we scaled the kernel detection function to coincide with the mark-recapture probability at that distance (Borchers et al. 2006). Assuming $x_{\max[\hat{f}(x)]}$ is the distance x_i at which the estimated kernel detection function was at its zenith, the detection function for the right side of the aircraft was scaled so that $\hat{f}(x_{\max[\hat{f}(x)]})$ equaled the mark-recapture probability of detection by at least one observer (Borchers et al. 2006) (equation [4]). For example, if the maximum of the kernel estimated detection function was at distance x = 200 m ($x_{\max[\hat{f}(x)]} = 200$), and the probability of detection by at least one observer at 200 m was estimated to be 0.8 ($\hat{p}.(200) = 0.8$), the kernel function was scaled so $\hat{f}(200) = 0.8$. The detection function for the left side of the aircraft, $\hat{f}(x)$, was scaled so that

$$\hat{f}(x_{\max[\hat{f}(x)]}) = \hat{p}_2(x_{\max[\hat{f}(x)]}) \qquad [7]$$

and the detection function for the front-right observer, when the back-right observer was not present (2008 only), was also scaled so that

$$\hat{f}(x_{\max[\hat{f}(x)]}) = \hat{p}_1(x_{\max[\hat{f}(x)]}). \qquad [8]$$

To account for potential differences in detection functions for flying birds, perched birds observed from 107 m AGL, and perched birds observed from 150 m AGL, separate detection functions were estimated for each type of observation. One difference in the data is the minimum observable perpendicular distance to Golden Eagle groups. Flying Golden Eagles could potentially be detected directly on or near the transect line, but perched birds could not be seen directly below the aircraft. When flying over "Open Grassland/Sage" and "Gentle Piñon Pine/Juniper" habitats the aircraft cruised at 107 m above ground level (AGL), and as a result there was a swath of approximately 25 m under the aircraft on either side (i.e., total of 50 m invisible swath) that could not be viewed. Calculation of the 25 m swath was obtained by sitting in the rear seat and using a clinometer to measure maximum observable downward sighting angle from the horizon (Good et al. 2007). Thus, the minimum available sighting distance, W_1, was set to 25 m for perched birds observed when flying at 107 m AGL. When flying over all other habitat types the airplanes flew at an average of 150 m AGL, and so $W_1 = 40$ m for observations of perched birds in these other habitats (again, clinometer measurements were used to obtain W_1).

Buckland et al. (2001) recommend dropping the longest 5-10% of the observations to remove outliers prior to integration of the scaled detection function and estimation of $\hat{P}$. Following estimation and scaling of the detection functions we trimmed observations

greater than 1000 m from the transect line. Thus, the maximum allowable distance for observations of perched or flying birds to be used in density estimation (W_2) was the minimum of 1000 m or the maximum distance at which Golden Eagles were sighted in years 2006 – 2009.

In past surveys (Good et al. 2004, 2009; Nielson et al. 2010), we found no significant correlation between group size and distance from the transect line; however, we are cognizant of the fact that such a correlation may exist. For example, larger groups may have been more visible at longer distances than smaller groups. We were also aware that group sizes may be different, on average, for flying Golden Eagles compared to observations of perched birds – again possibly due to visibility bias. As in previous years, a pre-analysis screening was used to identify whether group sizes were correlated with perpendicular distances or group sizes of perched birds were different from flying birds. If group sizes of perched birds and flying birds seen within 1000 m of the transect were not significantly different based on a 90% confidence interval (CI) for the difference in means, data were pooled for estimation of the mean group size, $E(s)$. If group size was not significantly correlated with perpendicular distance based on a 90% CI for Pearson's correlation statistic (r), $\hat{E}(s)$ was computed as the average group size across all distances ≤ 1000 m. Otherwise, truncation (Buckland et al. 2001) was used to estimate $E(s)$. Recognizing that changes in productivity could affect group size, average group size was estimated separately for each survey year.

Bootstrapping (Manly 2007) was used to estimate 90% confidence intervals for projected Golden Eagle population totals within each BCR and the entire study area. This process involved taking 2,000 simple random samples with replacement of transects flown 2006 – 2009, and re-running the analysis to produce new estimates of densities and population totals. We calculated CIs based on the central 90% of the bootstrap distribution (the "Percentile Method") for each parameter.

On August 13 and 14, 2009, 1,304 km of transect were flown in areas of relatively high Golden Eagle densities near Laramie, WY. This was part of our observer and pilot training prior to the official start of the 2009 survey. Similar training was conducted in 2007 (Good et al. 2009) and 2008 (Nielson et al. 2010). We included training observations in the main analysis when estimating probability of detection (equations [2] through [8]), but not for $\hat{E}(s)$, n, or L in equation [1]. Projections of the total number of Golden Eagles did not substantially change when including observations from the training transects compared to omitting those observations, so we report the results for the analysis that used the observations from training transects which lead to slightly higher precision.

We used the R language and environment for statistical computing, v2.10.0 (R Development Core Team 2009), to estimate yearly densities and population totals in each BCR and the entire study-area.

Trends in the numbers of Golden Eagles observed during surveys from 2006 – 2009 were estimated using a Bayesian hierarchical model (Gelman and Hill 2007) fit using Markov chain Monte Carlo (MCMC) methods. Survey protocol, observer training and experience, and survey transects have been consistent since 2006, so we followed similar analyses for Breeding Bird Surveys (Nielson et al. 2008; Thogmartin et al. 2004, 2006). We considered the probability of detection on a fixed transect to be consistent across the four years, provided densities did not change. This allowed us to analyze the raw counts of the total number of Golden Eagles observed on individual transects. The hierarchical model simultaneously estimated time trends in each BCR and across the entire study area. The model used was an overdispersed Poisson regression model with both fixed and random effects. Using counts of Golden Eagles 2006 – 2009 along each transect, we modeled the expected value λ_{ijt} of count Y_{ijt} in BCR i along transect j in year t as

$$\log\left[\lambda_{ijt}\right] = \log(\text{length}_{ijt}) + BCR_i + \gamma_i(t - t^*) + \delta_{it} + \omega_{ij} + \varepsilon_{ijt}, \qquad [9]$$

where t^* was the median year (2007.5) from which change was measured, γ_i was the trend over time (change per year) in BCR i, δ_{it} were random effects for year/BCR combinations, ω_{ij} were random transect-specific effects, ε_{ijt} were overdispersed Poisson errors, and $\log(\text{length}_{ijt})$ was an offset term that adjusted for the different lengths of transects. The model was fit using WinBUGS, v1.4.3 (Spielgelhalter et al. 2003).

We used vague prior distributions (Link et al. 2002) to begin the MCMC sampling. Parameters for BCR effects and time trend at the study-area level were assigned relatively flat normal distributions with mean of 0.0 and variance of 100. Parameters at the BCR level were assigned means equal to the study-area parameters and standard deviations (SD) ~ Uniform (0, 100). Random year/BCR effects, transect effects, and overdispersed Poisson errors were assigned mean zero normal distributions with SD ~ Uniform(0, 100). We determined the appropriate burn-in and chain length (Link et al. 2002) by visual inspection of trace plots using 5 chains and 50,000 iterations. Final models were fit using one chain containing 50,000 iterations following a 20,000-iteration burn-in. Ninety-percent credible intervals (Bayesian confidence intervals) were used to determine if time trends were statistically significant at the $\alpha = 0.10$ level. If a 90% credible interval for time trend at a BCR or study area level contained 0.0, we concluded that the observed trend was not strong enough to statistically conclude it was real (at the $\alpha = 0.10$ level). One model was fit to the total count of Golden Eagles observed along each transect, and another was fit to the count of juveniles.

Results

In 2009 we flew 216 (partial and complete) transects totaling 17,597 km (Table 1). Complete transects were approximately 100 km in length. Partial transects were foreshortened transects due to contact with an edge of the study area, no fly zones, weather (e.g., fog) or forest fires.

During the 2009 survey we observed 149 Golden Eagle groups within 1000 m of the transect line on 75 transects (Figure 1), for a total of 176 birds: 88 adults; 16 juveniles; 31 sub-adults; 5 unknown immatures; 31 unknown adults; and 5 of unknown age (Figure 2). An additional 35 Golden Eagle groups were observed within 1000 m of the transect line during training in 2009 prior to the survey. The number of Golden Eagle groups observed within 1000 m of the transect line during training in 2007 and 2008 were 40 and 19, respectively.

Golden Eagle group sizes (survey observations only) were not correlated with distance from the aircraft in any year (Table 2). In addition, the mean group size of flying birds observed in 2009 was not significantly different from that for perched birds (2 sample t = -1.380; 90% CI for difference in means = -0.201 to 0.018). The mean size of observed Golden Eagle groups $\leq$1000 m from the transect line in 2009 was 1.18 (SE = 0.034) (Table 2).

We used post-stratification (flying, perched and observed from 107 m AGL, and perched and observed from 150 m AGL) for estimation of detection functions (equation [2]), and probability of detection based on mark-recapture sampling (equations [3] – [6]). The total number of observations of each type is shown in Table 3. Scaled detections functions for left and right sides of the aircraft and each observation type are shown in Figures 3 through 5, along with estimated average probabilities of detection ($\hat{P}$) based on the pooled analysis of survey data from 2006 – 2009. Estimation of detection functions for flying birds and birds observed perched from an altitude of 107 m AGL used a maximum distance of W_2 = 1000 m. The maximum distance from the transect line of perched Golden Eagles observed from 150 m AGL was 800 m, so W_2 was set to 800 m in this case.

Based on the estimated densities of Golden Eagles within each BCR (Table 4), we projected a total of 20,722 Golden Eagles in 2009 (90% CI: 16,317 – 25,948) within the study area (excluding military lands, elevations > 10,000 ft, large water bodies and large urban areas) during late summer of 2009 (Table 5; Figure 6). Tables 4 and 5, and Figure 6 also contain estimated densities and projections of total abundance for all survey years.

Based on the ratio of Golden Eagles aged as juveniles to the total number of observed Golden Eagles of all ages (including those of unknown age), we projected a total of 1,962 (90% CI; 1,120 to 2,930) juvenile Golden Eagles within the study area in 2009 (Table 6; Figure 7). Table 6 and Figure 7 also contain juvenile abundance estimates for all survey years.

There were no significant trends (i.e., 90% credible intervals contained 0.0) in total numbers (all age classes) of Golden Eagles observed in individual BCRs or across BCRs during 2006 – 2009 (Table 7). The SD of the estimated overdispersion for this model was 0.74; a value of 0.0 would indicate no overdispersion.

There was a significant trend in the total number of juvenile Golden Eagles observed in the Southern Rockies / Colorado Plateau (16) during 2006 – 2009 (Table 8). The estimated coefficient for time trend in the Southern Rockies / Colorado Plateau was –0.436 (90% credible interval from -0.914 to -0.017). Based on this estimate, there has been an average decline of 35% ([1-exp(-0.436)]x100% = 35%) per year in the numbers of juvenile Golden Eagles observed per km of transect in the region. There were no significant trends (i.e., 90% credible intervals contained 0.0) in the numbers of juvenile Golden Eagles observed in the other BCRs or across the entire study area during 2006 – 2009 (Table 8). The SD of the estimated overdispersion for this model was 1.13; a value of 0.0 would indicate no overdispersion.

Discussion

Standard distance analysis methods for estimating mean probability of detection utilize semi-parametric models to force estimated detection functions to be highest at the minimum available sighting distance and to decrease monotonically out to the maximum sighting distance. These semi-parametric distance models can be fitted using the program Distance 5.0 release 2 (Thomas et al. 2006). However, lower detection probabilities at the nearest available sighting distance has been documented for surveys from fast moving aircraft (e.g., Becker and Quang 2009). Indeed, detection functions for perched birds observed from 107 m AGL estimated from Golden Eagle survey data collected 2006 – 2009 had a substantial peak around 300 m from the transect line (Figure 3). Given the speed at which the aircraft was moving, it is logical that objects closer to the aircraft were in the observers' field of view for less time and thus were more difficult to detect. We chose not to utilize standard distance analysis methods available in the program Distance (Thomas et al. 2006) due to the superior flexibility of the kernel-based method described by Chen (1999, 2000).

The kernel-based analysis applied does not allow for inclusion of covariates other than distance from the transect line that might influence probability of detection or be related to Golden Eagle density, so we post-stratified the analysis based on observation type (perched versus flying) and AGL, which is a surrogate for major habitat type – open versus forested or rugged. Golden Eagles have been shown to prefer open grassland and shrub-steppe habitats for hunting over forested areas (Poole 2005), and we suspect that Golden Eagle density and probability of detection was much lower in the rugged or forested habitats. Although average probabilities of detection for perched birds observed from 150 m AGL were higher compared to observations from 107 m AGL, the search width was much narrower for observations from 150 m AGL (760 m vs. 975 m; Figures 3 and 4).

Analysis methods for mark-recapture line transect sampling have evolved since the inception of the Golden Eagle surveys in 2003, and future improvements are expected. For example, an analysis may be developed that allows for inclusion of covariates but does not require the detection function to be monotonically decreasing. For the Golden Eagle survey data it appears as though encounter rate (number of observations per transect) is the primary source of variance, so we do not expect that application of traditional models with multiple covariates would provide substantial gains in precision. In general, we recommend using the most appropriate statistical analysis methods given the sampling design and properties of the realized data. However, we caution against frequently changing the statistical methods as this may complicate comparisons across years. Survey protocol and data analysis methods have not changed for this study since 2006.

Survey data from 2006 – 2009 were pooled to estimate detection functions, which was used to estimate population totals in 2009 and retroactively for 2006 – 2008. We felt this pooling was justified given the consistency of the survey transects, protocol, and observer training and skill. Survey data have consistently shown differences in shapes of detection functions for observations of perched birds from 107 and 150 m AGL (Figures 3 and 4). The number of Golden Eagle groups observed from 150 m AGL has been consistently low (<30) in any given single year. Pooling data across years eliminated the need to pool data across observation types (e.g., perched birds observed from 107 m AGL combined with perched birds observed from 150 m AGL), and allowed for more realistic detection functions to be estimated for each AGL. Pooling data across years also reduced the year-to-year variability in the estimated detection functions, which we believe was primarily due to small sample sizes within a given survey period.

There are many ways to analyze data for trend, but the hierarchical modeling approach we adopted is an efficient method for accounting for the different sources of variation in the data. The hierarchical model also allows for simultaneous estimation of BCR-level trends, and the overall trend across the entire study area. In addition, the MCMC approach to fitting a hierarchical model can easily accommodate missing observations (e.g., when transect i isn't surveyed due to forest fire). Considering probability of detection as consistent from year-to-year on each transect, but varying from transect to transect precluded the need to estimate time trends for the estimated total number of Golden Eagles, which contain more variability than raw counts.

The trend analysis was based on only four years (2006 – 2009) of survey data, and so the results should be viewed with caution. Positive trends in total counts along survey routes may be suggested by a cursory examination of point estimates (Figure 6) for the Great Basin (9) and Northern Rockies (10), but such interpretation lacks statistical support. Negative trends may likewise be suggested for the Southern Rockies / Colorado Plateau (16), Badlands and Prairies (17), and the overall study area.

While it is tempting to examine the results of this study and attempt to draw conclusions regarding the effects of increasing development, changes in habitat or climate, Golden Eagle populations have been shown to cycle on a near 10-yr period (Kochert and

Steenhof 2002), and it is not clear where the current populations are within such a cycle. In addition, populations in different regions may be in different phases of decadal cycles at any one point in time. Jackrabbit (*Lepus spp*) and cottontail (*Sylvilagus spp*) populations within northeast Wyoming and southeast Montana appeared to be at historical highs between 2003 and 2006 (Tosches 2006). In southwest Idaho, prey densities and severe weather were limiting factors for Golden Eagle populations during a 23 year study (Steenhof et al. 1997).

We observed some interesting differences in numbers of Golden Eagles detected between 2003 and 2006, with the number of observations decreasing in the Great Basin (9), while number of observations in the Northern Rockies (10) and Badlands and Prairies (17) increased. While environmental factors may suggest a cause for changes in Golden Eagle numbers within BCRs from 2003 to 2006, another potential factor is a change in survey methodology. A new sample of transects was drawn for the 2006 surveys, and utilized for the 2007, 2008 and 2009 surveys. Additionally, in 2003 not all transects within the Northern Rockies (10) were surveyed due to the large number of forest fires. It is evident the sample of transects surveyed in 2006 – 2009 provided a more spatially complete sample. It is not clear how/if this may have affected the difference between the 2003 and 2006 estimates of population sizes. Because of the change in survey transects and protocol following the 2003 survey, we did not feel comfortable including the 2003 data in the trend analysis.

Change in total population size is the ultimate indicator of overall population status. However, other indicators may be examined to gain further insight into the population. One indicator used during the five years of surveys was the total number of juveniles observed. Tracking the number of juveniles observed each year can give wildlife managers early insight in to potential changes in Golden Eagle populations. For example, a drop in the number of juveniles observed during a survey year may be an indication of decreased productivity, and consecutive years of low juvenile numbers may provide early indications of longer term population declines.

The cause of the decline in the total number of juvenile Golden Eagles observed in the Southern Rockies/Colorado Plateau (16) (Table 8), is not known. No juvenile birds were observed within the Southern Rockies/Colorado Plateau during 2007 (Good et al. 2009). Environmental factors, such as drought, reduction of prey populations, or reduction of occupied breeding territories may play a part in the potential decrease. However, it should be noted that there are difficulties in aging Golden Eagles from an aircraft. The angle of the sun, cloud cover, and position of the Golden Eagle can complicate aging. Again, because the trend analysis was based on only four years of survey data, the results should be viewed with caution.

There are eight HawkWatch (HawkWatch International 2009) sites located within the western U.S. The Commissary Ridge (Northern Rockies; BCR 10) and Manzano Mountains (Southern Rockies/Colorado Plateau; BCR 16) sites have seen increases in Golden Eagle numbers during 2008 over the long term average (Table 9). The remaining HawkWatch sites in the western U.S. have shown declining numbers of Golden Eagles

over the last 10 – 12 years. Some of these sites are located within or on the border of the Great Basin (BCR 9) and Southern Rockies/Colorado Plateau (BCR 16). Hoffman and Smith (2003) suggested the decreased usage at these sites can be attributed to a long term drought in BCRs 9 and 16 that started in 1998. Researchers have also suggested that increases in juvenile:adult ratios in 2006 and 2007 for several raptor species may be attributed to improving habitat conditions in the western U.S. (Smith 2009, Smith and Neal 2009a-f). However, HawkWatch observers cannot distinguish between birds originating in Canada or the western U.S, and so changes in migration counts do not solely reflect changes in U.S. populations (Kochert and Steenhof 2002, Hoffman and Smith 2003), but may potentially reflect changes in the North American Golden Eagle population. In addition, migration counts are not adjusted for detection probability, and so trends in population size may not be reliably estimated unless detection rates remain relatively constant across locations, observers, and years.

Our recommendations for future surveys are based on assumptions that the USFWS has two primary goals for the Golden Eagle survey; 1) Estimate the total population size of Golden Eagles within the entire study area, and within each BCR and 2) Determine the trends of Golden Eagle populations within the entire study area, and within each BCR. We recommend the surveys continue to use the sample of transects generated in 2006, as well as the same survey protocol and analysis methods used from 2006 – 2009. In addition, we recommend pooling data for estimating detection functions and using Bayesian hierarchical model as presented in this report to monitor for trends.

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Tables

Table 1. Areas of each Bird Conservation Region (BCR) (excluding military lands, elevations > 10,000 ft, large water bodies and large urban areas) and the lengths of transects flown in each region during surveys in 2006 to 2009.

		Length (km) of Transects Flown			
Bird Conservation Region	Area (km^2)	2006	2007	2008	2009
Great Basin (9)	640,653	6022	5856	5705	5915
Northern Rockeis (10)	499,984	4606	4570	4635	4728
Southern Rockies/Colorado Plateau (16)	471,584	3970	4003	3950	3807
Badlands and Prairies (17)	350,688	3148	3250	3132	3147
Total	1,962,909	17,746	17,679	17,422	17,597

Table 2. Average Golden Eagle group size and Pearson's coefficient for correlation between and distance from the transect line and observations of Golden Eagle groups in 2006 – 2009. Standard errors are in parentheses.

Year	Average Group Size	Pearson's Correlation Coefficient
2006	1.27 (0.045)	0.014 (0.0801)
2007	1.23 (0.040)	-0.053 (0.0765)
2008	1.17 (0.034)	0.075 (0.0869)
2009	1.18 (0.034)	-0.026 (0.0824)

Table 3. Numbers of Golden Eagle groups detected during survey and training flights in 2006 – 2009 within 1000 m of the transect line, categorized by observation type: "Flying" represents birds observed flying; "Perched 107 m AGL" represents birds observed perched while surveying from an altitude of 107 m above ground level (AGL); and "Perched 150 m AGL" represents birds observed perched while surveying from an altitude of 150 m AGL. The numbers of Golden Eagle groups observed during training are in parentheses.

Year	Perched 107 m AGL	Perched 150 m AGL	Flying	Total
2006	74	10	74	158
2007	115 (+ 29)	11 (+ 3)	46 (+ 8)	172 (+ 40)
2008	73 (+ 11)	8 (+ 0)	52 (+ 8)	133 (+ 19)
2009	91 (+ 31)	15 (+ 2)	43 (+2)	149 (+ 35)
Total	353 (+ 71)	44 (+ 5)	215 (+ 18)	612 (+ 94)

Table 4. Estimated mean densities (#/km^2) of Golden Eagles of all ages in each Bird Conservation Region (excluding military lands, elevations > 10,000 ft, large water bodies and large urban areas), in 2003 (single year analysis), and 2006 – 2009 (analysis of data pooled across years to estimate probability of detection). Ninety-percent confidence intervals are in parentheses.

Year	Great Basin (9)	Northern Rockies (10)	Southern Rockies/ Colorado Plateau (16)	Badlands and Prairies (17)
2003	0.0170 (0.0120, 0.0240)	0.0090 (0.0040, 0.0170)	0.0100 (0.0060, 0.0140)	0.0180 (0.0130, 0.0250)
2006	0.0069 (0.0043, 0.0097)	0.0129 (0.0075, 0.0190)	0.0087 (0.0056, 0.0122)	0.0262 (0.0178, 0.0354)
2007	0.0093 (0.0065, 0.0123)	0.0154 (0.0085, 0.0238)	0.0057 (0.0033, 0.0084)	0.0258 (0.0182, 0.0346)
2008	0.0066 (0.0045, 0.0089)	0.0162 (0.0110, 0.0222)	0.0033 (0.0017, 0.0051)	0.0170 (0.0114, 0.0229)
2009	0.0074 (0.0052, 0.0099)	0.015 (0.0092, 0.0228)	0.0054 (0.0024, 0.0088)	0.0168 (0.0100, 0.0249)

Table 5. Estimated population totals (all ages) of Golden Eagles in each Bird Conservation Region and the entire study area (excluding military lands, elevations > 10,000 ft, large water bodies and large urban areas), in 2003 (single year analysis), and 2006 – 2009 (analysis of data pooled across years to estimate probability of detection). Ninety-percent confidence intervals are in parentheses.

Year	Great Basin (9)	Northern Rockies (10)	Southern Rockies/ CO Plateau (16)	Badlands and Prairies (17)	Total
2003	10939 (7522, 15754)	4831 (2262, 8580)	4998 (3199, 7275)	6624 (4611, 9207)	27392 (21556, 35369)
2006	4404 (2726, 6233)	6425 (3734, 9515)	4085 (2622, 5769)	9181 (6247, 12416)	24096 (19486, 29278)
2007	5941 (4152, 7858)	7676 (4251, 11891)	2710 (1550, 3977)	9046 (6368, 12117)	25372 (20273, 31132)
2008	4206 (2857, 5705)	8079 (5485, 11114)	1574 (820, 2418)	5960 (4007, 8027)	19820 (16248, 23700)
2009	4757 (3334, 6336)	7509 (4585, 11416)	2548 (1155, 4130)	5908 (3495, 8721)	20722 (16317, 25948)

Table 6. Estimated number of juvenile Golden Eagles in each Bird Conservation Region (BCR) and the entire study area (excluding military lands, elevations > 10,000 ft, large water bodies and large urban areas), in 2003 (single year analysis), and 2006 – 2009 (analysis of data pooled across years to estimate probability of detection). Ninety-percent confidence intervals are in parentheses.

Year	Great Basin (9)	Northern Rockies (10)	Southern Rockies/ CO Plateau (16)	Badlands and Prairies (17)	Total
2003	1190 (544, 2605)	1286 (628, 2634)	498 (204, 1216)	2072 (1296, 3312)	5046 (3723, 6839)
2006	820 (324, 1370)	1607 (758, 2591)	639 (144, 1247)	1328 (530, 2187)	4394 (3005, 5900)
2007	513 (190, 915)	1171 (170, 2346)	0 (NA)	862 (324, 1476)	2546 (1403, 3907)
2008	510 (110, 1076)	1102 (590, 1663)	263 (2*, 570)	234 (2*, 661)	2109 (1290, 3046)
2009	222 (2*, 513)	1174 (456, 2027)	128 (1*, 364)	438 (124, 777)	1962 (1120, 2930)

*Lower limits set to number observed during the survey.

Table 7. Intercept and time-trend (average number of observations per km of transect) estimates from the Bayesian hierarchical model fit to counts of all Golden Eagles observed along each transect in each year 2006 – 2009. Ninety-percent credible intervals (Bayesian confidence intervals) are in parentheses next to each point estimate. An interval not encompassing 0.0 would indicate a statistically significant trend at an alpha level of $\alpha = 0.10$.

Parameter	Great Basin (9)	Northern Rockies (10)	Southern Rockies/ CO Plateau (16)	Badlands and Prairies (17)	Study Area
Intercept	-5.572 (-5.876, -5.258)	-5.584 (-5.900, -5.259)	-5.506 (-5.851, -5.147)	-5.594 (-5.967, -5.217)	-5.567 (-5.934, -5.194)
Time-trend	0.041 (-0.149, 0.223)	0.122 (-0.076, 0.323)	-0.168 (-0.390, 0.044)	-0.069 (-0.298, 0.146)	-0.028 (-0.356, 0.305)

Table 8. Intercept and time-trend (average number of observations per km of transect) estimates from the Bayesian hierarchical model fit to counts of juvenile Golden Eagles along each transect in each year 2006 – 2009. Ninety-percent credible intervals (Bayesian confidence intervals) are in parentheses next to each point estimate. An interval not encompassing 0.0 would indicate a statistically significant trend at an alpha level of $\alpha = 0.10$.

Parameter	Great Basin (9)	Northern Rockies (10)	Southern Rockies/ CO Plateau (16)	Badlands and Prairies (17)	Study Area
Intercept	-8.107 (-8.943, -7.305)	-8.142 (-9.044, -7.336)	-7.817 (-8.710, -6.931)	-8.058 (-8.924, -7.271)	-8.013 (-8.948, -7.118)
Time-trend	-0.208 (-0.635, 0.243)	-0.373 (-0.819, 0.031)	-0.436 (-0.914, -0.017)	-0.281 (-0.726, 0.181)	-0.326 (-0.835 0.160)

Table 9. Changes in Golden Eagles counted (per 100 hrs of observation time) in 2008 compared to historical data (Year Range) at selected HawkWatch sites in the western U.S.

Site	State	Golden Eagles / 100 hrs	% Change*	Year Range	Citation
Bridger Mtns	MT	304.9	-46%	1992-2007	Smith and Neal 2009a
Chelan Ridge	WA	21.4	-39%	1998-2007	Smith 2009
Bonney Butte	OR	13.2	-57%	1994-2007	Smith and Neal 2009b
Goshute Mts.	NV	33.4	-23%	1983-2007	Smith and Neal 2009c
Wellsville Mts.	UT	26	-43%	1991-2007	Smith and Neal 2009d
Commissary Ridge	WY	69.9	13%	2002-2007	Smith and Neal 2009e
Manzano Mts.	NM	32.1	28%	1985-2007	Smith and Neal 2009f
Grand Canyon	AZ	Not Available	Not Available	Not Available	Not Available

* This number represents the change in average number of birds observed per 100 hrs versus the long term average within a defined survey period.

Figures

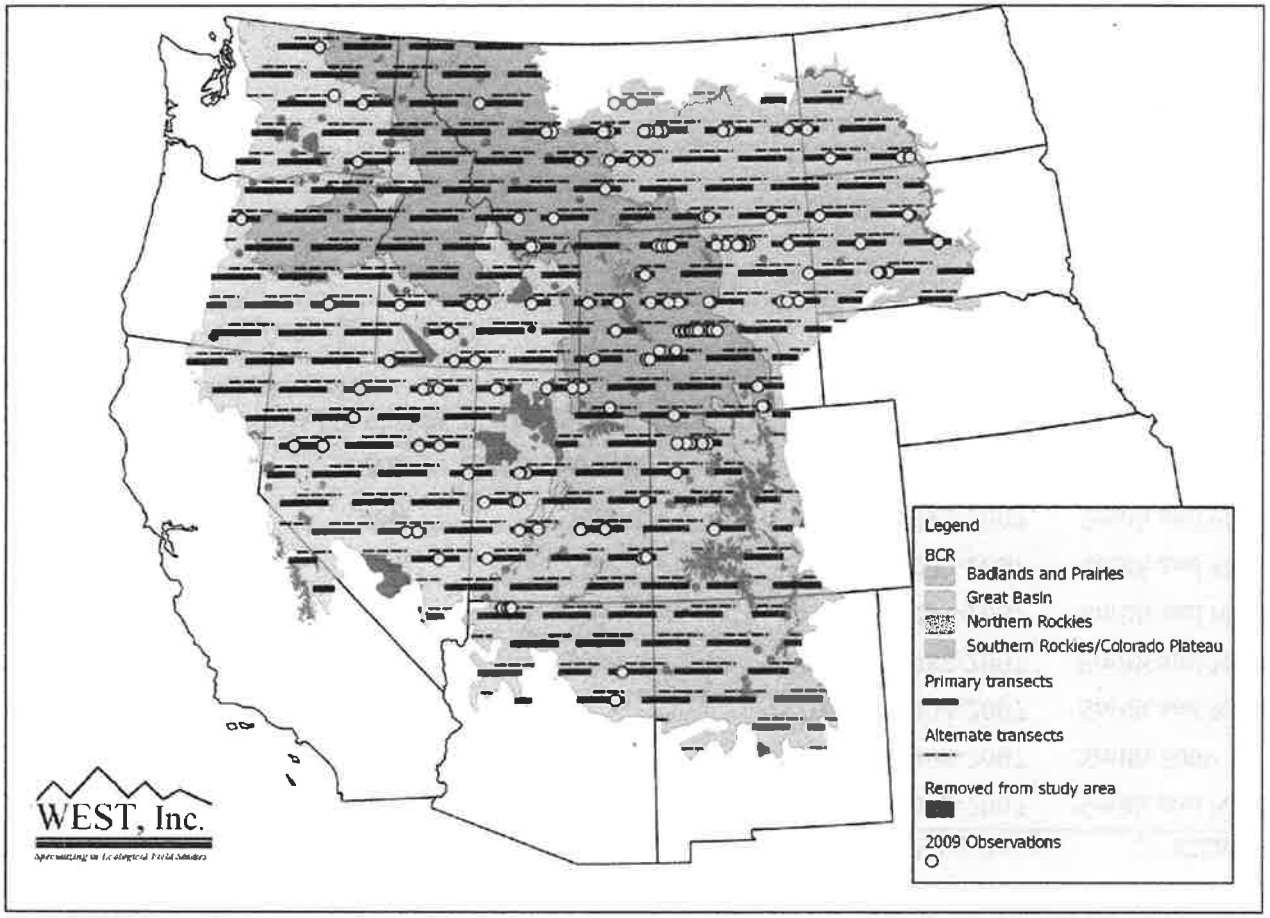


Figure 1. Study area and Golden Eagle observations in 2009.

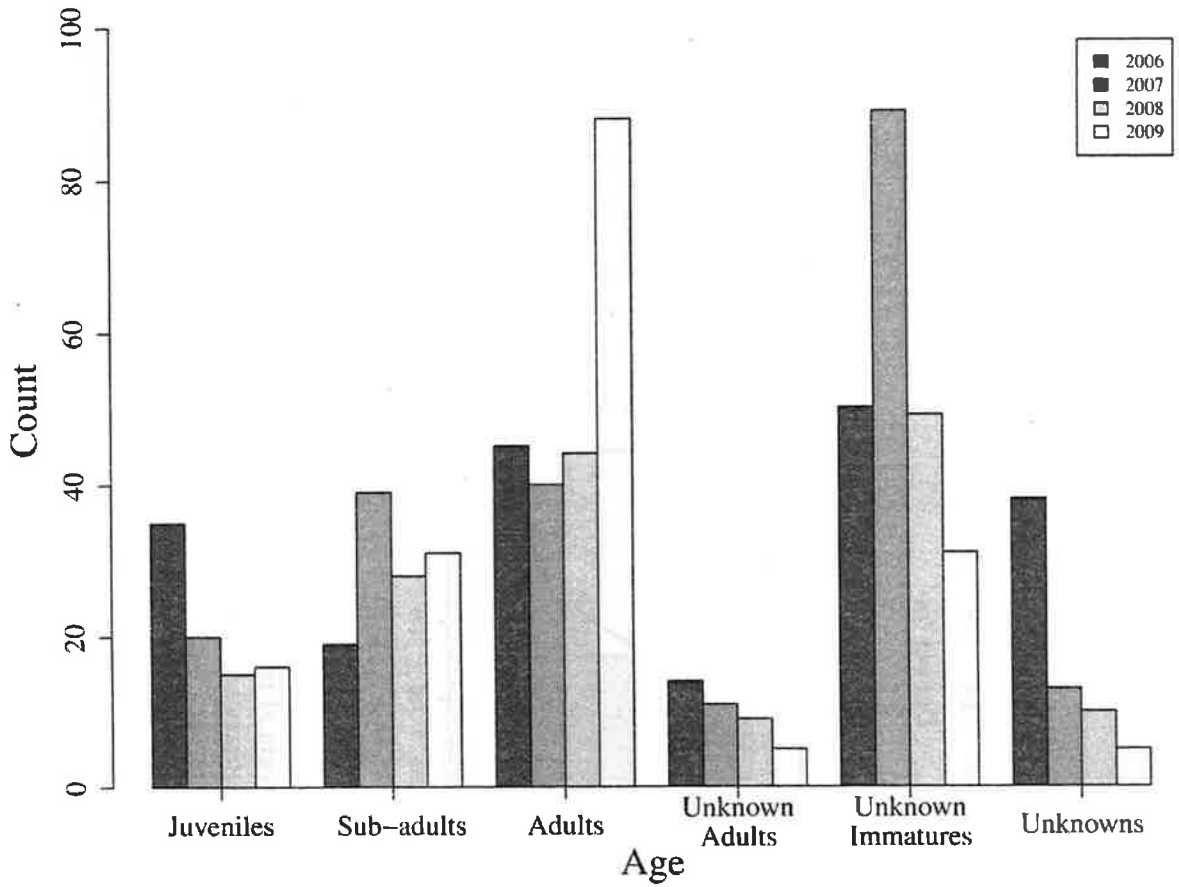


Figure 2. Ages of all Golden Eagles observed in the 2006 – 2009 surveys.

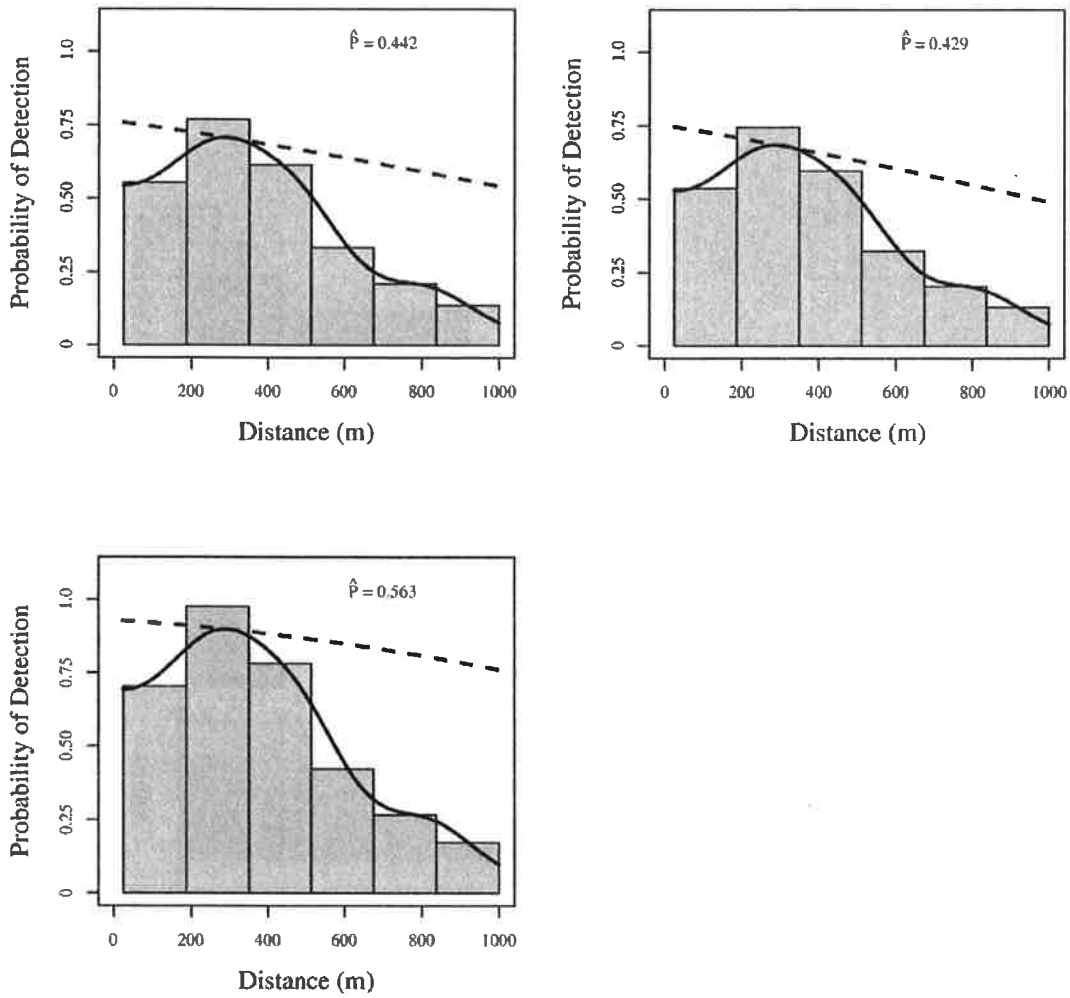


Figure 3. Probability of detection of perched Golden Eagle groups from 107 m AGL for the back seats of the aircraft (top left), front seat of the aircraft when there was not a double-observer present (top right; 2008 only), and right side of the aircraft when both observers were present (bottom left). Dashed lines represent probabilities of detection estimated from the mark-recapture sampling. Solid lines represent scaled detection functions, which were integrated to estimate average probability of detection within the search width. The average probability of detection within the search width ($\hat{P}$) was estimated by integrating the solid line and dividing by the search width. Histograms show the relative numbers of observations in distance intervals.

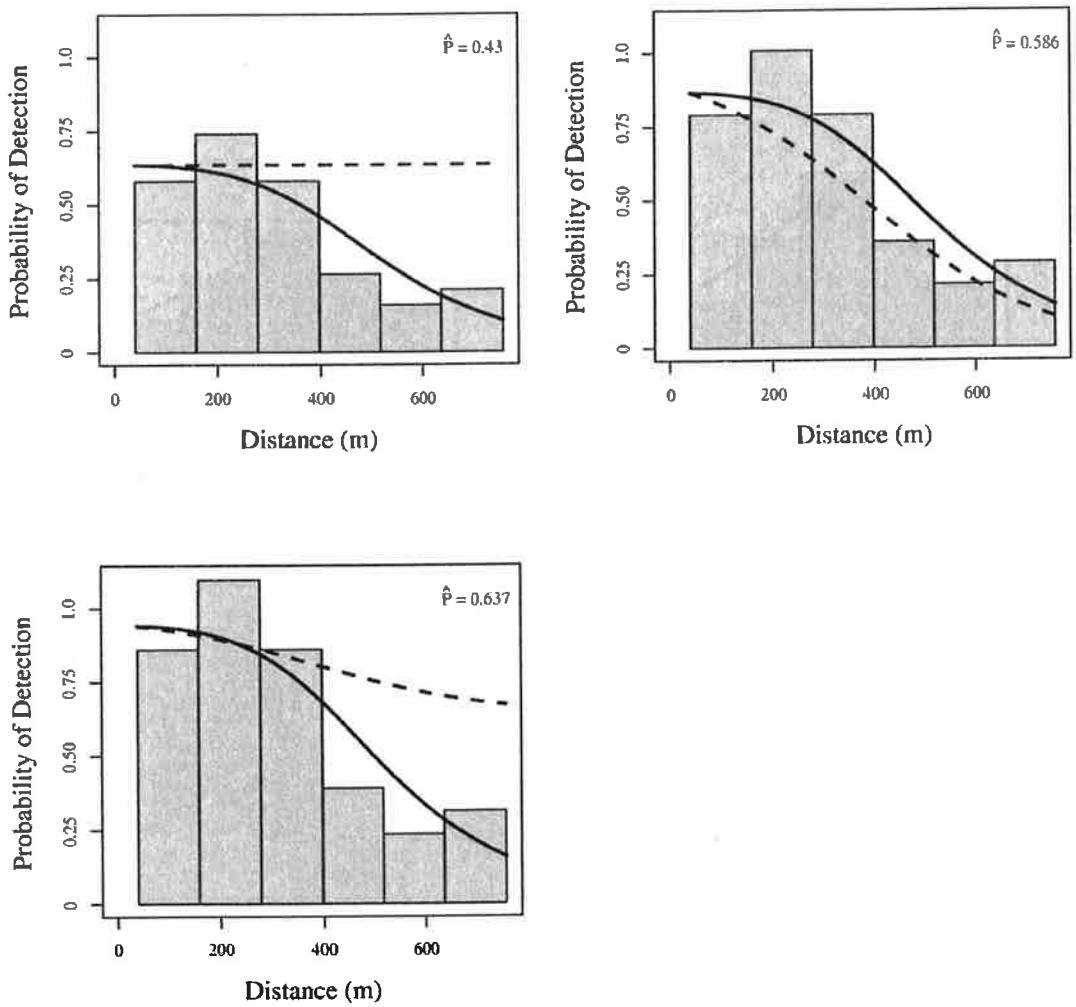


Figure 4. Probability of detection of perched Golden Eagle groups from 150 m AGL for the back seats of the aircraft (top left), front seat of the aircraft when there was not a double-observer present (top right; 2008 only), and right side of the aircraft when both observers were present (bottom left). Dashed lines represent probabilities of detection estimated from the mark-recapture sampling. Solid lines represent scaled detection functions, which were integrated to estimate average probability of detection within the search width. The average probability of detection within the search width ($\hat{P}$) was estimated by integrating the solid line and dividing by the search width. Histograms show the relative numbers of observations in distance intervals.

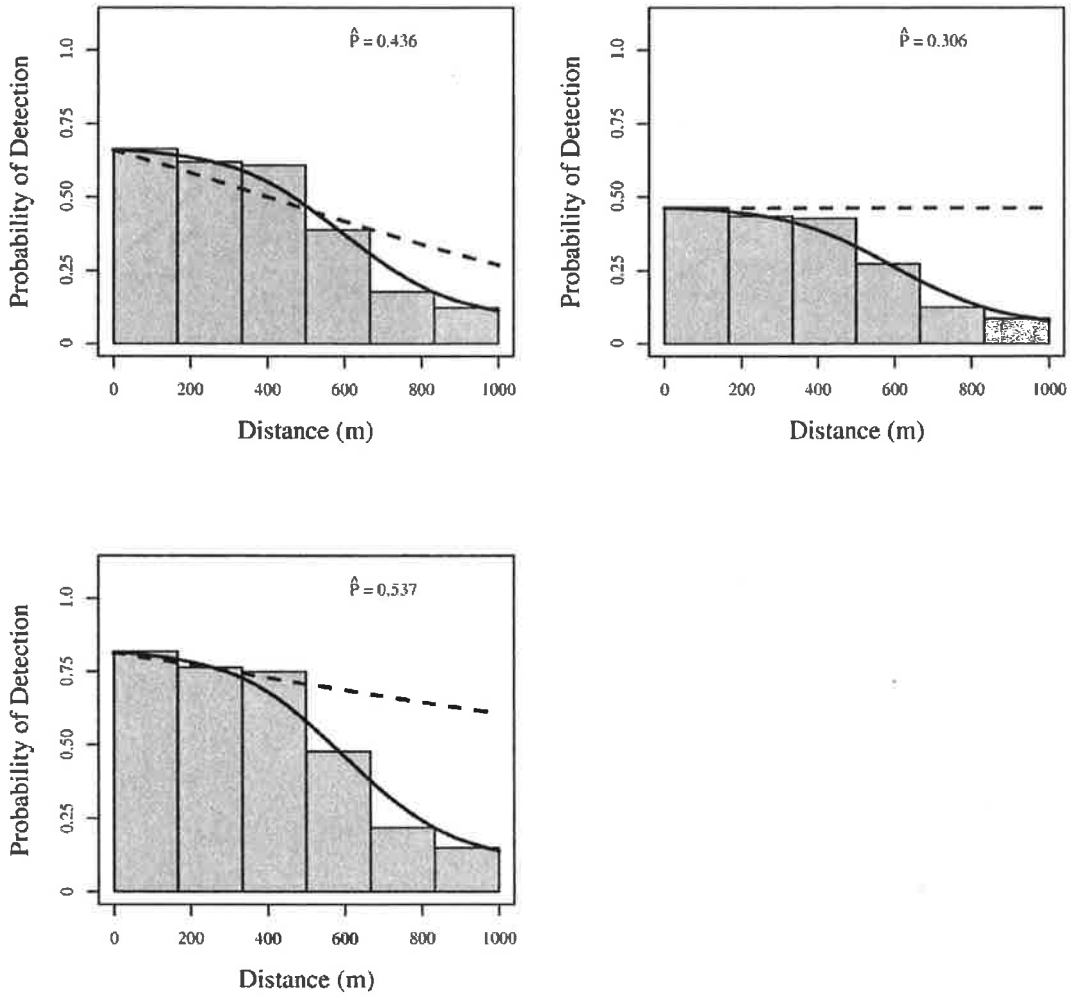


Figure 5. Probability of detection of flying Golden Eagle groups for the back seats of the aircraft (top left), front seat of the aircraft when there was not a double-observer present (top right; 2008 only), and right side of the aircraft when both observers were present (bottom left). Dashed lines represent probabilities of detection estimated from the mark-recapture sampling. Solid lines represent scaled detection functions, which were integrated to estimate average probability of detection within the search width. The average probability of detection within the search width ($\hat{P}$) was estimated by integrating the solid line and dividing by the search width. Histograms show the relative numbers of observations in distance intervals.

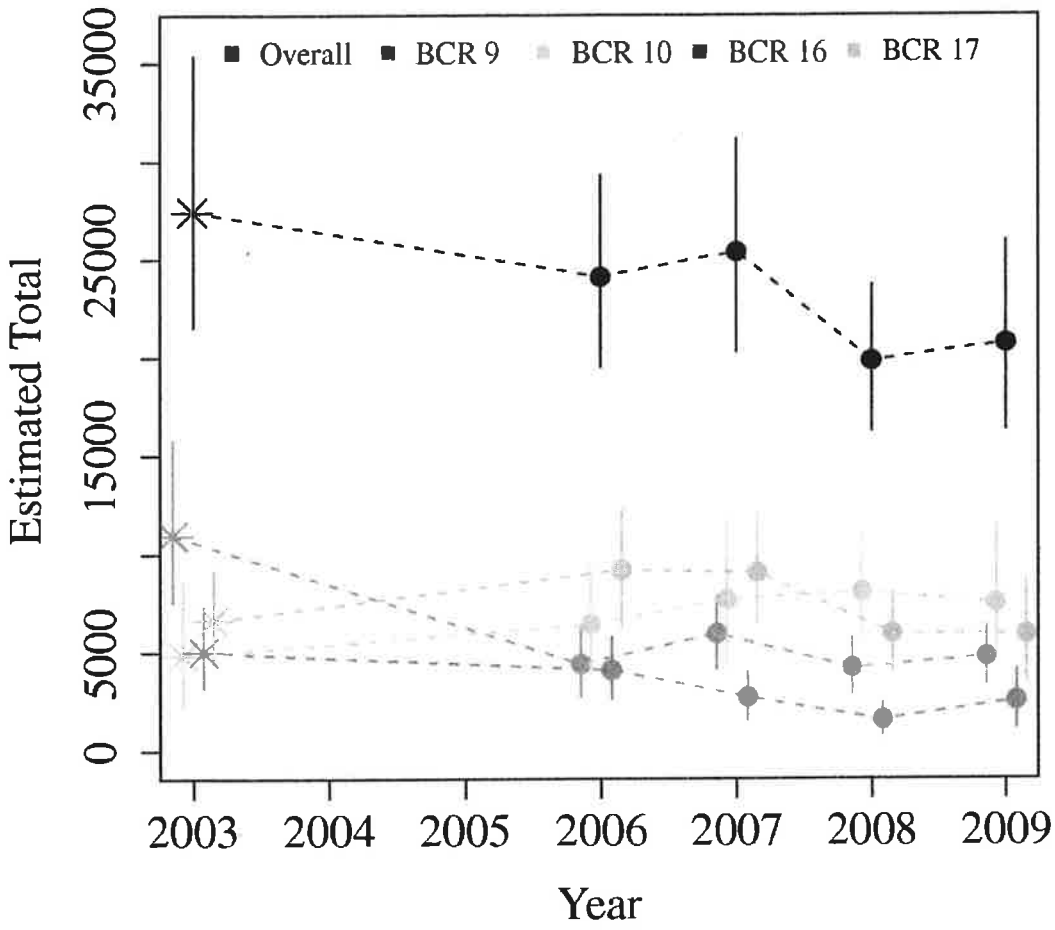


Figure 6. Estimates and 90% confidence intervals of the total number of Golden Eagles of all ages within the each Bird Conservation Region (BCR) and across the entire study area (excluding military lands, elevations > 10,000 ft, large water bodies and large urban areas) in the late summer (August 15 – September 15) of 2003, and 2006 – 2009. Estimates for 2003 are denoted by a different symbol to highlight that survey transects and protocol were different that year. The BCRs are: 9 (Great Basin), 10 (Northern Rockies), 16 (Southern Rockies / Colorado Plateau), and 17 (Badlands and Prairies).

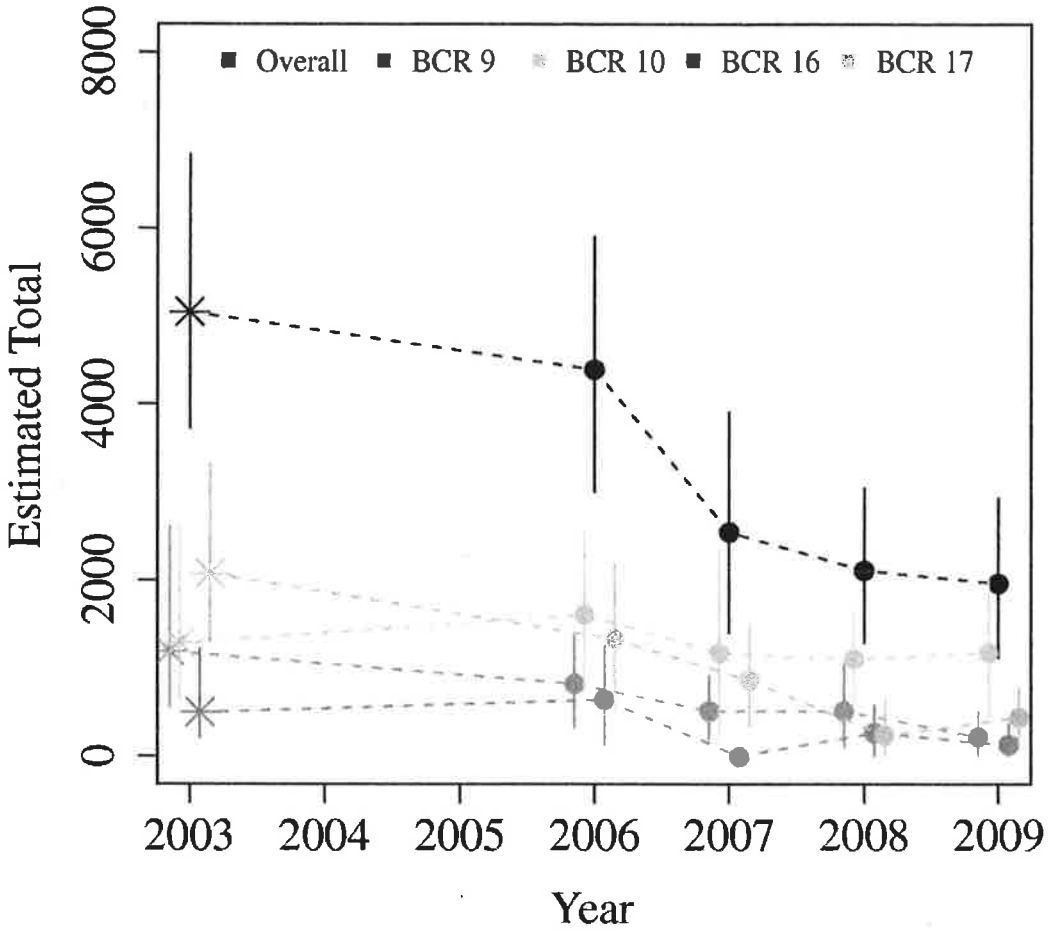
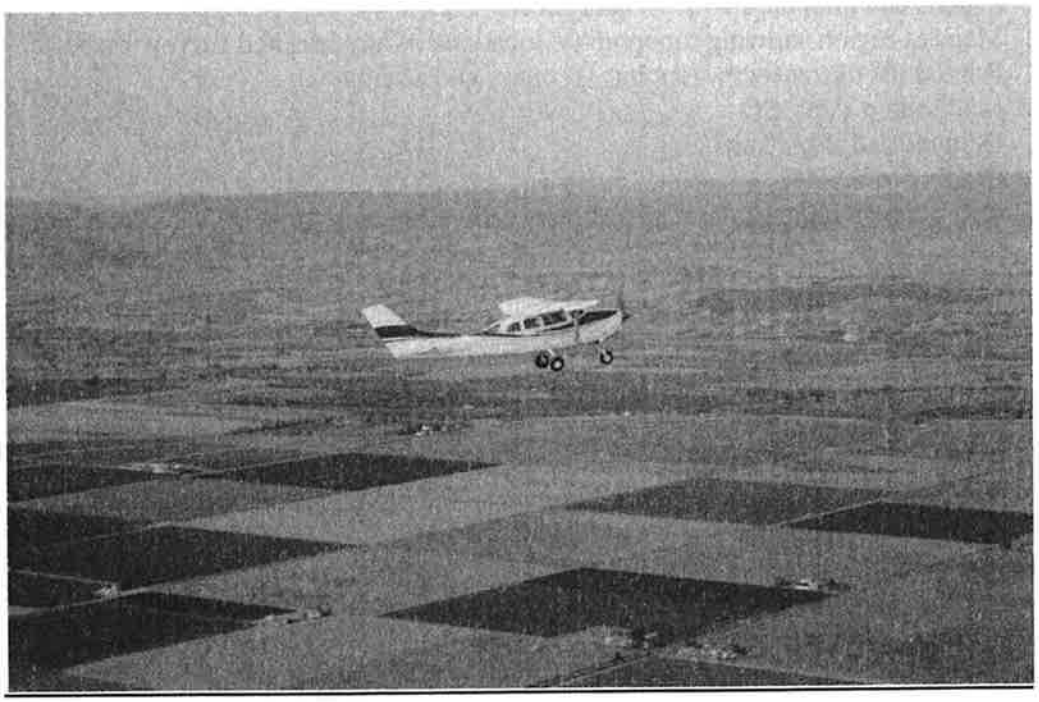


Figure 7. Estimates and 90% confidence intervals of the total number of juvenile Golden Eagles within the each Bird Conservation Region (BCR) and across the entire study area (excluding military lands, elevations > 10,000 ft, large water bodies and large urban areas) in the late summer (August 15 – September 15) of 2003, and 2006 – 2009. Estimates for 2003 are denoted by a different symbol to highlight that survey transects and protocol were different that year. The BCRs are: 9 (Great Basin), 10 (Northern Rockies), 16 (Southern Rockies / Colorado Plateau), and 17 (Badlands and Prairies). No juveniles were observed in BCR 16 in 2007, so a confidence interval is not presented.

Appendix A

STANDARD OPERATING PROCEDURES

2009 GOLDEN EAGLE SURVEY



WEST, Inc.

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Introduction

This document contains guidance on methods for aerial line transect surveys for golden eagles (*Aguila chrysaetos*) (GOEA) in the Western United States. For discussion of sampling design and data analysis refer to the final reports for the 2003 and 2006/'07 surveys.

Equipment Checklist

The following equipment should be taken aboard the aircraft each day of the survey:

1. Laptop computer with fully charged battery, power cord and inverter
2. GPS unit with 2 sets (4 AA) of spare batteries, and USB cable
3. Pencils and clipboard with 10 data sheets
4. Maps of region showing topography, locations of airports, and survey transects
5. Printed list of transect waypoints (primary and alternates)
6. MapSource Topo CD
7. Helmets and flight suits
8. Cardboard divider
9. Cell phone with the following numbers programmed:
    a. Ryan: 307-760-5147
    b. Troy: 307-421-8437
    c. WEST main office: 1-888-634-1756

Flight Protocol

Flight Safety – The safety of the crew members should be the first consideration before flights start each day. Please see *Safety Equipment* and other sections below.

Safety Equipment – Helmets must be worn during take-off, landing, and while flying on transect and at low altitudes. Nomex flight suits should be worn by observers at all times in the aircraft.

Flight Crews – Two crews of 3 observers and one pilot each are required to complete the surveys. Each crew will complete approximately 105 - 150 hours of transect flight and ferry time between transects. We have a 32-day window for completing surveys (August 15 – September 15). Thus, approximately 4 - 6 flight hours per day per crew is required to complete the surveys. Crew leaders will strive to complete an average of 4 transects per day (we have averaged 3.8 in 2006 – 2008). This includes days not spent flying due to weather, travel, and ground days for the pilot, as required by the FAA. To reach this goal, crews should strive for completing 5 – 6 transects on days when weather and logistics permit. Survey efforts will be distributed evenly between the two crews. Each crew has been given a list of (primary) transects to survey. Deviations from this list are permitted when alternate transects must be flown due to localized weather or fires. It is extremely important that crews maintain daily contact Ryan to report location, survey route, and progress. Daily communications with Ryan will ensure all transects are flown only once, by the assigned crew, and in an efficient manner.

Observers/Aircraft – There will be three observers in each aircraft – 2 main observers in the rear seats, and a third observer acting as a 'double-observer', navigator, and data recorder in the front seat. Along with actively searching for golden eagles, the observer in the front seat of the aircraft will help the pilot with navigation and record positions of observed eagle groups using the GPS. Using observation data from both front and back seat observers on the right side of the aircraft allows for use of mark-recapture methodology for estimating detection functions and golden eagle population sizes. Observers will rotate positions in the aircraft daily to ensure that differences in observer abilities are distributed across all positions in the aircraft.

Timing of Surveys – We will begin the surveys August 15th and complete all surveys no later than September 15th. Depending on weather conditions, surveys will be conducted early morning through early afternoon. Crews should attempt to be at the airport each morning at civil twilight, and flying on their first transect at sunrise. During the early morning hours, all transects will be flown in an east to west orientation in order to provide the best possible light for detecting eagles. During the late morning and early afternoon, transects can be flown either direction. During the late summer, golden eagles may spend more time flying in the afternoon when the air temperature rises and thermals are available. The probability of detecting an eagle that is flying has been much lower than for a perched bird. Thus, transects should be started at sunrise and completed before the afternoon in order to maximize the numbers of golden eagles observed. Unless it is extremely convenient or a crew is falling behind schedule, a transect should not be started after 12:30 pm.

Weather Restrictions – The relative safety of each flight will be determined in the field and will depend upon weather conditions and local flight restrictions. The safety of survey crews is top priority when assessing if surveys should be conducted during inclement weather (e.g., high winds, precipitation) or around forest fires. Crew leaders and the pilot will determine if standard survey protocol can be followed in a safe manner. If the pilot or crew leader determine that surveys cannot be conducted safely, surveys will be halted until conditions improve, or in the case of forest fires an alternate transect will be flown. Surveys will not be conducted during rain, snow, fog or other precipitation events that reduce observer visibility to less than one kilometer.

Fire Restrictions – Information on flight restrictions due to forest fires should be obtained daily. Crew leaders and pilots can check the status of local forest fires and locations of temporary no-fly zones at the following web-sites:

1. http://activefiremaps.fs.fed.us/
2. http://airspace.nifc.gov/mapping/nifc/index.cfm

Transect Flights – Safety should be the primary concern during the survey. Two different methods will be used for conducting the aerial surveys based on safety and flying conditions. Surveys over relatively flat and open terrain will be conducted at an approximate air speed of 87 knots (100 mph), and the airplane will be maintained at an altitude of 107 m (350 ft) above the ground level (AGL). Surveys within relatively rugged terrain (steep topography, coniferous forest, steep canyons) will be conducted at

approximately 87 knots (100 mph) at an altitude of 150 m (500 ft) AGL. Note that ground level reference should be highest point of ground level in the immediate area. During the survey, all crew members and pilot should carefully monitor the air speed and AGL to ensure the survey protocol is being followed consistently.

Off-Transect Flight – The pilot will determine the most appropriate airspeed and altitude for flying between transects and airports.

Golden Eagle Sightings

Observers will concentrate on detecting perched and flying GOEA within 1 km of the aircraft. **Observers should give more effort to detecting GOEA closer to the aircraft compared to longer distances.** After a complete scan of the ground, perches, and the air in the first 100 m, then next ~200 m should then be scanned until one is certain all GOEA available to be seen are detected. Further distance zones are then searched in exactly the same manner. In more rugged terrain the outer distances will not receive the same search effort as the inner distances due to visual obstructions and increased search time required to fully scan the terrain and sky.

Golden Eagle Observations – A GOEA observation consists of an individual golden eagle or group of eagles sighted while flying on a designated transect. GOEA sighted while flying off transect, either to and from transect way-points and airports, will be recorded in the "comments" section on the field data form, but the aircraft will not change course or speed in order to verify the sighting, age the eagle(s) or GPS sighting locations. If a GOEA is sighted while flying off transect in an attempt to verify and age a GOEA sighted while flying on transect, the crew needs to determine if the new GOEA is independent of the original sighting. For example, if one GOEA is sighted while on transect and the aircraft if pulled off-line for closer inspection and to age and GPS the GOEA, and another GOEA is seen in the area and it is determined the new GOEA is related to the original (i.e., parent and young or breeding pair), then the group size is 2 GOEA. However, if the new GOEA observed while off-line is believed to be an independent individual, such as when longer distances separate the 2 observed individuals, this new GOEA will be recorded in the comments section of the field data form. New, independent GOEA sighted off-transect cannot be included in the statistical analysis due to the extra search effort associated with the sighting, which can bias final estimates of GOEA density.

Golden eagles observed are recorded in the following three categories:

A. Juvenile
B. Sub-Adult
C. Adult

Juvenile – Juvenile Golden Eagles have very dark, uniform plumage with the exception of the tail and wings. A white patch shows at the base of the tail, and will appear "clean" e.g., it will lack any darker adult feathers, with an even boundary between white and dark. A white patch may also be present on the wing at the base of the flight feathers, but

is not present on all juvenile or older immature birds. No tawny bars are present on the upper-wings. White patches on the tail and wing are not visible on all perched birds. Juvenile birds can be aged when perched based on the lack of a tawny bar and overall uniform dark color.

Sub-adult (Older Immature) – Golden Eagles that display a partial or almost full tawny bar, yet show some white in the tail base or the wings. The white on the under-tail does not form a "clean" patch, rather some tail feathers will be replaced with darker adult feathers and show as dark or "dirty" spots on the tail. The center and outer most tail feathers are replaced before other tail feathers.

Adult – Golden Eagles are classified as adult if they displayed a full tawny bar on the wing and showed no white patches in the tail or wings, with the following exceptions. Adults could display white or gray bands in the tail. No white patches will be present on the wings, however, grayish feathers may form a "v" pattern on the under-wings in flight. Birds showing a "v" pattern may also have a gray tail band.

Golden Eagle aging criteria will follow the age classes listed below. Every effort should be made to correctly age golden eagles observed from the transect line. However, on occasions when determining age is not possible, categories D through F can be used.

D. Unknown Immature
E. Unknown Adult
F. Unknown

Unknown Immature (juvenile or older immature) – This age class is used for Golden Eagles on which white was observed on the tail or wing, but a good view of the bird cannot be obtained, preventing aging to more specific age classes.

Unknown Adult (Adult or Older Immature) – Golden Eagles that display a tawny bar, but the tail or undersides of wings cannot be observed. White tail coverts of juvenile or older immature birds are not visible on some perched birds.

Unknown – Birds that are confidently identified as Golden Eagles, but cannot be aged.

The table below guides the age classification. Question marks indicate a determination cannot be made.

Tawny Bar	?	unknown immature	adult	unknown
	No	juvenile	???	juvenile
	Yes	sub-adult	adult	unknown adult
GOEA Aging		Yes	No	?
		White on Tail/Wings		

What to do When a Golden Eagle Has Been Sighted – If a GOEA has been sighted while flying on a designated transect line, pertinent information must be recorded in the field data form and computer. During each flight a rear seat observer will be responsible for filling out the field data form (alternate roles daily), and the front seat observer will be responsible for recording the location in the GPS unit and computer. If a golden eagle is observed on the ground or perched, the observer must communicate with the crew that a GOEA has been sighted. The pilot will then pull off-transect to move in closer to the observation so that the crew can attempt to age the GOEA and record the GPS location of birds original position when it was first detected. After all necessary information has been recorded in the computer and on the field data form, the pilot will bring the aircraft back to the transect line at the original point of departure when the bird was first observed. The observer with the GPS unit and computer can assist the pilot in returning to the transect line. Again, if a new GOEA is observed while off-line and is believed to be an independent individual, this new observation will be recorded in the comments section of the field data form but not treated as a 'typical' observation while on transect.

Reporting by Back-Left Observer – When a GOEA is sighted on the left side of the aircraft by the back-left observer, the observer will immediately notify the rest of the flight crew. The observer will state that a golden eagle has been sighted on the left of the transect line, the visually estimated distance from the transect line, and the characteristics of the GOEA location so that the pilot can navigate the aircraft closer to where the eagle was observed. The rear seat observer with the field data form will begin recording the observation at this time. When the aircraft is directly above the location where the GOEA were originally sighted, the front-right observer with the GPS will record the location in the GPS and announce the waypoint ID number. The waypoint ID on the field data form should match the waypoint recorded in the GPS and computer. The observers need to communicate with each other to verify the transect line being flown, the waypoint ID, and habitat type.

Reporting by the Front-Right and Back-Right Observers – A double observer (mark-recapture) sampling approach will be used on the right side of the aircraft on all transects.

Using this approach, the front and back seat observers on the right side of the aircraft will not immediately announce any GOEA sightings. Instead, they wait an appropriate length of time (~5 to 10 seconds) to ensure the observed GOEA is behind the aircraft and out of view of the other right seat observer. Once the observed GOEA is out of view of the back seat observer, and no other GOEA are in sight on the right side, then the observer(s) will announce the sighting, and the pilot will pull off-line in a fashion so that the sighting can be verified, aged, and the observed location recorded. It is important that the observers, once off-line, pay most attention to the location of the GOEA in question so that the pilot can efficiently circle and locate the birds. A determination will be made based on which observers (front, back, or both) on the right side observed the GOEA while on transect. Once an observer on the right side of the aircraft has announced that a GOEA has been sighted, the field data form recorder will begin filling out the data sheet, making sure to indicate on the form which observer(s) on the right side of the aircraft detected the eagle. This crucial piece of information is not meant to indicate which of the observers first called out the sighting, but whether only one or both of the observers on the right side actually detected the GOEA while on transect.

Daily rotation of the observers in the aircraft will allow for more flexibility in the methodology used to estimate detection functions for golden eagles. The front right seat observer will always be responsible for the GPS unit and recording waypoints into the computer. The field data form responsibilities should be alternated daily between the two rear seat observers to ensure the effect of that responsibility is pooled across both sides of the aircraft.

It is essential that the observers on the right side of the aircraft operate independently – i.e., one observer does is not "clued in" when a GOEA group is sighted due to movements of the other observer. Use of the cardboard divider will reduce visibility between the two observers on the right side of the aircraft and facilitate independence.

Pilot Responsibilities – The pilot is responsible for safely flying survey transects while maintaining the desired AGL and airspeed. The observers are responsible for sighting golden eagles and recording all sightings in the computer and on the field data form. To avoid confusion and maintain the safety of the crew, the pilot will not call out GOEA sightings independently, except those that are missed by the primary observers. If the pilot sights a GOEA, he or she should wait an appropriate length of time to allow the GOEA to pass out of view of the other observers (front and back seats). If the other observers in the aircraft do not announce that a sighting has been made, the pilot can then alert the observers that a GOEA was missed. This information, along with the habitat type and activity of the birds will be recorded in the "comments" section of the field data form. Nothing will be entered into the computer when the pilot sights eagles not observed by the primary observers, and the pilot will not pull off-transect to age or GPS the GOEA missed by the 3 observers.

Golden Eagles Observed Flying – Communication between observers will be the same for flying and perched GOEA. If a golden eagle is observed flying, the pilot can pull off-line for the crew to try to age the bird. However, ultimately, the latitude and longitude of the flying eagle perpendicular to the transect line will need to be recorded in the

computer and field data form. It is important to verify the sighting and age the bird first, and then try to GPS the location where the GOEA was first seen. Use of landmarks directly below the GOEA will help reduce measurement error. For all GOEA (perched and flying), a visual estimation of the perpendicular distance of the eagle from the transect line will be recorded and compared to the GPS measurement to help calibrate visual estimates by observers.

Recording Other Pertinent Data – Location of the aircraft, date, and time are automatically recorded in the computer by the GPS unit at fixed intervals (~ every 5 seconds). This permits plotting of the actual flight path versus the intended transect lines, and calculation of airspeeds. The crew leader should record daily total flight times (i.e., the time of each take-off and landing should be recorded). The front-right observer will also record transect start and end points, and changes in habitat types below the transect line. This will provide a habitat profile for each transect line and allow estimation of the total amount of each habitat type in the study area. To record a waypoint (transect start and end points, GOEA locations, and habitat changes), click 'control' 'w' on the keyboard or use the mouse to select 'tools' and 'waypoint'.

For a transect start point, name the waypoint 'start,1,og,time' for starting point of transect 1 which is over Open Grassland/Shrub Step habitat 'start,2,fr,time' for starting point of transect 2 which is over Forested Rugged habitat, etc. For a transect stop point, name the waypoint 'stop,1,fg,time' for the stopping point on transect 1 which is over Forested Gentle habitat. All alternate transects start with 'r', so the starting point for transect r1 will be named 'start,r1,og,time'. Two start and end points for a transect must be recorded if the transect runs through a small housing development or forest fire and portions of the transect on either side of the restricted airspace can be surveyed,.

For GOEA locations, name the waypoints 'ge1', 'ge2', etc. The computer will not allow duplicate names, so for each survey crew GOEA locations will be numbered 1 through the total number of GEOA groups observed during the survey by each crew. Waypoints given to the field data form recorder for insertion into the 'Waypoint ID' field on the data form will be 'ge1', 'ge2', etc. Good communication between the front right observer with the computer and GPS unit and the field data form recorder will ensure that GEOA records can be tied to recorded locations in the computer.

Waypoints for habitat changes not at transect start or end points will be named 'og,1,time', for the first habitat change to Open Grassland/Shrub Step on transect 1. For example, if Transect 2 starts over Open Grassland/Shrub Step, then crosses into Rocky/Rugged habitat, where 2 GOEA are observed (this is the 3rd GOEA group observed by this crew), and back over Open Grassland/Shrub Step habitat, the following waypoints should be entered into the computer at the appropriate locations: 'start,2,og,time', '2,r,time', 'ge3', '2,og,time', and 'stop,2,og,time'. After entering the waypoint name into the computer, click on the 'Show on Map' button.

Forested Rugged (FR): Habitats that are predominately forested and have rugged or steeply sloping topography should be labeled "FR". Examples of this habitat type

include coniferous forests in Rocky Mountain National Park, Bitterroot Mountains, and aspen forests in CO and NV. When flying over this type of landscape, it is expected that pilots will fly from ridge top to ridge top, thus narrow canyons and steep draws will be flown over at AGLs well above elevations of 150 m (500 ft). Forest type (coniferous vs. deciduous) should be recorded within the comment section.

> *Survey Method:* Higher elevations (rugged flying conditions) will be flown over this habitat type (500 ft).

Forested Gentle (FG): Habitats that are predominately forested but have relatively little change in topography should be labeled "FG".

> *Survey Method:* Rugged flying protocols are expected over this habitat type (500 ft).

Open Grassland / Shrub Steppe (OG): Habitats that are open and have relatively low growing vegetation should be labeled "OG". Example habitat types include sagebrush flats, other shrub habitats, and grasslands. The topography of this type of landscape is relatively gentle, but can include knobs and occasional ridges. Flat areas dominated by tilled agriculture are also included in this category. Agricultural areas should be noted within the comment section of the field data form. This habitat is expected to provide the best visibility for spotting perched or flying eagles.

> *Survey Method:* It is expected that safe flying protocols will be used over this habitat (350 ft).

Rocky / Rugged (R): This habitat is characterized by rugged canyon country found in the southwest U.S, or open alpine habitats above tree line. Occasional canyons do not fall in to this category, rather, this habitat is characterized by numerous canyons or mountain peaks and vegetation is dominated by shrub-steppe, grassland, bare ground or alpine zones above timberline. When flying over this landscape, it is expected that pilots will fly from ridge top to ridge top, thus canyons or draws will be flown at AGLs well above elevations of 150 m (500 ft).

> *Survey Method:* Rugged flying protocols are expected over this type of habitat (500 ft).

Piñon – Juniper, Gentle (PG): This habitat is dominated by Piñon and Juniper Forests that have relatively gentle topography. Areas have 50 % or greater coverage of PJ forest.

> *Survey Method:* It is expected that safe flying protocols will be used over this habitat (350 ft).

Piñon – Juniper, Rugged (PR): This habitat type is dominated by Piñon and Juniper Forests that have relatively rugged topography. Areas have 50 % or greater coverage of PJ forest.

Survey Method: Rugged flying protocols will be used over this habitat (500 ft).

Open Water (OW): Small portions of a few transects go over water bodies of moderate size. Mark waypoints where the transect begins to fly over open water, and where the transect passes back over terra firma.

Survey Method: Rugged flying protocols will be used over this habitat (500 ft).

Other: This category should include all other landscapes not described above. If the other category is used, please provide a thorough description within the comments, including how characteristics of the habitat type affect detectability of birds.

Survey Method: *Survey method should be recorded on the field data form (i.e., 350 ft or 500 ft).*

Transect, Observer, and Weather Documentation – At the beginning and end of each survey flight when the aircraft is on the ground or in transit to the survey area, the field data form recorder is responsible for entering information for individual transects. Documentation includes, but is not limited to, the crew names and their positions within the aircraft, weather conditions, transect number to be flown, and the direction the flight line is flown (east-to-west or west-to-east). Weather information should include cloud cover percentage (0 to 100% CC), air temperature and wind speed.

Data Entry and Back-Up – At the end of each survey day, the crew leader will be responsible for entering data from the field data forms into the ACCESS database designed specifically for this study. This will ensure that any discrepancies/errors in the field data forms are corrected while the survey under question is fresh in the minds of the crew. It will also serve as a backup in case field data forms are lost or damaged during the study. Daily data (MapSource locations) and the updated ACCESS database should be uploaded to the WEST FTP site every evening. To access the WEST FTP site, go to ftp.west-inc.com.

To save waypoint locations and information at the end of each survey day, open nRoute, select the 'Waypoints' tab, then 'File' and 'Export'. Save the 'gdb' file and include the date in the file name.

Transects Over Restricted Airspace

At the end of each survey day, the crew needs to plan which transects will be flown the following day. This should be done with the help of the pilot, who can determine which airport(s) will be used for fueling, and refer to his/her flight maps and GPS determine if the designated transects cross restricted or dangerous airspace. Every effort has been made to identify restricted airspace prior to sending crews out into the field. If transects are recognized as running through restricted airspace, over new housing/office building

development, or close to a forest fire and access cannot be obtained or it is deemed unsafe, then the nearest alternate transect should be flown. The only circumstances under which a transect can be dropped or not fully completed are: forest fire; restricted airspace; crossing over large housing or industrial developments; or sudden dangerous weather or limited visibility. If a transect is dropped or not flown from start to end, the explanation of the deviation from the planned survey must be recorded on a field data form and communicated to Ryan.

A list of alternate transects has been created. This list should be used to make up for dropped or shortened transects. The total length of all primary transects is 17,531 km, and our goal each year is to survey that total length. If a transect is dropped due to the reasons mentioned above, then the nearest available alternate transect within the BCR should be flown. If only a portion of a primary transect is not flown, and the total length not flown is >25 km, then survey the complete length of the nearest available transect within the BCR. If < 25 km of a primary transect is dropped, do not fly an alternate transect. Keep a running tally of the total lengths of primary transects dropped in each BCR, and a tally of the total lengths of alternate transects surveyed. The crew leaders will make sure these tallies are approximately equivalent within each BCR. If the tally of total lengths of primary transects dropped minus the tally of the total lengths of alternate transects surveyed is > 25 km, then the nearest available alternate transect should be surveyed. However, never drop a primary transect simply because the crew has flown more alternate transects than necessary. This will help us efficiently reach our goal of flying a total of 17,531 km of transects, appropriately distributed across the four BCRs.

Example Field Data Form

Transect # 13 was flown by the North crew on 16 August 2006, starting at 7:30. This transect was flown in an east to west direction during good conditions – 10% cloud cover and no wind. Ryan and Rhett were on the right side of the aircraft, and Tory was the back-left observer.

Waypoint ID 28: This waypoint marks the location of a tree in which 2 GOEA, 1 juvenile and 1 adult, were observed by Tory in the back-left position in the aircraft. Tory visually estimated the perpendicular distance from the transect line to the tree to be 320 m. These birds were successfully flushed from their perched positions for aging.

Waypoint ID 29: This waypoint marks the location directly under where a flying GOEA was first observed over Forested Gentle habitat, independently by both Rhett AND Ryan. The GOEA was flying over a forested portion of the landscape, about 200 m away from the transect line.

Waypoint ID 30: This waypoint marks the location of a power pole on which 1 sub-adult GOEA was seen on the right side of the aircraft over Open Grassland/Shrub Step habitat by Ryan, but missed by Rhett. Ryan visually estimated the perpendicular distance from the transect line to the power pole to be 125 km. This GOEA was successfully flushed from its perched position for better aging.

Waypoint ID 31: This waypoint marks the location where 1 unknown adult GOEA was observed over Open Grassland/Shrub Step habitat by Tory. Visual estimation of the perpendicular distance from the transect line to the GOEA perched on a hale bale was 600 m. The pilot was unable to flush this bird.

Notice the 'Transect Comments' section at the bottom of the field data form.

Transect # 13 Direction: EW / WE Date: 8/16/06 Start Time: 730 End Time: 845 Data Recorder Tory

Weather: 10% cloud cover, no wind Crew: FR Ryan BR Rhett BL Tory

Waypoint ID	Total GOEA	Age: Total Number Juv	SA	AD	UI	UA	Unk	Circle 1+ Seen by	Circle 1+ Habitat	Activity	Distance meters	Description of Location
28	2	1		1				FR BR BL	FR FG R OG PJ OT	P F	320	in tree
	Comments: flushed both											
29	1			1				FR BR BL	FR FG R OG PJ OT	P F	200	over forest
	Comments:											
30	1		1					FR BR BL	FR FG R OG PJ OT	P F	125	power pole
	Comments: flushed											
31	1					1		FR BR BL	FR FG R OG PJ OT	P F	600	hay bale
	Comments: coulednt flush											
								FR BR BL	FR FG R OG PJ OT	P F		
	Comments:											
								FR BR BL	FR FG R OG PJ OT	P F		
	Comments:											
								FR BR BL	FR FG R OG PJ OT	P F		
	Comments:											
								FR BR BL	FR FG R OG PJ OT	P F		
	Comments:											

Habitat Codes: FR = Forested Rugged FG = Forested Gentle OG = Open Grassland/Shrub Step PJ = Pinyon Pine/Juniper R = Rocky / Rugged OT = Other

Activity Codes: P = Perched F = Flying

Age Codes: Juv = Juvenile SA = Sub-Adult AD = Adult UI = Unknown Immature (Juvenile or Sub-adult) UA = Unknown Adult (Audlt or Sub-adult) Unk = Unknown

Transect Comments: ended transect 5 km short due to housing development

Bean, Michael

From: Bean, Michael
Sent: Sunday, November 07, 2010 6:35 AM
To: Webster, Stuart
Subject: RE: Follow up to our 21 Oct meeting

Stu: I note from the summary that the 2010 data are not yet available. If you learn that they have become available, would you please let me know? Thanks. -- Michael Bean

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From: Webster, Stuart [Stuart.Webster@iberdrolaren.com]
Sent: Friday, November 05, 2010 9:37 PM
To: Bean, Michael
Subject: RE: Follow up to our 21 Oct meeting

Evening Michael,

Attached is the latest annual report to the FWS from the contractor, WEST (you met one of their brightest, Wally Erikson, at the meeting). I've also attached a summary of the results to date (authored by Wally).

Thank you for your consideration and have a great weekend,

IBERDROLA
RENEWABLES

Stu S. Webster
Director, Permitting and Environmental

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In the interests of the environment, please print only if necessary and recycle

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From: Bean, Michael [mailto:Michael_Bean@ios.doi.gov]
Sent: Friday, November 05, 2010 6:21 AM
To: Webster, Stuart
Subject: RE: Follow up to our 21 Oct meeting

Stu: Thank you for your thoughtful email. Please do send me the "summary detail and latest study" referenced in the second paragraph below. I would like to look more closely into this.

Michael J. Bean
Counselor to the Assistant Secretary for Fish, Wildlife and Parks
Room 3152
Department of the Interior
Washington, DC 20240
202-208-4416
202-372-7139 (fax)

From: Webster, Stuart [mailto:Stuart.Webster@iberdrolaren.com]
Sent: Wednesday, November 03, 2010 7:42 PM
To: Bean, Michael
Subject: Follow up to our 21 Oct meeting

Afternoon Michael,
I want to thank you again for being at the meeting with Secretary Salazar. I assume you get that a lot with varying degrees of sincerity so let me reiterate – I genuinely appreciated you being there. I recognize that you understand our concerns as laid out in the brief we provided prior to the meeting. I've been thinking about the discussion and much of the comments we provided elicited a request for more specifics, and while that is a valid request I would be remiss to not respectfully point out we've asked the same of the Service and BLM. I truly mean no disrespect and do appreciate the circumstance the agencies are in. In thinking about your request for specifics, I would like to provide the following:

- The notion that the golden eagle is, to quote from our meeting, "in significant decline," is not substantiated by any data that the FWS has brought forth. It is my understanding that a methodology developed by WEST (published in *Journal of Wildlife Management 71(2):395-402: 2007)* has been employed for four years and is meant to assemble sufficient quality data to estimate population trends over a 20-yr period with some statistical rigor. While not statistically significant, the general trend for different eagle populations is a negative trend line (i.e., decline). This is the only reference that is made when queried about why such drastic measures on wind energy need to be taken for the golden eagle. I can provide a summary detail and the latest study, prepared by the study's author, upon your request.
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made to date, the project's Draft EIS should be published so the NEPA process continues, thereby allowing for full investigation of data and circumstance to conclude a determination at the appointed time in the process.
Out of respect for your time I'll only provide further detail if you request it. My current status is I'm asking for our third FWS meeting to discuss the relative merits of our ABPP developed to date for the project (specifically golden eagles). We've developed an adaptive management structure and proposed development of a decision-making structure for the adaptive management program. We understand the nature and intent of the guidelines and the statutory issues that dominate the back of minds in trying to work through to some workable solution but my opinion is the only way we're going to get there is to have a project's due diligence (NEPA) go forward. That the project has a probability of having the environmental attributes that the guidelines attempt to characterize as unreasonable risk to eagles will force the issue on a practical level and in the public forum so that we can have substantive dialog. Anything short of that will only add fuel to the fire of rhetorical debate.
Michael , I don't mean to bring project-specific issues and concerns to your attention, which is rightfully considering the broader view of things, so let me be clear that I am not asking you to involve yourself to this project effort. We are working with the Region 8 Director and his staff and thus far while we are at significant risk of not qualifying the project for ITC we remain hopeful that things will somehow work out. The same cannot be said for other project proponents. My intent here is instead of hobbling together all the various and sundry pieces of information and place it in the context of an industry-wide issue, as I alluded to above, this example is happening throughout the industry. Turbine sales are in default because the developer no longer has a viable project; PPA negotiations were all but done on another project but the utility pulled away with concerns over the golden eagle policy; project proponents are committing to measures that most other developers genuinely don't understand how to factor in to their economics; and no significant wind energy projects made it on the fast track process but plenty of environmental concerns have now been raised as a result of the heavy push of solar with what the NGO community perceives as insufficient environmental due diligence. Thanks again for your attentiveness to these issues. I wish to express in no uncertain terms that I make no habit of claiming the sky is falling. The evidence is clear that this is a significant issue for renewable energy being successful in the United States.

Best regards and have a great evening,

IBERDROLA
RENEWABLES

Stu S. Webster
Director, Permitting and Environmental

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Telephone: (503) 796–6951; Mobile: (503) 320–1099
stu.webster@iberdrolaren.com

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Bean, Michael

From: Bean, Michael
Sent: Thursday, April 07, 2011 11:07 AM
To: 'Webster, Stuart'
Subject: RE: Opportunity to meet?

Good. Let's plan on meeting immediately after the AWEA meeting ends.

Michael J. Bean
Counselor to the Assistant Secretary for Fish, Wildlife and Parks
Room 3152
Department of the Interior
Washington, DC 20240
202-208-4416
202-372-7139 (fax)

From: Webster, Stuart [mailto:Stuart.Webster@iberdrolaren.com]
Sent: Thursday, April 07, 2011 10:56 AM
To: Bean, Michael
Subject: Re: Opportunity to meet?

Sounds good, Michael and yes, I would like to meet with David as well, if he's available. I can be available either day/time.

Best regards,
Stu

From: Bean, Michael <Michael_Bean@ios.doi.gov>
To: Webster, Stuart
Sent: Thu Apr 07 07:28:09 2011
Subject: RE: Opportunity to meet?

Stu: Assuming the government is in business next week, I would be happy to meet with you. Best times for me are Tuesday immediately after the AWEA meeting or at 4:30pm, and Wednesday at 5pm. If you wish, I can invite David Cottingham to join us. He is the new special advisor to the FWS director on renewable energy matters.

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From: Webster, Stuart [mailto:Stuart.Webster@iberdrolaren.com]
Sent: Wednesday, April 06, 2011 2:00 PM
To: Bean, Michael
Subject: Opportunity to meet?

Afternoon Michael,

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Best regards and hope to see you,

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Sent: Thursday, April 07, 2011 10:28 AM
To: 'Webster, Stuart'
Subject: RE: Opportunity to meet?

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Bean, Michael

From: Bean, Michael
Sent: Friday, November 05, 2010 9:21 AM
To: 'Webster, Stuart'
Subject: RE: Follow up to our 21 Oct meeting

Stu: Thank you for your thoughtful email. Please do send me the "summary detail and latest study" referenced in the second paragraph below. I would like to look more closely into this.

Michael J. Bean
Counselor to the Assistant Secretary for Fish, Wildlife and Parks
Room 3152
Department of the Interior
Washington, DC 20240
202-208-4416
202-372-7139 (fax)

From: Webster, Stuart [mailto:Stuart.Webster@iberdrolaren.com]
Sent: Wednesday, November 03, 2010 7:42 PM
To: Bean, Michael
Subject: Follow up to our 21 Oct meeting

Afternoon Michael,

I want to thank you again for being at the meeting with Secretary Salazar. I assume you get that a lot with varying degrees of sincerity so let me reiterate – I genuinely appreciated you being there. I recognize that you understand our concerns as laid out in the brief we provided prior to the meeting. I've been thinking about the discussion and much of the comments we provided elicited a request for more specifics, and while that is a valid request I would be remiss to not respectfully point out we've asked the same of the Service and BLM. I truly mean no disrespect and do appreciate the circumstance the agencies are in. In thinking about your request for specifics, I would like to provide the following:

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Bean, Michael

From: Bean, Michael
Sent: Tuesday, July 19, 2011 2:32 PM
To: 'Webster, Stuart'; Scott, Janea
Subject: RE: FAC & AWWI mtg

I'm free between 4 and 4:30 on Friday.

Michael J. Bean
Counselor to the Assistant Secretary for Fish, Wildlife and Parks
Room 3152
Department of the Interior
Washington, DC 20240
202-208-4416
202-372-7139 (fax)

From: Webster, Stuart [mailto:Stuart.Webster@iberdrolaren.com]
Sent: Tuesday, July 19, 2011 12:03 PM
To: Scott, Janea; Bean, Michael
Subject: RE: FAC & AWWI mtg

Great. We can firm things up later in the week once the FAC is underway but initially I would propose 4pm on Friday. I recognize that is not ideal, given proximity to the weekend. I have a 2pm with Jerome Ford and Jeff Underwood at their offices but should be able to make it to your office by 4pm.

Best regards,

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---

From: Scott, Janea [mailto:Janea_Scott@ios.doi.gov]
Sent: Tuesday, July 19, 2011 7:57 AM
To: Webster, Stuart; Bean, Michael
Subject: Re: FAC & AWWI mtg

Hi Stu,

I am out of the office through today, but will be back on Wednesday. Yes, I'd be happy to meet with you later this week after the FAC.

Take care,
Janea

From: Webster, Stuart <Stuart.Webster@iberdrolaren.com>
To: Bean, Michael; Scott, Janea
Sent: Mon Jul 18 17:55:37 2011
Subject: FAC & AWWI mtg

Evening Michael and Janea,

I'm coming to DC this week for the FAC and an AWWI Board meeting. I recognize this week is a busy one for the Department but on the chance you have some availability, I would enjoy a meeting to catch up on things with you. I'll be in town until Saturday morning.

Best regards,
Stu
503.320.1099

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Bean, Michael

From: Webster, Stuart [Stuart.Webster@iberdrolaren.com]
Sent: Monday, December 13, 2010 1:02 AM
To: Bean, Michael
Subject: FW: Region 1; USFWS Golden Eagle workshop

Follow Up Flag: Follow up
Flag Status: Flagged

Evening Michael,

I would ask that you not distribute this email but below is an outreach by Renewable Northwest Project to industry members about an opportunity to provide input to FWS regions and headquarter representatives (hosted by region 1). I would greatly appreciate your thoughts on this effort. Myself and others in industry are very willing to expend effort but I've got questions as to how much traction what is being proposed by region 1 has with other regions and headquarters. Happy to talk further

Best regards and have a great evening,

Stu S. Webster
Director, Permitting and Environmental
Iberdrola Renewables
Technical Services
1125 NW Couch St, Suite 700; Portland, OR 97209
Telephone: (503) 796-6951; Mobile: (503) 320-1099 stu.webster@iberdrolaren.com P In the interests of the environment, please print only if necessary and recycle

Hi folks,

As you know, over the past few months we have urged Region 1 USFWS officials to engage more directly members of the wind industry as they develop a program for compensation/mitigation regarding wind farm operations and development. Our efforts have borne fruit; in preparation for a January meeting of the members of the national USFWS Golden Eagle team (I don't have the correct title of this group; suffice to say it is a collection of federal officials, charged with developing the Service's plan for Golden Eagle and Wind Turbine guidelines), Region 1 has proposed a workshop designed to develop 1) suggestions regarding a research protocol to determine the conservation needs/species threats, and; 2) a suite of compensation/ mitigation ideas for consideration by the federal officials when they meet privately. They have asked RNP to sponsor the meeting, and devise its participant make-up in a manner consistent with federal advisory committee guidelines (balanced representation of key stakeholder groups). Our workshop would take place the day before federal officials meet, giving us a great opportunity to provide them input just before the meet among themselves.

I am familiar with this approach to policy development: mindful of restrictions regarding involvement in policy deliberation by non- government folks, while at EPA I organized workshops prior to meetings of US, Mexico, and Canadian officials to discuss "trade and environment" policy implementation in the North American Free Trade Agreement. As a former official, I can tell you this kind of timing results in direct impact on policy.

RNP would work with USFWS to 1) develop the workshop agenda and 2) select its participants. The ideal workshop size would include no more than 25 participants -- and we should expect roughly ten USFWS officials (WA, ID, OR, plus national experts and Washington DC issue

leads) -- leaving us with about 15 slots to cover academic experts, industry folks, conservation/environmental folks, local government, tribes, and utilities. Given the regional nature of the workshop focus, some of the selections should be relatively easy (for example, PacificCorps is a good utility candidate); others stakeholder groups may not be as easy to narrow.

While there are considerable negatives associated with accepting this proposal, in the end I know of no other region willing to engage us as directly -- or rely on an AWEA regional partner to organize the workshop. While it will entail a good deal of time and energy, as important as this issue is to our community (and to others), I think we should fully exploit this opportunity by partnering with Region 1 to make it happen.

The workshop (and follow-up meeting of USFWS officials) would take place sometime during the week of January 10. The workshop could run either one or two days, and USFWS officials would help us secure participation from the proper set of federal officials.

Our first steps are as follows:

1. Develop a list of possible participants:
   By Friday, I would like your participant suggestions in the following categories:
   - conservation/environmental groups (regional groups only)
   - industry GE/wildlife experts (tetra tech, etc)
   - academic experts
   - county, tribes
   - industry
   - utility

2. Develop workshop agenda:
   Again by Friday, please send me your ideas regarding how to structure a workshop(s).
   1. Research/Identification of threats
   2. Compensation/mitigation measures

   While there are many issues to cover, two items already identified are:
   1. The role/relevance of the FACA guidelines already developed by the multii-stakeholder group
   2. Given all the threats facing Golden Eagles, the narrow focus on wind energy reflected in USFWS efforts

3. Evaluation metrics: Can we devise a set of metrics useful to determine policy effectiveness?

I know this is both a lot to swallow, and a very short time-line to get something. If we did not have such a full board meeting agenda,
we could insert this issue into our discussion calendar.
Unfortunately, except for a brief mention of Golden Eagles during the
Director's report, we've already got a fully allocated meeting.
Perhaps we can find some space on the margins of tomorrow's meeting to discuss. I would also be happy to organize something for Friday.
Meanwhile, comments, thoughts, suggestions -- all are welcome.

thanks

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Bean, Michael

From: Webster, Stuart [Stuart.Webster@iberdrolaren.com]
Sent: Thursday, April 07, 2011 10:56 AM
To: Bean, Michael
Subject: Re: Opportunity to meet?

Sounds good, Michael and yes, I would like to meet with David as well, if he's available. I can be available either day/time.

Best regards,
Stu

From: Bean, Michael <Michael_Bean@ios.doi.gov>
To: Webster, Stuart
Sent: Thu Apr 07 07:28:09 2011
Subject: RE: Opportunity to meet?

Stu: Assuming the government is in business next week, I would be happy to meet with you. Best times for me are Tuesday immediately after the AWEA meeting or at 4:30pm, and Wednesday at 5pm. If you wish, I can invite David Cottingham to join us. He is the new special advisor to the FWS director on renewable energy matters.

Michael J. Bean
Counselor to the Assistant Secretary for Fish, Wildlife and Parks
Room 3152
Department of the Interior
Washington, DC 20240
202-208-4416
202-372-7139 (fax)

From: Webster, Stuart [mailto:Stuart.Webster@iberdrolaren.com]
Sent: Wednesday, April 06, 2011 2:00 PM
To: Bean, Michael
Subject: Opportunity to meet?

Afternoon Michael,

I'll be in DC all next week, Thursday and Friday being reserved for AWWI Board of Directors mtg. I believe I'll be meeting with you along with others from AWEA on the 12th. On the chance that you have some additional availability, I would enjoy some additional time to go over with you Iberdrola-specific issues. We have our annual report completed and to FWS later this week; you'll be receiving it as well); Tule and Manzana, both of which are high profile projects for both us as well as the DoI remain challenged with respect to policy uncertainty around GOEA and condor, respectively; public comments from Iberdrola with respect to the draft siting and ECP guidance documents; and a couple other matters I believe you should be aware of with respect to our efforts and activities. I'm getting in Monday evening and around all week.

Best regards and hope to see you,

IBERDROLA
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Stu S. Webster
Director, Permitting and Environmental

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Bean, Michael

From: Webster, Stuart [Stuart.Webster@iberdrolaren.com]
Sent: Thursday, January 13, 2011 3:52 AM
To: Bean, Michael
Subject: RE conference and R8 meeting

Evening Michael,

I wanted to sanity check a couple of rumors with you:

1) I've heard the RE conference is likely getting called off – any truth to this or is this the usual scuttlebutt.
2) I attended with some other industry colleagues a meeting between AWEA and Region 8 this week. It was represented that the ABPP and eagle guidelines would be issued by the Service on 31 January. I was under the impression that there was some intention of having the invitees review the documents at the RE conference and then they get rolled out subsequent to that event.

I realize there's a lot of pressure to address concerns raised last fall and also recognize that it takes time to meaningfully do so. However, when I asked R8 what external stakeholders inputted on the revised eagle guidelines I was told for the sake of expediency that there was no external vetting. As you know, the main concern raised by industry was the lack of participation of what was developed over the summer. I fear the same criticism will be brought up if the revised guidelines have elements as unreasonable and unrealistic as the previous version.

Much like we've talked about before, while the meeting with R8 was a good dialog and there seemed to be agreement on most approaches to addressing golden eagle issues effectively without encumbering the industry, there seems to be miscommunication/misunderstanding when things are documented by the Service. The same notion of robustness and case-by-case basis does not translate well into written word/policy – perhaps the nature of such things.

On another note, I was excited to see when we introduced the idea of AWWI being a willing and able resource for the Service in developing a compensatory mitigation program for GOEA, that R8 was intrigued and seemed interested to learn more. We [AWWI board] need to vet this further but we didn't want to do so if the Service was working on a program already. I've talked with my TNC counterpart and he was happy to hear that we might have something for AWWI to dig into that has immediate relevancy. I'm not sure what the logistics would be but if you have thoughts I'm interested to hear them, as always.

Best regards,

IBERDROLA
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Bean, Michael

From: Webster, Stuart [Stuart.Webster@iberdrolaren.com]
Sent: Thursday, January 06, 2011 8:50 PM
To: Bean, Michael
Subject: follow up to phone conversation
Attachments: Constraints Map (E-size).pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Afternoon Michael,

Thanks again for following up with me. Regarding Tule, I looked through the biological reports and there were two observations of GOEA:

- Spring '07 one was observed in the valley to the west of our project (on tribal land, approximately 1,000 m below ridgeline).
- Fall '08: one was observed on the southern boundary of the western portion of our project, along the same ridgeline.

I had mentioned three observations, the third that I recalled was what is termed "incidental," which is a recorded observation made outside the parameters of the survey protocol (either temporally, spatially or a combination of both) and therefore not included in the estimate of avian use of the project area. The report does not specify where the incidental observation was made but it was somewhere over the project area.

I've attached a constraints map which will detail the infrastructure proposed (there is some variability with what I've attached and what is the most current but the general layout is the same) as well as various constraints that have been identified throughout the due diligence period of the project's development (cultural, land, biological, etc. – the legend will provide a sense of the extent of constraints considered).

Feel free to contact me if you wish to discuss further and I believe I'm confirmed for coming out for the RE conference. I've also heard through the grapevine that the second day is dedicated to stakeholder review of the FAC recommendations (with revisions), GOEA guidelines (revised) and ABPP guidelines.

Best regards and have a great evening,

IBERDROLA
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Bean, Michael

From: Webster, Stuart [Stuart.Webster@iberdrolaren.com]
Sent: Monday, July 25, 2011 1:17 AM
To: Bean, Michael; Scott, Janea
Cc: Cottingham, David; Pitts, Alexandra
Subject: Tule: follow up to Friday's discussion

Follow Up Flag: Follow up
Flag Status: Flagged

Evening Michael and Janea,

Thank you for your time on Friday. As we discussed, the following talking points have been assembled for you regarding Tule. Jesse Gronner will be attending the REPG. Please pass along to Steve Black as I understand he will be attending the REPG; I've asked Jesse to seek a discussion with Steve and Alexandra Pitts, as she has been helping us at the regional level to address these remaining issues.

- In the spring, the FWS rejected our qualitative approach to GOEA risk and requested a quantitative risk assessment. We calculated the quantitative risk in coordination with FWS and using the FWS model, and when the result was 0 for the McCain Valley turbines, and 2 eagles in 20 years for the Ridge turbines, they informed us on Thursday (7/21) that they were not comfortable with the quantitative assessment, and now want a qualitative assessment.
    - This is holding up our ability to finalize the ABPP
    - A solution may be to include both quantitative and qualitative assessments, however, the FWS doesn't seem to like either of them. Iberdrola needs final direction from the FWS technical eagle team as to what is needed to derive a take number.
        - Iberdrola agreed to the proposal by FWS on 7/19 to calculate a take number based on data FWS has. The take number can be amended based on new data when the revision to the ABPP is accomplished for the ridge turbines.
- It is essential that release of the Final EIR is not delayed beyond the current track (release in the second week of August). This is our only hope left for qualifying for ARRA. It goes without saying that it is essential that we be able to start construction on BLM before the end of 2011. To that end, the following approach was proposed to the FWS at our in-person meeting on 6/28 with Tom McCabe, Heather Beeler, and Alexandra Pitts:
    - We understand that the BLM cannot release the ROD until the ABPP is completed.
    - However, resolving the ABPP is not necessary to release the FEIR, which is ready for release but for the FWS and IRI to finish the ABPP.
    - It was agreed that some interim approach could allow the FEIR to be published by the BLM if they were in receipt of some communication from FWS that agreement on the ABPP was forthcoming.
    - Other transmission and solar projects approached time constraints in a similar fashion. For example, the Ivanpah (solar) project was allowed to work on their ABPP up until the Notice to Proceed for construction (which was after the FEIR and after the ROD):
        - "The BLM coordinated with USFWS concerning requirements of the Bald and Golden Eagle Protection Act. In order to comply with the Act, and based on the USFWS recommendation (memo dated September 15, 2010, available as part of the project record), the BLM will require the preparation of an Avian Protection Plan (APP) prior to issuance of an NTP for the project (see MM-BIO 18 and stipulations). The applicant is considering whether to approach this requirement on a programmatic basis for all of their transmission system or if a project specific APP will be prepared for the EITP."
- IRI has accommodated the FWS by splitting the project into two Phases.

- We still need to resolve Phase 2 in a continuous timeline so that construction can potentially be completed by the end of 2012, assuming adequate data supporting Phase 2 approval is provided to the satisfaction of FWS.
- The FWS may be seeking another year of data on GOEA on the ridge.
  - We engaged in earnest on telemetry and ground observations for 2011 with the understanding that we would proceed with developing a plan while data was collected.
  - We can collect data for the remainder of 2011, but we cannot wait to collect another full year of data without delaying commercial operation of Phase 2 beyond 2012.

- We have proposed to the CPUC that certification of the EIR be bifurcated from the decision on SDGE's ECO project in order to save some time. We are open to other approaches that will expedite the process given the ARRA deadline at the end of the year, but the County cannot act until the EIR is certified.
- We are working with the County and are seeking approval in early December 2011.

As I stated during our discussion, we appreciate the difficultly of the assessments that need to be conducted but strongly feel that the recent intensive site surveys have largely confirmed what our initial project due diligence has shown – that most of the project area does not pose an attraction to eagles and therefore the risk is manageable through the mitigation measures imposed by the BLM as well as those proposed by Iberdrola. This is certainly the case for the valley turbines which constitute the first phase of the project that we are immediately concerned with. We recognize the ridge turbines remain a point of concern but the immediate action of moving the FEIR forward in no way precludes our ability to continue to work on resolving how the ridge turbines will ultimately be addressed (including potentially the loss of some of those turbines). We ask that FWS determine and provide what assurances the BLM needs to move the FEIR to publication in the next week or so; we will continue to work with the FWS to finalize an ABPP prior to the ROD, no later that issuance of a NTP.

Please don't hesitate to contact me with questions, comments or concerns. Thanks to you and the Region 8 staff and managers for working so closely with us on this matter.

Best regards,

IBERDROLA
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Stu S. Webster
Director, Permitting and Environmental

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Bean, Michael

From: Webster, Stuart [Stuart.Webster@iberdrolaren.com]
Sent: Tuesday, July 19, 2011 5:43 PM
To: Bean, Michael; Scott, Janea
Subject: RE: FAC & AWWI mtg

Sounds great, Michael, I'll see you at your office then.

IBERDROLA
RENEWABLES

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Director, Permitting and Environmental

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From: Bean, Michael [mailto:Michael_Bean@ios.doi.gov]
Sent: Tuesday, July 19, 2011 2:32 PM
To: Webster, Stuart; Scott, Janea
Subject: RE: FAC & AWWI mtg

I'm free between 4 and 4:30 on Friday.

Michael J. Bean
Counselor to the Assistant Secretary for Fish, Wildlife and Parks
Room 3152
Department of the Interior
Washington, DC 20240
202-208-4416
202-372-7139 (fax)

From: Webster, Stuart [mailto:Stuart.Webster@iberdrolaren.com]
Sent: Tuesday, July 19, 2011 12:03 PM
To: Scott, Janea; Bean, Michael
Subject: RE: FAC & AWWI mtg

Great. We can firm things up later in the week once the FAC is underway but initially I would propose 4pm on Friday. I recognize that is not ideal, given proximity to the weekend. I have a 2pm with Jerome Ford and Jeff Underwood at their offices but should be able to make it to your office by 4pm.

Best regards,

IBERDROLA
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From: Scott, Janea [mailto:Janea_Scott@ios.doi.gov]
Sent: Tuesday, July 19, 2011 7:57 AM
To: Webster, Stuart; Bean, Michael
Subject: Re: FAC & AWWI mtg

Hi Stu,

I am out of the office through today, but will be back on Wednesday. Yes, I'd be happy to meet with you later this week after the FAC.

Take care,
Janea

From: Webster, Stuart <Stuart.Webster@iberdrolaren.com>
To: Bean, Michael; Scott, Janea
Sent: Mon Jul 18 17:55:37 2011
Subject: FAC & AWWI mtg

Evening Michael and Janea,

I'm coming to DC this week for the FAC and an AWWI Board meeting. I recognize this week is a busy one for the Department but on the chance you have some availability, I would enjoy a meeting to catch up on things with you. I'll be in town until Saturday morning.

Best regards,
Stu
503.320.1099

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Bean, Michael

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Sent: Tuesday, July 19, 2011 12:03 PM
To: Scott, Janea; Bean, Michael
Subject: RE: FAC & AWWI mtg

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Best regards,

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From: Scott, Janea [mailto:Janea_Scott@ios.doi.gov]
Sent: Tuesday, July 19, 2011 7:57 AM
To: Webster, Stuart; Bean, Michael
Subject: Re: FAC & AWWI mtg

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Janea

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To: Bean, Michael; Scott, Janea
Sent: Mon Jul 18 17:55:37 2011
Subject: FAC & AWWI mtg

Evening Michael and Janea,

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503.320.1099

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Bean, Michael

From: Webster, Stuart [Stuart.Webster@iberdrolaren.com]
Sent: Monday, July 18, 2011 5:56 PM
To: Bean, Michael; Scott, Janea
Subject: FAC & AWWI mtg

Follow Up Flag: Follow up
Flag Status: Completed

Evening Michael and Janea,

I'm coming to DC this week for the FAC and an AWWI Board meeting. I recognize this week is a busy one for the Department but on the chance you have some availability, I would enjoy a meeting to catch up on things with you. I'll be in town until Saturday morning.

Best regards,
Stu
503.320.1099

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Bean, Michael

From: Webster, Stuart [Stuart.Webster@iberdrolaren.com]
Sent: Thursday, April 07, 2011 2:21 PM
To: Bean, Michael
Subject: RE: Opportunity to meet?

Sounds good. I'll block out 11am ET on Tuesday, assuming the 10am meeting is an hour.

IBERDROLA
RENEWABLES

Stu S. Webster
Director, Permitting and Environmental

Iberdrola Renewables
Technical Services
1125 NW Couch St, Suite 700; Portland, OR 97209
Telephone: (503) 796–6951; Mobile: (503) 320–1099
stu.webster@iberdrolaren.com

In the interests of the environment, please print only if necessary and recycle

---

From: Bean, Michael [mailto:Michael_Bean@ios.doi.gov]
Sent: Thursday, April 07, 2011 8:07 AM
To: Webster, Stuart
Subject: RE: Opportunity to meet?

Good. Let's plan on meeting immediately after the AWEA meeting ends.

Michael J. Bean
Counselor to the Assistant Secretary for Fish, Wildlife and Parks
Room 3152
Department of the Interior
Washington, DC 20240
202-208-4416
202-372-7139 (fax)

From: Webster, Stuart [mailto:Stuart.Webster@iberdrolaren.com]
Sent: Thursday, April 07, 2011 10:56 AM
To: Bean, Michael
Subject: Re: Opportunity to meet?

Sounds good, Michael and yes, I would like to meet with David as well, if he's available. I can be available either day/time.

Best regards,
Stu

From: Bean, Michael <Michael_Bean@ios.doi.gov>
To: Webster, Stuart
Sent: Thu Apr 07 07:28:09 2011
Subject: RE: Opportunity to meet?

Stu: Assuming the government is in business next week, I would be happy to meet with you. Best times for me are Tuesday immediately after the AWEA meeting or at 4:30pm, and Wednesday at 5pm. If you wish, I can invite David Cottingham to join us. He is the new special advisor to the FWS director on renewable energy matters.

Michael J. Bean
Counselor to the Assistant Secretary for Fish, Wildlife and Parks
Room 3152
Department of the Interior
Washington, DC 20240
202-208-4416
202-372-7139 (fax)

From: Webster, Stuart [mailto:Stuart.Webster@iberdrolaren.com]
Sent: Wednesday, April 06, 2011 2:00 PM
To: Bean, Michael
Subject: Opportunity to meet?

Afternoon Michael,

I'll be in DC all next week, Thursday and Friday being reserved for AWWI Board of Directors mtg. I believe I'll be meeting with you along with others from AWEA on the 12th. On the chance that you have some additional availability, I would enjoy some additional time to go over with you Iberdrola-specific issues. We have our annual report completed and to FWS later this week; you'll be receiving it as well); Tule and Manzana, both of which are high profile projects for both us as well as the DoI remain challenged with respect to policy uncertainty around GOEA and condor, respectively; public comments from Iberdrola with respect to the draft siting and ECP guidance documents; and a couple other matters I believe you should be aware of with respect to our efforts and activities. I'm getting in Monday evening and around all week.

Best regards and hope to see you,

IBERDROLA
RENEWABLES

Stu S. Webster
Director, Permitting and Environmental

Iberdrola Renewables
Technical Services
1125 NW Couch St, Suite 700; Portland, OR 97209
Telephone: (503) 796–6951; Mobile: (503) 320–1099
stu.webster@iberdrolaren.com

In the interests of the environment, please print only if necessary and recycle

Please be advised that email addresses for Iberdrola Renewables personnel have changed to *first.last@iberdrolaREN.com* effective Aug. 16, 2010. Please make a note. Thank you.

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Please be advised that email addresses for Iberdrola Renewables personnel have changed to *first.last@iberdrolaREN.com* effective Aug. 16, 2010. Please make a note. Thank you.

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Please be advised that email addresses for Iberdrola Renewables personnel have changed to *first.last@iberdrolaREN.com* effective Aug. 16, 2010. Please make a note. Thank you.

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Bean, Michael

From: Tom Vinson [TVinson@awea.org]
Sent: Thursday, May 05, 2011 6:20 PM
To: Black, Steve
Cc: Bean, Michael; John Anderson
Subject: Re: Time Tuesday or Wednesday to meet?

Thank you. I will try to reach you by phone tomorrow to discuss your other note.

Tom Vinson
AWEA
202-384-7129

On May 5, 2011, at 5:40 PM, "Black, Steve" <steve_black@ios.doi.gov> wrote:

> Thanks Tom. We're working on this – didn't want you to feel ignored. John, thanks for your patience!
>
> Steve
>
> **From:** Tom Vinson [mailto:TVinson@awea.org]
> **Sent:** Wednesday, May 04, 2011 4:19 PM
> **To:** Black, Steve; Bean, Michael; John Anderson
> **Subject:** Time Tuesday or Wednesday to meet?
>
> Steve, Michael –
>
> Do you have time on Tuesday the 10th (anytime) or Wednesday the 11th in the morning for John and me to meet with you to discuss what we expect to say in our comments on the wind energy guidelines and eagle conservation plan guidance?
>
> Thanks.
>
> Tom

Tom Vinson
Senior Director of Federal Regulatory Affairs
American Wind Energy Association

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

tvinson@awea.org email
202.383.2535 direct
202.384.7129 cell

Bean, Michael

From: Tom Vinson [TVinson@awea.org]
Sent: Thursday, December 23, 2010 1:54 PM
To: Black, Steve; Bean, Michael; Kemkar, Neal
Cc: John Anderson; Tom Vinson
Subject: Wind industry letter on golden eagles
Attachments: eagles - final letter to Salazar 12-2010.pdf

Steve, Michael, Neal –

First, thank you very much for your work to date to find a path forward on golden eagles. We recognize and appreciate all that you're doing.

I wanted to give you a heads up on the attached letter being sent today to Secretary Salazar from several top wind energy industry leaders. It is not meant to be a reflection on the work you three have done and are continuing to do. Rather, industry leaders wanted to share their sense of urgency in finding a mutually acceptable path forward that works for both the industry and conservation of the species – and, honestly, they also wanted to share a sense of frustration with USFWS. Please know that AWEA does not intend to release this letter to the press. We just wanted to communicate in writing to you and the Secretary.

Please don't hesitate to let John (janderson@awea.org) or I know if you have any questions or concerns.

Thanks again for your work on this issue!

Tom

AWEA

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

Tom Vinson
Senior Director of Federal Regulatory Affairs
American Wind Energy Association

tvinson@awea.org email
202.383.2535 direct
202.384.7129 cell

December 23, 2010

The Honorable Ken Salazar
Secretary
U.S. Department of Interior
1849 C Street, NW
Washington, D.C. 20240

Dear Secretary Salazar:

We are writing regarding the damaging impact that U.S. Fish and Wildlife Service (USFWS) policies on golden eagles are having on the ability to move forward with the deployment of tens of thousands of megawatts of non-polluting, inexhaustible, domestic wind energy. The policies are so potentially problematic and the impact is so immediate and severe that finding a workable solution has become a top priority for our industry.

We appreciate that you and a number of your key aides have taken the time to meet with members of the wind energy industry on this issue over the last several weeks. Unfortunately, the industry has reached out to others within DOI and USFWS, as we've been directed to do, and yet the crisis remains unresolved. As such, we're hopeful that you and your team can engage further and continue to push to amicably resolve this issue.

The wind energy industry shares the goal of the DOI and USFWS of conserving natural resources, including golden eagles. As you know, the industry has a long history of being proactive and collaborative in addressing wildlife issues. We would like to do so again here.

It is our opinion, that the USFWS has unilaterally developed and embraced a series of policies based on limited and questionable science. The consequences of these policies to renewable energy developers are the imposition of unworkable requirements, confusion and uncertainty, which has impaired project financing and in some cases halted site permitting. Data collected by the American Wind Energy Association (AWEA) finds that more than 34,000 megawatts of potential wind power projects are at-risk due to USFWS polices on golden eagles alone, which jeopardizes more than 27,500 job opportunities, $103 million in potential landowner revenue, and $68 billion in investment.

The wind energy industry has proposed a path forward on this issue to the DOI and USFWS that we believe appropriately balances the conservation of the species with the deployment of clean, renewable wind energy:

- Appoint a senior official at DOI and USFWS as a lead on renewable energy;
- Withdraw all recently released rules, guidance and instruction memoranda pertaining to the golden eagle;
- Work with industry and other stakeholders to finalize implementation of the Federal Advisory Committee recommendations developed by representatives from the USFWS, industry, environmental groups, and state wildlife agencies and submitted to you in March 2010. Specifically with respect to eagles, we request that the USFWS not issue eagle-specific guidelines that are inconsistent with the FAC and that are unsupported by science and a thorough peer review process;
- Work with industry and other stakeholders to finalize a plan to provide incidental take permits for golden eagles and to develop and expedite avian protection plans where appropriate that take into account site specific conditions, focus on practical and proven solutions, and avoid a one-size-fits-all approach;

- Unfreeze NEPA and allow BLM projects to move forward with the required analysis so developers and the Department can make informed decisions; and,
- Make clear to Interior Department personnel that a proper policy under the law should focus on conservation and mitigation opportunities that protect the overall species population. Policies and actions geared to protecting every eagle at every individual project, rather than focusing on a population-level conservation approach, sets an impossible standard for any kind of development to meet, energy or otherwise.

Thank you for your consideration of our request. We look forward to working with you toward an amicable resolution.

Sincerely,

Denise Bode
Chief Executive Officer
American Wind Energy Association

John A. Lamb
President and Chief Executive Officer
Clipper Windpower Development Company Inc.

Ronald L. Litzinger
Chairman, President and Chief Executive Officer
Edison Mission Group

Ty Daul
Chief Executive Officer
North America
Element Power

Gabriel Alonso
Chief Executive Officer
Horizon Wind Energy

Don Furman
Senior Vice President
Business and Policy
Iberdrola Renewables

Ray Harris
President
MasTec

Mitch Davidson
President and Chief Executive Officer
NextEra Energy Resources

John Calaway
Director of Wind Energy Development
Pattern Energy Group

Susan Reilly
Chief Executive Officer
RES Americas

Dick Williams
President
Shell Wind Energy, Inc.

Rob Freeman
Chief Executive Officer
TradeWind Energy LLC

John Grabner
President
Cardinal Fastener & Specialty Co., Inc.

Kurt Adams
Chief Development Officer
First Wind

James Spencer
President and Chief Executive Officer
EverPower Wind Holdings, Inc.

Steve Voorhees
Chief Executive Officer
Ridgeline Energy LLC

Doug Macdonald
Senior Vice President, Government Relations
Vestas-American Wind Technology, Inc

Bean, Michael

From: Tom Vinson [TVinson@awea.org]
Sent: Wednesday, December 22, 2010 5:02 PM
To: Bean, Michael; Black, Steve
Cc: John Anderson; Tom Vinson
Subject: Wind industry endorsement letter of 3/2010 FAC recommendations
Attachments: USFWS FAC recommendations industry endorsement 12-2010.pdf

Steve, Michael –

Attached please find an endorsement letter from AWEA and many of our project developer members (and a few key manufacturers) for the USFWS Wind Turbine Guidelines Federal Advisory Committee recommendations as submitted to Secretary back in March.

Please don't hesitate to contact John Anderson, janderson@awea.org, or myself with any questions.

Thank you.

Tom

AWEA

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

Tom Vinson
Senior Director of Federal Regulatory Affairs
American Wind Energy Association

tvinson@awea.org email
202.383.2535 direct
202.384.7129 cell

December 22, 2010

The Honorable Ken Salazar
Secretary
U.S. Department of the Interior
1849 C Street, N.W.
Washington, D.C. 20240

Dear Secretary Salazar:

Thank you for your leadership on many issues of concern to the renewable energy sector.

We write to you as wind energy project developers, and as the national trade association representing the entire spectrum of companies involved in wind energy in the U.S. including project developers, manufacturers, service providers and others, to express our strong support for the recommendations of the U.S. Fish and Wildlife Service (USFWS) Wind Turbine Guidelines Federal Advisory Committee (FAC) as submitted to you on March 4, 2010.

That document represents more than two and a half years of painstaking discussions and negotiations over each and every word of what went into the final recommendations. No stakeholder got everything they wanted. But, in the end, every stakeholder – industry, states, and wildlife/conservation non-governmental organizations – endorsed the unanimous recommendations.

The recommendations were intended to be taken in totality. The delicate compromises made in one area were dependent on other equally delicate compromises made elsewhere in the document. Should the USWFS change any of the language in the recommendations when publishing its draft voluntary guidelines in the *Federal Register* later this year or early next year, the agency substantially risks industry and potentially other stakeholders withdrawing our support for the guidelines.

The list of signatories on this letter, who represent the vast majority of installed megawatts and projects in the pipeline, indicates the breadth of industry support for the recommendations that emerged from the FAC. We urge you to publish those recommendations without changes in the *Federal Register* for public comment.

Sincerely,

AES Wind Generation
American Wind Energy Association
BP Wind Energy
Duke Energy
Element Power
First Wind
Foresight Wind Energy
GE Energy
Horizon Wind Energy
Iberdrola Renewables
MAP
NextEra Energy Resources
Orion Energy Group LLC
Pattern Energy Group
RES Americas
Ridgeline Energy LLC
Terra-Gen Power LLC
TradeWind Energy LLC
Vestas-American Wind Technology Inc.

Bean, Michael

From: John Anderson [JAnderson@awea.org]
Sent: Tuesday, July 26, 2011 3:54 PM
To: Bean, Michael
Subject: Regional Permit Structure

Follow Up Flag: Follow up
Flag Status: Flagged

Michael,

Good seeing you last week. As a follow-up to our discussion my understanding is that Region 3 staff has been talking with Dave Goyer (sp?) about the regional HCP permit structure issue and he allegedly stated that he didn't like the concept of the partial permit transfer and didn't think any structure other than the "umbrella" approach contemplated under the GCP would work for the Service. This is all 2nd /3rd hand knowledge though and I'm not sure if I have my facts correct here, but would really appreciate if you could speak with Dave about this and see if you can clarify what he meant/is thinking.

On a separate but related note, in speaking with Melinda Taylor last week she told me you had indicated it would be useful for us to provide you with a white paper opining on the NEPA and Section 7 implications of each of the four structure options. Is this correct? I haven't wanted to be so presumptuous as to present such an analysis to you, but would be more than happy to if you would find it helpful. Let me know.

Thanks.

JA

AWEA

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

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

janderson@awea.org email

202-383-2516 direct
202.674.8569 cell

Bean, Michael

From: John Anderson [JAnderson@awea.org]
Sent: Friday, July 01, 2011 8:57 AM
To: Bean, Michael
Subject: RE: RFP 6-28-11 discussion
Attachments: FWS MOU.pdf

Michael,

Thanks for taking the time yesterday to speak with me. After giving it some thought last night I would like to suggest that you hold off on looking into this as I would like to speak further with the Regional staff and don't want them thinking I'm trying to go around or over them without giving one last try to resolving these issues amongst ourselves. I will call you later next week and let you know where things stand and if I have been able resolve the issues. In the meantime I have attached the final MOU signed by the applicant and Service in April for your review. Thanks again for the time and have a great holiday.

JA

AWEA

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

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

janderson@awea.org email

202-383-2516 direct
202.674.8569 cell

From: Bean, Michael [mailto:Michael_Bean@ios.doi.gov]
Sent: Thursday, June 30, 2011 02:57 PM
To: John Anderson; Cottingham, David <david_cottingham@fws.gov>
Subject: RE: RFP 6-28-11 discussion

John: Sorry for the delay responding to your email earlier this week. I'm available to meet anytime after 1pm tomorrow if you want to discuss HCP structure. On the grant/contracting issue discussed in the email below, feel free to call between 5 and 5:30 today if that works for you.

Michael J. Bean
Counselor to the Assistant Secretary for Fish, Wildlife and Parks
Room 3152
Department of the Interior
Washington, DC 20240
202-208-4416
202-372-7139 (fax)

From: John Anderson [mailto:JAnderson@awea.org]
Sent: Thursday, June 30, 2011 2:36 PM
To: Cottingham, David; Bean, Michael
Subject: FW: RFP 6-28-11 discussion

I need to have a call with you two about this as soon as possible.

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

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

janderson@awea.org email

202-383-2516 direct
202.674.8569 cell

From: Lisa_Mandell@fws.gov [mailto:Lisa_Mandell@fws.gov]
Sent: Thursday, June 30, 2011 2:23 PM
To: Armstrong, Gary
Cc: John Anderson; Smith, Katie G; Hoellen, Kris; Hurt, Paul; Rick_Amidon@fws.gov; Tara.CampbellLewis@sol.doi.gov; TJ_Miller@fws.gov; Tom_Magnuson@fws.gov
Subject: RE: RFP 6-28-11 discussion

I concur with Gary's comments. In particular, I would like to echo and add the following:

1. From the grants management perspective, the FWS concern is that a product (or products) be identified in the grant documentation, which is called a grant narrative (we've also been referring to a grant Scope of Work in these discussions, which is part of the Narrative) A grant narrative contains a description of the project, including objectives and benefits, deliverables and a budget. What is important to the FWS here is that we identify exactly what products are expected at the end of the grant.

2. From the program perspective, I trust we can work through a mutually agreeable communications protocol for working with the HCP Contractor. However, we cannot have our hands tied in terms of communicating with the contractor (who, in essence, is functioning as the applicant) during development of the HCP. I think we are getting very stuck on this issue and it should not be this big of a problem. Let's get the RFP out , then work on a communications protocol that is agreeable to all parties, then include any needed communication requirements in the contract with the HCP Contractor.

Lisa

Lisa Mandell
Regional Coordinator - Endangered Species Permits/Grants
U.S. Fish and Wildlife Service
Ecological Services
5600 American Blvd. West
Suite 990
Bloomington, Minnesota 55437-1458
612-713-5343 (phone)
612-713-5292 (fax)
"Armstrong, Gary" <GArmstrong@dnr.IN.gov>

"Armstrong, Gary"
<GArmstrong@dnr.IN.gov>

06/30/2011 10:24 AM

To"Hoellen, Kris" <khoellen@conservationfund.org>, <Rick_Amidon@fws.gov>

cc"John Anderson" <JAnderson@awea.org>, "Smith, Katie G" <KGSMITH@dnr.IN.gov>, <Lisa_Mandell@fws.gov>, "Hurt, Paul" <phurt@conservationfund.org>, <TJ_Miller@fws.gov>, <Tom_Magnuson@fws.gov>, <Tara.CampbellLewis@sol.doi.gov>

SubjectRE: RFP 6-28-11 discussion

Here is the position Katie and I share on the RFP document and the RFP process. I understand this process to be an agreement between TCF, FWS and AWEA that addresses how the sub-contractors will be selected and/or managed within the Indiana and TCF contract.

The contract between TCF and Indiana will become the deliverable for the grant under consideration. Primarily, Indiana is interested in the product of the contract, not how sub-contractors are managed.

As long as TCF and FWS are confident that the RFP does not somehow compromise the TCF and Indiana contracting process and the FWS/Indiana grant development process we are comfortable with the decision to proceed. Our previous comments have been intended to help prevent these conflicts. All parties have been provided access to the Indiana contract and I understand every reasonable effort has been made to help all partners understand what assurances and agreements Indiana will be required to obtain as part of the contracting process.

Indiana's participation will be governed by the grant documents and Indiana contract with TCF. I presume these will closely mirror the RFP but I guess they would not absolutely have to.

Some sort of RFP process is clearly needed so TCF can get some reasonable cost estimates for the contract and grant. It seems this process must proceed. I understand the RFP does not allow the contractors to start grant related work, it just provides for starting the process of getting grant budgets in order and I also understand that if the cost estimates are far outside the grant funding we may need to go back to the drawing board.

If this understanding sounds correct to everyone, then we see no problem with proceeding.

Gary Armstrong, Federal Assistance Coordinator
Indiana Division of Fish and Wildlife
402 West Washington, RM W273
Indianapolis, IN 46204

Phone: 317-232-8166
email: garmstrong@dnr.in.gov

Fish and wildlife management and public access are funded by fishing and hunting license revenue and also through the Sport Fish and Wildlife Restoration Programs administered by the U.S. Fish and Wildlife Service. These programs collect excise taxes on sporting arms and ammunition, archery equipment, fishing equipment, and motor boat fuels. The money is distributed among state fish and wildlife agencies based on land size and the number of licensed anglers and hunters in each state. Find out more information about fish and wildlife management in Indiana at www.in.gov/dnr/fishwild/.

-----Original Message-----
From: Hoellen, Kris [mailto:khoellen@conservationfund.org]

Sent: Thursday, June 30, 2011 10:56 AM
To: Rick_Amidon@fws.gov
Cc: Armstrong, Gary; John Anderson; Smith, Katie G; Lisa_Mandell@fws.gov; Hurt, Paul; TJ_Miller@fws.gov; Tom_Magnuson@fws.gov [Tom_Magnuson@fws.gov]; Tara.CampbellLewis@sol.doi.gov
Subject: RE: RFP 6-28-11 discussion

We have heard back from the Service that the RFP is ready to go. TCF supports release of the RFP. John will let us know this morning as to the status of AWEA's support. Katie and Gary - we need an affirmative statement from Indiana as well that the proposal can be sent (if in fact you concur). Please hit reply all with the response. Thanks - Kris

---

From: Rick_Amidon@fws.gov [Rick_Amidon@fws.gov]
Sent: Wednesday, June 29, 2011 1:12 PM
To: Hoellen, Kris
Cc: Armstrong, Gary; John Anderson; Smith, Katie G; Lisa_Mandell@fws.gov; Hurt, Paul; TJ_Miller@fws.gov; Tom_Magnuson@fws.gov [Tom_Magnuson@fws.gov]; Tara.CampbellLewis@sol.doi.gov
Subject: Re: RFP 6-28-11 discussion

All. just to follow up. The Service is ok with App B so from our standpoint the RFP is ready to go out. My understanding from the attached email is the RFP will go out tomorrow the 30th (which is great and the Service supports). John do you anticipate meeting this deadline so that we can proceed getting the RFP out tomorrow. Thanks Rick
[cid:3 =09BBF22DDFCD877E8f9e8a93df938690@fws.gov]"Hoellen, Kris" <khoellen@conservationfund.org>

"Hoellen, Kris" <khoellen@conservationfund.org>

06/28/2011 03:18 PM

To

"Armstrong, Gary" <GArmstrong@dnr.IN.gov>, "Smith, Katie G" <KGSMITH@dnr.IN.gov>, John Anderson <JAnderson@awea.org>, "Lisa Mandell@fws.gov" <Lisa Mandell@fws.gov>, "Tom Magnuson@fws.gov [Tom Magnuson@fws.gov]" <Tom Magnuson@fws.gov>

cc

"Hurt, Paul" <phurt@conservationfund.org>, "TJ Miller@fws.gov" <TJ Miller@fws.gov>, "Rick Amidon@fws.gov" <Rick Amidon@fws.gov>

Subject

RFP 6-28-11 discussion

Attached are the changes from today's call, which from my notes were very minor.

1. Second to last paragraph in the background section, I separated the sentence of the technical contractor/team - so it is clear AWEA, in conjunction with TCF will select the contractor, and it is the contractor who will both manage and project and provide technical expertise.

2. Three changes to the last paragraph in the background section. Specifically, I added in the language "structured communication protocol" two places within that paragraph, and

I changed the word "companies' to "AWEA" in relationship to who can talk/work directly with the contractor.

3. I inserted language into Task 6, to indicate that the purpose of the outreach strategy is for engaging affected entities during the development of the HCP. I did not use the word 'parties' as I thought it might be confusing with "The Parties". Entities may not be the right word, but seemed less confusing than parties.

4. I changed the schedule only slightly - contractor selection date remains the same. Basically, moved other dates back by 2 days regarding when questions, proposals, etc. are due. Assumes release of the RFP on June 30th or before.

Please review your notes and hit reply all with edits or corrections (note, I did not proof the clean copy yet)

My understanding from what was proposed on the call is TCF and AWEA will have solid lines of reporting into the contractor. It is a question whether the Service will have a direct line into the contractor as well - the Service to determine if this is in fact acceptable practice on the part of the Service. Otherwise, the Service may speak to the contractor but only if AWEA and TCF have been provided the opportunity to participate as well in the conversation. These rules of engagement for the contractor will be spelled out as a 'duty' that the contractor must adhere to in the contractor's contract/scope of work. TCF will retain administrative management, so any requests to the contractor to meet, speak, produce work products, etc. (i..e, budgetary requests) - the contractor must run through TCF for approval. As AWEA has a direct line into the contractor, AWEA may meet and speak with the contractor without TCF present, but only if TCF approves or put another way doesn't object to the requested task (approval is on the task, not on whether TCF is present). Individual companies do not have a direct line into the contractor, nor do the states or individual FWS field offices.

Does this sound accurate? It will obviously need to be fleshed out further and translated into language to be placed in the contractor's scope of work, but if the concept outlined above is not your understanding from the call, please indicate prior to the release of the RFP.

One last note, the Service and Indiana still need to look at proposed changes by AWEA to appendix B prior to release. Thanks! - Kris

Kris Hoellen
Director, Conservation Leadership Network
The Conservation Fund
698 Conservation Way
Shepherdstown, WV 25443
304-876-7462
301-653-9474 (cell)
khoellen@conservationfund.org<mailto:khoellen@conservationfund.org>

The Conservation Leadership Network -- Achieving Common Ground for Our Partners

(See attached file: Change-Pro_Redline_-_WEBAT_-_REGION_3_MSHCP_RFP_06-26-WEBAT_-_REGION_3_MSHCP_RFP_06-28-111_(WEBAT_comments)[1].docx)(See attached file: Change-Pro_Redline_-_WEBAT_-_REGIONWEBAT_REGION_3_MSHCP_RFP_06-28-111_clean version(WEBAT_comments)[1].docx)

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Bishop Henry Whipple Federal Building
1 Federal Drive
Fort Snelling, MN 55111-4056

IN REPLY REFER TO:

FWS-AES/Wind

MEMORANDUM OF UNDERSTANDING FOR THE PURPOSE OF DEVELOPING A REGIONAL MULTI-SPECIES HABITAT CONSERVATION PLAN FOR WIND ENERGY PROJECTS

This Memorandum of Understanding ("MOU") is made and entered into this 5th day of April, 2011, by and between the U.S. Fish and Wildlife Service (the "Service"), an agency within the U.S. Department of the Interior ("USDOI") and the undersigned wind energy companies (each individually a "Company," and collectively, the "Companies"), each referred to individually as a "Party" and collectively as the "Parties."

I. Background

The Service recognizes that development of wind energy in the Midwest and nationwide may result in the Companies submitting applications for Incidental Take Permits ("ITPs") under section 10 of the Endangered Species Act ("ESA"), 16 U.S.C. § 1539. In order to assist it in carrying out its legal obligations under the ESA, the Service seeks to develop a regional multi-species Habitat Conservation Plan (the "regional MSHCP") to ensure the protection and conservation of listed species, as well as any other species agreed to by the Parties.

The Companies include the undersigned representatives from the wind energy industry who are interested in working collaboratively to develop and implement a regional MSHCP to facilitate deployment of wind energy while conserving and protecting listed species, as well as any other species agreed to by the Parties.

The Service awarded a grant under Section 6 of the ESA on April 1, 2010, (the "ESA Section 6 Grant") to the states of Indiana, Ohio, Missouri, Michigan, and Iowa ("the States") providing funding for the development of a regional MSHCP for wind energy development in the Midwest . The ESA Section 6 Grant requires a nonfederal match in the amount equal to ten percent of the ESA Section 6 Grant. The Companies have committed to provide this nonfederal match subject to the terms and conditions set forth in this MOU.

This MOU represents the Parties' commitment to openness, transparency, and integrity in their collective efforts to move forward in the regional MSHCP process. Through this process, the Service, the Companies and the participating States intend to develop a regional MSHCP that will support the issuance of ITP(s) by the Service for wind energy projects. The resulting

ITP(s) would provide "take" coverage and "No Surprises" assurances to the Companies sufficient to facilitate construction, operation, maintenance and decommissioning of wind energy facilities and associated infrastructure within the range of Indiana bats and other listed species, as well as any other species agreed to by the Parties. Additionally, the Service and the Companies intend to develop an Implementing Agreement.

II. Purposes

The purposes of this MOU are to:

A. Memorialize the Parties' intent to participate in the regional MSHCP process.

B. Set forth the roles and responsibilities of the Parties in the development and preparation of a regional MSHCP and related documents for the issuance of ITP(s) for wind energy projects in the Midwest.

III. Authority

This MOU is entered into under the following authorities:

A. The Endangered Species Act of 1973 ("ESA"), as amended (16 U.S.C. §§ 1531 et seq.). The Service has responsibility for the administration of the ESA. Section 10 of the ESA, 16 U.S.C. § 1539, establishes a program whereby the Service may permit any taking otherwise prohibited by section 9(a)(1)(B) of the ESA, if such taking is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity.

B. The National Environmental Policy Act of 1969 ("NEPA"), as amended (42 U.S.C. §§ 4321 et seq.). NEPA document(s) will be prepared in accordance with the National Environmental Policy Act of 1969, as amended (42 U.S.C. §§ 4321 to 4370e) and in compliance with all applicable regulations and laws passed and promulgated subsequently, including Council on Environmental Quality ("CEQ") regulations (40 Code of Federal Regulations ("CFR") 1500-1508), USDOI regulations (43 CFR Part 46) and relevant CEQ and USDOI NEPA policies.

IV. Scope

The provisions of this MOU extend to the purposes identified in Section II above. The completed regional MSHCP will streamline the incidental take authorization process for wind energy projects and support agency decision-making on those authorizations for ITP(s) relating to Indiana bats and other listed species, as well as any other species agreed to by the Parties. The scope of this MOU may be modified and/or amended with the consent of all Parties hereto.

V. Responsibilities of the Parties

A. Service Responsibilities

1. The Service will work in good faith with the Companies to develop protection and conservation measures that are compliant with the ESA for the Indiana bat and other listed species, as well as any other species agreed to by the Parties.

2. The Service, within its legal authority, will work with the Companies to identify strategies and alternatives that will facilitate, during the regional HCP process, the construction and operation of individual wind energy projects. Such strategies and alternatives are discussed in a letter from the Service to the Companies dated April 5, 2011.

3. The Service will comply with USDOI regulations, applicable Service policies and guidance, and other Federal laws and regulations applicable to the conduct of all aspects of the ESA permitting and NEPA processes.

4. The Service will facilitate coordination among the Services' Regions, the Services' Headquarters Office, the Office of the Solicitor, and other governmental agencies.

5. The Service will use its best efforts to timely evaluate all information, environmental data, and analyses submitted by the Companies or others to comply with the ESA and applicable implementing regulations. The Parties acknowledge that the Service must also be responsive to an existing workload, but the Parties recognize the priority expected to be afforded to a public renewable energy development project.

6. The Service is responsible for the preparation of analyses and documents that conform to NEPA, agency regulations, and other pertinent federal laws and regulations. Pursuant to 40 C.F.R. § 1506.5(c), the Service will select a contractor to conduct the environmental analysis and to prepare Draft and Final NEPA documents.

7. The Service will maintain confidentiality of all information, documents and materials used in the development of the regional MSHCP in accordance with the Freedom of Information Act ("FOIA") (5 U.S.C. §§ 552 et seq.), Service policies, legal decisions, related regulations and any other applicable federal laws. The Service will treat specific data provided by the Companies as confidential or proprietary to the extent permitted by the FOIA and related regulations (43 C.F.R. § 2.23). In the event that the Service believes it is required by law to release any confidential or proprietary information, the Service shall provide the Companies with written notice of the proposed release.

B. Company Responsibilities

1. The Companies shall provide matching contributions in the amount of $373,596 which is ten percent of the anticipated ESA Section 6 Grant(s), in the form of either cash or in-kind contributions, to the Indiana Department of Natural Resources to facilitate development of the

regional MSHCP. Any subsequent contributions will be memorialized in an addendum to this document as additional grant monies are awarded.

2. The Companies will have the primary responsibility for developing, writing and revising the regional MSHCP in consultation with the States and the Service. The Companies will work in good faith with the Service and the States to develop protection and conservation measures that are compliant with Section 10 of the ESA for the Indiana bat and other listed species, as well as any other species agreed to by the Parties, and hall provide the States and the Service the opportunity to comment on the draft regional MSHCP at agreed-upon stages of development as set forth in the project schedule attached as Exhibit 1 and to be further developed in accordance with Paragraph V.C.3. of this MOU, or at such other times that the Parties agree to be reasonably necessary.

3. The Companies, acting in consultation with the Service and The Conservation Fund ("TCF") on behalf of the States, will select and retain qualified contractors to develop the regional MSHCP ("ESA Contractors"). Professional services agreements will identify specific work tasks and deliverables required of each ESA Contractor.

C. Shared Responsibilities

1. Joint meetings between the Service, the Companies, TCF, and the States, as appropriate, and the ESA Contractors will be held to coordinate development of documents under this MOU. The Companies shall direct the programmatic work of the ESA Contractors, but shall consult regularly with the Service and the States to ensure that the documents developed by the ESA Contractors are satisfactory to the Service and the States. TCF will provide administrative oversight of the ESA Contractors.

2. The Service and each of the Companies shall designate a representative to serve as its principal point of contact for this MOU (Exhibit 2). The Parties shall update Exhibit 2 as necessary and shall promptly inform one another should principal points of contact change.

3. The Parties will develop a schedule for preparation of the draft and final regional MSHCP that projects key dates. The tentative schedule, current as of the signing of this MOU, is attached as Exhibit 1. Should a Party not be able to meet a key date requirement, advance notification shall be given to the other Parties. The notification shall include a projected date the requirement will be met. The Parties shall use best efforts to adhere to, and assist each other in adhering to, the schedule.

4. The Parties acknowledge that timeliness with respect to the schedule can be affected by many factors, including but not limited to the responsiveness of contractors, quality of contactor work products, and volume and complexity of public comments.

5. The Parties will make good faith efforts to coordinate their respective media communications concerning the regional MSHCP. The Parties' respective Public Affairs Specialists are identified in Exhibit 2.

VI. Administration

A. The Parties agree to comply with all applicable laws governing activities under this MOU. The Parties acknowledge that any information furnished to the Service under this instrument is subject to the FOIA and may be protected to the extent possible by statute and as set forth in Section V.A.7 of this MOU.

B. Disputes arising under this MOU shall be resolved through informal communications among the Parties' respective principal contacts identified in Exhibit 2, as that Exhibit may be updated from time-to-time in accordance with this MOU. The principal contacts shall periodically meet to discuss the status of actions under this MOU. Any notice required under this MOU shall be made in writing to the Parties' respective principal contacts. These initial policy representatives may be changed by a Party generally or for a specific task or meeting without amendment to this MOU, providing three (3) days advance written notice is given to the other Parties.

C. Modifications to this MOU may be proposed by any of the Parties, and shall become effective upon the express, written approval of all the other Parties. Changes to this MOU must be initialed and dated on each replacement page by the principal contact of each Party; *provided however* that upon providing ten (10) days advance written notice to the other Parties, the Companies or the Service may add additional wind energy companies or Regions of the Service to this MOU without amendment to this MOU. Any additional wind energy company or Region of the Service added to this MOU will execute the MOU and comply with the terms of this MOU.

D. Any Party may withdraw from this MOU after providing thirty (30) days advance written notice to the other Parties of its intent to do so. During that 30-day period, the Parties agree to actively attempt to resolve any outstanding issues or disagreements. Upon the withdrawal of the Service, or all Companies, this MOU shall automatically terminate.

E. Should any portion of this MOU be determined to be illegal or unenforceable, the remainder of the MOU will continue in full force and effect, and any Party to the MOU may renegotiate the terms affected by the severance.

F. Nothing in this MOU shall obligate the Service to expend appropriations or to enter into any contract or other obligation.

G. This MOU shall become effective upon the signature of the Service and at least five Companies. Regardless of the date of such execution, the "Effective Date" of this MOU shall be the date first listed above. Unless terminated in accordance with Section VI.D. of this MOU, this MOU shall remain in effect until the conclusion of the regional MSHCP process.

H. Nothing in this MOU shall be construed as limiting or affecting in any way the ability or responsibility of any Party to take any action within its respective legal authority. Pursuant to applicable laws or regulations, the Parties reserve the right to contest, in any administrative or judicial proceedings, any and all decisions concerning issues addressed in this

MOU. Provided, however, this MOU is not intended to, and does not create, any right, benefit, or trust responsibility, substantive or procedural, enforceable at law or equity, by a party against the United States, its agencies, its officers, or any person. The Companies recognize that nothing in this MOU commits the Service to issue ITP(s) or take other action favorable to the Companies or any individual or entity on all or any part of any future application for an ITP.

I. This MOU does not create in any other individual or entity the status of third-party beneficiary.

J. For the convenience of the Parties hereto, this MOU may be executed, including by facsimile signature, in one or more counterparts, each identical to the other, so long as the counterparts in a set contain the signatures of all the Parties to this MOU, and shall bind the Parties when each Party has received a set containing the signatures of all.

K. By signature below, the Parties certify that the individuals listed in this document are authorized to act on behalf of the Party that each represents.

List of Exhibits:

Exhibit 1: Project Schedule
Exhibit 2: Principal Contacts

For the U.S. Fish and Wildlife Service, Region 3

By: Lynn M. Lewis Its: Acting Regional Director

Signature Date: April 5, 2011

For American Wind Energy Association

By: _____ Its: _____

Signature Date: _____

For BP Wind Energy, N.A.

By: _____ Its: _____

Signature Date: _____

For Invenergy LLC

By: _____ Its: _____

Signature Date: _____

For Horizon Wind Energy LLC

By: _____ Its: _____

Signature Date: _____

For Akuo Energy USA, Inc.

By: _____ Its: President

Signature Date: April 5, 2011

For E.ON Climate & Renewables LLC

By: _____ Its: _____

Signature Date: _____

For Element Power

By: _____ Its: _____

Signature Date: _____

For Tradewind Energy, LLC

By: _____ Its: _____

Signature Date: _____

For OwnEnergy Inc.

By: _____ Its: _____

Signature Date: _____

For American Wind Energy Association

By: Denise Bode Its: CEO

Signature Date: 4.5.11

NextEra Energy Resources, LLC

By: _____ Its: _____

Signature Date: _____

EverPower Wind Holdings, Inc.

By: _____ Its: _____

Signature Date: _____

K. By signature below, the Parties certify that the individuals listed in this document are authorized to act on behalf of the Party that each represents.

List of Exhibits:

Exhibit 1: Project Schedule
Exhibit 2: Principal Contacts

For the U.S. Fish and Wildlife Service, Region 3

By: _____ Its: Regional Director_____

Signature Date:_____

For BP Wind Energy, N.A.

By: Larry Folks Larry Folks Its: SVP

Signature Date: 4-1-11

For Invenergy LLC

By: _____ Its:_____

Signature Date:_____

For Horizon Wind Energy LLC

By: _____ Its:_____

Signature Date:_____

For AkuoEnergy

By: _____ Its:_____

Signature Date:_____

K. By signature below, the Parties certify that the individuals listed in this document are authorized to act on behalf of the Party that each represents.

List of Exhibits:

Exhibit 1: Project Schedule
Exhibit 2: Principal Contacts

For the U.S. Fish and Wildlife Service, Region 3

By: _____ Its: Regional Director

Signature Date: _____

For BP Wind Energy, N.A.

By: _____ Its: _____

Signature Date: _____

For Invenergy Wind Development LLC

By: _____ Its: Vice President

Signature Date: April 8, 2011

For Horizon Wind Energy LLC

By: _____ Its: _____

Signature Date: _____

For AkuoEnergy

By: _____ Its: _____

Signature Date: _____

K. By signature below, the Parties certify that the individuals listed in this document are authorized to act on behalf of the Party that each represents.

List of Exhibits:

Exhibit 1: Project Schedule
Exhibit 2: Principal Contacts

For the U.S. Fish and Wildlife Service, Region 3

By: _____ Its: Regional Director

Signature Date: _____

For BP Wind Energy, N.A.

By: _____ Its: _____

Signature Date: _____

For Invenergy LLC

By: _____ Its: _____

Signature Date: _____

For Horizon Wind Energy LLC

By: Andrew Tong Its: Chief Development Officer

Signature Date: April 1, 2011

For AkuoEnergy

By: _____ Its: _____

Signature Date: _____

Execution Version

By: _____
Name: Scott Jacobson
Title: Authorized Representative

For Iberdrola Renewables

By: _____ Its: MANAGING DIRECTOR

Signature Date: 4-8-11

LEGAL

For EnXco

By: _____ Its: _____

Signature Date: _____

For Apex

By: _____ Its: _____

Signature Date: _____

For Clipper Wind Power, Inc.

By: _____ Its: _____

Signature Date: _____

For Acciona Wind Energy U.S.A.

By: _____ Its: _____

Signature Date: _____

For Wind Capital Group

By: George M. Kupp Its: General Counsel

Signature Date: April 5, 2011

For Iberdrola Renewables

By: _____ Its: _____

Signature Date: _____

For EnXco

By: Steph Pluso Its: Senior VP- Origination

Signature Date: 4-4-11

For Apex

By: _____ Its: _____

Signature Date: _____

For Clipper Wind Power, Inc.

By: _____ Its: _____

Signature Date: _____

For Acciona Wind Energy U.S.A.

By: _____ Its: _____

Signature Date: _____

For Wind Capital Group

By: _____ Its: _____

Signature Date: _____

For Iberdrola Renewables

By: _____ Its: _____

Signature Date: _____

For EnXco

By: _____ Its: _____

Signature Date: _____

For Apex

By: M Goodin Its: PRESIDENT

Signature Date: 4/5/11

For Clipper Wind Power, Inc.

By: _____ Its: _____

Signature Date: _____

For Acciona Wind Energy U.S.A.

By: _____ Its: _____

Signature Date: _____

For Wind Capital Group

By: _____ Its: _____

Signature Date: _____

For Iberdrola Renewables

By: _____ Its: _____

Signature Date: _____

For EnXco

By: _____ Its: _____

Signature Date: _____

For Apex

By: _____ Its: _____

Signature Date: _____

For Clipper Windpower Development Company, Inc.

By: _____ Its: PRESIDENT

Signature Date: 4-1-11

For Acciona Wind Energy U.S.A.

By: _____ Its: _____

Signature Date: _____

For Wind Capital Group

By: _____ Its: _____

Signature Date: _____

For E.ON Climate & Renewables LLC

By: _____ Its: Sr. Vice President

Signature Date: 4/5/11

For Element Power

By: _____ Its: _____

Signature Date: _____

For Tradewind Energy, LLC

By: _____ Its: _____

Signature Date: _____

For OwnEnergy Inc.

By: _____ Its: _____

Signature Date: _____

NextEra Energy Resources, LLC

By: _____ Its: _____

Signature Date: _____

EverPower Wind Holdings, Inc.

By: _____ Its: _____

Signature Date: _____

IPR-GDF SUEZ North America

By: _____ Its: _____

Signature Date: _____

For E.ON Climate & Renewables LLC

By: _____ Its: _____

Signature Date: _____

For Element Power

By: _____ Its: Chris Taylor Chief Development Officer

Signature Date: 9/5/11

For Tradewind Energy, LLC

By: _____ Its: _____

Signature Date: _____

For OwnEnergy Inc.

By: _____ Its: _____

Signature Date: _____

For American Wind Energy Association

By: _____ Its: _____

Signature Date: _____

For E.ON Climate & Renewables LLC

By: _____ Its: _____

Signature Date: _____

For Element Power

By: _____ Its: _____

Signature Date: _____

For Tradewind Energy, LLC

By: Ronald Green Its: CEO, manager

Signature Date: 4-13-2011

For OwnEnergy Inc.

By: _____ Its: _____

Signature Date: _____

For American Wind Energy Association

By: _____ Its: _____

Signature Date: _____

NextEra Energy Resources, LLC

By: _____ Its: _____

Signature Date: _____

EverPower Wind Holdings, Inc.

By: _____ Its: _____

Signature Date: _____

For E.ON Climate & Renewables LLC

By: _____ Its: _____

Signature Date: _____

For Element Power

By: _____ Its: _____

Signature Date: _____

For Tradewind Energy, LLC

By: _____ Its: _____

Signature Date: _____

For OwnEnergy Inc.

By: _____ Its: _____

Signature Date: _____

For American Wind Energy Association

By: _____ Its: _____

Signature Date: _____

NextEra Energy Resources, LLC

By: _____ Its: _____

Signature Date: 4/12/2011

EverPower Wind Holdings, Inc.

By: _____ Its: _____

Signature Date: _____

For E.ON Climate & Renewables LLC

By: _____ Its: _____

Signature Date: _____

For Element Power

By: _____ Its: _____

Signature Date: _____

For Tradewind Energy, LLC

By: _____ Its: _____

Signature Date: _____

For OwnEnergy Inc.

By: _____ Its: _____

Signature Date: _____

For American Wind Energy Association

By: _____ Its: _____

Signature Date: _____

NextEra Energy Resources, LLC

By: _____ Its: _____

Signature Date: _____

EverPower Wind Holdings, Inc.

By: _____ Its: SVP DEVELOPMENT

Signature Date: 04/06/11

For E.ON Climate & Renewables LLC

By: _____ Its: _____

Signature Date: _____

For Element Power

By: _____ Its: _____

Signature Date: _____

For Tradewind Energy, LLC

By: _____ Its: _____

Signature Date: _____

For OwnEnergy Inc.

By: _____ Its: _____

Signature Date: _____

For American Wind Energy Association

By: _____ Its: _____

Signature Date: _____

For GDF SUEZ Energy Development NA, Inc.

By: _____ Its: _____

Signature Date: 4/4/11

Exhibit 1. Preliminary MSHCP Schedule

Meetings/Deliverables	Preliminary Dates
1. Kick-off Meeting Between Parties to Execute MOU and Discuss Process for MSHCP Development	April 5, 2011
2. Finalize RFP for MSHCP Contractors, HCP Development Team members identified, Covered Species list finalized	April 15, 2011
3. Issue RFP for MSHCP Contractors	April 22, 2011
4. RFP Inquiries Due from Potential MSHCP Contractors	May 6, 2011
5. Presentations by potential MSHCP Contractors	May 18,
6. Proposals due from Contractors	June 3, 2011
7. HCP Development Team Meeting; Discuss Contractor Proposals and Initial Concepts for HCP Analysis including covered activities, covered lands, purpose and need, biological goals and objectives	June 14-16, 2011
8. Results (drafts) from June 14-16 meeting distributed to all Parties for comment	June 17, 2011
9. Parties Select MSHCP Contractor	June 24, 2011
10. Comments due on drafts from June team meeting	July 1, 2011
11. HCP Development Team Meeting; Discuss comments and finalize. Prepare minimization and take monitoring strategy. Discuss amount of take requested.	July 12-14, 2011
12. Contract Award of Section 6 grant money for MSHCP Contractors	July 15, 2011
13. Grant Money available for release	July 18, 2011
14. Preliminary Draft minimization/take monitoring Strategy Available for Review by Parties and Contractor	August 12 , 2011
15. Comments due on minimization/take monitoring	September 2, 2011
16. HCP Development Team Meeting; Discuss Comments and finalize Minimization and take Monitoring strategy. Finalize level of take requested, all species	September 13-15, 2011
17. USFWS selects and Retains NEPA contractor	October 15, 2011

18. HCP Development Team meeting to discuss mitigation, funding, changed circumstances, adaptive management, mitigation monitoring	October 18-20, 2011
19. Drafts from Oct. meeting distributed for review and comment	November 4, 2011
20. Comments due on Oct. meeting draft chapters	Dec. 2, 2011
21. HCP Team Meeting, review comments from October meeting. Finalize mitigation, funding, changed circumstances, adaptive management, and mitigation monitoring	Jan 9-13, 2012
22. HCP Development Team Meeting to Discuss and finalize all chapters of Preliminary Draft HCP	February 6-10, 2012
23. Administrative draft MSHCP Available for Review and Comment for All Parties	March 9, 2012
24. Comments due on administrative draft MSHCP	April 13, 2012
25. HCP Development Team Meeting to discuss comments and revise accordingly.	May 7-11, 2012
26. Administrative Draft recirculated for review for All Parties	June 1, 2012
27. Final Comments due administrative draft	June 22, 2012
28. HCP Development Team Meeting Draft HCP finalized and ready for public comment	July 13, 2012
29. File Application Documents with FWS	**August 3, 2012**

Exhibit 2. List of Participating Company Points of Contact and Public Affairs Representatives

Name of Participating Company	Name of Participating Company
Acciona Wind Energy Point of Contact: Sylvie St-Jean Phone: 514.757.7327 Email: sstjean@acciona-na.com 333 West Wacker Dr., Suite 1500 Chicago, IL 60606 Public Affairs Specialist: Amy Berry Phone: 312.673.3021	**Akuo Energy USA, Inc.** Point of Contact: Erin Wiedower, Environmental Project Manager Phone: 979-492-9547 Email: wiedower@akuoenergy.com 150 North Michigan Avenue, Suite 2800 Chicago, IL 60601 312-291-4647 Additional Contact: Alain Castro, President Phone: 312-291-4647 Email: castro@akuoenergy.com
Apex Wind Energy Point of Contact: Kent Dougherty, Development Manager Phone: 434-220-7593 Email: kent@apexwind.com Queen Charlotte Building 244 East High Street Charlottesville, VA 22902 Phone: 434-220-7595 Additional Contact: Cliff Moorman, Associate Internal Counsel	**American Wind Energy Association** Point of Contact: John Anderson Phone: 202-383-2516 Email: janderson@awea.org 1501 M St. NW, Suite 1000 Washington, DC 20005
BP Wind Energy, N.A. Point of Contact: Blayne Gunderman Environmental Manager, Construction & Operations Phone: 713-299-3100 Email: blayne.gunderman@bp.com 700 Louisiana Street, 33rd Floor Houston, TX 77002 Additional Contact: Amanda Abbott Amanda.abbott@bp.com Phone: 713-354-2123	**Clipper Windpower Development Company, Inc** Point of Contact: Casey M. Willis, AICP Permitting & Environmental Manager Phone: 805-576-1173, 805-708-2540 Email: cwillis@clipperwind.com 6305 Carpinteria Avenue, Suite 300 Carpinteria, CA 93013 Additonal Contact: Leif B. Bang Permitting & Environmental Coordinator 1350 17th Street, Suite 200 Denver, CO 80202 Phone: 303-951 6952, 303-478 9390 Email: lbang@clipperwind.com

Element Power Point of Contact: Todd Mattson Phone: 612-294-4670 Email: todd.mattson@elpower.com 222 South Ninth Street, Suite 2870 Minneapolis, MN 55402 Additional Contact: Scott Koziar Project Manager Phone: 612-294-4630	**EnXco** Point of Contact: Alyssa Edwards Phone: 267-280-7889 Email: Alyssa.Edwards@enxco.com 15445 Innovation Drive San Diego, CA 92128 Public Affairs Specialist: Sandi Briner Phone: 888-903-6926
E.ON Climate & Renewables North America Point of Contact: Ben Cowan Phone: 312-923-9463 Email: bcowan@lockelord.com 353 North Clark Street, Floor 30 Chicago, IL 60654 Public Affairs Specialist: Patrick Woodson Email: Patrick.woodson@eon.com	**EverPower Wind Holdings, Inc.** Point of Contact: Michael Speerschneider Phone: 212-647-8111 Email: MSpeerschneider@everpower.com 44 East 30th Street, 10th Floor New York, NY Public Affairs Specialist: Dan Lagiovane DLagiovane@everpower.com
Horizon Wind Energy LLC Point of Contact: René Braud Phone: 713-265-0350 Email: rene.braud@horizonwind.com 808 Travis Street, Suite 700 Houston, TX 77002 Additional Contact: Derek Rieman Derek.rieman@horizonwind.com Additional Contact: Danna Small danna.small@horizonwind.com	**Iberdrola Renewables** Point of Contact: Stu S. Webster Phone: 503-796-7000 Email: stu.webster@iberdrolaREN.com 1125 NW Couch Street, Suite 700 Portland, OR 97209 Public Affairs Specialist: Jan Johnson Jan.johnson@iberdrolaREN.com
Invenergy LLC Point of Contact: Karyn Coppinger Phone: 307-399-8807 Email: kcoppinger@invenergyllc.com 50 Antelope Avenue Laramie, Wyoming 82072	**IPR-GDF Suez North America** Point of Contact: Jon Barrett Environmental Manager Phone: 713-636-1337 Email: Jon.Barrett@gdfsuezna.com 1990 Post Oak Blvd, Suite 1900 Houston, TX 77052 Additional Contact: Richard Houston Richard.Houston@gdfsuezna.com

NextEra Energy Resources, LLC Point of Contact: Jim Lindsay 700 Universe Blvd Juno Beach, Fl 33408 561-691-7032 office (b) (6) [redacted] jim.lindsay@fpl.com Public Affairs Specialist: Steve Stengel	**Wind Capital Group, LLC** Point of Contact: George M. Knapp 1430 Washington Avenue, Suite 300 Saint Louis, MO 63103 Phone: 314-685-3058 Additional Contact: Amber Zuhlke Email: azuhlke@windcapitalgroup.com
TradeWind Energy, LLC Point of Contact: Jenni Dean Phone: 913-322-7428 Email: jdean@tradewindenergy.com Southlake Technology Park 16105 West 113th Street, Suite 105 Lenexa, KS 66219	

Bean, Michael

From: John Anderson [JAnderson@awea.org]
Sent: Thursday, June 30, 2011 3:04 PM
To: Bean, Michael; Cottingham, David
Subject: Re: RFP 6-28-11 discussion

Thanks Michael. I'll call you around 5 today.
John M. Anderson

Director of Siting Policy
American Wind Energy Association
1501 M Street NW
Suite 1000
Washington, DC 20005

Janderson@awea.org

(202) 383-2516
(202) 674-8569

Sent via Blackberry

From: Bean, Michael [mailto:Michael_Bean@ios.doi.gov]
Sent: Thursday, June 30, 2011 02:57 PM
To: John Anderson; Cottingham, David <david_cottingham@fws.gov>
Subject: RE: RFP 6-28-11 discussion

John: Sorry for the delay responding to your email earlier this week. I'm available to meet anytime after 1pm tomorrow if you want to discuss HCP structure. On the grant/contracting issue discussed in the email below, feel free to call between 5 and 5:30 today if that works for you.

Michael J. Bean
Counselor to the Assistant Secretary for Fish, Wildlife and Parks
Room 3152
Department of the Interior
Washington, DC 20240
202-208-4416
202-372-7139 (fax)

From: John Anderson [mailto:JAnderson@awea.org]
Sent: Thursday, June 30, 2011 2:36 PM
To: Cottingham, David; Bean, Michael
Subject: FW: RFP 6-28-11 discussion

I need to have a call with you two about this as soon as possible.

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

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

janderson@awea.org email

202-383-2516 direct
202.674.8569 cell

From: Lisa_Mandell@fws.gov [mailto:Lisa_Mandell@fws.gov]
Sent: Thursday, June 30, 2011 2:23 PM
To: Armstrong, Gary
Cc: John Anderson; Smith, Katie G; Hoellen, Kris; Hurt, Paul; Rick_Amidon@fws.gov; Tara.CampbellLewis@sol.doi.gov; TJ_Miller@fws.gov; Tom_Magnuson@fws.gov
Subject: RE: RFP 6-28-11 discussion

I concur with Gary's comments. In particular, I would like to echo and add the following:

1. From the grants management perspective, the FWS concern is that a product (or products) be identified in the grant documentation, which is called a grant narrative (we've also been referring to a grant Scope of Work in these discussions, which is part of the Narrative) A grant narrative contains a description of the project, including objectives and benefits, deliverables and a budget. What is important to the FWS here is that we identify exactly what products are expected at the end of the grant.

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Lisa

Lisa Mandell
Regional Coordinator - Endangered Species Permits/Grants
U.S. Fish and Wildlife Service
Ecological Services
5600 American Blvd. West
Suite 990
Bloomington, Minnesota 55437-1458
612-713-5343 (phone)
612-713-5292 (fax)

"Armstrong, Gary" <GArmstrong@dnr.IN.gov>

"Armstrong, Gary"
<GArmstrong@dnr.IN.gov>

06/30/2011 10:24 AM

To"Hoellen, Kris" <khoellen@conservationfund.org>,
<Rick_Amidon@fws.gov>

cc"John Anderson" <JAnderson@awea.org>, "Smith, Katie G" <KGSMITH@dnr.IN.gov>, <Lisa_Mandell@fws.gov>, "Hurt, Paul" <phurt@conservationfund.org>, <TJ_Miller@fws.gov>, <Tom_Magnuson@fws.gov>, <Tara.CampbellLewis@sol.doi.gov>

SubjectRE: RFP 6-28-11 discussion

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The contract between TCF and Indiana will become the deliverable for the grant under consideration. Primarily, Indiana is interested in the product of the contract, not how sub-contractors are managed.

As long as TCF and FWS are confident that the RFP does not somehow compromise the TCF and Indiana contracting process and the FWS/Indiana grant development process we are comfortable with the decision to proceed. Our previous comments have been intended to help prevent these conflicts. All parties have been provided access to the Indiana contract and I understand every reasonable effort has been made to help all partners understand what assurances and agreements Indiana will be required to obtain as part of the contracting process.

Indiana's participation will be governed by the grant documents and Indiana contract with TCF. I presume these will closely mirror the RFP but I guess they would not absolutely have to.

Some sort of RFP process is clearly needed so TCF can get some reasonable cost estimates for the contract and grant. It seems this process must proceed. I understand the RFP does not allow the contractors to start grant related work, it just provides for starting the process of getting grant budgets in order and I also understand that if the cost estimates are far outside the grant funding we may need to go back to the drawing board.

If this understanding sounds correct to everyone, then we see no problem with proceeding.

Gary Armstrong, Federal Assistance Coordinator
Indiana Division of Fish and Wildlife
402 West Washington, RM W273
Indianapolis, IN 46204

Phone: 317-232-8166
email: garmstrong@dnr.in.gov

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-----Original Message-----
From: Hoellen, Kris [mailto:khoellen@conservationfund.org]
Sent: Thursday, June 30, 2011 10:56 AM
To: Rick_Amidon@fws.gov
Cc: Armstrong, Gary; John Anderson; Smith, Katie G; Lisa_Mandell@fws.gov; Hurt, Paul; TJ_Miller@fws.gov; Tom_Magnuson@fws.gov [Tom_Magnuson@fws.gov];

Tara.CampbellLewis@sol.doi.gov
Subject: RE: RFP 6-28-11 discussion

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Cc: Armstrong, Gary; John Anderson; Smith, Katie G; Lisa_Mandell@fws.gov; Hurt, Paul; TJ_Miller@fws.gov; Tom_Magnuson@fws.gov [Tom_Magnuson@fws.gov]; Tara.CampbellLewis@sol.doi.gov
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"Hoellen, Kris" <khoellen@conservationfund.org>

06/28/2011 03:18 PM

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"Hurt, Paul" <phurt@conservationfund.org>, "TJ_Miller@fws.gov" <TJ_Miller@fws.gov>, "Rick_Amidon@fws.gov" <Rick_Amidon@fws.gov>

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RFP 6-28-11 discussion

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is for engaging affected entities during the development of the HCP. I did not use the word 'parties' as I thought it might be confusing with "The Parties". Entities may not be the right word, but seemed less confusing than parties.

4. I changed the schedule only slightly - contractor selection date remains the same. Basically, moved other dates back by 2 days regarding when questions, proposals, etc. are due. Assumes release of the RFP on June 30th or before.

Please review your notes and hit reply all with edits or corrections (note, I did not proof the clean copy yet)

My understanding from what was proposed on the call is TCF and AWEA will have solid lines of reporting into the contractor. It is a question whether the Service will have a direct line into the contractor as well - the Service to determine if this is in fact acceptable practice on the part of the Service. Otherwise, the Service may speak to the contractor but only if AWEA and TCF have been provided the opportunity to participate as well in the conversation. These rules of engagement for the contractor will be spelled out as a 'duty' that the contractor must adhere to in the contractor's contract/scope of work. TCF will retain administrative management, so any requests to the contractor to meet, speak, produce work products, etc. (i..e, budgetary requests) - the contractor must run through TCF for approval. As AWEA has a direct line into the contractor, AWEA may meet and speak with the contractor without TCF present, but only if TCF approves or put another way doesn't object to the requested task (approval is on the task, not on whether TCF is present). Individual companies do not have a direct line into the contractor, nor do the states or individual FWS field offices.

Does this sound accurate? It will obviously need to be fleshed out further and translated into language to be placed in the contractor's scope of work, but if the concept outlined above is not your understanding from the call, please indicate prior to the release of the RFP.

One last note, the Service and Indiana still need to look at proposed changes by AWEA to appendix B prior to release. Thanks! - Kris

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Director, Conservation Leadership Network
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khoellen@conservationfund.org<mailto:khoellen@conservationfund.org>

The Conservation Leadership Network -- Achieving Common Ground for Our Partners

(See attached file: Change-Pro_Redline_-_WEBAT_-_REGION_3_MSHCP_RFP_06-26-WEBAT_-_REGION_3_MSHCP_RFP_06-28-111_(WEBAT_comments)[1].docx)(See attached file: Change-Pro_Redline_-_WEBAT_-_REGIONWEBAT_REGION_3_MSHCP_RFP_06-28-111_clean version(WEBAT_comments)[1].docx)

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(See attached file: Change-Pro_Redline_-_WEBAT_-_REGION_3_MSHCP_RFP_06-26-WEBAT_-_REGION_3_MSHCP_RFP_06-28-111_(WEBAT_comments)[1].docx)(See attached file: Change-Pro_Redline_-_WEBAT_-_REGIONWEBAT_REGION_3_MSHCP_RFP_06-28-111_clean version(WEBAT_comments)[1].docx)

Bean, Michael

From: John Anderson [JAnderson@awea.org]
Sent: Tuesday, June 28, 2011 9:46 AM
To: Bean, Michael
Subject: Meeting/Call to discuss HCP structure

Follow Up Flag: Follow up
Flag Status: Flagged

Michael,

I'm in DC this week and would like for the two of us (no attorneys on my side) to get together for a frank discussion about HCP structure. Can you let me know when you have some time this week to meet?

Thanks.

JA

AWEA

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

janderson@awea.org email

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202.674.8569 cell

Bean, Michael

From: John Anderson [JAnderson@awea.org]
Sent: Friday, May 20, 2011 11:55 AM
To: Bean, Michael
Cc: Ahmad, Fatima
Subject: FW: Eagle Conservation Plan Guidance Comments
Attachments: AWEA Eagle Guidance Comments 5-19-11 (final).pdf; AWEA Eagle Guidance Comments-Appendix A.pdf

Michael,

Attached please find copies of AWEA's comments on the eagle conservation plan guidance filed on the public record last night. I will send along the Appendix B separately through yousendit.com (and then you can download the report yourself) as it is a 15 MB file. We appreciate the opportunity to comment on this important document and look forward to working with you all on making this an effective conservation tool that will allow for responsible wind energy development across the country.

JA

AWEA

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

janderson@awea.org email

202-383-2516 direct
202.674.8569 cell

From: John Anderson
Sent: Thursday, May 19, 2011 6:06 PM
To: windenergy@fws.gov
Cc: John Anderson; Tom Vinson; Gene Grace
Subject: Eagle Conservation Plan Guidance Comments

To Whom It May Concern –

Attached please find the official comments, along with two appendices (the second to be sent under separate cover due to the size of the file), of the American Wind Energy Association (AWEA) on the Draft Eagle Conservation Plan Guidance.

Thank you for the opportunity to submit these comments.

John

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Director of Siting Policy
American Wind Energy Association

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www.awea.org

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Bean, Michael

From: John Anderson [JAnderson@awea.org]
Sent: Monday, May 16, 2011 6:41 PM
To: Bean, Michael
Subject: Re: Great Plains Wind Energy HCP

Thanks for the time Michael.
John M. Anderson

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Sent via Blackberry

From: Bean, Michael [mailto:Michael_Bean@ios.doi.gov]
Sent: Monday, May 16, 2011 06:23 PM
To: John Anderson
Subject: RE: Great Plains Wind Energy HCP

I have not seen any analysis of that yet.

Michael J. Bean
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From: John Anderson [mailto:JAnderson@awea.org]
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To: Bean, Michael
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BTW, just to be clear. The preference is still for your partial permit transfer concept but didn't want to limit options for public comment.

Has your research provided any clarity on the need for NEPA and section 7 with the permit transfer?
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From: Bean, Michael [mailto:Michael_Bean@ios.doi.gov]
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To: John Anderson
Subject: RE: Great Plains Wind Energy HCP

Thanks, John. I sent your description of the "co-permittee" approach to the region, but do not know which of the several possible structures they are inclined to prefer.

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Hi Michael,

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Bean, Michael

From: John Anderson [JAnderson@awea.org]
Sent: Monday, May 16, 2011 6:16 PM
To: Bean, Michael
Subject: Re: Great Plains Wind Energy HCP

Ok. Thanks for the update. My thought was since they were seeking input through the scoping process that we could put all four out for the public to gauge response. Do you know if that is their plan?
John M. Anderson

Director of Siting Policy
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(202) 674-8569

Sent via Blackberry

From: Bean, Michael [mailto:Michael_Bean@ios.doi.gov]
Sent: Monday, May 16, 2011 05:49 PM
To: John Anderson
Subject: RE: Great Plains Wind Energy HCP

Thanks, John. I sent your description of the "co-permittee" approach to the region, but do not know which of the several possible structures they are inclined to prefer.

Michael J. Bean
Counselor to the Assistant Secretary for Fish, Wildlife and Parks
Room 3152
Department of the Interior
Washington, DC 20240
202-208-4416
202-372-7139 (fax)

From: John Anderson [mailto:JAnderson@awea.org]
Sent: Monday, May 16, 2011 4:22 PM
To: Bean, Michael
Subject: Great Plains Wind Energy HCP

Hi Michael,

Just checking in on where we stand on the HCP structure discussion. I had sent along a suggested fourth option (co-permittee) and our analysis of the NEPA and Section 7 implications for each option a week or so ago and wanted to see if you had any questions or feedback. Please call or email me when you have a minute so we can discuss this.

Thanks,

JA

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Bean, Michael

From: John Anderson [JAnderson@awea.org]
Sent: Tuesday, May 03, 2011 1:15 PM
To: Bean, Michael
Subject: RE: Great Plains Wind Energy HCP Structure Follow-up

Follow Up Flag: Follow up
Flag Status: Flagged

Michael,

Thanks for sending this along. I really appreciate the thought you put into this topic. As a follow-up I did want to provide you a summary of the co-permittee concept as presented by Alan Glen and Steve Quarles in our last meeting. Again that concept is as follows:

Co-Permittee Approach: Under a co-permittee approach, current members of WEWAG (or those who join prior to permit application) would be named as permittee in the incidental take permit application. Assuming FWS found that the HCP met the ESA's permit issuance criteria, FWS would issue a single or master incidental take permit naming each of the WEWAG members as a participating permittee (co-permittee). Like the programmatic approach, the incidental take permit would authorize each co-permittee's projects located within the permit area. Each co-permittee would, at the relevant time, submit to FWS a prescribed form indicating how its project complies with the incidental take permit and that any required mitigation has been paid to the appropriate entity. There might be a brief waiting period within which FWS could raise any objections concerning the project's compliance with the terms of the permit. Additional NEPA and ESA section 7 would not be necessary, as each permittee would be fully authorized under the permit. Finally, an agreement among the permittees allocating rights and responsibilities would likely be necessary.

While we would like to focus on the partial transfer approach as you laid out, we thought we would offer this as an alternative for consideration (particularly as Region 2 & 6 contemplate seeking comments on the structure as part of the NEPA scoping and therefore thought it would be best to include all potential options). If you still agree this option is a viable one, could you please send along to the Regional staff for consideration?

Further, I thought it might be helpful to provide some additional analysis of the potential NEPA and Section 7 responsibilities of each of the approaches enumerated below. Please feel free to insert these into your summaries if you think they add value. Please feel free to call me if you have any questions or want to discuss.

1. Section 7/NEPA for General Conservation Plan/Template HCP Approach: FWS' issuance of incidental take permits to individual projects may trigger individual NEPA and ESA section 7 review, unless an exception (e.g., a categorical exclusion under NEPA) applied. Under existing template HCPs, each individual incidental take permit is considered a categorical exclusion under NEPA; however, because the scale of projects seeking approval under the Great Plains Wind Energy HCP may be larger, categorical exclusions may not be appropriate.

2. Programmatic HCP Approach: Under the "programmatic" approach, permittee "issuance" of certificates of inclusion likely would not trigger NEPA or ESA section 7 review, because there would be no federal action involved in issuing those certificates. Under existing FWS-approved programmatic HCPs, no additional NEPA or ESA section 7 review is required with respect to the issuance of certificates of inclusion, although, NEPA and section 7 may apply if there are other federal nexi.

3. Partial Transfer Approach: Because a partial transfer of the master incidental take permit would not involve a discretionary judgment being made by FWS and because a partial transfer would not authorize an increase in the

amount or extent of the incidental taking originally authorized under the incidental take permit, additional NEPA and ESA section 7 consultation would not be necessary.

JA

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From: Bean, Michael [mailto:Michael_Bean@ios.doi.gov]
Sent: Tuesday, April 26, 2011 5:09 PM
To: John Anderson
Subject: RE: Great Plains Wind Energy HCP Structure Follow-up

John:

I enjoyed the chance to discuss with you and others the several possible options for structuring multi-project HCPs. I thought it might be helpful if I briefly set forth my understanding of the choices, all of which depend upon the assumption that it is possible to identify at the outset a standardized set of mitigation "rules" that can be applied to the unique circumstances of each individual project that is later proposed.

1. The "general conservation plan" or "template HCP" approach (I think your group referred to this as an "umbrella" permit, but I prefer the former terminology). Under this approach, an HCP capable of fitting a diverse array of situations is developed at the outset and approved by FWS. As each individual project is proposed thereafter, the project proponent simply uses the previously approved template (or such portions of it as are relevant) as his own proposed HCP. Each project gets its own incidental take permit when FWS reviews and approves the HCP for that project. Presumably, however, development and review of individual HCPs can be speedy and straightforward, since each HCP will be based on the previously approved template.

2. The "programmatic" HCP approach. This approach utilizes a single permit to a single permittee based upon an HCP that is essentially identical to the "template" HCP described above, except that it explicitly contemplates that the permittee will enter into subsidiary agreements with proponents of individual projects and will extend to those project proponents "certificates of inclusion" that function to include the project within the scope of the programmatic permit. If the single programmatic permittee is not a state or local government entity, the authority for this approach would hinge upon the holder of the certificate of inclusion being "under contract to the permittee for purposes authorized by the permit." 50 CFR 13.25(d). This approach has the advantage of needing only one permit. However, this approach may raise questions about the authority of the FWS to enforce permit terms and conditions directly against a certificate holder. It may also raise questions regarding the delegation of federal permitting authority to a non-federal third party.

3. The "permit transfer" approach. This approach, which to my knowledge has not previously been used for multi-project HCPs, also utilizes a single permit to a single permittee who then enters into subsidiary agreements with proponents of individual projects. However, instead of issuing "certificates of inclusion" to those project proponents, the permittee jointly proposes with a project proponent, and FWS approves, a partial transfer of the permit to the project proponent. FWS regulations at 50 CFR 13.25(b) authorize the transfer of an incidental take permit "in whole or in part through a joint submission by the permittee and the proposed transferee," provided FWS determines that the transferee (1) meets the qualifications for holding a permit, (2) has provided adequate written assurances that it will provide sufficient funding and will implement the relevant terms and conditions of the permit, and (3) has provided such other information as FWS requires. As with the "programmatic" approach, the FWS only issues one permit. However, unlike the "programmatic" approach, individual project proponents become permittees through a partial transfer of the initial permit. This avoids any questions about delegation of permitting authority or about FWS's ability to enforce permit terms and conditions directly against project proponents.

There are doubtless many details that the above summary does not address, and I believe the Service is still evaluating the pros and cons of these different approaches, but I hope you find this summary useful in thinking about how you might wish to proceed.

Michael J. Bean
Counselor to the Assistant Secretary for Fish, Wildlife and Parks
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Bean, Michael

From: John Anderson [JAnderson@awea.org]
Sent: Monday, April 25, 2011 3:30 PM
To: Bean, Michael
Subject: Great Plains Wind Energy HCP Structure Follow-up

Michael,

Just left you a voicemail on your office line. I wanted to follow-up with you on the HCP structure discussion after our meeting and subsequent meeting with the Region 2 & 6 staff. In reviewing the proposal you sent to Laila last week the project attorneys and I think you have provided an elegant solution to the issue. I do have one point of clarification I would like to discuss with you though, so when you have a moment please call me so we can discuss.

Thanks.

John

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Bean, Michael

From: John Anderson [JAnderson@awea.org]
Sent: Friday, April 08, 2011 8:31 AM
To: Wheeler, Richard W
Cc: Bean, Michael
Subject: Re: Tuesday Mtg Logistics

Thanks Richard. I'll check in with you all later today to see if there's a better sense of the likelihood of a shutdown.
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Sent via Blackberry

From: Wheeler, Richard W [mailto:Richard_Wheeler@ios.doi.gov]
Sent: Friday, April 08, 2011 08:17 AM
To: John Anderson
Cc: Bean, Michael <Michael_Bean@ios.doi.gov>
Subject: RE: Tuesday Mtg Logistics

You are still on Michael's schedule for the 12th at 10:00 AM. I can't recall who from FWS is attending. I have forwarded your message to Michael and FWS, asking them. As for conference line, use (b) (6) Passcod (b) (6) We should know more this afternoon, as far as the status of the Federal government.

Thanks!

From: John Anderson [mailto:JAnderson@awea.org]
Sent: Thursday, April 07, 2011 6:55 PM
To: Wheeler, Richard W
Subject: Tuesday Mtg Logistics

Richard,

Hope this finds you well. Assuming there is no government shut down we are scheduled to meet on Tuesday, April 12 with Michael and I believe staff from Ecological Services. I understand Gary Frasier is not available but was curious if you've been able to confirm whom they may be sending in his place? My preference would be for someone like Don Morgan or Trisha Cole but anyone intimately familiar with HCP structure would be great. That said have you heard who else may be in attendance?

Also, I wanted to see if we could have a conference line available as a few folks want to call into the meeting? At present the attendee list is Steve Quarles, Alan Glen, Rebecca Barho (our legal team), Stu Webster of Iberdrola and me. On the phone will likely be Rene Braud and Melinda Taylor (another member of the legal team).

Thanks in advance.

JA

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From: Wheeler, Richard W [mailto:Richard_Wheeler@ios.doi.gov]
Sent: Wednesday, March 30, 2011 7:46 AM
To: John Anderson
Subject: RE: Friday Mtg Logistics

You're on Michael's schedule for April 12 at 10:00 AM

From: John Anderson [mailto:JAnderson@awea.org]
Sent: Tuesday, March 29, 2011 10:42 PM
To: Wheeler, Richard W
Subject: RE: Friday Mtg Logistics

Richard,

Just wanted to confirm the meeting with Michael and others to discuss the Whopping Crane Regional HCP structure on Tuesday April 12th. Does this still work? If not I will be back in DC the week of the 25th and could likely meet then. Please confirm. Thanks.

JA

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From: Wheeler, Richard W [mailto:Richard_Wheeler@ios.doi.gov]
Sent: Thursday, March 17, 2011 11:10 AM
To: John Anderson
Subject: RE: Friday Mtg Logistics

Use our conference line:

(b) (6)

Pass code for participant (b) (6)

From: John Anderson [mailto:JAnderson@awea.org]
Sent: Wednesday, March 16, 2011 11:32 AM
To: Bean, Michael; Wheeler, Richard W
Subject: Friday Mtg Logistics

Good morning. I was curious if it would be possible for a conference line to be available? A few folks won't be able to attend in person but would like participate by phone if possible. Please advise. Thanks.

JA

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Bean, Michael

From: John Anderson [JAnderson@awea.org]
Sent: Wednesday, March 16, 2011 11:32 AM
To: Bean, Michael; Wheeler, Richard W
Subject: Friday Mtg Logistics

Good morning. I was curious if it would be possible for a conference line to be available? A few folks won't be able to attend in person but would like participate by phone if possible. Please advise. Thanks.

JA

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Bean, Michael

From: John Anderson [JAnderson@awea.org]
Sent: Monday, March 14, 2011 6:20 PM
To: Bean, Michael
Subject: Region 3 MSHCP Meeting

Michael,

Thanks again for the opportunity to meet with you and Ed Grace this Friday to discuss the Region 3 HCP. We suggest the following agenda for our discussion. I'd like to suggest that TJ Miller, ES Chief and Rick Amidon, HCP Coordinator of Region 3 participate in the discussion given their involvement to date. Please let us know if you think it is a good idea for them to participate either in person or by phone. Following is a draft agenda:

I. Introductions

II. Overview of Region 3 MOU status

III. Interim Strategies during MSHCP Development

IV. Enforcement Discretion Language

V. Next Steps

Please let me know if you want to revise this at all and merely focus on the ED language or add anything to the discussion. Thanks and look forward to seeing you Friday.

John

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Bean, Michael

From: John Anderson [JAnderson@awea.org]
Sent: Wednesday, March 09, 2011 1:36 PM
To: Wheeler, Richard W
Cc: Bean, Michael
Subject: Meeting Scheduling

Richard,

As we discussed on Monday I'm looking to arrange a meeting with Michael and someone from Law Enforcement (Bill Woody or his Deputy Chief) to discuss some proposed Enforcement Discretion language we are working on with the Region 3 staff in association with the Regional Multi-species HCP. The idea is to have a discussion with Michael and LE now before we get too far down the road, wasting ours and staff's time.

I'll be in DC from Monday afternoon, March 14th through noon Friday, March 18th. From our discussion I understand Michael is traveling and has limited availability but would appreciate a 1/2 hour or so of his time if he has some availability. Please call or email when you have a minute. Thanks.

John
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Sent via Blackberry

Bean, Michael

From: John Anderson [JAnderson@awea.org]
Sent: Friday, February 18, 2011 8:37 AM
To: Bean, Michael
Subject: AWEA Initial Critique of the FWS guidelines
Attachments: AWEA initial concerns with WEGs and Eagle guidance final 2-11-2011.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Michael,

Attached is the initial critique we have prepared on the FWS guidelines. As previously mentioned AWEA (and I suspect numerous companies) will be preparing and submitting detailed comments during the public comment period. Please contact me directly if you have any questions or want to discuss. Thanks.

John

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From John Anderson **Date** Friday, November 12, 2010 3:29:25 PM

To Bean, Michael; Ahmad, Fatima

Cc Tom Vinson; Gene Grace

Subject Meeting Follow-up

Michael,

Thank you again for taking the time to meet with us on Wednesday to discuss the FAC guidelines and eagle policies. I did want to follow-up with you regarding the map we shared that showed known eagle nest locations and related concentric setback distances of 1, 2, 4, 6 and 10 miles within what appeared to be a wind energy development project boundary, as you expressed a concern that the site potentially represented a high-risk location that should be avoided based on the apparent high eagle nest concentrations. As a result of your concerns, after the meeting I went back to WEST to seek clarification on what was being depicted in the map. What I discovered was that the red boundary on the map did not depict a single project boundary, but rather a 1,244 sq. mi. wind resource evaluation area in WY. Within this area, there are four known (each with 2 or less nests per site) wind development areas, but based on just the land area, one could literally site dozens of wind energy facilities. When you take those project areas into context with the regional golden eagle attributes of the area, coupled with the wind resource, transmission, site suitability (access, construction, and stable wind resource) and other environmental constraints (e.g., there are WY sage grouse core areas within this 1,244 sq mile area as well), the area is effectively precluded from any meaningful levels of development. The point of the exercise was to illustrate that even if the Service was to relax the 6-mile buffer and assume 4-mile with other conditions of approval, and taking no other constraint into consideration, 87% of the area is impacted.

The other message intended with the WY regional map was to emphasize that the western US map (the larger scale map we showed you) is predominately populated with incidental observations and not representative of actual eagle nest/observation densities. When one looks at micro-regional, systematic investigations of eagle presence (e.g., south-central WY, northwest NV, north-central WA (i.e. bald eagles), Altamont Pass, and areas in southern CA) then the density of nests or observations are significantly greater than in areas that have no such systematic assessments done (or at least on the public record). In other words, there does not seem to be a reasonable area within the western United States where one could apply the FWS guidance of proximity = unacceptable risk, without assuming that risk anyway. In fact, one could argue that given the propensity/biological nature of golden eagles to claim territory that is unoccupied by another golden eagle, that the most ideal sites from a guidance perspective (i.e. no eagles within 6-miles of the project boundary) have high probability of being occupied by a "floater" at some point in the project life-cycle even if not currently occupied by one today, thus the risk cannot be managed to the objective level the guidance seeks (i.e. avoidance).

Also, we have heard recently from several developers that they are being told by BLM that they can not even file a NOI on BLM land until they have received an approved ABPP. They are also reporting that it appears that some FWS regional/field staff have placed a moratorium on considering any project within 4 miles of a golden eagle nest until more definitive guidance is in place in the future. Are you aware of either of these issues? Are these official positions of the Service?

Please let me know if you have any questions about this or need further clarification.

John

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From John Anderson **Date** Sunday, November 07, 2010 1:08:07 PM

To Bean, Michael

Cc Wheeler, Richard W

Subject Re: your request to meet this week

Thanks for the response Michael. Wednesday should work well. I will call Richard tomorrow to schedule a time that is mutually convenient.

John M Anderson
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Sent from my Blackberry

From: Bean, Michael
To: John Anderson
Cc: Wheeler, Richard W
Sent: Sun Nov 07 07:00:31 2010
Subject: your request to meet this week

John: I apologize that I was unable to return your call last week, but I am happy to meet with you if a time can be found on Monday or Wednesday (the only days I will be in my office this week). Please call Richard Wheeler at 202-208-4416 to schedule a time. -- Michael Bean

From John Anderson **Date** Tuesday, November 02, 2010 3:56:53 PM

To Bean, Michael

Cc

Subject Follow-up

image001.jpg (10 KB HTML)

Michael,

Hope this finds you well. I wanted to follow-up with you on the discussion we had after the meeting two ago about the status of the FAC recommendations. If you recall, I had suggested an alternative approach to the one the Service is currently undertaking, specifically that the March 2010 recommendations be immediately published in the Federal Register for public comment, while the Service meets with the FAC members to review the changes that we being considered, and then merging the two sets of comments into a final draft after the 90-day public comment period. Any thoughts on whether this would be an acceptable path forward with DOI and the Service? It would seem to be a reasonable compromise that would satisfy all parties concerns. I'm free to discuss this at your convenience. Thanks in advance for your consideration.

John

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Summary of Results from Golden Eagle Population Survey

The U.S. Fish and Wildlife Service (USFWS) contracted Western EcoSystems Technology, Inc. (WEST) to design and conduct a survey of golden eagles in the western U.S. in 2003, with the goal of developing and testing methods to estimate population size and to track population trends. The 2003 study was treated as a pilot study. After the 2003 study, more transects and a set of alternate transects were added to the study design, and the surveys were conducted yearly between 2006 and 2009 [also 2010, results not available yet]. The overall study design should allow detection of a 3% decline over 20 years with a statistical power of 0.8 using a 90% Confidence Interval, which is equivalent to alpha=0.1. The surveys were conducted between August 15 and September 15 from fixed-wing aircraft flying at low altitude (107-150 m [350-500 ft]) along transects generally 100 km in length, though some partial transects were also flown. Three observers were in each plane, and a mark-recapture technique (double observers on one side of the plane) was used to estimate the number of eagle missed on each transect. Age of eagles was determined based on plumage. The estimated eagle population within the study area (Bird Conservation Regions [BCRs]: Great Basin, Northern Rockies, Southern Rockies/Colorado Plateau, Badlands and Prairies) was based on the number of observed eagle groups, the average group size, minimum and maximum search distances, total length of transects flown, and the estimated average probability of detection within the area searched.

As an example, in 2009, 216 whole or partial transects were flown for a total of 17,597 km surveyed, and 149 individual eagles or groups were observed within 1000m on 75 transects. The average group size was 1.18 birds. This led to an estimate of 20,722 golden eagles in the study area in 2009 (90% CI=16,317 – 25,948). Trend analyses were conducted on data collected during the 2006-2009 surveys for all golden eagle age classes together, and for eagles within the juvenile age class. No significant trends were detected in total number of golden eagles in individual BCRs or across all BCRs. The only significant trend detected was a declining trend for juveniles in the Southern Rockies/Colorado Plateau BCR (35% decline per year), but trends for juveniles in other BCRs or across BCRs were not statistically significant. The trend analysis is based on only four years of data, and results must be interpreted with caution since the study is designed to detect changes over 20 years. Similarly, evaluation of point estimates for each year indicate positive trends for the Great Basin and Northern Rockies, and negative trends for Southern Rockies/Colorado Plateau and Badlands and Prairies, but such a cursory evaluation is not supported statistically. Studies have shown that golden eagle populations follow approximately 10-year cycles, likely in response to severe weather, drought cycles, and prey densities. Trends in numbers of juveniles may give an indication of changes to the overall population – decreased juvenile numbers during one survey year indicate low productivity for that year, while consecutive years with low juvenile numbers may indicate longer-term population decline.

From Webster, Stuart **Date** Wednesday, November 03, 2010 7:42:25 PM
To Bean, Michael
Cc
Subject Follow up to our 21 Oct meeting

image001.gif (3 KB HTML)
USFWS-ReponseToBLM26Aug10memo-16Sep10.pdf (77 KB HTML) **BLM-GEriskAssessment-26Aug10.pdf** (302 KB HTML)

Afternoon Michael,
I want to thank you again for being at the meeting with Secretary Salazar. I assume you get that a lot with varying degrees of sincerity so let me reiterate – I genuinely appreciated you being there. I recognize that you understand our concerns as laid out in the brief we provided prior to the meeting. I've been thinking about the discussion and much of the comments we provided elicited a request for more specifics, and while that is a valid request I would be remiss to not respectfully point out we've asked the same of the Service and BLM. I truly mean no disrespect and do appreciate the circumstance the agencies are in. In thinking about your request for specifics, I would like to provide the following:

- The notion that the golden eagle is, to quote from our meeting, "in significant decline," is not substantiated by any data that the FWS has brought forth. It is my understanding that a methodology developed by WEST (published in *Journal of Wildlife Management 71(2):395-402: 2007)* has been employed for four years and is meant to assemble sufficient quality data to estimate population trends over a 20-yr period with some statistical rigor. While not statistically significant, the general trend for different eagle populations is a negative trend line (i.e., decline). This is the only reference that is made when queried about why such drastic measures on wind energy need to be taken for the golden eagle. I can provide a summary detail and the latest study, prepared by the study's author, upon your request.

- As I currently understand it, the intended purpose of what I will collectively refer to as the 2010 guidance documents issued by DC and some regions are to facilitate a means of assuring responsible yet expedient review of the "fast track" renewable energy projects. These documents, however well intentioned, were clearly done in a vacuum as they have fundamentally unworkable, economically unreasonable, and biologically impractical elements throughout that negate any benefits, perceived or real, intended to enable renewable energy projects. I can elaborate on these elements upon your request.

I would like to illustrate with one of our projects, Tule in San Diego County, which I would not say is thematically unique. The BLM-CA has extended the intent of their Instruction Memorandum 2010-156 to streamline review of projects (i.e., no issuance of official BLM action such as Record of Decision w/o FWS concurrence on project) and officially halted work on a significant percentage of 16 renewable energy projects due to concerns related to golden eagle (26 Aug 2010 memo – attached). Our Tule project was one of four deemed an immitigable risk and as such the BLM will not publish our Draft EIS document (which has been completed and is ready to print since late August) for the public's review until FWS provides some concurrence, the form of said concurrence has not been well defined to me in meetings to date. I was told by the acting BLM Director that since the project had some likelihood of killing an eagle that the BLM could be held liable for the taking and thus cannot issue authorization. When I asked how, based on the same that there was no sense in further consideration or informed decision-making on the matter. In full disclosure, this project has eagle nests around it to varying distances – no early agency consultation suggested it was a significant issue until August of this year (the project has been under environmental due diligence for five+ years now). To add fuel to the controversy, linearly there is a new eagle nest (showed up in March 2010) 100s of meters from one of the turbine locations (it's also along a cliff edge and therefore ~100 meters "below" the turbine, which sits on a ridgeline, a ridgeline that happens to be the best wind for the project, a ridgeline that is the only portion of the project on tribal land, and a project that until March 2010, was the poster child project for stimulus dollars. Challenging doesn't begin to describe it.
The point I want to raise is that a determination of environmental affect is being made prematurely – the NEPA process is not completed and the BLM feels they *cannot* issue the DEIS because of the nest proximity issue. We have made clear our understanding that the project may be given a "no action preferred alternative" but such a determination is not to be decided by one biologist of one agency that has told me the 26 August determinations were not based on anything other than their own opinion/interpretation of the golden eagle interim guidelines and Instruction Memorandum. While I appreciate the workload issues, unreasonable demands of an understaffed set of agencies, and heavy demand for this Administration to deploy renewable energy on public lands, this is simply an unreasonable action (or lack thereof) by BLM. FWS, who I think genuinely understand where we are coming from and appreciate the level of effort we've done to date, don't feel empowered or otherwise able to communicate to the BLM that while a determination has not been made to date, the project's Draft EIS should be published so the NEPA process continues, thereby allowing for full investigation of data and circumstance to conclude a determination at the appointed time in the process.
Out of respect for your time I'll only provide further detail if you request it. My current status is I'm asking for our third FWS meeting to discuss the relative merits of our ABPP developed to date for the project (specifically golden eagles). We've developed an adaptive management structure and proposed development of a decision-making structure for the adaptive management program. We understand the nature and intent of the guidelines and the statutory issues that dominate the back of minds in trying to work through to some workable solution but my opinion is the only way we're going to get there is to have a project's due

diligence (NEPA) go forward. That the project has a probability of having the environmental attributes that the guidelines attempt to characterize as unreasonable risk to eagles will force the issue on a practical level and in the public forum so that we can have substantive dialog. Anything short of that will only add fuel to the fire of rhetorical debate.

Michael , I don't mean to bring project-specific issues and concerns to your attention, which is rightfully considering the broader view of things, so let me be clear that I am not asking you to involve yourself to this project effort. We are working with the Region 8 Director and his staff and thus far while we are at significant risk of not qualifying the project for ITC we remain hopeful that things will somehow work out. The same cannot be said for other project proponents. My intent here is instead of hobbling together all the various and sundry pieces of information and place it in the context of an industry-wide issue, as I alluded to above, this example is happening throughout the industry. Turbine sales are in default because the developer no longer has a viable project; PPA negotiations were all but done on another project but the utility pulled away with concerns over the golden eagle policy; project proponents are committing to measures that most other developers genuinely don't understand how to factor in to their economics; and no significant wind energy projects made it on the fast track process but plenty of environmental concerns have now been raised as a result of the heavy push of solar with what the NGO community perceives as insufficient environmental due diligence.

Thanks again for your attentiveness to these issues. I wish to express in no uncertain terms that I make no habit of claiming the sky is falling. The evidence is clear that this is a significant issue for renewable energy being successful in the United States.

Best regards and have a great evening,

Stu S. Webster
Director, Permitting and Environmental

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United States Department of the Interior

FISH AND WILDLIFE SERVICE

In Reply Refer to:
80230/R8

Pacific Southwest Region
2800 Cottage Way, Room W-2606
Sacramento, California 95825-1846

Memorandum Jim SEP 15 2010

To: Acting State Director, Bureau of Land Management
2800 Cottage Way, Sacramento, California 95825

From: Regional Director

Subject: Eagle Act Consultation for Renewable Energy Projects

Thank you for the opportunity to review the Bureau of Land Management's (BLM) initial determination of the likelihood of take of an eagle as a result of proposed energy projects in California. Our staffs have been coordinating to evaluate projects and to determine whether take is likely to occur and, if so, the options available to avoid take.

The Bureau's July 13, 2010 Instructional Memorandum states that the Bureau will not issue a Record of Decision approving a project unless the Service concurs an Avian Protection Plan (APP) is sufficient to meet the standards of the Eagle Permit rule. (b) (5) [redacted]

(b) (5) [redacted]

We greatly appreciate the cooperation from Amy Fesnock and other BLM staff, as we work together to screen projects for environmental concerns. For additional information, please contact Mike Fris, (916/414-6475, Michael_Fris@fws.gov).

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
California State Office
2800 Cottage Way, Suite W1623
Sacramento, CA 95825
www.ca.blm.gov

In Reply Refer To:
1510 (P)
CA930

AUG 26 2010

Memorandum

To: Regional Director, U.S. Fish and Wildlife Service, Region 8
2800 Cottage Way, Sacramento, California 95825

From: Acting State Director, California

Subject: Eagle Act Consultation for Renewable Energy Projects

The Bureau of Land Management is reviewing applications for fast track renewable energy projects. Part of our environmental review includes an assessment of impacts to eagles and whether approving the project would likely result in the taking of eagles, which are federally protected under the Bald and Golden Eagle Project Act (Eagle Act). Our staffs have been in early consultation for most of these projects.

(b) (5)

[redacted]

Attachments:

1. Table of BLM Initial Determinations
2. Summary of Project Specific Information for Projects

Table of BLM Initial Determination and Requested Dates for Concurrence from FWS

Project	BLM's Determination	Requested Date of Concurrence
(b) (5) [redacted]		

Attachment 1

Summary of Pertinent Data for Assessing Potential Effects to Eagles

Project Title: Chevron Lucerne

(b) (5)

[redacted]

Project Title: Ivanpah Solar Energy Generating System

(b) (5)

[redacted]

Attachment 2

Project Title: Tessera Calico

(b) (5)

[redacted]

Project Title: Tessera Imperial Valley

(b) (5)

[redacted]

Project Title: Daggett Ridge

(b) (5)

[redacted]

Project Title: Granite Wind

(b) (5)

[redacted]

Project Title: Iberdrola Tule Wind

(b) (5)

[redacted]

Project Title: Devers-Palo Verde II

(b) (5)

[redacted]

Project Title: NextEra Genesis

(b) (5)

[redacted]

Project Title: Solar Millennium Blythe

(b) (5)

[redacted]

Project Title: El Dorado-Ivanpah

(b) (5)

[redacted]

Project Title: BRP-Steam Power

(b) (5)

[redacted]

Project Title: Haiwee Geothermal

(b) (5)

[redacted]

Project Title: Solar Millennium Palen

(b) (5)

[redacted]

Project Title: First Solar Desert Sunlight

(b) (5)

[redacted]

Project Title: Ocotillo Express Wind

(b) (5)

[redacted]

Project Title: Invenergy Wind

(b) (5)

[redacted]

Project Title: Walker Ridge Wind Project

(b) (5)

[redacted]

From Webster, Stuart **Date** Tuesday, October 12, 2010 3:46:02 PM

To Bean, Michael

Cc

Subject Follow up to 07 Sept meeting

image001.gif (3 KB HTML)

Afternoon Michael,

As I spoke with you about a few weeks ago when I was in DC, I remain concerned that there is a considerable and disconcerting direction public agencies are taking in weighing what level of pressure to apply on the renewable energy industry, relative to other anthropogenic sources of impacts to regulated species and habitats (see below for illustration, being circulated among industry stakeholders). This concern is exacerbated in that the renewable industry has taken unprecedented steps to address its impacts, yet seemingly with no commensurate benefit (FAC recommendations) or even substantive acknowledgement (close door, quasi-policy development). On the whole, and as the industry follows the rest of the economy into an indefinite period of contraction, I worry that the ground we've gained to reinvent the way an industry engage with non-industry stakeholders regarding its environmental impacts will be set back by years. Worse, I think an increasing number of stakeholders are losing sight on the bigger picture of the desperate need to reinvent the way this country and the world generates its energy, of which, along with energy efficiency and conservation, renewable energy is a critical component.

For what it is worth, my supposition for this circumstance is as follows:

1) An underlying concern regarding the nature of statutory prohibition of take on an individual level (MBTA and BGEPA) and liability risks associated thereto.
2) Typical moderate agency implementation of the congressional intent of these statutes is being overruled by the frequency and intensity of various concerns raised within and outside of the public agencies.
3) The feeding frenzy-like development of renewable energy projects and the political pressure to enable renewable energy in an ill-defined, expedited manner is causing reactive rather than well-thought out policy implementation.
4) The proactive manner by industry to acknowledge and address its impacts has enabled non-industry stakeholders to reinforce their concerns and questions related to the qualification/quantification of said impacts, emboldening both genuine and disingenuous motivations to force behavioral changes without definition of what constitutes "responsible development".
1) The imminent possibility of a transitional political landscape in DC likely has a trickledown effect on how all levels of government are administered.

I assume these are elementary observations to your trained mind, which is what leads me to why I am confidentially reaching out to you. As we talked about in DC, I am looking for your input on how I might be more effective in keeping the train on the tracks and yet still alter the course so we work towards a different outcome than the one I view we are currently heading for. The elements below, memorialized in an abundance of memorandum and guidance from the Department of the Interior, will effectively halt meaningful levels of renewable energy development in the United States. The economic realities of renewable energy is its competition with natural gas, which is unprecedentedly outcompeting Appalachian coal right now. Couple this with state/regional RPS mandates all but met and no reasonable national policy in sight, we have an industry that cannot sustain the level of due diligence being asked of it nor is there evidence of impact severity to warrant the scrutiny.

I am seeking and would welcome your thoughts and suggestions and honor your confidence unless directed otherwise by you. I apologize if this is received as yet another industry representative leveling criticism rather than suggesting solutions. Please understand it is not for lack of effort on my part or others within the industry. For example, this Thursday I will have a meeting with Region 8 FWS and BLM-CA concerning proposed solutions we've put forward for one of our ARRA projects in CA. All indications to date leave me hopeful but not optimistic about the outcome. Despite the consistent direction from leadership within the agencies that field and regional offices work with project proponents to derive solutions to facilitate the *stable or increasing local breeding population* (a.k.a., no net loss) standard of eagles, an adherence of no individual take for the life of the project seems to be the criteria employed for "approving" a project.

USFWS Field Office Letters of Concern: FWS Field Offices have begun issuing comment letters on proposed wind projects that include recommended conditions prior to approval and/or recommended features of an APP, including:

- Minimum of six-mile setbacks from a golden eagle nest unless specific studies have been done to define the area around a particular nest where no golden eagle use occurs
- Completion of nest surveys within six miles of the project location
- Conducting observation-post studies to observe the behavior of adults w/o disturbing nesting behavior
- Satellite telemetry of nesting golden eagles within six miles of the project location
- Prohibiting construction and maintenance activities between 1/1 and 7/15 within one mile of an active nest (or a ½ mile if not within line of site)
- Turbine curtailment should occur for all turbines within 4 miles of an active nest during the fledging period
- Comprehensive, life-of-project monitoring of project-related golden eagle mortalities on all land ownerships
- Survey of all turbine locations via a census-model mortality survey to ensure every golden eagle carcass is collected
- Conduct these surveys every month at all turbines
- Report any mortality or injury discovered within 24 hours to the USFWS
- Provide an annual report on golden eagle mortality and productivity data to USFWS

The FWS Field Office letters also note that even though the Service is not currently issuing take permits for golden eagles, any future permits may include permit conditions such as:

- A golden eagle monitoring program over the life of the project
- Utilizing turbine feathering and cut-in speeds of 5 m/sec to 6 m/sec at times of low wind speed to reduce bird (and bat) fatalities
- Locking rotors during daytime and at night during peak migration periods and peak presence of migrating birds and bats
- Specific commitments to integrate turbine operation curtailment (seasonally or permanently) into project management
- Specific commitments to remove turbines if they are found to cause repeated mortalities of golden or bald eagles
- Experimental procedures (e.g. blade painting for higher visibility)
- Minimizing lighting
- Commitments to implement future technology when available

The letters also include insights into USFWS thinking:

- "We will only consider BGEPA permit issuance of new golden eagle take for safety emergencies and for projects that result in net benefits to golden eagles."
- "Ultimately, fewer golden eagles will exist unless we find solutions to either greatly reduce golden eagle wind project mortalities, reduce other sources of mortality to offset golden eagle wind project mortalities, or enhance golden eagle populations with habitat or other reforms."
- "In the absence of clear solutions to address golden eagle mortalities at wind farms, enhance populations through conservation measures, or offset losses in other ways, all best efforts should be directed at avoidance of mortalities by siting wind turbines well away from nesting eagles or areas were resident and migrating eagles are known to concentrate their activities."
- Four Bird Conservation Regions (Great Basin, Northern Rockies, Southern Rockies/Colorado Plateau, and Badlands and Prairies) contact around 80% of the golden eagle populations in the lower 48 states, with approximately 24,000. The population is in decline in all four of these regions.
- Golden eagle deaths are specifically cited at projects in Oregon, Washington, Altamont Pass, Colorado and Wyoming.

- "The Service believes the best way to address golden eagle mortality at wind farms is to first implement actions to avoid golden eagle mortality…Siting to avoid bird mortality needs to take into greater consideration such life-history components as dispersal, migration, winter behavior, and foraging behavior during breeding and non-breeding seasons."
- "Operational avoidance measures including turbine curtailment or turbine removal provide highest likelihood of golden eagle take avoidance."

Best Regards and have a great afternoon,

cid:image001.gif@01CB6

Stu S. Webster
Director, Permitting and Environmental

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From Webster, Stuart **Date** Wednesday, September 08, 2010 3:40:00 PM
To Bean, Michael
Cc
Subject FW: permit status

image001.gif (3 KB HTML) **Summary_of_USFWS_Permit_Application_Process_v2.docx** (13 KB HTML)

Afternoon Michael,

Additional summary of events surrounding our contractor attempting to secure a collection/scavange/research permit for our Penascal project. Upon reading it I don't see much additional information that conveys a different "working environment"; just more detail for your consideration.

Thanks again for your consideration with respect to this issue,

Stu S. Webster
Director, Permitting and Environmental

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From: Wally Erickson [mailto:werickson@west-inc.com]
Sent: Wednesday, September 08, 2010 3:31 PM
To: Webster, Stuart; Roppe, Jerry; Rick Greiner (non-B&B); aglen@smith-robertson.com
Cc: Victoria Poulton; Kimberly Bay
Subject: permit status

Priviledged and Confidential Information

FYI. Attached is a summary of our recent dealings with the service on our permit applications.

Wallace Erickson
WEST Inc.
2003 Central Ave.
Cheyenne, WY 82001
work direct: 307-632-2940
cell: 307-630-7830

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Summary of USFWS Permit Application Process
WEST, Inc. July- early September 2010

Tory Poulton telephoned Jeff Haskins, Chief of the Migratory Bird Program for Region 2 in Albuquerque, NM, on July 6, 2010. Haskins said that Region 2 thinks that adequate post-construction monitoring could be done without collecting carcasses, and he didn't see any scientific or conservation value in collecting the carcasses. He mentioned that the previous company (TX-ESA) did get a limited permit. He said he thought that obtaining a permit would not be in the wind project's self interest since having the carcasses on-hand would be self-incriminating under the MBTA. He stated that we should be applying through Region 6 (Denver) since that where our office is located, and Poulton told him that she and others at WEST had been trying to make contact with the Denver office since sending in the renewal for the year in April, but had not been able to contact anyone. Poulton told Haskins that a request to amend the WEST permit request by adding Kenedy County was going to be sent to Denver, but we would like to send one to Region 2 also if we could get a faster response. Haskins said we could send the application with a protocol showing scientifically-valid reason to collect birds, but we would likely have to jump a "lot of hoops" to get a permit. Poulton told him that was fine as long as we knew which hoops to jump. Haskins said that Katie Wade in the Albuquerque office would be handling permits and further communications likely would be with her.

A request to amend the WEST permit with Region 6 was sent to the Denver Migratory Bird office on 23 July 2010.

An application for a Special Purpose – Miscellaneous permit was prepared, along with the protocol (up-to-date at that time) and justification for collecting carcasses was sent to the Region 2 Albuquerque office, along with the $100.00 application fee, on 23 July 2010.

Tory Poulton contacted Bob Murphy at the Region 2 office on 3 September 2010 to follow up after the discussion he had with Wally Erickson from WEST the previous week. Murphy stated that he generally doesn't stay abreast of permit status. Poulton and Murphy discussed alternative to collecting carcasses (covering with paint, removing from the plot but keeping in the field). Murphy stated that the scientific value of collecting would have to be illustrated in a research proposal sent as part of the application process. The proposal would have to include all parts of the research going on, showing scientific credibility, and preferably showing peer-review and plans for publication. He also admitted that there are problems with inconsistency among USFWS regions. He said he'd follow up on the WEST application status. He later called back and said since the application [from Region 6] had been denied, it was no longer being considered, and referred Poulton to Katie Wade.

Poulton attempted to call Katie Wade, but accidentally called Murphy again, and he said she was out due to illness anyway, so Poulton called Jeff Haskins. He said the process is that WEST has to apply through Region 6 since that is where our office is, and the research proposal can't have picking up birds as the primary goal; the proposal should state how the research will help to prevent birds from being killed at the project. He also stated that permits will be issued on a project-by-project basis, and blanket permits will no longer be issued for counties for regions.

He said Poulton should talk to Janelle Suazo at Region 6. Poulton could not find a direct phone number for Suazo, and left a message on the main Migratory Bird line in Denver.

(b) (4)

[redacted]

Bean, Michael

From: Webster, Stuart [Stuart.Webster@iberdrolaren.com]
Sent: Thursday, December 23, 2010 12:06 PM
To: Bean, Michael
Subject: RE: FWS response to industry inquiry

Morning Michael,

It is possible but I have a hard time believing that the proportionality of impacts to birds in general, which as you point out is the substance of the summary from the NAS report, does not apply to GOEAs, especially given the significant difference between wind turbines and transmission lines. Even extrapolating the estimates out to a 30GW scenario of wind energy (DOE's 20% feasibility projection) would result in avian mortality of ~2.2M/yr, assuming 37,000 fatalities and ~5k MW in 2003). Other data points that would track with my proportionality assumption is that FWS noted 300 known GOEA deaths in WY for CY2009, 20 of which were wind turbines, the balance attributed to distribution lines. I would add that Al presented at the NWCC conference last month and cited 1 GOEA fatality for every 40 turbines/yr...a markedly different rate than 1/10 turbines/yr.

On the second topic of my email, I followed up with the head biologist for a major environmental contractor who I trust and consider a friend and asked her point blank what her experience has been with clients cooking their data. Below is a summary I provided back to AWEA of that conversation that clarifies for me what was likely meant by the industry contractors that interfaced with the FWS field biologists. This makes more sense to me as to experiences the FWS officials may be having.

So I talked with one of industry's biological consultants and point blank asked how often their client base (which is substantial) frustrates them because they cook the data before submitting the agencies. The contact stated 'never'. HOWEVER, and I can totally see this, clients will often times get heavy handed about how the interpretation of the data is presented in a report (low, moderate, high impact, for example) and that biologically such subjective analysis borders on discomfort and other times there is a need to push back if it goes too far. Also, highly specialized contractors that contract with prime contractors (CH2MHill, HDR, Tt, URS, WEST, etc) due to their specialty in certain subject matter, such as golden eagles, often get frustrated with the prime contractor because their report does not necessarily reflect the sub-contractor's recommendations. She used as an example, a 5-mile buffer is delineated around a nest on a map by the sub-contractor and the prime contractor has the sub remove it because it is irrelevant to the point of the report.

So, this is vastly different from cooking the data and frankly makes more sense to me. More importantly, if this is in fact what the FWS field folks are getting for input I would say it is being blown out of proportion. While I'm not suggesting there are no unscrupulous characters in the industry there are three counterpoints to raise:

1) Subjective interpretations of the data should not have an overbearing influence on an agency official that is qualified to come to their own conclusions about what the data indicates. Secondly, it would seem that the job of a public agency is to analyze the data with a skeptical or at least questioning mindset.
2) The entities that are disclosing this to the FWS are not guilty of anything and in fact have indicated their trustworthiness by virtue of providing their opinion of what is being reported. Why preclude them from the discussion?
3) The FWS have stated in documents as recent as Sep 2010's *Rising to the Urgent Challenge: Strategic Plan for Responding to Accelerating Climate Change* (of which D. Ashe was lead coordinator on) that the nature and urgency of the agency's mission means a new paradigm of "committing to a new spirit of coordination, collaboration, and interdependence with others". Furthermore, "We foresee unparalleled opportunities to engage with, and enlist the involvement of, private citizens, businesses and industry, non-governmental organizations at all levels to conserve fish and wildlife in the face of climate change." Apparently this principle philosophy is only accomplished on a selective basis.

Happy to discuss Tule but I feel that Santa is watching with a raised eyebrow as I sit here talking about the relativity of killing critters by different means...strange world in which we live.

Best regards,

IBERDROLA
RENEWABLES

Stu S. Webster
Director, Permitting and Environmental

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From: Bean, Michael [mailto:Michael_Bean@ios.doi.gov]
Sent: Thursday, December 23, 2010 8:29 AM
To: Webster, Stuart
Subject: Re: FWS response to industry inquiry

Stuart: thanks very much. I will call you to discuss your Tule experience. Re Al's email, he seems to be focused on turbine impacts specifically to golden eagles, while your response focuses more broadly on impacts to birds. Is it possible you two are comparing two different things? Michael Bean

---

From: Webster, Stuart <Stuart.Webster@iberdrolaren.com>
To: Bean, Michael
Sent: Wed Dec 22 19:40:14 2010
Subject: FWS response to industry inquiry

Afternoon Michael,

At the risk of throwing Al under the bus, I wanted to pass along the email below as insight to what many of us see as the reason for not being able to have a constructive conversation with the government about wind industry impacts. The dialog offered by Al is completely baseless and flies in the face of what we know, albeit on a cursory level, with where the golden eagle impacts are coming from historically and currently. No eagle biologist I've talked with would concur with virtually anything stated here and yet this is coming from a high level FWS biologist and thus has traction when represented both internal and external to the FWS. There is no data to support this position and is a serious contradiction from common knowledge as well as referenced summaries such as the May 2007 National Academy of Sciences report, *Environmental Impacts of Wind-Energy Projects*, on relative impacts to birds by energy sources, which references USFWS studies:

Having said the above, we provide here estimates summarized by Erickson et al. (2005) and estimates reported by the U.S. Fish and Wildlife Service (2002a). Those sources emphasize the uncertainty in the estimates, but the numbers are so large that they are not obscured even by the uncertainty. Collisions with buildings kill 97 to 976 million birds annually; collisions with high-tension lines kill at least 130 million birds, perhaps more than one billion; collisions with communications towers kill between 4 and 5 million based on "conservative estimates," but could be as high as 50 million; cars may kill 80 million birds per year; and collisions with wind turbines killed an estimated at 20,000 to 37,000 birds per year in 2003, with all but 9,200 of those deaths occurring in California. Toxic chemicals, including pesticides, kill more than 72 million birds each year, while domestic cats are

estimated to kill hundreds of millions of songbirds and other species each year. Erickson et al. (2005) estimate that total cumulative bird mortality in the United States "may easily approach 1 billion birds per year."
Clearly, bird deaths caused by wind turbines are a minute fraction of the total anthropogenic bird deaths—less than 0.003% in 2003 based on the estimates of Erickson et al. (2005). However, the committee re-emphasizes the importance of local and temporal factors in evaluating the effects of wind turbines on bird populations, including a consideration of local geography, seasonal bird abundances, and the species at risk. In addition, it is necessary to consider the possible cumulative bird deaths that can be expected if the use of wind energy increases according to recent projections (See Chapter 2).

Somewhat characteristically related (though not implying directly related), as a further update on the Region 1 hosting an information exchange session with industry, NGO, contract biologists, state and federal agencies, and academics. As you've probably heard, the idea has died on the vine out due to concerns raised over triggering/violating FACA – understandable but I believe not so insurmountable as to curtail further dialog on potentially having the discussion. I've been advised that additional feedback as to reasons for the lack of interest is that FWS biologists (primarily, I gathered, from the field office level) have outreached to "industry biological contractors" and have been notified that clients have "cooked" the data before submitting to the agency. Therefore there is a lack of trust by the FWS towards the industry and thus no interest in having the information gathering discussion. This concerns me for the same reasons that the FACA excuse concerned me. I'm not so naïve to think that there are no bad players. However, to assert that for this reason there should be no trust conveyed is a bit premature. Additionally, I don't think industry folks themselves would have much to offer such a discussion. Rather, while industry reps such as myself expressed interest in engaging, the main intended participants were biological consultants and academic resources that are considered the preeminent experts we rely upon (some of which the FWS has relied upon as well, such as Wally Erickson with WEST, whom you met). To put a finer point to the irony of this outcome, the alleged source of finding out that industry may not be trusted on some level is the same source that is being precluded from engaging with the FWS on this issue.

Finally, I wanted to follow up with you directly about a request that AWEA has issued from, I believe, Steve Black about detailed information on project-specific experiences with FWS officials that illustrate why we [industry] are reacting so aggressively to the GOEA guidelines/policies. I suspect you appreciate that such an inquiry is appealing and discouraging at the same time. For our project, Tule, we are making progress with the FWS, thanks to Director Lohoefener and Asst Dep Director, Michael Fris but we have a long way to go and do not consider the project even remotely out of the woods yet (we did finally get the NEPA process restarted). So while I think it is a good case in point I'm not so inclined to use it as an example and potentially erode my relationship with Ren and his team. I would feel comfortable discussing with you and putting into context what I see as the issues that Tule has experienced but otherwise I likely won't be able to provide input.

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Best regards and happy holidays,

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Stu S. Webster
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Thank you.
Best
Rich

Sent from my Verizon Wireless Phone

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Bean, Michael

From: Webster, Stuart [Stuart.Webster@iberdrolaren.com]
Sent: Wednesday, December 22, 2010 7:40 PM
To: Bean, Michael
Subject: FWS response to industry inquiry

Afternoon Michael,

At the risk of throwing Al under the bus, I wanted to pass along the email below as insight to what many of us see as the reason for not being able to have a constructive conversation with the government about wind industry impacts. The dialog offered by Al is completely baseless and flies in the face of what we know, albeit on a cursory level, with where the golden eagle impacts are coming from historically and currently. No eagle biologist I've talked with would concur with virtually anything stated here and yet this is coming from a high level FWS biologist and thus has traction when represented both internal and external to the FWS. There is no data to support this position and is a serious contradiction from common knowledge as well as referenced summaries such as the May 2007 National Academy of Sciences report, *Environmental Impacts of Wind-Energy Projects*, on relative impacts to birds by energy sources, which references USFWS studies:

Having said the above, we provide here estimates summarized by Erickson et al. (2005) and estimates reported by the U.S. Fish and Wildlife Service (2002a). Those sources emphasize the uncertainty in the estimates, but the numbers are so large that they are not obscured even by the uncertainty. Collisions with buildings kill 97 to 976 million birds annually; collisions with high-tension lines kill at least 130 million birds, perhaps more than one billion; collisions with communications towers kill between 4 and 5 million based on "conservative estimates," but could be as high as 50 million; cars may kill 80 million birds per year; and collisions with wind turbines killed an estimated at 20,000 to 37,000 birds per year in 2003, with all but 9,200 of those deaths occurring in California. Toxic chemicals, including pesticides, kill more than 72 million birds each year, while domestic cats are estimated to kill hundreds of millions of songbirds and other species each year. Erickson et al. (2005) estimate that total cumulative bird mortality in the United States "may easily approach 1 billion birds per year."
Clearly, bird deaths caused by wind turbines are a minute fraction of the total anthropogenic bird deaths—less than 0.003% in 2003 based on the estimates of Erickson et al. (2005). However, the committee re-emphasizes the importance of local and temporal factors in evaluating the effects of wind turbines on bird populations, including a consideration of local geography, seasonal bird abundances, and the species at risk. In addition, it is necessary to consider the possible cumulative bird deaths that can be expected if the use of wind energy increases according to recent projections (See Chapter 2).

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Bean, Michael

From: Webster, Stuart [Stuart.Webster@iberdrolaren.com]
Sent: Tuesday, December 14, 2010 8:19 PM
To: Whitehead, Dawn
Cc: Manville, Albert; Bean, Michael; Tuegel, Marty; russell.hooten@tpwd.state.tx.us; Ford, Jerome; Murphy, Robert; Clements, Pat; Lienesch, Laila; Schmidt, Paul R; Roppe, Jerry; Nguyen, Toan; Pitts, Dan; Johnson, Jan
Subject: RE: Penascal post-construction monitoring reports and PSABPP

Afternoon Dawn et al.,

I would like to confirm that each of you received the email and its attachment from earlier today. The attachment is 16 MB and while I got no indication of a bounce back I thought it best to confirm receipt.

Best regards and have a great evening,

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Stu S. Webster
Director, Permitting and Environmental

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From: Webster, Stuart
Sent: Tuesday, December 14, 2010 12:11 PM
To: Dawn_Whitehead@fws.gov
Cc: albert_Manville@fws.gov; Bean, Michael; Marty_Tuegel@fws.gov; russell.hooten@tpwd.state.tx.us; jerome_ford@fws.gov; robert_murphy@fws.gov; pat_clements@fws.gov; Laila_Lienesch@fws.gov; Paul_R_Schmidt@fws.gov; Roppe, Jerry; Nguyen, Toan; Pitts, Dan; Johnson, Jan
Subject: Penascal post-construction monitoring reports and PSABPP

Afternoon Dawn,

Firstly, I want to convey my personal and professional thanks for your patience with respect to the attached reports and avian bat protection plan for the Penascal project. I confess my workload, travel, and some holiday time off is responsible for the extended delay in getting plan and reports reviewed by me and delivered to you.

That confession aside, I am pleased to provide for your review the attached plan and reports for the Penascal project; I have taken the liberty to include with this correspondence other FWS and TXPWD officials we briefed earlier this fall. The project specific avian and bat protection plan is provided as an update to the initial plan provided and reflects the addition of the second phase of the project. As you are likely aware, Iberdrola Renewables adopted a corporate-wide avian and bat protection plan structure in October of 2008; each of our operational projects are intended to have a project specific plan. Given the perception concerns related to Penascal that we've talked about, we would like to extend to the FWS the opportunity to review and comment on this particular project specific ABPP.

With this email, we are also transmitting the fall 2009 and spring 2010 post-construction monitoring reports for your review. For those of you I had the opportunity to brief, you may recall that the fall 2009 report is more a status report on activities conducted since March 2009 (monitoring for summer, fall and winter) but lacks standard reporting of fatality estimates. For reasons conveyed in the report, while the measured fatalities suggest a similar level of extrapolated fatalities as that of the spring, we were not able to estimate total fatalities to a sufficient level of confidence. However, for the spring monitoring period, we have made full statistical estimates on fatalities. We anticipate providing a full statistical extrapolation of fall activity with the monitoring done in 2010.

Please don't hesitate to contact me with questions, comments or concerns. Additionally, if the file sizes are too great I can post to an FTP site for your downloading them instead.

Best regards and have a great afternoon,

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Director, Permitting and Environmental

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Bean, Michael

From: Traylor, Patrick D. [patrick.traylor@hoganlovells.com]
Sent: Thursday, December 16, 2010 4:55 PM
To: Bean, Michael
Subject: Criterion Draft Habitat Conservation Plan Submission
Attachments: Criterion Draft HCP_Nov 10 Submittal to USFWS.doc; Comments on the November 2010 5HCP.docx; Further comments on Draft HCP after discussion with RegionKel.docx

Michael:

Thank you again for your time this afternoon. As you requested, I have attached the working draft HCP that we submitted to the field office on November 10 for their review and comment. I've also attached the written comments we've received so far from the Service. The technical issues we are working through now, or have already resolved. You can see from the comments that there are some important issues--those we discussed today--to be resolved.

Warm regards,
Patrick

Patrick Traylor
Partner

Hogan Lovells US LLP
Columbia Square
555 Thirteenth Street, NW
Washington, DC 20004

Cell: +1 202 669 3896
Direct: +1 202 637 6866
Fax: +1 202 637 5910
Email: patrick.traylor@hoganlovells.com
www.hoganlovells.com

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Criterion Wind Project
Habitat Conservation Plan
Garrett County, Maryland

Prepared for:

Criterion Power Partners, LLC
1295 Eagle Rock Road
Oakland, MD 21550

Prepared by:

David P. Young, Jr. and Wendy L. Tidhar, PhD
Western EcoSystems Technology, Inc.
2003 Central Avenue
Cheyenne, Wyoming 82001

WEST, Inc.

November 2010

Pre-decisional Draft Document - not for distribution

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1.0 INTRODUCTION

1.1 Overview and Background

Criterion Power Partners, LLC (CPP), a wholly owned subsidiary of Constellation Holdings, Inc., owns and operates the Criterion Wind Project (Project). The Project is located on 117 acres of private land in Garrett County, Maryland and consists of 28 fully constructed wind turbine generators (WTGs), an electrical collection system, and a substation (Figure 1.1).

Operation of the Project has the potential to take up to 1.30 federally endangered Indiana bats (*Myotis sodalis*) per year. Consequently, CPP is applying for an incidental take permit (ITP) under Section 10(a)(1)(B) of the Endangered Species Act, 16 U.S.C. § 1531, *et seq.* (ESA). No other listed, proposed, or candidate species are known to occur within the project area.

This Habitat Conservation Plan (HCP), a requirement of the ITP application process, outlines the anticipated impacts of the proposed taking of Indiana bat and how those impacts will be minimized and mitigated. In addition, the HCP identifies how the conservation plan will be monitored and funded, and alternatives to the taking that were evaluated.

(b) (4)

[redacted]

Figure 1.1 Criterion Wind Project location.

1.2 Regulatory Framework

1.2.1 Federal

Endangered Species Act

The purpose of the ESA is "to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved...." ESA § 2(b). ESA § 9 prohibits the "take" of any species of fish or wildlife listed under the ESA as endangered or threatened. Under the ESA "the term "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect species listed as endangered or threatened, or to attempt to engage in any such conduct." *Id.* § 3(19).

ESA § 10(a)(1)(B) of the ESA provides that the Secretary may authorize, under certain terms and conditions, "any taking otherwise prohibited by ESA § 9(a)(1)(B) if such taking is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity." To obtain this incidental take authorization, a non-Federal landowner or land manager must apply for an ITP, and develop, fund, and implement a USFWS-approved HCP to minimize and mitigate the effects of the proposed taking.

As outlined in ESA § 10(a)(2)(A) and its implementing regulations at 50 C.F.R. §§ 17.22(b)(1) & 17.32(b)(1), to obtain an ITP, the applicant must submit an HCP that specifies:

i. the impact which will likely result from such taking;
ii. the measures the applicant will take to minimize and mitigate such impacts, and the funding that will be available to implement such steps;
iii. what alternative actions to such taking the applicant considered and the reasons why such alternatives are not being utilized; and
iv. such other measures that the Secretary may require as being necessary or appropriate for purposes of the plan.

An ITP will be issued if, after a specified public comment period, it is found, that the permit application and related HCP meets the following *issuance criteria* outlined in ESA § 10(a)(2)(B) and 50 C.F.R. §§ 17.22(b)(2) & 17.32(b)(2):

i. the taking will be incidental;
ii. the applicant will, to the maximum extent practicable, minimize and mitigate the impacts of such taking;
iii. the applicant will ensure that adequate funding for the plan will be provided and procedures to deal with unforeseen circumstances will be provided;
iv. the taking will not appreciably reduce the likelihood of the survival and recovery of the species in the wild;
v. other measures that the Service may require as being necessary or appropriate will be provided; and

vi. the Service has received such other assurances as may be required that the HCP will be implemented.

As stated in ESA § 10(a)(1)(B), an ITP may be issued only if the proposed take is incidental while carrying out an otherwise lawful activity. For this reason, all other laws must be complied with before the permit can be issued. The federal and state statutes summarized in the following sections are applicable to this HCP.

National Environmental Policy Act (NEPA)

The National Environmental Policy Act (NEPA) was passed in 1969 and requires Federal agencies to examine environmental impacts of their actions and provide for public participation. Issuance of an ITP is a Federal action subject to compliance with NEPA. To comply with NEPA, the USFWS must conduct detailed analyses of all direct, indirect, and cumulative impacts of issuing the permit on the human environment, not just on the covered species or resources. If the agency determines that issuance of the permit, as conditioned by the agreed-upon conservation measures to be incorporated into the ITP, does not have significant impacts, then the agency will issue a Finding of No Significant Impact (FONSI). If the agency determines that the Project, including any mitigation or conservation measures, is likely to have a significant impact, then the agency will issue a Notice of Intent (NOI) to prepare an Environmental Impact Statement (EIS), which involves a more detailed evaluation of the effects of the Federal action and alternatives to mitigate these effects.

National Historic Preservation Act (NHPA)

USFWS issuance of an ITP under ESA § 10(a)(1)(B) is considered an "undertaking" covered by the Advisory Council on Historic Preservation and must comply with Section 106 of the National Historic Preservation Act, 16 U.S.C. § 470, *et seq.* (NHPA) and its implementing regulations, 36 C.F.R. pt. 800. NHPA § 106 requires the USFWS to assess and determine the potential effects on historic properties that would result from the proposed undertaking and to develop measures to avoid or mitigate any adverse effects. The USFWS must consult with the Advisory Council on Historic Preservation, the State Historic Preservation Officer (SHPO), affected Tribes, the applicant, and other interested parties, and make a good-faith effort to consider and incorporate their comments into Project planning.

Migratory Bird Treaty Act (MBTA)

The Migratory Bird Treaty Act of 1918, 16 U.S.C. § 703, *et seq.* (MBTA), prohibits the take of migratory birds, including any part, nest, or eggs of these birds. A list of birds protected under MBTA implementing regulations is provided at 50 C.F.R. § 10.13. To avoid and minimize impacts to MBTA-listed species, CPP has adopted applicable measures based on USFWS Interim Guidelines to Avoid and Minimize Wildlife Impacts from Wind Turbines (USFWS 2003) and the USFWS Wind Turbine Guidelines Advisory Committee Recommendations (USFWS 2010). These guidelines contain materials to assist in evaluating possible wind-energy facilities, wind turbine design and location, and pre- and post-construction research to identify and/or assess potential impacts to wildlife. In addition, CPP will develop an Avian and Bat

Protection Plan (ABPP) for the Project, the aim of which is to reduce the impacts to all birds and bats (USFWS 2010). (b) (4) [redacted]

Bald and Golden Eagle Protection Act (BGEPA)

The Bald and Golden Eagle Protection Act of 1940, 16 U.S.C. § 668, *et seq.* (BGEPA), and its implementing regulations, 50 C.F.R. pt. 22, provides additional protection to bald and golden eagles such that it is unlawful to take an eagle. In this statute the definition of "take" is to "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, or molest, or disturb." In September, 2009 the USFWS issued a rule to "authorize limited take of bald eagles and golden eagles under the (Eagle Act), where the take to be authorized is associated with otherwise lawful activities." *See* 74 Fed. Reg. 46,836 (2009). Before this rule there was no regulatory mechanism in place under BGEPA to permit take of bald or golden eagles comparable to incidental take permits under the ESA. Until the ramifications and applications of these regulations are determined by the USFWS, CPP has adopted applicable measures based on general wind-wildlife guidelines (USFWS 2003, 2010) and will develop an ABPP, in part based on BGEPA Standards for Review of Wind Energy Projects (USFWS 2010), to reduce the impacts to all birds and bats, including eagles.

1.2.2 State

Maryland Public Service Commission Power Plant Siting Act of 1971

The Power Plant Siting Act of 1971 (Siting Act) establishes a licensing process for certain new generation facilities that integrates a comprehensive evaluation of a proposed construction site and the impact of the project on the surrounding community and the State. The Public Service Commission (PSC) determines whether to issue a certificate of public convenience and necessity (CPCN) authorizing construction of a new facility. In order for the PSC to issue a CPCN, it is required to ensure that the project and any conditions imposed on the developer meet State and federal statutory and regulatory requirements as determined by the Maryland Department of the Environment and the Department of Natural Resources (DNR). Legislation enacted in July 2007 (PUC §7-207.1) created an exception for the certificate of public convenience and necessity (CPCN) requirement for wind-energy facilities of 70 MW or less. The provision established an abbreviated approval process for these facilities that does not include the same comprehensive environmental review provided by the CPCN process. However, for issuance of a CPCN waiver, the PSC is still required to take into account the Maryland Nongame and Endangered Species Conservation Act when implementing that provision (see below; Attorney General Opinion 95 OAG 84). Condition 19 of the Final Recommended Conditions (PSC 2003) states that "Construction may not proceed until the Natural Heritage Program has determined that there will be no take of species as defined in Annotated Code of Maryland §10-2A-01 through §10-2A-09."

CPP was issued a CPCN waiver by the PSC on October, 2008 (Appendix A); however, CPP agreed to abide by the conditions set out in the original CPCN Final Recommended Conditions issued on January 23, 2003 (PSC 2003) to the extent practicable.

Maryland Nongame and Endangered Species Conservation Act

Under the Maryland Nongame and Endangered Species Conservation Act (MD Code, Natural Resources (NR), §10-2A-01 – 09) any species designated under the federal ESA is deemed an endangered species as are other species designated by the state secretary based on habitat and population factors. According to NR §10-2A-05 (c) "Except as provided in subsection (f) of this section and §10-2A-05.1 of this subtitle, with respect to any endangered species of wildlife, a person may not: (2) Take the species within the State;" Subsection (f) a states "The Secretary may permit, under the terms and conditions prescribed, any act otherwise prohibited by subsections (c) and (d) of this subsection for scientific purposes or to enhance the propagation or survival of the species." In this case the definition of "take" is the same as the definition under the federal ESA. In the State ESA statute, however, there is no general provision for an incidental take permit. An incidental take permit may only be issued for the endangered Puritan tiger beetle (NR §10-2A-05.1) or the endangered Delmarva fox squirrel (NR §10-2A-05.2).

As a state agency, the PSC must consult with the DNR to determine if a proposed project will have an adverse impact on a listed species or its habitat. If it will, the PSC must evaluate options for reconfiguring the project to avoid the impact, and if the impact is unavoidable, require mitigation measures that ensure that the project will not "jeopardize the continued existence of" a listed species or "result in the destruction or modification of" the species' critical habitat. See NR §4-2A-06(c); NR §10-2A-06(c).

1.3 Permit Duration

The proposed term of the ITP is 20 years which is the functional life of the Project as planned. This 20-year ITP term allows for operations of the full 28-WTG facility and it provides for the 20-year functional life of turbines. Upon expiration of the initial permit term, CPP will determine whether to decommission or continue operating the Project. At that time, CPP will evaluate the need to apply for a permit amendment or extension.

1.4 Permit Area

(b) (4)

[redacted]

Planning Area

(b) (4)

[redacted]

(b) (4)

[redacted]

(b) (4)

[redacted]

Figure 1.2 Close up of Criterion Wind Project.

1.5 Covered Species

(b) (4)

[redacted]

2.0 PROJECT DESCRIPTION AND COVERED ACTIVITIES

2.1 Project Description

2.1.1 Project Location and General Description

The Project is located east of the town of Oakland in Garrett County, Maryland. Bordered on the north by Pennsylvania, on the west and southeast by West Virginia, and on the east by Allegheny County, Maryland, Garrett County is the state's westernmost county. The Project is a 70 MW wind-energy facility consisting of 28 WTGs and is situated along the ridge of Backbone Mountain extending to the northeast from Allegheny Heights approximately nine miles to just south of Wild Turkey Rock. The topography of the Project area is steeply sloping on the western side of the ridge and relatively gently sloping on the eastern side; and the ridgeline maintains an elevation of approximately 3,200 ft (975 m) above mean sea level (msl). The Project is situated on largely undeveloped, previously logged forestland interspersed with some open farmland and consists of rugged terrain traversed with old logging roads and dotted with seasonally used camps. Land use in the vicinity of the Project is dominated by forest and agriculture, consistent with the rural character of Garrett County, and access to the Project is via Gorman Road, Eagle Rock Road, and Bethlehem Road.

2.1.2 Project Components

(b) (4)

[redacted]

(b) (4)

[redacted]

2.1.3 Operations and Maintenance

(b) (4)

[redacted]

(b) (4)

[redacted]

2.1.4 Decommissioning

(b) (4)

[redacted]

Decommissioning Process

(b) (4)

[redacted]

(b) (4)

[redacted]

Site Restoration Process

(b) (4)

[redacted]

2.2 Covered Activities

(b) (4)

[redacted]

(b) (4)

[redacted]

2.2.1 Operation of the Project

(b) (4)

[redacted]

2.2.2 Maintenance Activities

(b) (4)

[redacted]

(b) (4)

[redacted]

2.2.3 Project Decommissioning

(b) (4)

[redacted]

3.0 AFFECTED SPECIES ENVIRONMENTAL SETTING AND BASELINE

3.1 Environmental Setting

3.2 Covered Species

3.2.1 Indiana Bat

Indiana bat was included on the list of endangered species in 1967 under the Endangered Species Preservation Act of 1966 prior to the enactment of the Endangered Species Act of 1973, as amended. At the time of listing, primary threats to the species were believed to include loss of habitat and human disturbance especially at winter hibernacula, and a general lack of knowledge about the species biology and distribution (USFWS 1999, 2007).

Life History and Characteristics

Indiana bats exhibit life history traits similar to other temperate vespertilionid bats. Despite their small size they are relatively long-lived and produce few young per year, life-history strategies that may be influenced by constraints of their ability to fly (Barclay and Harder 2005). Similar to most temperate *Myotis* species, female Indiana bats give birth to one offspring per year (Humphrey *et al.* 1977; Kurta and Rice 2002). Mating occurs in the vicinity of the hibernacula in late summer and early fall and fertilization is delayed until the spring (Guthrie 1933). Timings of parturition and lactation are likely dependent in part on latitude and weather conditions. For example, in Iowa, female bats arrive at maternity roosts at the end of April and parturition is completed by mid-July (Clark *et al.* 1987); in Michigan, young are born in late June or early July (Kurta and Rice 2002); and in southern Indiana, pregnant females are known from 28 May through 30 June while lactation has been recorded from 10 June to 29 July (Whitaker and Brack 2002). Young bats are volant within 3 to 5 weeks of birth, at which time the maternity colony begins to disperse and use of primary maternity roosts diminishes. Females and juveniles may remain in the colony area until migration to the hibernacula; however, at this time the bats become more gregarious. It is likely that once the young are born, females leave their pups in the diurnal roost while they forage, returning during the night periodically to feed them (Barclay and Kurta 2007). Females will, however, switch roost trees regularly and during these switches they likely carry flightless young. Indiana bat maternity colonies will use several roosts; in Missouri each maternal colony used between 10 and 20 separate roost trees (Miller *et al.* 2002). In Kentucky, Gumbert *et al.* (2002) recorded 463 roost switches over 921 radio-tracking days of tagged Indiana bats - an average of one switch every 2.21 days. Consecutive use of roost trees by individual bats ranged from 1 to 12 days. There are a number of suggested reasons for roost switching; including thermoregulation, predator avoidance, and reduced suitability of roost trees - an ephemeral resource and can become unusable if they are toppled by wind, lose large pieces of bark, or are otherwise destroyed (Kurta *et al.* 2002, Barclay and Kurta 2007).

Indiana bats return to the vicinity of the hibernaculum in late summer and early fall where they exhibit a behavior known as "swarming". This involves large numbers of bats flying in and out of the cave entrances from dusk to dawn, though relatively few of the bats roost in the cave during the day (Cope and Humphrey 1977). During the swarming period most Indiana bats roost

within approximately 1.5 miles (2.4 km) of the cave, suggesting that the forests around the caves provide important habitat prior to hibernation (USFWS 2007). It is at this time that bats gain fat stores vital for winter survival but also when mating occurs. While females enter the hibernaculum soon after arrival at the site, males remain active for a longer period and may also travel between hibernacula - both of which may increase mating opportunities (USFWS 2007).

Spring emergence from the hibernacula generally occurs from mid-April to the end of May and varies across the range, depending on latitude and weather conditions. Females typically emerge before males, traveling sometimes hundreds of miles to their summer habitat (Winhold and Kurta 2006). Exit counts from Big Springs Cave in Tucker County, West Virginia, suggest that peak spring emergence typically occurs in mid-April (USFWS 2007).

Habitat Requirements

Indiana bats have two distinct habitat requirements; (1) a stable environment in which to hibernate during the winter, and (2) deciduous woodland habitat for maternity roosts in the summer. Males may use hibernacula or tree roosts during the summer and prior to hibernation both males and females roost in wooded habitat in the vicinity of the hibernacula.

Winter Habitat

Indiana bats generally hibernate between October and April, although this may be extended from September to May in northern parts of their range (USFWS 2007). The majority of hibernacula are located in karst areas of the east-central U.S.; however, they are known to hibernate in other cave-like locations such as abandoned mines, buildings, a railroad tunnel in Pennsylvania, and a hydroelectric dam in Michigan (Kurta and Teramino 1994, Hicks and Novak 2002, Butchkoski and Hassinger 2002, USFWS 2007). Indiana bats typically require low, stable temperatures (3 to 8°C) for successful hibernation (Brack 2004, Tuttle and Kennedy 2002); and, in general, the caves in western Maryland appear to have temperatures too high to support hibernating Indiana bats (Dana Limpert MDNR; pers. comm.). Caves with the highest Indiana bat populations are typically large, complex systems that allow air flow, but their volume and complexity often buffer or slow changes in temperature (Brack 2004). These caves often have large rooms or vertical passages below the lowest entrance that allow entrapment of cold air that is stored throughout the summer, providing arriving bats with relatively low temperatures in early fall (Tuttle and Kennedy 2002). Bats are also able to decrease exposure to fluctuating air temperatures by increasing surface contact with the cave or other individuals and as such Indiana bats tend to hibernate in large, dense clusters ranging from 300 to 500 bats per square foot (USFWS 2007; Boyles *et al.* 2008). Indeed, it is suggested that in areas where populations are low, Indiana bats hibernate with other species (such as little brown bats) to gain this thermoregulatory advantage (ref).

Spring, Summer, and Fall Habitat

Females

Following hibernation, female Indiana bats may travel up to 350 miles to their summer habitat where they form maternity colonies (Winhold and Kurta 2006); though individuals radio-tracked in the northeastern US appear to travel much shorter distances (< 35 miles; Hicks 2007, USFWS

2007). Members of a maternity colony do not necessarily overwinter in the same hibernacula, with individuals from a single maternity colony shown to hibernate in locations almost 200 miles apart (Kurta and Murray 2002, Winhold and Kurta 2006); though colonies do appear to be highly philopatric, using the same areas and same roosts in successive years (Barclay and Kurta 2007, Callahan *et al.* 1997, Humphrey *et al.* 1977).

In the summer, female Indiana bats predominantly roost under slabs of exfoliating bark, preferring not to use tree cavities, such as those created by rot or woodpeckers, but occasionally using narrow cracks in trees (Kurta 2004). Due to their cryptic nature, the first Indiana bat maternity colony was only located in 1971 (Cope *et al.* 1974, Gardner and Cook 2002); however, since that time, much of the work pertaining to summer Indiana bat habitat has concentrated on identifying and describing maternity colonies. Maternity colonies vary greatly in size in terms of number of individuals and number of roost trees used, with members of the same colony utilizing over 20 trees during one season (Kurta 2004). Roosts are usually located in dead trees, though partly dead or live trees (for example, if the species has naturally peeling bark) may also be used (USFWS 2007). A meta-analysis of 393 roost trees in eleven states found 33 tree species that were used, with ash (*Fraxinus* sp.), elm (*Ulmus* sp.), hickory (*Carya* sp.), maple (*Acer* sp.), poplar (*Populus* sp.), and oak accounting for 87% of trees documented (Kurta 2004). Of the nine roost trees identified as summer habitat in West Virginia eight were snags, and one was a live-damaged tree. (Beverly and Gumbert 2004). The four species identified, were basswood (*Tilia americana*), sugar maple (*A. saccharum*), northern red oak (*Quercus rubra*), and scarlet oak (*Q. coccinea*). Roost trees also vary in size. The smallest maternity roost tree recorded was 4 in (11 cm) DBH (diameter at breast height; Britkze 2003) and in West Virginia size ranged from 5.3 to 13.0 in (13.6 to 33.0 cm) DBH (Beverly and Gumbert 2004). It is more typical, however, for trees greater than 9 in (22 cm) DBH to be utilized (Kurta 2004) and the mean size from the aforementioned meta-analysis was 18±1 in (45±2 cm; range 11 to 24 in [28 to 62 cm]; Kurta 2004, Britzke *et al.* 2006). An important characteristic for the location of maternity roost sites is a mosaic of woodland and open areas, with the majority of maternity colonies having been found in agricultural areas with fragmented forests (USFWS 2007). Further, absolute height of the roost tree appears to be less important than the height of the tree relative to surrounding trees with roost trees often extending above the surrounding canopy (Kurta 2004).

Comment [WT5]:
Placeholder
Waiting to see if there is information for Maryland

There are two types of roost tree that maternity colonies use: primary roosts and alternate roosts. Primary roosts were initially defined by Callahan (1993) in terms of number of bats (*i.e.* roosts used by > 30 bats), but may also be defined by the number of bat-days they are used over one maternity season (Kurta *et al.* 1996, Callahan *et al.* 1997, USFWS 2007). Primary roosts are used throughout the summer, while alternate roosts are used less frequently and may be important during changing weather conditions (temperature and precipitation), or when the primary roost becomes unusable (Callahan *et al.* 1997). Primary roosts are also often found near clearings or edges of woodland where they receive greater solar radiation, a factor that may be important in reducing thermoregulatory costs for reproductive females and their young (Vonhof and Barclay 1996). Female Indiana bats are able to use torpor to conserve energy during cold temperatures; however, torpor slows gestation (Racey 1973), milk production (Wilde *et al.* 1999), and juvenile growth, and is costly when the reproductive season is short (Hoying and Kunz 1998; Barclay and Kurta 2007). Another factor likely due to energetic constraints is that the majority of maternity

colonies have been found at relatively low elevation (< 900 m) where temperature and growing season tend to be more favorable for rearing pups. One exception is a colony that has been reported from an elevation of 1,158 m (approximately 3,800 ft) in the Nantahala National Forest North Carolina (Britzke *et al.* 2003); however, it is likely that the latitude of this site allows for slightly higher elevation.

While the primary roost of a maternity colony may change over the years, it is thought that foraging areas and commuting paths are relatively stable (Barclay and Kurta 2007). For example, members of a maternity colony in Michigan used a wooded fence-line as a commuting corridor for nine years (Winhold *et al.* 2005). In general, the distance from the roost to foraging areas varies from 0.3 to 5.3 mi (0.5 to 8.4 km) (USFWS 2007); and this distance may be constrained by the need to return to the roost periodically once the young are born (Henry *et al.* 2002). Indeed, lactating females have been shown to return to the roost two to four times during a night (Butchkoski and Hassinger 2002a, Murray and Kurta 2004). In Michigan, the mean distance from the roost to the nearest edge of an activity center was 1.5 mi (2.4 km; range: 0.3 to 2.6 mi [0.5 to 4.2 km]; Murray and Kurta 2004); in Indiana, eleven females used foraging areas on average 1.9 mi (3.0 km; range: 0.5 to 5.3 mi [0.8 to 8.4 km]; Sparks *et al.* 2005) from their roosts; and in Pennsylvania this distance was 1.7±0.6 mi (2.7±0.9 km; range: 0..8 to 3.3 mi [1.3 to 5.3 km]; Butchkoski and Turner 2005). On average, females switch roosts every two to three days and may come back to the same roost trees periodically. Roost switching is likely dependent factors such as reproductive condition, roost type, roost condition, time of year, and predation (Kurta *et al.* 2002, USFWS 2007). Although individuals from a maternity colony appear to show fidelity to a general home range within and between years (Sparks *et al.* 2004); due to the differences in methodology it is difficult to determine a common home range size (Lacki *et al.* 2007). In Indiana, mean home range was 0.56 mi^2 (145±18 ha; Sparks *et al.* 2005); while on the Vermont-New York state-line it was 0.32 mi^2 (83±82 ha; Watrous *et al.* 2006). Both of these estimates are higher than for a single female in Pennsylvania who's home range was estimated at 0.08 mi^2 (21 ha; Butchkoski and Turner 2006). As well as differences in methodology, the range of home ranges estimated likely reflects differences in habitat quality between sites.

Demographics

Very little is known about annual survival rates for Indiana bats, either for adults or juveniles, and little is known about background mortality of the species (USFWS 2007). It is expected however, that, similar to many other species, survival of Indiana bats is lowest during the first year of life and threats and sources of mortality vary during the annual cycle. During summer months, sources of mortality may include loss or degradation of forested habitat, predation, human disturbance, and other man-made disturbances (Kurta et al. 2002, USFWS 2007); while during the winter months, impacts may include disturbance or modifications at the hibernacula and surrounding areas that physically disturb the bats or change the microclimate within the hibernacula (USFWS 2007). Human disturbance during hibernation may cause a threat through direct mortality caused by disruption of normal hibernation patterns. In addition, other sources of winter mortality may include natural predation, natural disasters that impact hibernacula, and WNS, which current is impacting hibernating bats more than any other perturbation.

In a study in Indiana, survival rates among male and female bats ranged from 66% to 76% for six to ten years after marking, with female longevity approximately 12 to 15 years and males 14 years (Humphrey and Cope 1977). The oldest known Indiana bat was captured 20 years after the first capture (La Val and La Val 1980). Research from banding studies during the 1970's suggests that adult survival during the first six years varies from approximately 70-76% annually (Humphrey and Cope 1977, USFWS 2007, Shea *et al.* 2004). After this period, annual survival varied from 36-66% and after 10 years drops to approximately 4% (Humphrey and Cope 1977). There is less information available on juvenile survival, with one published study suggesting a juvenile mortality rate of 8% based on observations at a maternal colony over a two-year period (Humphrey *et al.* 1997). More research is needed to define annual survival rates of Indiana bats more accurately; however, available information suggests that annual mortality is likely to be between 8% and 30% during the first 10 years of life (USFWS 2007).

Shea *et al.* (2004) summarize survival rates for a number of species, including little brown bat, which is used as an Indiana bat surrogate for the analysis in this HCP. The range of survival rates cited varies considerably from approximately 13-86% (Shea *et al.* 2004). Other *Myotis* species also had variable survival rates, ranging from 6-89%; however, in general studies indicated that survival for first year juveniles was generally the lower than for adults.

As with mortality or survival rates for Indiana bats, little is known about recruitment rates for the species; however, female Indiana bats typically give birth to one young per year (Mumford and Calvert 1960, Humphrey *et al.* 1977, Thomson 1982). The proportion of females in a population that produce young in a year is thought to be fairly high (USFWS 2007). In one study, greater than 90% of the females produced young each year (Humphrey *et al.* 1997) and in another it was estimated that 89% of adult females were reproductively active annually (Kurta and Rice 2002). Location and environmental factors likely influence reproductive rate and there is concern that environmental stressors such as WNS may lead to lower reproduction rates (USFWS 2010c). Recruitment in the total Indiana bat population over the past five-year period has been variable by region with the Ozark-Central, Midwest, and Northeast Recovery Units showing decreasing trends from approximately 5-38% between 2007 and 2009; while in the Appalachian Mountain Recovery Unit the Indiana bat population has exhibited an increasing trend and a two-year net increase of 23% between 2007 and 2009 (USFWS 2010a).

Range and Distribution

The range of Indiana bat extends throughout much of the eastern US and includes 22 States (Gardner and Cook 2002, USFWS 2007; Figure 3.1). Over the past 40 years, general population trends of Indiana bats appear to be decreasing in the southern and increasing in the northern regions of its range (USFWS 2007, 2010a). Historically, Indiana bat winter range was restricted to areas of cavernous limestone in the karst regions of the east-central US, apparently concentrated in a relatively small number of large, complex cave systems. These included Wyandotte Cave in Indiana; Bat, Coach, and Mammoth Caves in Kentucky; Great Scott Cave in Missouri; and Rocky Hollow Cave in Virginia. More recently, increasing numbers of Indiana bats have been found using man-made structures such as mines, tunnels, and buildings, as well as natural caves, for hibernation; thereby extending their winter range into some caveless parts of the country (Kurta and Teramino 1994). For example, Indiana bats have been found hibernating

in several man-made tunnels and a church in Pennsylvania (*ref); and in 1993, an Indiana bat was discovered hibernating in a hydroelectric dam in Manistee County, Michigan 281 miles (450 km) from the closest recorded hibernaculum for Indiana bat in LaSalle County, Illinois (Kurta and Teramino 1994). In 2005, approximately 30% of the population hibernated in man-made structures (predominantly mines), with the rest using natural caves (USFWS 2007). As of November 2006 there were 281 known extant Indiana bat hibernacula in 19 states (USFWS 2007). Over 90% of the population hibernated in just five states: Indiana (45.2%), Missouri (14.2%), Kentucky (13.6 %), Illinois (9.7%), and New York (9.1 %); with 71.6% hibernating in just 10 caves. Overall, approximately 82% of the estimated total population in 2006 hibernated in 22 of the 23 Priority 1 hibernacula (USFWS 2007).

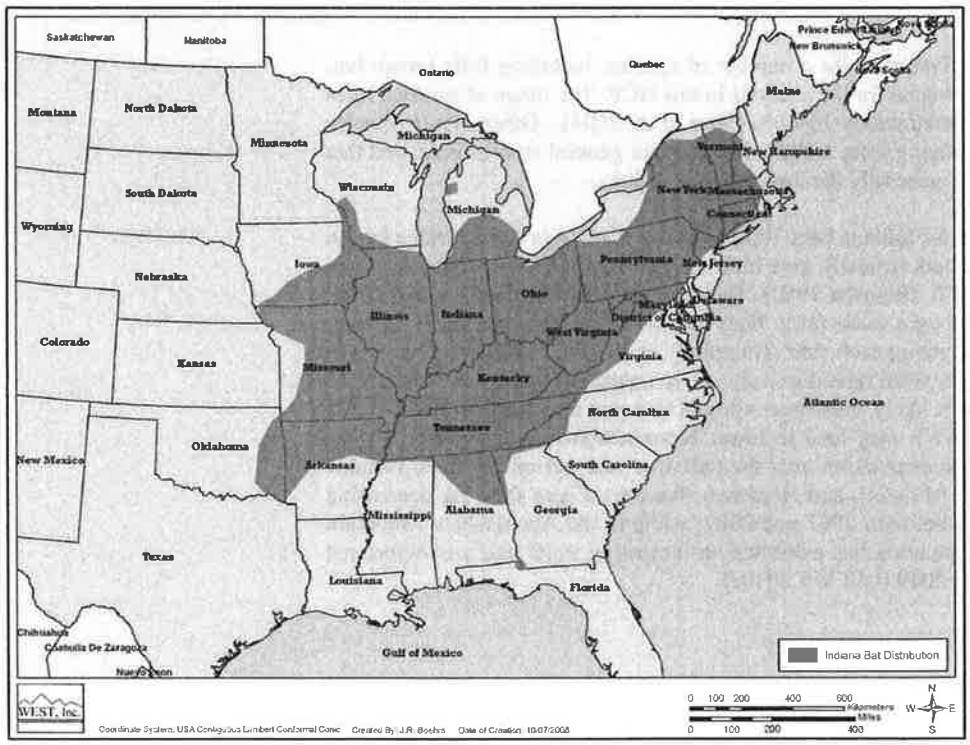

Figure 3.1 Approximate range of the Indiana bat in the U.S.

Little is known about the historic summer range of Indiana bats. It is believed that the historical summer distribution was similar to that of today, however, the first maternity colony was not discovered until 1971 (Cope *et al.* 1974). As of October 2006, the USFWS had records of 269 maternity colonies in 16 states. This likely represents only 6-9% of the 2,859 to 4,574 colonies thought to exist based on the estimated total wintering population (Whitaker and Brack 2002, USFWS 2007). The distribution of Indiana bat summer habitat in the east appears to be less extensive than in the Midwest (see range maps in USFWS 2007), which may be due to the

geographic distribution of important hibernacula or to differences in climate and elevation that may limit suitable summer colony sites in this location. Summer temperatures at increasing elevation are typically cooler and/or wetter, which may influence the energetic feasibility of reproduction in some eastern areas (Brack *et al.* 2002). The proportion of reproductively active Indiana bats in West Virginia, Virginia, and Pennsylvania, where there is a 6.4 °C (44 °F) decrease in temperature for each increase of 3280 ft (1,000 m), decreased with increasing elevation (Brack *et al.* 2002). In addition, the summer temperatures of portions of Indiana bat range in the east are slightly cooler than in the core part of the range in Indiana, Kentucky, and Missouri (Brack *et al.* 2002, Woodward and Hoffman 1991).

Dispersal and Migration

Based on categories described by Fleming and Eby (2005), species can be divided into three movement categories: (1) sedentary species: breed and hibernate in the same local areas usually moving less than 30 mi (50 km) between summer and winter roosts; (2) regional migrants: migrate moderate distances between 60 to 310 mi (100 to 500 km,); and (3) long-distance migrants: have highly developed migratory behavior sometimes traveling greater than 620 mi (1,000 km) between summer and winter roosts. Dispersal distance of Indiana bats from winter hibernacula to summer roost sites varies geographically, categorizing them between sedentary and regional migrant depending on location. In Michigan, 12 female Indiana bats moved on average of 296 mi (477 km) to their hibernacula in Indiana and Kentucky (Winhold and Kurta 2006). In contrast, based on study of more than 100 tagged Indiana bats in New York, dispersal movements were typically less than 35 mi (60 km) and in many cases only a few miles from the hibernacula (A. Hicks, NYSDEC, pers. comm.). In general, however, based on results of studies to date, summer range of Indiana bats could be any suitable habitat within approximately 200 mi (320 km) of a known winter hibernaculum.

Little is known about behavior of Indiana bats during migration. Evidence from radio-tracking studies in New York and Pennsylvania indicate that Indiana bats are capable of migrating at least 30-40 mi (48-64 km) in one night (Sanders *et al.* 2001, Hicks 2004, Butchkoski and Turner 2006). It appears that Indiana bat migration from winter to summer habitat is fairly linear and short-term, while in the fall it is more dispersed and varied, with some studies showing that individuals may travel between 9-17 mi (14-27 km) from a summer roost site to a hibernaculum cave where swarming occurs (USFWS 2007). In addition, males and females appear to display different dispersal behavior, with females moving quickly between the hibernacula and maternal colonies, while males commonly remain in the proximity of the hibernacula (USFWS 2007).

Species Status and Occurrence

Nationwide. A key component to the survival and recovery of the Indiana bat is maintenance of suitable hibernacula that insure the over-winter survival of sufficient individuals to maintain population viability. The Draft Indiana Bat Recovery Plan (USFWS 2007) categorizes hibernacula into four groups based on the priority to the species population and distribution. Priority 1 hibernacula are essential to the recovery and long-term conservation of the species and have a current or historically observed winter population of ≥10,000 individuals. Priority 2 hibernacula contribute to the recovery and long-term conservation of the species and have a

current or historical population of >1,000 but <10,000 individuals. Priority 3 sites have a current or historical population of 50-1,000 bats and Priority 4 sites have a current or historical population of fewer than 50 bats.

Since the release of the first Indiana Bat Recovery Plan (USFWS 1983), in an effort to monitor the overall Indiana bat population, the USFWS implemented a biennial monitoring program at Priority 1 and 2 hibernacula (USFWS 2007). In 1965, the overall population was estimated to be over 880,000 individuals; however, while variation in the data collection apparently has led to variable estimates, in general, there has been a long-term declining population trend to approximately 380,000 individuals in 2001. Since then the population has shown a gradual increase to 468,184 in 2007; however, due to the recent effects of WNS the estimated population fell to 387,385 in 2009, decrease of 17.2% in two years (USFWS 2010a).

General patterns in the overall population estimates have shown a decreasing trend through the core range of the species in the Midwest and increasing trends on the periphery and more northern states (USFWS 2007). The causes of these population changes are unknown; however, climate change may play a role by negatively affecting hibernacula temperature (USFWS 2007). More recently, populations in the northeastern and eastern US have been affected by WNS which is having a dramatic effect on some populations, such as in Vermont (*ref). WNS is caused by the fungus *Geomyces destructans* and has caused the deaths of over a million bats in the northeastern US, including Indiana bats (See Section 4.3.4). The condition is associated loss of winter fat stores, pneumonia, and the disruption of hibernation and feeding cycles and mortality rates have been shown to exceed 90% over two years in many infected caves.

Appalachian Mountain Recovery Unit. The Draft Indiana Bat Recovery Plan divides the species range into four recovery units based on several factors, such as traditional taxonomic studies, banding returns, and genetic variation (USFWS 2007). The Project falls within the Appalachian Mountain Recovery Unit (AMRU) which includes the states of Pennsylvania, Maryland, Virginia, West Virginia, North Carolina and the far eastern section of Tennessee (USFWS 2007). According to the Draft Indiana Bat Recovery Plan (USFWS 2007), the Revised 2007 Rangewide Population Estimate (USFWS 2008), and the 2009 Rangewide Population Estimate (USFWS 2010a), the overall population within the AMRU was approximately 22,483 in 2007 and 27,675 in 2009 - an increase of 23.2% (Table 3.1; USFWS 2007, 2008, 2010a). The AMRU represents approximately 7.1% of the 2009 rangewide population of Indiana bats (USFWS 2010a). There are 88 known Indiana bat hibernacula within the AMRU, with 55 being classed as extant (at least one record since 1995; USFWS 2007). There are two Priority 1 hibernacula in the AMRU - Hellhole Cave (WV) and White Oak Blowhole (TN), both of which are designated Critical Habitat for Indiana bats. These two Priority 1 hibernacula had estimated populations of 12,858 and 5,481 Indiana bats, respectively, in 2007 (USFWS 2009) and 14,855 and 11,058 Indiana bats, respectively, in 2009; represent approximately 96% of the total number of Indiana bats in the Recovery Unit.

Table 3.1 Indiana bat population estimates for the Appalachian Mountain Recovery Unit (USFWS 2010a).

State	2001	2003	2005	2007	2009
Pennsylvania	702	931	835	1038	1031
Maryland[1]	-	-	-	-	-
West Virginia	9,714	11,444	13,417	14,745	14,855
Virginia[2]	969	1,158	769	723	730
North Carolina	0	0	0	0	1
East Tennessee	5,372	6,556	8,853	5,977	11,058
Total	**16,757**	**20,089**	**22,874**	**22,483**	**27,675**

[1] No P1 or P2 hibernacula are present in Maryland, therefore, no data reported USFWS 2008, 2010; [2] page 1 of USFWS 2010a

Maryland. Biannual surveys for hibernating Indiana bats are conducted at P1 and P2 hibernacula. For this reason, and since there are no P1 or P2 hibernacula in the Maryland, there are limited data for Indiana bat populations in the State. According to the Draft Indiana Bat Recovery Plan, there are three hibernacula in Maryland (USFWS 2007); all are P4 hibernacula with a maximum population estimate since 2000 of zero. The hibernacula are located in Allegany, Garrett, and Washington Counties. In addition, there are two known extant maternity colonies in Carroll County and other summer records (males or non-reproductive females) in Garrett and Washington Counties (USFWS 2007). The John Friend hibernaculum in Garrett County is owned by The Nature Conservancy and has a maximum all time population estimate of five individuals. The MDNR conducts annual surveys at all known bat hibernacula in the State, and according to the most recent surveys Maryland has a hibernating Indiana bat population of XX (MDNR).

Comment [WT6]: Placeholder. Waiting to hear back from Dan Feller with this information.

Project Site / Local Population. Existing information suggests that the occurrence and abundance of Indiana bats within the Project is likely to be low. Based on the available information, results of site surveys (Gates *et al.* 2006; WEST 2010), and distance to the nearest known hibernacula, it is assumed that Indiana bats may occupy the Project from approximately April 1 through November 15. No Indiana bats are expected to be in the Project from November 15 through March 31 during hibernation. The elevation of the Project (approximately 975 m) means that the likelihood of a maternity colony on the site is low. There is the potential for male Indiana bats to occur within the Project between April and November, and there are summer records of either males or non-reproductive females in Garrett County. Mist-netting surveys were conducted within the Project in September 4-10, 2003, May 18-24, 2004, and June 23-30, 2004 during which time 36, 10, and 11 bats were caught, respectively. No Indiana bats were caught within the Project (Gates *et al.* 2006). Acoustic (Anabat) surveys were conducted for two-night survey periods at four locations in early September, mid-May, and late-June (Gates *et al.* 2006). Of the calls identified to species, none were identified as Indiana bat. Additional acoustic (Anabat) surveys, conducted in 2010, suggested the presence of Indiana bats within the Project in early

June; although no individuals were recorded or trapped during mist-netting surveys at the end of June/early July suggesting an absence of individuals in the Project at this time (WEST 2010).

4.0 IMPACT ASSESSMENT / TAKE ASSESSMENT

(b) (4)

[redacted]

4.1 Anticipated Take

4.1.1 Direct Effects

(b) (4)

[redacted]

(b) (4)

[redacted]

4.1.2 Estimating Take of Indiana Bats

(b) (4)

[redacted]

(b) (4)

[redacted]

Table 4.1 Summary of post-construction fatality monitoring studies conducted at wind-energy facilities within the range of the Indiana Bat.

Project Name, State	No. of Turbines	Estimated # bats/turbine/	Confidence intervals	Study Year	Reference
(b) (4) [redacted]					
Average		**27.9**			

(b) (4)

[redacted]

Table 4.2 Number and percentage of bat species found as casualties during post-construction fatality monitoring studies conducted at wind-energy facilities within the range of the Indiana Bat.

Species	Buffalo Mountain, TN		Mountaineer. WV		Mount Storm, WV		Crescent Ridge, IL		Myersdale, PA		Maple Ridge, NY		PGC, PA		Casselman, PA		TOTAL	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
(b) (4) [redacted]																		

Calculating Potential Take

(b) (4)

[redacted]

Table 4.3 Results of post-construction wind-energy facility monitoring studies within 200 miles (320 km) of the Criterion Wind Project.[2]

Project [state]	No. of Turbines	Bats /turbine/yr	90% CI	Study Year	Reference

(b) (4)

[redacted]

(b) (4)

[redacted]

(b) (4)

[redacted]

Table 4.4 Summary of bat casualties from wind-energy facility monitoring studies within 200 miles (320 km) of the Criterion Wind Project.

Species	Mountaineer		Mount Storm		Myersdale		Casselman		PGC	Total	
	n	%	n	%	n	%	n	%		n	%

(b) (4)

[redacted]

Supporting Evidence for the Take Analysis

(b) (4)

[redacted]

Table 4.5 Results of a model estimating take of Indiana Bats within the Criterion Wind Project.

Comment [WT7]:

(b) (4)

[redacted]

Table 4.6 Results of mist-netting surveys conducted within the Project prior to and during construction.

Common name	Scientific name	September 2003	May 2004	June 2004	June-August 2010	Total
(b) (4) [redacted]						

Evidence that Risk to Bats is Unequal across Species and Season

(b) (4) [redacted]

(b) (4)

[redacted]

4.2 Impacts of the Taking

(b) (4)

[redacted]

an Felller

(b) (4)

[redacted]

Table 4.7 Percent loss of Indiana bat populations based on estimated take of Indiana bats from the Criterion Wind Project.

Population	Definition	Population Estimate	Take Estimate (bats/year)	Population Loss (%/year)	Reference(s)

(b) (4)

[redacted]

(b) (4)

[redacted]

4.3 Cumulative Effects

(b) (4)

[redacted]

(b) (4)

[redacted]

(b) (4)

[redacted]

4.3.1 Destruction/Degradation of Hibernacula

(b) (4)

[redacted]

4.3.2 Loss of Summer/Maternity Roosting Habitat

(b) (4)

[redacted]

4.3.3 Construction of Wind-Energy Facilities

(b) (4)

[redacted]

4.3.4 White Nose Syndrome

(b) (4)

[redacted]

5.0 CONSERVATION PLAN

(b) (4)

[redacted]

5.1 Biological Goals and Objectives

(b) (4)

[redacted]

5.2 Measures to Avoid and Minimize Take

5.2.1 On-Site Measures

5.2.1.1 Project Design and Planning

(b) (4)

[redacted]

(b) (4)

[redacted]

5.2.1.2 Project Construction

(b) (4)

[redacted]

5.2.1.3 Project Operations Monitoring

(b) (4)

[redacted]

5.3 Measures to Mitigate the Impact of the Taking

(b) (4)

[redacted]

Hibernacula-related recovery actions

(b) (4)

[redacted]

Species-related research actions.

(b) (4)

[redacted]

(b) (4)

[redacted]

5.3.1 Off-Site Conservation Measures

(b) (4)

[redacted]

nt is a placeholder
ff-site mitigation

5.4 Relation of Mitigation to Level of Potential Take

(b) (4)

[redacted]

5.5 Monitoring and Reporting Program

(b) (4)

[redacted]

5.5.1 Determination of monitoring effort

(b) (4)

[redacted]

(b) (5)

[redacted]

Table 5.1 Approximate probabilities of detecting Indiana bat fatalities under different sample sizes of turbines and likelihood of recovering an Indiana bat carcass if it occurred on a search turbine.

Number of turbines searched	Percent of casualties recovered[1]	Simulated number of Indiana bat fatalities	Expected average number found	Probability estimates		
				No Indiana bat fatalities are found	1 or more Indiana bat fatalities are found	2 or more Indiana bat fatalities are found

(b) (4)

[redacted]

[1] searcher efficiency and removal combined – i.e., a carcass is not removed and is detected; [2] the approximate estimated take over a three year period (1 3 x 3 = 3 9)

A complete outline of the monitoring plan is provided in Appendix D.

5.6 Adaptive Management Program

(b) (4)

[redacted]

(b) (4)

[redacted]

Figure 5.1 Schematic of the adaptive management plan for Criterion Wind Project.

(b) (4)

[redacted]

6.0 FUNDING

(b) (4)

[redacted]

6.1 Costs for Implementing the HCP

6.2 Funding for the Conservation Program

6.3 Funding for Monitoring Plan

6.4 Funding for Changed Circumstances

Comment [WT13]:
Placeholder
Thorough breakdown of costs required for each section will be provided.

7.0 ALTERNATIVES CONSIDERED

(b) (4)

[redacted]

(b) (4)

[redacted]

7.1 No Action Alternative: Operation of the Project without an ITP and without On-site or Off-site Avoidance, Minimization, or Mitigation of Indiana Bat Impacts

(b) (4)

[redacted]

7.2 Action Alternative 1: Operation of the Project with an ITP with Off-site Mitigation for Indiana Bat Impacts (Proposed Action)

(b) (4)

[redacted]

(b) (4)

[redacted]

7.3 Action Alternative 2: Operation of the Project with an ITP with On-site Operational Curtailment to Avoid or Minimize Indiana Bat Impacts

(b) (4)

[redacted]

(b) (4)

[redacted]

8.0 PLAN IMPLEMENTATION / CHANGED AND UNFORESEEN CIRCUMSTANCES

8.1 Plan Implementation

(b) (4)

[redacted]

(b) (4)

[redacted]

8.2 Changed Circumstances

(b) (4)

[redacted]

Indiana Bat Population Recovery

(b) (4)

[redacted]

(b) (4)

[redacted]

Additional Species Listings

(b) (4)

[redacted]

8.3 Unforeseen Circumstances

Under the HCP guidance, unforeseen circumstances are those changes in circumstances affecting a species or geographic area covered by the HCP that are not reasonably anticipated at the time of the HCP development, and that result in a substantial and adverse change in the status of the covered species. The unforeseen circumstances section of the HCP should be more limited than the changed circumstances section, and should discuss how those changes in the circumstances surrounding the HCP, that cannot effectively be anticipated by the Applicant, will be dealt with in the future.

(b) (4)

[redacted]

(b) (4)

[redacted]

8.4 Permit Amendment

HCP guidance indicates that an ITP should be amended when the permittee significantly modifies the Project, activity, or conservation plan as described in the original HCP. Such modifications may include permit area revisions, changes in assured funding, addition of species to the ITP that were not addressed in the original HCP, or adjustments to the HCP due to unforeseen circumstances. A standard permit amendment, as described, follows the same process as the original permit application, including an amendment to the HCP addressing the new circumstance(s), NEPA compliance, and a Section 7 consultation.

Minor Amendments

Some amendments to an HCP/ITP commonly needed over the life of a permit are minor and the amendment process may be expedited. According to HCP guidance, minor amendments include corrections/changes in land ownership; revisions to surveys, monitoring, or reporting procedures; or changes in the conservation land boundaries that result in no net loss of reserve land and do not alter the effectiveness of the HCP. Documentation requirements for minor amendments are typically less than for a permit amendment and the original permit application. The NEPA analysis for minor amendments may be tiered off the original NEPA analysis, or the original NEPA analysis can be incorporated by reference into the amendment's supporting documents. For example, if considered appropriate, a permit amendment may be treated as a low-effect HCP, which is categorically excluded from NEPA. Minor amendments to the HCP/ITP may also be amended administratively with a written record of the amendment, without the need for formal amendment of the permit. This type of expedited amendment procedure may be followed when: (1) the amendment has the unanimous consent of the permittee and the USFWS; (2) the original HCP established specific procedures for incorporating minor amendments so that the public had the opportunity to comment on the process; (3) the original HCP defines what types of amendments are considered minor; (4) and the effect on the listed species involved and level of take resulting from the amendment is not significantly different from that analyzed under the original HCP.

For the Project, unforeseen circumstances that result in greater impacts to Indiana bats due to the Project operation will be addressed through a Permit Amendment. Depending on the circumstances these could be either a standard amendment or a minor amendment. Amendments that do not require substantial changes to the conservation plan and meet the criteria described

above will be treated as minor amendments. Circumstances that require substantial changes to the conservation plan will be treated as standard permit amendments.

9.0 REFERENCES

9.1 Literature Cited

Boyles, J.G., J.J. Storm, and V. Brack. 2008. Thermal benefits of clustering during hibernation: a field test of competing hypotheses on *Myotis sodalis*. Functional Ecology 22:632-636.

9.2 Personal Communications

APPENDIX A

CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY WAIVER

STATE OF MARYLAND

MARTIN O'MALLEY
GOVERNOR

ANTHONY G. BROWN
LIEUTENANT GOVERNOR

COMMISSIONERS

DOUGLAS R. M. NAZARIAN
CHAIRMAN

HAROLD D. WILLIAMS
ALLEN M. FREIFELD
SUSANNE BROGAN
LAWRENCE BRENNER

PUBLIC SERVICE COMMISSION

#15, 10/29/08 AM; ML#112728, IR-1204

October 29, 2008

Thomas E. Holmberg
Baker Botts LLP
1299 Pennsylvania Avenue NW
Washington, DC 20004-2400

Dear Mr. Holmberg:

The Commission has reviewed the request for an exemption of the Certificate of Public Convenience and Necessity requirement to construct and operate the Criterion Wind Power Generating Facility in Garrett County, Maryland pursuant to Public Utility Companies Article, §7-207.1, Annotated Code of Maryland filed on January 24, 2008 by Criterion Power Partners, LLC.

After considering this matter at the October 29, 2008 Administrative Meeting, the Commission granted Criterion Power Partners, LLC's ("Criterion") application. The Commission directs Criterion to provide a report to the Commission by November 30 of each year describing the status of (1) the construction of the project and (2) any regulatory actions undertaken by federal, state or local authorities with respect to the project. Criterion is advised that an exemption from the CPCN requirement does not limit the authority of any state or local authority and it must obtain all authorizations and permissions from these authorities applicable to constructing or operating the turbines, including the approval of a stormwater/sediment erosion permit by the Garrett County agencies.

Additionally, Criterion must notify the Commission two weeks before the first export of electricity from the project; is directed to file its final interconnection, operation and maintenance requirements and agreements with the Commission; and certify that it has complied with all PJM and FERC reliability and safety requirements prior to operating the facility.

By Direction of the Commission,

s/ Terry J. Romine

Terry J. Romine
Executive Secretary

TJR/gjd

WILLIAM DONALD SCHAEFER TOWER • 6 ST. PAUL STREET • BALTIMORE, MARYLAND 21202-6806
410-767-8000 • Toll Free 1-800-492-0474 • FAX 410-333-6495
MDRS 1-800-735-2258 (TT/Voice) • Website: www.psc.state.md.us

APPENDIX B

PERMIT AREA LEGAL DESCRIPTION

Comment [D14]: Placeholder, information will be provided

APPENDIX C

IMPLEMENTING AGREEMENT

Comment [WT15]: TBD

APPENDIX D

MONITORING PLAN

Criterion Wind Project
Monitoring Plan

MONITORING STUDY PROTOCOL

The following monitoring study protocol is similar to those methods recommended for wind-energy facility monitoring (*e.g.*, WTGFAC 2010) and protocols used at wind-energy facilities in the region and throughout the US (Erickson *et al.* 2000; Johnson *et al.* 2000; FPL *et al.* 2001; Erickson *et al.* 2003a, 2003b; Young *et al.* 2003; Kerns and Kerlinger 2004; Arnett *et al.* 2005; Jain *et al.* 2007; Young *et al.* 2009, 2010; Arnett *et al.* 2009, 2010). While the focus of the HCP monitoring plan is to evaluate take of Indiana bats, monitoring conducted under this plan will also provide fatality information for other bat species, and birds including eagles and migratory birds. Because Indiana bat fatalities are expected to be rare events, and because the study is designed to detect a rare event, the study will be more than adequate to develop estimates for other bat and bird fatalities.

Permits

Federal and state collecting/salvaging permits will be acquired prior to commencement of the study to enable field technicians to collect and handle carcasses in compliance with laws pertaining to the possession of wildlife and migratory birds.

Casualty handling

Collection of any federal or state endangered, threatened, or protected species found during the monitoring study will be coordinated with the USFWS. Criterion will notify the USFWS within 24 hours of positive identification of any endangered or threatened species injury or fatality.

(b) (4)

[redacted]

(b) (4)

[redacted]

Incidental finds

(b) (4)

[redacted]

STUDY DESIGN

(b) (4)

[redacted]

FIELD METHODS

Timing and Duration

(b) (4)

[redacted]

(b) (4)

[redacted]

(b) (4)

[redacted]

STATISTICAL METHODS

(b) (4)

[redacted]

(b) (4)

[redacted]

(b) (4)

[redacted]

REPORTING

(b) (4)

[redacted]

Further comments on Draft HCP after discussion with Region:

1. (b) (4) [redacted]

2. (b) (4) [redacted]

3. (b) (4) [redacted]

CBFO Comments on the November 2010 draft of the

Criterion Wind Project Habitat Conservation Plan, Garrett County, Maryland

Overall: Very well written HCP. Good approach and well documented. The following areas, however, need some work.

1. (b) (4) [redacted]

2.

3.

4. (b) (4) [redacted]

5.

6.

7.

(b) (4)

[redacted]

Cumulative effects - Needs to provide the total number of wind power projects in the Appalachian Recovery Unit.

(b) (4)

[redacted]

From Traylor, Patrick D. **Date** Wednesday, July 22, 2009 9:11:50 PM
To Lyder, Jane
Cc dpwheeler@hhlaw.com; Bean, Michael
Subject RE: MBTA Question of Sam Hamilton "For the Record"

Doug asked me to pass this note along to you with his compliments.

Jane:

Thank you again for your prompt response to my email of this morning concerning the possibility of a MBTA enforcement question for Sam Hamilton as part of his confirmation proceedings. In light of your reservations, and in the interest of continued collaboration, we will not propose the question for Mr. Hamilton.

We also wanted to respond to Michael Bean's suggestion from our meeting last week that we consider the adoption of enforcement language similar to that in the Habitat Conservation Plan Handbook as an incentive to compliance with voluntary siting and operational Guidelines. Here is the language that he referenced, from a February 9, 1996, Memorandum from FWS Director to various FWS Regional Directors:

A means to allow incidental take of ESA-listed migratory birds, including the bald eagle, when such incidental take has been judged permissible under the ESA, and to remove the threat of prosecution under the MBTA and BGEPA (when warranted), has been needed.

* * *

1. In the ESA section 7 context * * * To the extent that this statement concludes that take of any threatened or endangered species of migratory bird will result from the agency action for which consultation is being made, the Service will not refer the incidental take of any such migratory bird for prosecution under the MBTA of 1918, as amended (16 U.S.C. §§ 703-712), or the Bald Eagle Protection Act of 1940, as amended (16 U.S.C. §§ 668-668d), if such take is in compliance with the terms and conditions (including amount and/or number) specified herein.

2. In the ESA section 10 context * * *

[For species other than the bald eagle] This permit also constitutes a Special Purpose Permit under 50 C.F.R. § 21.27 for the take of [provide species' common and scientific names; species must be ESA-listed, and may not include the bald eagle] in the amount and/or number and subject to the terms and conditions specified herein. Any such take will not be in violation of Migratory Bird Treaty Act of 1918, as amended (16 U.S.C. §§703-12).

[For the bald eagle] The Service will not refer the incidental take of any bald eagle, Haliaeetus leucocephalus, for prosecution under the Migratory Bird Treaty Act of 1918, as amended (16 U.S.C. §§ 703-712), or the Bald Eagle Protection Act of 1940, as amended (16 U.S.C. §§ 68-668d), if such take is in compliance with the terms and conditions (including amount and/or number) specified herein.

After reviewing this language, we observe that the "will not refer . . . for prosecution" phrase under the Section 7 and bald eagle-related Section 10 language could be helpful as a model for the "enforcement discretion" safe harbor we discussed last week. A formulation for Guidelines purposes might be: "The Service will not refer the incidental take at a wind turbine facility of any migratory bird for prosecution under the Endangered Species Act of 1973, as amended (16 U.S.C. §§ 1531-1544), the Migratory Bird Treaty Act of 1918, as amended (16 U.S.C. §§ 703-712), or the Bald Eagle Protection Act of 1940, as amended (16 U.S.C. §§ 668-668d), if such facility is sited and operated in "conformance" with the Wind Turbine Guidelines." Of course, the FAC is still considering the mechanism by which "conformance" would be demonstrated.

We are not convinced, though, that FWS Law Enforcement would be willing to offer this language as an incentive to the Guidelines. In the Horse Hollow matter, NextEra had actually commenced-but did not consummate-an HCP for the wind facility. FPL offered an Avian Protection Plan under the APLIC Guidelines (which FPL helped draft and then urged other utilities to follow), and received in response a grand jury subpoena. And we understand that the evidence upon which PacifiCorp was charged was made up of carcasses which PacifiCorp had voluntarily submitted to FWS under the terms of an Avian Protection

Plan. In light of these developments, industry is not at all comfortable that a safe harbor based solely on enforcement discretion provides meaningful protection in these circumstances.

That is why we have proposed another kind of safe harbor: in exchange for voluntary compliance with guidelines more stringent than those provided for under current law, the Service would state that non-intentional and accidental bird strikes at those facilities would not constitute a "take" under the ESA, MBTA, or BGEPA.

To be sure, some judicial precedents assign "take" liability for non-intentional harm to wildlife in circumstances where the defendant fails to meet a "reasonably foreseeable harm" standard or an "extrahazardous activity" standard. Wind turbine facilities sited and operated in accordance with FAC guidelines meet both tests, however, because they manifest due care and employ best management practices in order to avoid reasonably foreseeable harm (i.e. aerial collisions) and reduce the risk of such collisions below any extrahazardous threshold, to the point where the facility does not "necessarily" pose such a risk.

In addition to these precedents, the Department of Justice, in the Kesterson Reservoir matter, informed the Department of the Interior that bird deaths associated with selenium poisoning at the agricultural reservoir operated by Interior did not "necessarily" constitute takes. Based largely on that example, the FAC has adopted the following statement in its October 2008 Legal White Paper: "In sum, the DOJ's longstanding charging policy does not criminalize actors solely on the basis of their construction or use of structures with which avian collisions may occur."

Our conversations with the Solicitor's Office confirm the legal support for such an approach, though adoption of this approach is not without the risk of citizen litigation by groups not associated with the FAC. The Second Circuit's statement in U.S. v. FMC that "Certainly construction [of the MBTA] that would bring every killing within the statute, such as deaths caused by automobiles, airplanes, plate glass modern office buildings or picture windows in residential dwellings into which birds fly, would offend reason and common sense . . ." should give the Department some comfort, however, that a "conditional no-take" statement is not outside the bounds of the statute. As a result, we do not believe that it would take an amendment to any of these three statutes for the Service to adopt our recommendation that non-intentional and accidental bird strikes at a well-sited and operated wind turbine facility, in conformance with the Guidelines, be excluded from the definition of "take."

But the ultimate merits of these arguments need not be resolved today. Instead, we ask only that we be allowed to continue our discussions within the FAC process of the relative risks and benefits of these various safe harbor concepts. So far, the Service's unwillingness to offer either a meaningful enforcement discretion or a conditional no-take safe harbor has resulted in the delay of the FAC process. And without such a discussion of meaningful incentives, the FAC may find itself on its sunset date of October 24 without success in reconciling the competing public goods of renewable energy development and wildlife protection.

We ask for your continued help in charting a course for the next FAC meeting in September which fosters continued dialogue on these forms of safe harbor. An important upcoming date is July 28, when the four FWS Assistant Directors with jurisdiction over these issues will meet with the FAC's designated federal official and outline the scope of what incentives the FAC Legal Subcommittee can discuss in August leading up to the September FAC meeting. We are available at your convenience to continue our discussions on this matter.

Warm regards,

Doug

From: Jane_Lyder@ios.doi.gov [https://remote2.hhlaw.com/CitrixFEI/composemessage.asp?to=Jane_Lyder@ios.doi.gov]
Sent: Wednesday, July 22, 2009 12:33 PM
To: Wheeler, Douglas P.
Cc: Traylor, Patrick D.

Subject: Re: MBTA Question of Sam Hamilton "For the Record"

I have some concerns. I think the answer is that we don't have the legal authority to say all penalties are off the table. That then means going to Congress. The environmental community has been pushing for amendments to MBTA, most notably a citizens suit provision. I think the wind energy community could lose more than it gains through amendments to MBTA. I have been unable to find any instance where a company has been prosecuted under MBTA when they have followed voluntary guidelines or best practices. In fact, it is my understanding that no wind facility, even Altamont which is early technology & has caused numerous bird deaths, has been prosecuted. If you have info that shows otherwise, please send it along. I know it is difficult to engage in a multi-million dollar investment without absolute certainty that a MBTA action won't follow. However, we have already been informed that we will be sued for acting outside of our current authority if we attempt to provide absolute certainty. That then means getting amendments to MBTA . . . or working more within the limits of the Act.

Jane

Jane Lyder
Deputy Assistant Secretary Fish and Wildlife and Parks
202 208-4416
Fax: 202 208-4684
jane_lyder@ios.doi.gov

From: "Wheeler, Douglas P." <DPWheeler@HHLAW.COM>
To: jane_lyder@ios.doi.gov
Cc: "Traylor, Patrick D." <PDTraylor@HHLAW.com>
Date: 07/22/2009 10:44 AM
Subject: MBTA Question of Sam Hamilton "For the Record"

Jane: I just left a vm message about this; members of the wind FAC are wondering whether this question, if raised for the record at Hamilton's hearing today, would be helpful in addressing the MBTA enforcement questions that we discussed the other day. Obviously, we're hopeful that a positive response from Sam might lead to the collaborative development of an acceptable "safe harbor"; what do you think? Doug.

"The Service is faced with reconciling the two competing public goods of deploying wind-powered renewable energy and protecting important wildlife species. The wind industry has already voluntarily implemented siting and operational measures that are designed to minimize the risk of these important facilities to wildlife species, and is willing to do more in cooperation with the Service, states, and wildlife protection groups. However, some interpret the relevant wildlife laws to mean that despite efforts to avoid wildlife impacts, wind turbine operators could be criminally responsible for the death of a single bird like the common crow. Would you support a balance that eliminates the risk of civil or criminal penalties for wind facilities that follow siting and operational guidelines more stringent than those required by law and designed to substantially reduce the risk of harm to wildlife?"

"EMF <HHLAW.COM>" made the following annotations.

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If you have received this electronic transmission in error, please notify us by telephone (+1-202-637-5600) or by electronic mail (PostMaster@HHLAW.COM) immediately.

==========

Bean, Michael

From: Bean, Michael
Sent: Wednesday, July 07, 2010 12:39 PM
To: Quarles, Steve
Subject: RE: Tom Vinson, AWEA, and I would like to have....

2:30 EDT

Michael J. Bean
Counselor, Assistant Secretary for Fish, Wildlife and Parks Room 3152 Dept. of Interior
Washington, DC 20240
202-208-4416

-----Original Message-----
From: Quarles, Steve [mailto:SQuarles@crowell.com]
Sent: Wednesday, July 07, 2010 12:38 PM
To: Bean, Michael
Subject: Re: Tom Vinson, AWEA, and I would like to have....

Will do. I assume that is 2:30 EST.

Steven P. Quarles
Crowell & Moring LLP
1001 Pennsylvania Ave. NW
Washington, D.C. 20004
(202) 624-2665
(C) (202) 236-0066
(F) (202) 628-5116

Sent by Blackberry; all thumbs
and no spell check.

----- Original Message -----
From: Bean, Michael <Michael_Bean@ios.doi.gov>
To: Quarles, Steve
Sent: Wed Jul 07 12:32:20 2010
Subject: RE: Tom Vinson, AWEA, and I would like to have....

Steve: Try me at 2:30 today. I have meeting that I hope will be over by then, before beginning a series of meetings at 3.

Michael J. Bean
Counselor, Assistant Secretary for Fish, Wildlife and Parks Room 3152 Dept. of Interior
Washington, DC 20240
202-208-4416

-----Original Message-----
From: Quarles, Steve [mailto:SQuarles@crowell.com]
Sent: Wednesday, July 07, 2010 11:36 AM
To: Bean, Michael
Subject: Fw: Tom Vinson, AWEA, and I would like to have....

I understand Richard is not in today so my apologies for sending this directly to you.

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(C) (202) 236-0066
(F) (202) 628-5116

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----- Original Message -----
From: Quarles, Steve
To: 'Richard_wheeler@ios.doi.gov' <Richard_wheeler@ios.doi.gov>
Sent: Wed Jul 07 10:22:51 2010
Subject: Tom Vinson, AWEA, and I would like to have....

a quick follow-up call with Michael before a big wind industry meeting on Indiana bat in Chicago early next week. Also our call would be timely as at our meeting two weeks ago Michael asked for a week before we contacted FWS Region 3 again. We are at an all-day meeting at region 6 on whooping crane today. We have a lunch break from 2:00 to 3:00 EST. Any possibility Michael would be available then?

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Sent by Blackberry; all thumbs

and no spell check.

Bean, Michael

From: Bean, Michael
Sent: Wednesday, June 24, 2009 12:42 PM
To: Quarles, Steve
Subject: RE: our meeting Thursday

If you come at 2pm on Friday, July 10, you can say hello to the arriving CBD delegation as you are leaving.

Michael J. Bean
Counselor to the Assistant Secretary, FWP
Dept. of the Interior, Room 3151
1849 C Street, NW
Washington, DC 20240
202-208-7400
202-372-7139 (cell)
202-208-4684 (fax)
michael_bean@ios.doi.gov

From: "Quarles, Steve" <SQuarles@crowell.com>

To: <Michael_Bean@ios.doi.gov>
Date: 06/24/2009 12:39 PM
Subject: RE: our meeting Thursday

My calendar is embarrassingly free that Thursday or Friday (7/9 or 10). You choose day and time.

Best,

Steve

From: Michael_Bean@ios.doi.gov [mailto:Michael_Bean@ios.doi.gov]
Sent: Wednesday, June 24, 2009 12:36 PM
To: Quarles, Steve
Subject: RE: our meeting Thursday

let's postpone. I'm likely to be away most of next week, but the following week has lots of afternoon slots open. What works for you?

Michael J. Bean
Counselor to the Assistant Secretary, FWP
Dept. of the Interior, Room 3151
1849 C Street, NW

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202-208-7400
202-372-7139 (cell)
202-208-4684 (fax)
michael_bean@ios.doi.gov

From: "Quarles, Steve" <SQuarles@crowell.com>
To: <Michael_Bean@ios.doi.gov>
Date: 06/24/2009 11:44 AM
Subject: RE: our meeting Thursday

I was about to call you and say I need to postpone the meeting (assuming you won't say the hell with it altogether). Eric Glitzenstein has brought an ESA citizen suit against Invenergy to stop the Beech Ridge Wind Energy Project in West Virginia (Indiana bat) unless Invenergy does what no lower 48 wind project has done and apply for an ITS. We expect Eric to file for a TRO or PI on Monday. I am dealing with the company, Spanish investors, and a much disturbed wind industry caucus to the FAC. The next FAC meeting, with potentially much flak (sorry, couldn't resist), is next week in Austin. Any dates in July work for you?

Steven P. Quarles

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1001 Pennsylvania Ave., N.W.

Washington, D.C. 20004

PHONE: 202/624-2665

MOBILE: 202/236-0066

FAX: 202/628-5116

squarles@crowell.com

From: Michael_Bean@ios.doi.gov [mailto:Michael_Bean@ios.doi.gov]

Sent: Wednesday, June 24, 2009 11:35 AM

To: Quarles, Steve

Subject: our meeting Thursday

Can we push it back to 2:20pm?

Michael J. Bean

Counselor to the Assistant Secretary, FWP

Dept. of the Interior, Room 3151

1849 C Street, NW

Washington, DC 20240

202-208-7400

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michael_bean@ios.doi.gov

Bean, Michael

From: Bean, Michael
Sent: Wednesday, June 17, 2009 3:04 PM
To: Quarles, Steve
Subject: Re: FW: If I heard right...

2pm is fine. Thanks. -- Michael

From: "Quarles, Steve" <SQuarles@crowell.com>

To: <Michael_bean@ios.doi.gov>
Date: 06/17/2009 02:18 PM
Subject: Re: FW: If I heard right...

If we do both 2:00 and 3:00 then in the 2 hours we could cover the first 40 or 50 items on my list of 150.... Of course, either time works for me. Say 2:00?

Sent from my BlackBerry Wireless Handheld
All thumbs and no spell-check

Steve Quarles
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1001 Pennsylvania Ave. NW
Washington, D.C. 20004
P (202) 624-2665
F (202) 628-5116
C (202) 236-0066
squarles@crowell.com

From: Michael_Bean@ios.doi.gov

To: Quarles, Steve

Sent: Wed Jun 17 14:08:17 2009

Subject: Re: FW: If I heard right...

Steve -- On 6/25 I'm currently free at 2 or 3 pm. Does either time work for you?

From: "Quarles, Steve" <SQuarles@crowell.com>
To: <Michael_bean@ios.doi.gov>
Date: 06/17/2009 01:32 PM
Subject: Re: FW: If I heard right...

Michael --

Thanks for the invite; I am honored. I have clients in tow all this week working on a National Forest land exchange. How 'bout Next Thursday (6/25) or Thursday or Friday three weeks hence (7/9 or 7/10)? (I am due to be in Austin all week beginning 6/29, most of which is devoted to the Wind Turbine Guidelines FAC.)

Best,

Steve

Steve

Sent from my BlackBerry Wireless Handheld
All thumbs and no spell-check

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F (202) 628-5116
C (202) 236-0066
squarles@crowell.com

From: Michael_Bean@ios.doi.gov

To: Quarles, Steve

Sent: Tue Jun 16 16:55:02 2009

Subject: Re: FW: If I heard right...

Steve: Thanks for resending your earlier email, which had not reached me. I would be pleased to talk to you about your ESA ideas. I don't have as much control over my schedule as I would like, but as of now I'm free after 3pm this Friday. Let me know if that works for you. Michael Bean

From: "Quarles, Steve" <SQuarles@crowell.com>
To: <Michael_bean@ios.doi.gov>
Date: 06/16/2009 03:06 PM
Subject: FW: If I heard right...

Thanks for sending your new particulars. Not knowing whether the response below reached you, I am resending it. I'm still jealous; you should be delighted with your work -- both the subject matter and the people.

Best,

Steve

-----Original Message-----
From: Quarles, Steve
Sent: Thursday, June 11, 2009 2:51 PM
To: 'Michael Bean'
Subject: RE: If I heard right...

Thanks for the note. I hope this reaches you. I was out last week in Pioche, Nevada addressing issues concerning the Mojave DPS of the Desert Tortoise. I'd love the opportunity to discuss some ideas concerning ESA implementation with you....but at your convenience. I suspect that will be "in a while." If I haven't heard from you in that while, I will try to call you. Again, congratulations.

Best,

Steve

-----Original Message-----
From: Michael Bean [mailto:mbean@edf.org]
Sent: Friday, June 05, 2009 11:47 AM
To: Quarles, Steve
Subject: RE: If I heard right...

Steve:

As you know, on Monday, June 8, I will begin a new position as Counselor to the Assistant Secretary for Fish, Wildlife and Parks at the Interior Department. My principal responsibilities will be to advise the Assistant Secretary regarding matters pertaining to the Endangered Species Act. It would be very helpful to hear your ideas about how the implementation of the Act could be improved to make it both more effective at conserving fish, wildlife, and plants and less burdensome for those affected by it. I am open to any good idea from any source, so I hope you will feel free to send me your ideas or discuss them with me.

Michael J. Bean
Environmental Defense Fund
1875 Connecticut Avenue, NW, Suite 600
Washington, DC 20009
202-387-3500 (phone)
202-234-6049 (fax)
MBean@edf.org

-----Original Message-----
From: Quarles, Steve [mailto:SQuarles@crowell.com]
Sent: Tuesday, May 26, 2009 12:38 PM
To: Michael Bean
Subject: If I heard right...

Congratulations! As I held the same job with Cece Andrus, I can say from experience that it is a terrific opportunity and very rewarding.

Best,

Steve

Sent from my BlackBerry Wireless Handheld All thumbs and no spell-check

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Bean, Michael

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To: Quarles, Steve
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Best,

Steve

Steve

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To: Quarles, Steve

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Bean, Michael

From: Bean, Michael
Sent: Tuesday, October 12, 2010 11:40 AM
To: 'Quarles, Steve'
Subject: RE: Eagle Act Programmatic Incidental Take Permit Program Memorandum

Thanks, Steve. Do you mind if I share this memo more widely?

Michael J. Bean
Counselor, Assistant Secretary for Fish, Wildlife and Parks
Room 3152
Dept. of Interior
Washington, DC 20240
202-208-4416

From: Quarles, Steve [mailto:SQuarles@crowell.com]
Sent: Tuesday, October 12, 2010 9:59 AM
To: Bean, Michael
Subject: FW: Eagle Act Programmatic Incidental Take Permit Program Memorandum

I thought you might like to see my critical memorandum on the Eagle Act programmatic incidental take permit program prepared for American Wind Energy Association. As I state in the memo: "I count ten factors related to the Eagle Act programmatic permit program that render the permits not very user friendly -- adding perhaps unnecessary or inadvertent procedural roadblocks and substantive stringency." I compare each of the those ten factors unfavorably to the ESA incidental take permit program. Just a suggestion that the permit program -- once operational -- may not be a panacea.

Best,

Steve

Steven P. Quarles
Crowell & Moring LLP
1001 Pennsylvania Ave., N.W.|Washington, D.C. 20004
Phone: 202/624-2665 | **Fax:** 202/628-5116
Mobile: 202/236-0066
Email: squarles@crowell.com

Bean, Michael

From: Bean, Michael
Sent: Tuesday, August 10, 2010 9:55 AM
To: 'Quarles, Steve'
Subject: RE: FAC Death Watch

Steve: This comment, like many others, is being considered as part of the internal review of the FACA recommendations. Please don't assume that any final decisions have been made.

Michael J. Bean
Counselor, Assistant Secretary for Fish, Wildlife and Parks
Room 3152
Dept. of Interior
Washington, DC 20240
202-208-4416

From: Quarles, Steve [mailto:SQuarles@crowell.com]
Sent: Tuesday, August 10, 2010 9:38 AM
To: Bean, Michael
Subject: FAC Death Watch

Michael,

Extraordinary! This comes after all our negotiations with Secretary's and Solicitor's offices on the precise language and, as we understood it, sign-off by Sam. And, was fully discussed while representative(s) of Enforcement were sitting in the FAC meeting. This may kill the recommendations even if the FWS doesn't act on it. The industry caucus was already at wit's end watching FWS treat the recommendations so cavalierly and also cherry-picking favorite recommendations for field guidance even before Secretarial approval. Now this.

Steve

Bean, Michael

From: Bean, Michael
Sent: Wednesday, March 03, 2010 1:49 PM
To: 'Quarles, Steve'
Subject: please call me

Michael J. Bean
Counselor, Assistant Secretary for Fish, Wildlife and Parks Room 3152 Dept. of Interior
Washington, DC 20240
202-208-4416

Bean, Michael

From: Quarles, Steve [SQuarles@crowell.com]
Sent: Monday, April 25, 2011 9:51 AM
To: Arroyo, Bryan; Frazer, Gary D; Underwood, Jeff; Ford, Jerome
Subject: RE: FWS Official To Wind Developers: Our Door Is Always Open

Just out of interest, is Manville speaking for the Service when he suggests the FAC participation on the Draft Guidelines is "going to be fairly ugly"? He is so helpful.

Steve

FWS Official To Wind Developers: Our Door Is Always Open

in News Departments > Policy Watch
by John Clapp on Thursday 21 April 2011

The U.S. Fish and Wildlife Service's (FWS) Draft Voluntary Land-Based Wind Energy Guidelines are open for public comment through May 19. But regardless of whether the feedback recommends that the guidelines become regulatory or remain voluntary, the agency wants to collaborate with wind developers.

"Our key message here is, come to us at the get-go, before a site has been selected [and] before a landowner agreement has been signed," Al Manville, the FWS' senior wildlife biologist with the migratory bird division, said at a public wind information forum held April 16 in Falls Village, Conn.

"Unfortunately, right now in many cases, we find out about the development of a project through a news release or something on the evening news when we have not been consulted whatsoever, and that's frustrating," he added.

While speaking at the forum, which was sponsored by the Berkshire-Litchfield Environmental Council, Manville outlined the FWS' draft wind guidelines as well as the agency's Draft Eagle Conservation Plan Guidance. The two documents, which were published in February, are close parallels, he said. They have also drawn considerable backlash from the wind industry.

The draft wind guidelines recommend a tiered risk-assessment process for selecting wind farm sites, including extensive pre- and post-construction monitoring activities that some argue will unduly delay project development. In creating its draft document, the FWS used as its framework recommendations that were submitted last year by the Wind Turbine Guidelines Advisory Committee (WTGAC), Manville said.

But the FWS document lacks support from the wind industry, the American Wind Energy Association (AWEA) says, because it deviates too substantially from the WTGAC guidelines. AWEA considers the WTGAC framework "consensus recommendations" and is urging federal officials to adopt guidelines that more closely

resemble what the committee had conceived.

The 22-member WTGAC, which includes representatives from the states, environmental conservation groups and tribes, was established by the U.S. Department of the Interior as part of the Federal Advisory Committee process.

However, Manville explains, the WTGAC recommendations were just that - recommendations.

"We have no requirement under the Federal Advisory Committee Act or the Administrative Procedures Act to use them," he tells *NAW*. "We used them as the baseline and the underpinning of our draft wind energy guidelines. It's the foundation for our guidance."

For AWEA to have completely pulled its support for the FWS draft guidelines is unconstructive, according to Manville. "AWEA's drawing a line in the sand really didn't help," he says. "Let's get some suggestions from AWEA and the individual companies on what they'd like to see and how to fix it."

Manville notes that the FWS has worked closely with the electric utility industry to develop avian protection plans, coordinate public workshops and co-author suggested-practices documents. He says he hopes to similarly find common ground with stakeholders in the wind industry.

The FWS and WTGAC are slated to meet in advance of the May 19 public-comment deadline. Although Manville says he hopes all parties can find common ground, he concedes, "I have the feeling it's going to be fairly ugly."

The FWS' goal, he adds, is to create guidelines that are consistent with the agency's communication-tower and electric-utility guidelines.
"Our challenge is to work collaboratively with all the stakeholders here to minimize the impacts to wildlife in our habitat and to maximize opportunities for renewable energy development," Manville said during the public forum in Falls Village.

The WTGAC recommendations failed to adequately address noise and habitat fragmentation issues, he explains, saying the latter consideration is particularly important. When it comes to wind development, habitat fragmentation may be a more significant concern for the conservation of some bird species than is mortality.

The FWS also says it has observed a disproportionate take of birds of conservation being killed at wind facilities. Although AWEA says the draft guidelines' monitoring requirements - up to three years of preconstruction monitoring and at least two years post-construction - will add "unforeseen costs" to wind farms' operating budgets, Manville says such assessments are crucial to achieve a better understanding of commercial wind's impact on bird and bat populations.

Similar regimes are in existence elsewhere, he points out. The U.K. government's Department for Environment, Food and Rural Affairs, for example, calls for two to three years of preconstruction monitoring and three to five years of post-construction monitoring for offshore wind sites located in Crown waters.

To characterize the FWS' guidelines as requiring three years of preconstruction monitoring is inaccurate, Manville adds. The duration and intensity of pre- and post-construction monitoring should be linked directly with a project's level of risk and its likelihood of take.

A wind developer that is considering expanding a farm with an adjacent second-phase development should have already identified the site as "low risk" to wildlife. In turn, a truncated preconstruction monitoring period - say, one season - might be appropriate, he says.

"The only primary tool we have now is siting wind facilities in the most wildlife- and habitat-friendly conditions," he says. "Admittedly, some companies are trying to do that. Others are completely blowing us off and not, and that's the rub."

Some of the largest developers are playing ball. What concerns Manville, he says, are start-up companies that do not perform due diligence prior to buying property and building a wind farm. "By the time problems are unveiled in post-construction monitoring, they've sold the facility," he says.

It is unclear if other federal agencies will eventually put the FWS' guidelines into a regulatory regime, though Manville notes that both the FWS' final communications and utilities guidelines are voluntary in nature. This does not let developers off the hook if bird takes are discovered.

"Even though our guidelines are currently voluntary, and even if the final guidelines become voluntary too, there's still this whole issue that the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act aren't wishy-washy - those are laws," Manville says. "If take occurs and you do not have a permit for take, including disturbance, you're in criminal liability and potential criminal culpability."

Bean, Michael

From: Quarles, Steve [SQuarles@crowell.com]
Sent: Saturday, December 25, 2010 1:17 PM
To: Robert Robel; Underwood, Jeff
Cc: Bean, Michael; Arroyo, Bryan; Schmidt, Paul R; Ashe, Dan; Gould, Rowan; Ford, Jerome; adelach@defenders.org; barry sweitzer; brchappell@hhlaw.com; ckennedy@defenders.org; (b) (6) [redacted] dhahn@fishwildlife.org; donald carr; dstrickland@west-inc.com; earnett@batcon.org; ggoldman@audubon.org; ghawk@emth.com; jeisen@orion-energygroup.com; jim lindsay; johnm Austin; joseph carpenter; jpruett@tnc.org; jrylander@defenders.org; Jenna@cleanegroup.org; Julie Wicker; karin sinclair; kathy boydston; keiths@wp.state.ks.us; kldougla@energy.state.ca.us; LEIGHCSL@DFW.WA.GOV; (b) (6) [redacted] mdaulton@audubon.org; mike azeka; msinclair@cleanegroup.org; (b) (6) [redacted] pdtraylor@hhlaw.com; Pbarthol@energy.state.ca.us; rjrobel@ksu.edu; rmanes@TNC.org; rrayhill@rl-en.com; Rene Braud; Robert Thresher; scott darling; senfield@maproyalty.com; ssavitts@pacbell.net; steve lindenberg; tallison@massaudubon.org; tbancroft@audubon.org; wwallace@energetics.com; Winifred Perkins
Subject: RE: Fish and Wildlife Service Wind Turbine Guidelines Update

As an addendum to my earlier curmudgeonly email, please allow me to join in the good doctor's wishes for all of us.

Steve

-----Original Message-----
From: Robert Robel [mailto:rjrobel@k-state.edu]
Sent: Tuesday, December 21, 2010 1:15 PM
To: Jeff Underwood
Cc: Michael Bean; Bryan Arroyo; Paul R Schmidt; Dan Ashe; Rowan Gould; Jerome Ford; adelach@defenders.org; barry sweitzer; brchappell@hhlaw.com; ckennedy@defenders.org; danderson222@att.net; dhahn@fishwildlife.org; donald carr; dstrickland@west-inc.com; earnett@batcon.org; ggoldman@audubon.org; ghawk@emth.com; jeisen@orion-energygroup.com; jim lindsay; johnm Austin; joseph carpenter; jpruett@tnc.org; jrylander@defenders.org; Jenna@cleanegroup.org; Julie Wicker; karin sinclair; kathy boydston; keiths@wp.state.ks.us; kldougla@energy.state.ca.us; LEIGHCSL@DFW.WA.GOV; (b) (6) [redacted] mdaulton@audubon.org; mike azeka; msinclair@cleanegroup.org; (b) (6) [redacted] pdtraylor@hhlaw.com; Pbarthol@energy.state.ca.us; rjrobel@ksu.edu; rmanes@TNC.org; rrayhill@rl-en.com; Rene Braud; Robert Thresher; scott darling; senfield@maproyalty.com; Quarles, Steve; ssavitts@pacbell.net; steve lindenberg; tallison@massaudubon.org; tbancroft@audubon.org; wwallace@energetics.com; Winifred Perkins
Subject: Re: Fish and Wildlife Service Wind Turbine Guidelines Update

Mr. Underwood,

Thank you very much for the detailed update. And I agree with others, a pre-publication overview for the members of the FAC would be much appreciated.

Hope you (and the others receiving this) have a Blessed Christmas Season and a healthy and prosperous New Year.

Cheers,

R. J. Robel

----- Original Message -----
From: "Jeff Underwood" <Jeff_Underwood@fws.gov>
To: adelach@defenders.org, "barry sweitzer" <barry.sweitzer@aes.com>, brchappell@hhlaw.com, ckennedy@defenders.org, (b) (6) [redacted] dhahn@fishwildlife.org, "donald carr" <donald.carr@pillsburylaw.com>, dstrickland@west-inc.com, earnett@batcon.org, ggoldman@audubon.org, ghawk@emth.com, jeisen@orion-energygroup.com, "jim lindsay" <jim_lindsay@fpl.com>, "johnm Austin" <johnm.Austin@state.vt.us>, "joseph carpenter" <joseph.carpenter@dep.state.nj.us>, jpruett@tnc.org, jrylander@defenders.org, Jenna@cleanegroup.org, "Julie Wicker" <Julie.Wicker@tpwd.state.tx.us>, "karin sinclair" <karin_sinclair@nrel.gov>, "kathy boydston" <kathy.boydston@tpwd.state.tx.us>, keiths@wp.state.ks.us, kldougla@energy.state.ca.us, LEIGHCSL@DFW.WA.GOV, mchgjh@comcast.net, mdaulton@audubon.org, "mike azeka" <mike.azeka@aes.com>, msinclair@cleanegroup.org, (b) (6) [redacted] pdtraylor@hhlaw.com, Pbarthol@energy.state.ca.us, rjrobel@ksu.edu, rmanes@TNC.org, rrayhill@rl-en.com, "Rene Braud" <Rene.Braud@horizonwind.com>, "Robert Thresher" <Robert_Thresher@nrel.gov>, "scott darling" <scott.darling@state.vt.us>, senfield@maproyalty.com, squarles@crowell.com, ssavitts@pacbell.net, "steve lindenberg" <steve.lindenberg@ee.doe.gov>, tallison@massaudubon.org, tbancroft@audubon.org, wwallace@energetics.com, "Winifred Perkins" <Winifred_Perkins@fpl.com>
Cc: "Michael Bean" <Michael_Bean@ex.ios.doi.gov>, "Bryan Arroyo" <Bryan_Arroyo@fws.gov>, "Paul R Schmidt" <Paul_R_Schmidt@fws.gov>, "Dan Ashe" <Dan_Ashe@fws.gov>, "Rowan Gould" <Rowan_Gould@fws.gov>, "Jerome Ford" <Jerome_Ford@fws.gov>
Sent: Tuesday, December 21, 2010 8:28:03 AM
Subject: Fish and Wildlife Service Wind Turbine Guidelines Update

Hello:

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All the best to you over the holidays.

Regards,

Jeff

Bean, Michael

From: Quarles, Steve [SQuarles@crowell.com]
Sent: Wednesday, December 22, 2010 10:01 AM
To: JohnsonHughes, Christy; Underwood, Jeff
Cc: adelach@defenders.org; barry.sweitzer@aes.com; brchappell@hhlaw.com; Arroyo, Bryan; ckennedy@defenders.org; Ashe, Dan; danderson222@att.net; dhahn@fishwildlife.org; Donald.Carr@Pillsburylaw.com; dstrickland@west-inc.com; earnett@batcon.org; ggoldman@audubon.org; ghawk@emth.com; jeisen@orion-energygroup.com; Jenna@cleanegroup.org; Ford, Jerome; jim_lindsay@fpl.com; johnm.Austin@state.vt.us; joseph.carpenter@dep.state.nj.us; jpruett@tnc.org; jrylander@defenders.org; Julie.Wicker@tpwd.state.tx.us; karin_sinclair@nrel.gov; kathy.boydston@tpwd.state.tx.us; keiths@wp.state.ks.us; kldougla@energy.state.ca.us; LEIGHCSL@DFW.WA.GOV; mchgjh@comcast.net; mdaulton@audubon.org; Bean, Michael; mike.azeka@aes.com; msinclair@cleanegroup.org
Subject: Re: Fish and Wildlife Service Wind Turbine Guidelines Update

Please, forget my second paragraph, Aimee tells me as I suspected that my BB must have cut off the addressees list.

Steven P. Quarles
Crowell & Moring LLP
1001 Pennsylvania Ave. NW
Washington, D.C. 20004
(202) 624-2665
(C) (202) 236-0066
(F) (202) 628-5116

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Sent: Wed Dec 22 08:53:41 2010
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Christy

Jeff Underwood/ARL/R9/FWS/DOI

12/21/2010 09:28 AM

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cc Michael_Bean@ex.ios.doi.gov, Bryan Arroyo/ARL/R9/FWS/DOI@FWS, Paul R Schmidt/AMBS/R9/FWS/DOI, Dan Ashe/ARL/R9/FWS/DOI@FWS, Rowan Gould/ARL/R9/FWS/DOI, Jerome Ford/AMBS/R9/FWS/DOI

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Regards,

Jeff

Jeffrey L. Underwood
Deputy Assistant Director
Fisheries and Habitat Conservation
U.S. Fish and Wildlife Service
4401 N. Fairfax Drive
Arlington, VA 22203
W (703) 358-1829
C (413) 575-7394

Bean, Michael

From: Quarles, Steve [SQuarles@crowell.com]
Sent: Wednesday, December 22, 2010 9:38 AM
To: JohnsonHughes, Christy; Underwood, Jeff
Cc: adelach@defenders.org; barry.sweitzer@aes.com; brchappell@hhlaw.com; Arroyo, Bryan; ckennedy@defenders.org; Ashe, Dan; danderson222@att.net; dhahn@fishwildlife.org; Donald.Carr@Pillsburylaw.com; dstrickland@west-inc.com; earnett@batcon.org; ggoldman@audubon.org; ghawk@emth.com; jeisen@orion-energygroup.com; Jenna@cleanegroup.org; Ford, Jerome; jim_lindsay@fpl.com; johnm.Austin@state.vt.us; joseph.carpenter@dep.state.nj.us; jpruett@tnc.org; jrylander@defenders.org; Julie.Wicker@tpwd.state.tx.us; karin_sinclair@nrel.gov; kathy.boydston@tpwd.state.tx.us; keiths@wp.state.ks.us; kldougla@energy.state.ca.us; LEIGHCSL@DFW.WA.GOV; (b) (6) [redacted] mdaulton@audubon.org; Bean, Michael; mike.azeka@aes.com; msinclair@cleanegroup.org
Subject: Re: Fish and Wildlife Service Wind Turbine Guidelines Update

I believe we remain a fully constituted FAC not due to expire for another year. I would think that status qualifies us to see, and discuss, the FWS's treatment of our recommendations to the Secretary, and for FWS to receive any views we may have, before publication.

I may be wrong because I am working only with my Blackberry but the addressees do not seem to be the full FAC (with more alternates and technical advisors than members). For example, from the industry caucus, I do not see Msses. Braud or Perkins or Messrs. Enfield, Rayhill and Traylor.

Steve

Steven P. Quarles
Crowell & Moring LLP
1001 Pennsylvania Ave. NW
Washington, D.C. 20004
(202) 624-2665
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(F) (202) 628-5116

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Christy

Jeff Underwood/ARL/R9/FWS/DOI

12/21/2010 09:28 AM

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Regards,

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Bean, Michael

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Sent: Tuesday, December 21, 2010 10:01 AM
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Cc: Bean, Michael; Arroyo, Bryan; Schmidt, Paul R; Ashe, Dan; Gould, Rowan; Ford, Jerome
Subject: Re: Fish and Wildlife Service Wind Turbine Guidelines Update

Jeff,

I understand the timing now. But do not understand the process as it relates to the FAC. I thought we had a commitment that your team would flag any changes from the FAC's report to the Secretary that they thought might be of concern to the still fully constituted FAC, alert us, and give us an opportunity to discuss them with the Service. Am I (we) to understand that our first glimpse of the Service work-over will be upon publication in the Federal Register and after presentation to the Secretary? Speaking only for myself, I will be deeply disappointed if that is the case.

Steve

Steven P. Quarles
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Subject: Fish and Wildlife Service Wind Turbine Guidelines Update

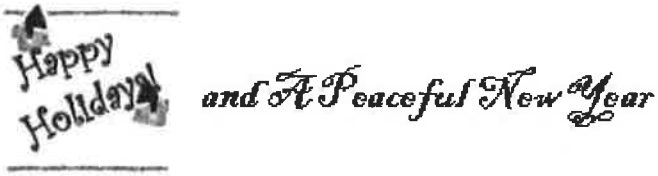
Hello:

Thanks for hanging in there with us over the past few months. Last week, the working group completed the assignment of utilizing the FAC Recommendations to develop the Service Draft Wind Turbine Guidelines. The draft product is with Service leadership for review, will go through a writer/editor review, and must be presented to the Service Directorate, then the Assistant Secretary, and finally the Secretary. Because of the voluntary nature of the guidelines, they are likely to be considered "not significant" and the time required for the OMB review will be minimal and in our favor. We would then be able to complete the pre-Federal Register process more expeditiously than previously planned. We expect all of this will occur within the next three to four weeks. As always, Jerome (703-358-2583) and I are available to answer any questions you have.

All the best to you over the holidays.

Regards,

Jeff



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From Braud, Rene **Date** Wednesday, July 29, 2009 11:58:34 AM
To Bean, Michael
Cc 'Craig Cox'; Corwin, Arlo; Sandvig, Nate
Subject RE: Accepted: FW: Wyoming sage-grouse issue mtg

Dear Michael,

We received this request through Craig Cox at Interwest. Arlo Corwin and I plan to attend this meeting next week.

Best Regards,
Rene

René Braud, J.D. | Director, Permitting & Environmental Affairs
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-----Original Appointment-----
From: Braud, Rene
Sent: Wednesday, July 29, 2009 8:51 AM
To: Michael Bean/ASFW/OS/DOI
Subject: Accepted: FW: Wyoming sage-grouse issue mtg
When: Wednesday, August 05, 2009 3:30 PM-4:30 PM (GMT-06:00) Central Time (US & Canada).
Where: Room 3151

crowell moring

Memorandum

To: **John Anderson**
Tom Vinson

September 27, 2010

From: **Steve Quarles**

NEW PROGRAMMATIC INCIDENTAL TAKE PERMIT PROGRAM UNDER THE BALD AND GOLDEN EAGLE PROTECTION ACT

IMPLICATIONS FOR THE AMERICAN WIND ENERGY ASSOCIATION

This memorandum discusses the new programmatic incidental take permit program under the Bald and Golden Eagle Protection Act (Eagle Act) (16 U.S.C. §§ 668-668d) and its implications for members of the American Wind Energy Association (AWEA). A slightly different version of this memorandum was prepared for the Edison Electric Institute. At your request, I have edited it to match more closely the concerns of AWEA's members.

A. Introduction

The Eagle Act prohibits the "take" of bald eagles and golden eagles except where authorized by regulations. 16 U.S.C. § 668a. In the case of bald eagles, "take" can only be authorized by permit. *Id.* "Take" is a civil and criminal offense. Civil penalties are a maximum of $500 for each unlawful eagle "take." The Eagle Act provisions set criminal penalties at a fine of not more than $5000 and/or imprisonment for not more than one year for a first offense and a fine of not more than $10,000 and/or imprisonment for not more than two years for each successive offense. 16 U.S.C. § 668. However, the Eagle Act fine structure was preempted by the Sentencing Reform Act and is now: (i) for an individual, up to $250,000 for a "take" that "results in death" and up to $100,000 for a "take" that "does not result in a death, and (ii) for an organization, up to $500,000 for each "take" with death and up to $250,000 for each "take" without death. 18 U.S.C. § 3571(b)(4), (c)(4), and (c)(5).

The Eagle Act and implementing regulations define "take" very broadly – more broadly than "take" is defined in any other federal wildlife law. The statute defines "take" to include "pursue, shoot, shoot at, poison, wound, kill, capture, trap,

collect, molest or disturb." 16 U.S.C. § 668c. Most of the these terms are narrow and self-explanatory. The breadth of the "take" prohibition is created by the imprecise term "disturb." As the term is not self-explanatory, the U.S. Fish and Wildlife Service (FWS or Service) described and arguably expanded it by rule. "Disturb" is defined by 50 C.F.R. § 22.3 as "to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury to an eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal, breeding, feeding, or sheltering behavior."

The Eagle Act authorizes FWS to promulgate regulations permitting the "taking, possession, and transportation [of bald or golden eagles] ...for the scientific or exhibition purposes of public museums, scientific societies, and zoological parks, or for the religious purposes of Indian tribes, or...for the protection of wildlife or of agricultural or other interests in any particular locality." 16 U.S.C.§ 668a. Except for the last "interests" phrase, this permitting authority is very restrictive. Consistent with the narrow focus, until last year, FWS had promulgated Eagle Act permit regulations only to authorize "take" for scientific and exhibition purposes, Indian religious purposes, removal of depredating eagles, possession of golden eagles for falconry, and removal of golden eagle nests that interfere with resource development or recovery operations. 50 C.F.R. § 22.21 – 22.25.

These limited permits – and arguably the "other interests" Eagle Act permitting authority language – all address circumstances where the "take" is intentional and reasonably quantifiable. The more thorny question under the Eagle Act and other federal wildlife law is whether and how to address unintended "take," the risk and amount of which can be extremely difficult to predict. Unlike the Eagle Act, certain other federal wildlife statutes, such as the Endangered Species Act (ESA) and Marine Mammal Protection Act, provide methods for public and private enterprises to secure authorization for unintentional "take" – called "incidental take." Although, as discussed below, that term is now employed in the Eagle Act context, it is defined only in the ESA. ESA § 10(a)(1)(B) describes incidental take as "any taking otherwise prohibited by" the ESA "if such taking is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity." 16 U.S.C. § 1538(a)(1)(B).

B. Promulgation of the Programmatic Permit Program.

FWS moved to remove this incapacity to provide "take" immunity for all but a few activities, and to authorize explicitly incidental take, under the Eagle Act in a September 11, 2009 rulemaking (2009 rules). 74 Fed. Reg. 46836-46879 (Sept. 11, 2009). The most important aspect of this rulemaking was to amend the Eagle Act rules to add a new 50 C.F.R. § 22.26 that establishes a programmatic incidental take permit program. Hanging on a somewhat slender thread, the program is based on the previously-quoted statutory rulemaking authorization to provide for "take" "for the protection of...other interests in any particular locality." 16 U.S.C. § 668a.

As indicated in the preamble to the 2009 rules, FWS is anything but a band of strict constructionists as they envision "interests" and "locality" to be any economic benefit bestowed as broadly as nationwide by any enterprise, but particularly the energy industries. "A programmatic take permit may be appropriate for industries such as the energy and transportation providers, among others." 74 Fed. Reg. at 46482. "This statutory language accommodates a broad spectrum of public and private interests (such as public utility infrastructure development and maintenance...) that might 'take' eagles." *Id.* at 46837-38. Finally: "Therefore, these regulations provide a means to authorize eagle take to protect 'other' interests such as transportation needs, electric utility maintenance, residential and commercial development, forestry, resource development and recovery, and other public and private interests." *Id.* at 46852. As will be observed in several other quotes from the 2009 rules' preamble provided in section C. below, the wind energy industry is a primary target for attention under the programmatic permit program.

The label "programmatic" is a misnomer. FWS apparently expects that, within an industry, each *project* would receive a separate programmatic permit. Moreover, a programmatic permit is not even "programmatic" on a project-specific basis for projects that have a duration of a longer than five years, since the permits are to be issued for maximum terms of five years (and may be renewed). Whatever programmatic aspect there may be in this permit program likely is provided by the devising of industry-wide "advanced conservation practices" (ACPs) to be inserted in the project-specific permits (to be discussed in section D.5. below).

Basically, to be eligible to receive a programmatic permit, a project must meet six applicable criteria:

> (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 locality;
>
> (3) The taking is associated with, but not the purpose of, the activity [*i.e.*, it is an incidental take];
>
> (4) . . . [F]or 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 . . .
> (74 Fed. Reg. at 46877 (new 50 C.F.R. § 22.26(f)).)

These criteria, plus the 5-year term, may make programmatic permits for eagle incidental take more stringent and difficult to obtain than incidental take permits (ITPs) issued under section 10(a)(1)(B) of the ESA (16 U.S.C. § 1539(a)(1)(B)) – an ironic outcome, as bald eagles and golden eagles are deemed to be less imperiled than are species that receive the protection of the ESA. This stringency of, and roadblocks to securing, Eagle Act programmatic permits will be discussed in section D. below. In order to illustrate both of these aspects of the programmatic permits and to provide an overview of the programmatic permit program, section D. will compare the programmatic permit requirements with the criteria and process for issuance of ESA ITPs.

C. Applicability of the Programmatic Permits to Wind Farms and Power Lines

FWS certainly has targeted "energy providers" in general, but particularly wind farms and power lines, as prime candidates for Eagle Act programmatic incidental take permits. Although these industries may be more advanced than most if not all other industries in addressing avian impacts, through research, adoption of avoidance and minimization measures, and other steps, the 2009 rules' preamble manifests FWS's expectation that they will become early adopters of programmatic permits.

Throughout the 2009 rules' preamble, FWS exhibits a keen interest in wind energy facilities:

> Our second example is a company interested in siting a wind-power facility. We are currently unaware of any measures that would eliminate eagle mortalities when turbines are sited in golden eagle habitat (including migration corridors). If ACPs can be developed to significantly reduce the take, the operator may qualify for a programmatic take permit, since the ongoing mortalities are the direct result of the operation of the turbines. In addition to measures designed to reduce take directly, ACPs should also include measures to reduce indirect takes [from habitat disturbance]. (74 Fed. Reg. at 46842.)

Again:

> The location of facilities often can have significant impacts to eagles (e.g., wind farms) and some industries may be able to reduce take substantially by selecting particular sites over others . . . [W]e intend to ensure that siting criteria are emphasized in the implementing guidance that we will develop for programmatic permits and adopted where applicable. (*Id.* at 46862.)

Concerning power lines, one public comment on the proposed rules was described in the preamble as: "Current best management practices such as those developed by the Avian Power Line Interaction Committee (APLIC) should be the baseline, and more should not be required to get a permit." In response, FWS stated:

> The voluntary recommendations for avoiding avian mortality developed by APLIC are much more comprehensive than any we are aware of for other industries. However, most utilities that have adopted them have done so in a relatively piecemeal manner, using some recommendations in some areas, applying others in different places, and very rarely implementing all the measures that could be used to reduce eagle mortalities. Furthermore, there are practices over and above what APLIC recommends that could further reduce take in some situations. Programmatic permits are premised on the permittee implementing all achievable measures to reduce take to the point where it is unavoidable. (*Id.* at 46861.)

As in the case of ITPs under the ESA, the programmatic permits are technically voluntary, but made virtually mandatory as the only means to avoid liability for "take." FWS stated in the 2009 rules' preamble: "A permit is not required to conduct any particular activity, but is necessary to avoid potential liability for take caused by the activity." *Id.* at 46841.

Given the FWS expectation that the programmatic permits will apply to wind farms, the enforcement discretion language in the recommendations of the Federal Wind Turbine Guidelines Advisory Committee (FAC Recommendations), now awaiting approval by the Secretary of the Interior and adoption by the FWS, may become of marginal or no utility. *Recommendations of the Wind Turbine Guidelines Advisory Committee,* March 4, 2010, at 71-72. Even if the FAC Recommendations are adopted and the enforcement discretion provisions remain intact, the ability to exercise enforcement discretion for wind farms that adhere to the FAC Recommendations may rapidly diminish when: programmatic permits become available; the FWS expresses its strong preference that wind farms which may affect eagles pursue such permits; and, upon issuance of permits, enforcement follows any material violation of permit terms. (*See* section D.8. below for timing of permit availability.)

The same fate may befall the similar, but existing enforcement discretion language for power lines in the APLIC *Avian Protection Plan (APP) Guidelines* (APP Guidelines). Edison Electric Institute's Avian Power Line Interaction Committee and U.S. Fish and Wildlife Service, *Avian Protection Plan (APP) Guidelines*, April 2005. The APP Guidelines suggest enforcement discretion can be secured through the voluntary adoption and implementation of "avian mortality avoidance or similar conservation measures" and the exercise of common sense by FWS enforcement agents. *Id.* at 15. However, this enforcement discretion policy may also lose potency with the advent of programmatic permits and enforceable permit terms.

D. Stringency of, and Roadblocks to Acquiring, Programmatic Permits

I count ten factors related to the Eagle Act programmatic permit program that render the permits not very user friendly – adding perhaps unnecessary or inadvertent procedural roadblocks and substantive stringency. A review of those factors by way of comparison with their absence in the ESA ITP program should also provide an overview of how the programmatic permit program may operate.

1 and 2. <u>*Incidental take cap and permit issuance priorities*</u>. To begin with, the basic opportunity to acquire a programmatic permit may be precluded by permit issuance criteria 1 and 6 (*see* section B. above).

Criterion 1 has the standard of "compatible with the preservation of bald eagles and golden eagles." That standard may not be met for bald eagles and, as of now, could not be met for golden eagles in the eastern U.S. For bald eagles, that standard is exceeded when permits are sought for "take" of bald eagles in excess of 5% of estimated annual productivity for the relevant regional bald eagle population. 74 Fed. Reg. at 46839. Meeting this standard is dependent on continued relatively robust bald eagle recovery and criterion 6, discussed next.

Most golden eagle populations are diminishing. Accordingly there is no "cap" like that above for bald eagles. For eastern golden eagles, it appears programmatic permits will be unavailable.

> For golden eagles east of 100 degrees West longitude, we will not issue any take permits unless necessary to alleviate an immediate safety emergency. We do not have enough data on rates of golden eagle mortality in the eastern U.S. to issue programmatic take permits. (*Id.* at 46840.)

For western golden eagles:

> Future projects seeking programmatic permits would need to minimize their own take of golden eagles to the point that it is unavoidable and also reduce take from another source to completely offset any new take from the new activity. (*Id.*)

The FWS does hold out some hope that programmatic permits for golden eagles might become somewhat more accessible should population trends change.

> Initially, until we have data to show that golden eagles can withstand additional take, we will issue permits at historically-authorized take levels under existing permits, for emergency take, and for programmatic take (west of 100 degrees West longitude). If, in the future, data and modeling suggest eagle populations can support additional take, we would, in accordance with the prioritization [issuance] criteria, begin to authorize golden eagle take at up to 1% of annual productivity, unless information available at that time demonstrates higher levels of take can be supported. (*Id.*)

As for now, FWS will "use the prioritization issuance criteria from the rule" to guide programmatic permit decisions for golden eagles west of 100 degrees West longitude. *Id.* And, that policy statement implicates a second permit issuance criterion that may frustrate use of programmatic permits – criterion 6.

Criterion 6 erects a second potential barrier to acquiring programmatic permits for "take" of golden eagles located west of 100 degree West longitude and bald eagles generally. The six permit issuance criteria in new 50 C.F.R. § 22.26(e)(4) are set forth in descending priority. 74 Fed. Reg. at 46878. As described below, the first five criteria are substantive. Criterion 6 is not; it simply cements the priority scheme by requiring that "issuance of the permit will not preclude issuance of another permit necessary to protect an interest of higher priority . . ." (*See* section B. above).

New programmatic permits occupy the basement priority – priority 5. The five priorities in order are: safety emergencies; Native American religious use for rites and ceremonies; *renewal* of programmatic permits; non-emergency activities necessary to ensure public health and safety; and "other interests." As the programmatic permit program is grounded in the "other interests in any particular locality" statutory authorization, new programmatic permits qualify under the fifth and final "other interests" priority. The western golden eagle ""take" cap, and even the bald eagle "take" cap in some regions, may be exhausted by "take" authorizations in higher priority permits before otherwise qualified new programmatic permits could be issued.

In contrast, ESA ITPs do not have incidental take caps established prior to preparation of the prerequisite Habitat Conservation Plans (HCPs) or a priority system for ITP issuance.

Moreover, whereas ESA ITPs address, and provide immunity for, either or both direct takes and indirect takes, Eagle Act programmatic permits may be issued only where direct takes are involved.

> A programmatic permit is not available where the only long-term take is due to indirect effects from an initial action. Programmatic take is the direct result of ongoing operations. (*Id.* at 46842.)

But, if the likelihood of a direct take makes a programmatic permit available and indirect take is possible, then, "[b]ecause programmatic permits are designed to reduce the level [of take] to where it is unavoidable, if there are ACPs that will reduce take caused by indirect effects, those ACPs will be required conditions of the programmatic permit." *Id.*

The 2009 rules' preamble spells out how FWS contemplates direct and indirect takes would be handled in programmatic permits for wind farms:

> Our second example is a company interested in siting a wind-power facility. We are currently unaware of any measures that would eliminate eagle mortalities when turbines are sited in golden eagle habitat (including migration corridors). If ACPs can be developed to significantly reduce the take, the operator may qualify for a programmatic take permit, since the ongoing mortalities are the direct result of the operation of the turbines. In addition to measures designed to reduce take directly, ACPs should also include measures to reduce indirect effects that contribute to the level of take, such as ensuring the project site does not provide enhanced habitat for small mammals that eagles feed on, which would attract eagles to the area and increase the likelihood of collision with turbines. (*Id.* at 46842-46843.)

Another difference between ESA ITPs and programmatic permits is that, whereas the ESA ITP provisions require that the permittee "to the maximum extent practicable, minimize and mitigate the impacts" of take and do not require take avoidance (16 U.S.C. § 1539(a)(2)(A)), programmatic permits will require "reduce[tion of] take to the point where it is essentially unavoidable (yet anticipated)." 74 Fed. Reg. at 46856.

Arguably the only place where programmatic permits may be less stringent than ESA ITPs is in establishing the allowable take. Unlike ITPs, programmatic permits will not specify the number of incidental takes permitted.

> Most [Eagle Act] permits will be specific as to how much take is authorized and how and roughly when it will occur. The exception will be programmatic permits, which will authorize take for large-scale and or long-term activities where take is anticipated but the exact amount, location, and timeframes are impossible to identify. Rather than "grant indemnity for all take," programmatic permits will authorize only the take that occurs despite implementation of stringent ACPs . . . (*Id.*)

3 and 4. <u>*Term-limited and assurance-limited*</u>. The term of a programmatic permit may not exceed five years. 74 Fed. Reg. at 46878 (new 50 C.F.R. § 22.26(h)). Permit renewal for a project of longer duration is not guaranteed. And, remember renewal of programmatic permits only stands third in the list of priorities for permit

issuance. Moreover, FWS reserves the right to amend, suspend, or revoke the permit any time during its 5-year term, particularly "if new information indicates that revised permit conditions are necessary, or that suspension or revocation is necessary to safeguard local or regional populations." *Id.* at. 46877 (new 50 C.F.R. § 22.26(c)(7)). Moreover, "50 CFR 13.28(a)(5) [of the general FWS permit rules] provides that a permit may be revoked if 'the populations of the wildlife or plant that is the subject of the permit declines [sic] to the extent that continuation of the permitted activity would be detrimental to maintenance or recovery of the affected population.'" 74 Fed. Reg. at 46856. Finally, retention of existing permit provisions upon renewal is not certain. ("To encourage potential applicants to seek programmatic permits..., the regulations contain issuance criteria that give priority to those seeking renewal of programmatic permits. These criteria will provide programmatic permittees with some assurance (though never an absolute guarantee) that previously authorized levels of take from on-going operations will continue to be authorized in the future." *Id.* at 46842.)

The 2009 rules simply do not address the situation where the life span of a project, such as a wind farm, is longer than five years and the project is unable to obtain renewal of its programmatic permit for any reason, including loss of the permit to a higher priority category. The choices for the project owner may be grim – discontinue operation, continue to operate without a permit and risk enforcement, or negotiate new renewed permit terms with possibly ramped up, costly minimization and mitigation measures.

Contrast this to the ESA ITP. It is typically issued for the life of the covered project and contains No Surprises assurances against virtually all changes in permit terms, suspensions, or revocation (including the number of authorized incidental takes) for the duration of the permit (and thus the project). 50 C.F.R. § 17.22(b)(5). Moreover, before an ITP is issued, FWS must determine that issuance will "not likely [] jeopardize the continued existence of any" ESA-listed species (not "safeguard" a "local population[]"of an eagle species which would continue to exist elsewhere). 16 U.S.C. § 1536(a)(2).

5. <u>*Advanced conservation practices*</u>. Criterion 5 calls for the establishment of "advanced conservation practices" to be included in each programmatic permit (*see* section B above). ACPs refer "to 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." 74 Fed. Reg. at 46876 (new definition in 50 C.F.R. § 22.3). (Note: there is no comparable economically supportable consideration.)

FWS foresees a separate set of ACPs for each industry seeking programmatic permits. Those ACPs could be developed either: (i) in discussions with each industry as generic provisions to be inserted (where relevant) in all permits issued

to that industry's projects; or (ii) through negotiations with individual project proponents as idiosyncratic provisions to be included separately in successive project-specific permits. (*See* section E., "Industry Role.) In whatever process the ACPs are created, they are expected to be quite strict. The degree of ACP severity is expressed in the following quote from the preamble:

> This type of authorization can be extended to industries, such as electrical utilities or transportation industries, that currently take eagles in the course of otherwise lawful activities but who can work with the Service to develop and implement additional, *exceptionally comprehensive measures* to reduce the take level to where it is essentially unavoidable. (*Id.* at 46838 (emphasis added).)

The ACPs, as contemplated by FWS, would not be limited to design or operational constraints. FWS expects to focus on siting. As previously quoted, the preamble states: "[W]e intend to ensure that siting criteria are emphasized in the implementation guidance that we will develop for programmatic permits and adopted where applicable." *Id.* at 46862. Yet, the preamble does not contain any recognition that siting decisions are made on the basis of multiple considerations, some of which may be as or more limiting as to site suitability than eagle protection criteria.

The preamble's discussion of siting in a wind farm context is as follows:

> The location of facilities often can have significant impacts to eagles (e.g. wind farms), and some industries may be able to reduce take substantially by selecting particular sites over others. (*Id.*)
>
> And:
>
> . . .{I]t may not be practicable to find a new site for a proposed large-scale wind turbine project in order to avoid disturbing one pair of nesting eagles, whereas it may be considered practicable to find an alternative if the site originally proposed was within a major migration corridor for golden eagles and would likely result in significant eagle mortalities. (*Id.* at 46865.)

In contrast, for ESA ITPs the permit applicant need only "*to the maximum extent practicable,* minimize and mitigate the impacts of [the incidental] taking." 16 U.S.C. § 1539(a)(2)(B)(ii) (emphasis added). Moreover, potential ITP applicants are

seldom if ever confronted with pre-set siting conditions. Even designated critical habitat for ESA-listed species is not automatically out-of-bounds, depending on the minimization and mitigation measures which may be adopted in the HCP/ITP.

6. *Cumulative effects*. Since 1986, the ESA implementing regulations have limited, by definition, "cumulative effects" to effects that "are reasonably certain to occur." 50 C.F.R. § 402.02. However, FWS could not live with this restriction in determining "cumulative effects" under criterion 1 for issuance of Eagle Act programmatic permits (*see* section B. above). According to the preamble to the 2009 rules, the ESA "reasonably certain to occur" restriction should not be imposed for protection of two species that are less imperiled than ESA-listed species:

> Preservation of the bald eagle and the golden eagle may not be achieved if the Service must carry the burden of proving an effect will occur before it can be prevented, which would effectively be the case if the only cumulative effects we could consider were those that are reasonably certain to occur. (74 Fed. Reg. at 46866.)

7. *Confused FWS responsibilities*. The new rule would have the applicant for a programmatic permit file the application with the Migratory Bird Permit Office in the appropriate FWS Region. 74 Fed. Reg. at 46878 (new 50 C.F.R. § 26.6(d)(2)). However, at numerous points in the preamble, it is clear that FWS expects ecological (ESA-related) services personnel in its field offices to provide technical assistance to potential applicants – no matter that the migratory bird and ecological services programs are housed under different Assistant FWS Directors and their staffs are often geographically separated in different offices.

By contrast, ESA ITPs are handled entirely by the ecological services personnel and typically in one office – the field office.

8. *Strict mitigation and monitoring requirements*. FWS contemplates requiring strict compensatory mitigation requirements, including off-site measures, in Eagle Act programmatic permits. That the preamble discusses compensatory mitigation at numerous points simply emphasizes FWS's intended reliance on this tool:

> Depending on the scale of the take, and the particular circumstances, the Service may require rectification (taking corrective action) and/or reduction over time from some permittees. However additional compensatory mitigation will be required only (1) for programmatic take and other multiple take authorizations . . . (74 Fed. Reg. at 46844.)

. . .

> However, in the rare situation where all parties agree that nothing can be done to decrease the take from an activity that is a legitimate interest in a particular locality [the statutory basis for programmatic permits; *see* section B. above], compensatory mitigation can be used, and the measures required for compensatory mitigation would need to result in a reduction of take at a different location and/or from a separate activity. Those measures would be the ACPs for the permit. (*Id.* at 46861.)

. . .

> Applicants for programmatic permits for *new* activities. . . may . . . be required to apply conservation measures at other sites (possibly owned or operated by a third party) where eagles are taken by existing operations. The purpose of the off-site measures would be to reduce take to a level that offsets some or all of the new take from the applicant's activity. (*Id.* at 46842 (emphasis in the original).)

. . .

> Some compensatory mitigation options we are considering [to include in implementation guidance and permits' ACPs] at this point include: purchase and preservation of habitat or potential habitat; use of conservation easements to protect important eagle-use areas or potential nest sites; and contributions to a fund established to benefit eagles. (*Id.* at 46855.)

Stringent monitoring requirements are also contemplated for programmatic permits. The new regulation and preamble language make clear that monitoring may be mandated for the life of the project plus three additional years. *Id.* at 46877 (new 50 C.F.R. § 22.26(c)(2)). The preamble also warns:

> For programmatic permits, the permitted industry may develop, in coordination with the Service, a specific, more extensive monitoring protocol, adherence to which would be a condition of the permit . . . We may include a requirement that monitoring be conducted by a third party as a permit condition for some large projects and programmatic permits. (*Id.* at 46857.)

9. *A permit program without permits*. As of today, even though the programmatic permit rule is effective, programmatic permits are unavailable. The preamble noted: "We are in the process of developing implementation guidance to address procedural aspects of the permitting process." 74 Fed. Reg. at 46844. Depending on whom you talk to, that guidance may see daylight before the end of 2010. But notice that it will "address" only process. There are still no signs of any effort to develop substantive guidance, particularly the critical ACPs. When programmatic permits actually will become available is still a mystery.

Yet the lack of availability of Eagle Act programmatic permits may come as a surprise to many FWS field offices which have frequently suggested to project proponents that they should seek programmatic permits. Moreover, FWS headquarters and regional offices also appear either to be basing policy on, or to be pre-determining policy for, the *future* programmatic permit program.

In February 2010, the FWS issued *Interim Golden Eagle Technical Guidance: Inventory and Monitoring Protocols; and Other Recommendations in Support of Golden Eagle Management and Permit Issuance* (J. Pagell, D. Whittington, and G.Allen, FWS). It is difficult to find anything "Interim" about this document. Although the document does refer to "Draft Implementation Guidelines for the new [Eagle Act] rules (expected fall 2010)," it does so primarily in the context of developing "measures to avoid take" and "to reduce redundancy between management and permitting requirements," and with no suggestion that the inventory and monitoring protocols will be changed when the programmatic permit program is launched. *Id.* at 4.

Also this year, the Pacific Southwest Region of FWS produced *Interim Guidelines for the Development of a Project Specific Avian and Bat Protection Plan for Wind Energy Facilities* (undated). This document contains a number of provisions that would be central to the discussions to be held with the wind energy industry in the development of ACPs (*see* section E. below). For example, it sets wind farm buffers for analyzing cumulative effects on eagles (within 43 miles of the project site for bald eagles, 140 miles for golden eagles) analyzing direct effects on nesting eagles (10 miles), and making siting decisions (1 mile of an active eagle nest).

These same provisions appear in the subsequent FWS-wide *Service White Paper Providing Guidance for the Development of Project-Specific Avian and Bat Protection Plans for Renewable Energy Facilities* (White Paper), sent to all FWS officials by FWS Acting Deputy Director Jeff Underwood on August 3, 2010. Underwood's cover memorandum focused on use of the White Paper in conjunction with the Instruction Memorandum of the Bureau of Land Management (BLM) that requires BLM personnel to collaborate with FWS offices in developing avian and bat protection plans (ABPPs) for current and future renewable energy projects on public lands. BLM Instruction Memorandum No. 2010-156, *Bald and Golden Eagle*

Protection Act – Golden Eagle National Environmental Policy Act and Avian Protection Plan Guidance for Renewable Energy, July 9, 2010. However, nothing in the White Paper itself limits its application to public lands (indeed no mention is made of BLM or the Instruction Memorandum). To the contrary, the White Paper begins:

> The U.S. Fish and Wildlife Service (Service) is developing national Avian and Bat Protection Plan (ABPP) guidance for wind energy and other renewable energy projects. Until this guidance is approved, the Service has prepared this white paper that provides a template for content and discussion that should be considered for inclusion in ABPPs . . . for renewable energy projects . . . *All* developers of renewable energy facilities are encouraged to coordinate with Service field offices and State fish and wildlife agencies when developing an ABPP, and if eagles occur on or near the project site, to consult the Service's 2010 eagle permitting implementation guidance (USFWS 2010) [a citation to a non-existent document which may yet be produced this year] if they intend to seek programmatic permits under 50 C.F.R. 22.26. (White Paper at 1 (emphasis added).)

How the White Paper relates, or is intended by FWS to relate, to the FAC Recommendations and APP Guidelines remains ambiguous. Differences are not minor. Unlike the FAC Recommendations and APP Guidelines, the White Paper does not "right size" the amount of data collection and stringency of protective measures to the degree of risk posed by a particular project. Moreover, as one wind industry critic noted: "Ironically, while the white paper appears to presume significant impacts to wildlife from wind energy projects, it also sets an unrealistic and unattainable objective with respect to project siting and design. In the 'Project Design' section, it is stated: 'The ultimate goal is to avoid any take of migratory birds and bats . . .'." The White Paper's strong advocacy of ABPPs stands in contrast to positions taken in previous, high visibility collaborative efforts. The FAC considered ABPPs and decided not to include them in its core Recommendations. Unlike the APP Guidelines, the White Paper presupposes ABPPs will be project-specific, not company- or region-wide. Finally, the White Paper suffers from several other disturbing problems, including misrepresentation of cited research on cut-in speeds and reduction of *avian* mortalities and makes scientific claims for which no research is cited. We have learned that FWS was apparently unaware of many of these infirmities in the White Paper – a to-be-expected result as the document was never exposed to public comment.

Just the same, these documents likely have already set conditions for Eagle Act programmatic permits well before, and in the absence of, any of the

consultations with affected industries to set ACP policies that were *sought by FWS* in the preamble to the 2009 rules (*see* section E. below). Moreover, these documents may well pre-empt the much more rigorously and publicly developed FAC Recommendations, even before the Secretary of the Interior considers them. And, there is no indication that the flow of these piecemeal policy memoranda will abate.

10. *False hope for streamlining the permit process*. Even the suggestions for streamlining the programmatic permit process appear hollow. In the 2009 rules' preamble, FWS boasts that its Eagle Act programmatic permit process will be less intense than the ESA ITP process. For example: "The typical permit-application process will be less burdensome for the applicant than the permit process under the ESA, since an HCP is not required . . . In contrast, the information required to apply for an individual Eagle Act permit does not include an extensive habitat analysis, is easier to compile, and will require less information, since permits will be valid for no more than 5 years." 74 Fed. Reg. at 46847. Also there will be no public comment on individual programmatic permits. "[W]e do not believe a public-comment period for each permit would provide an additional benefit to eagles that would justify the regulatory burden on the public and on our limited staff and resources." *Id.* at 46856.

But it seems that the individual programmatic permits will be subject to the National Environmental Policy Act (NEPA). *Id.* at 46862. And, the implementing rules for NEPA *do* provide for public comment. Moreover, the informational demands for an adequate environmental assessment or environmental impact statement on a specific Eagle Act programmatic permit are likely to match any informational requirements for an ESA HCP/ITP, particularly since the ITP is also subject to NEPA.

Finally, clearly FWS is not "staying on message." There is nothing modest about the information collection procedures and demands and the ABPP guidance in the previously discussed FWS documents issued from February to August this year (*see* section D.9. above). The burdensome requirements in these documents were announced only four to ten months after the promulgation of the 2009 rules with the "less burdensome" preamble statement quoted above in this section.

E. Industry Role

Each affected industry is given a choice of taking a proactive or passive role toward developing the substance of the programmatic permits. The preamble invites each industry to sit down with the FWS and jointly develop the industry-specific ACPs.

> [Programmatic take] 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 Service to develop and implement additional, exceptionally comprehensive measures to reduce take to the level where it is essentially unavoidable. (74 Fed. Reg. at 46838.)
>
> Also:
>
> A programmatic take permit may be appropriate for industries such as the energy and transportation providers, among others, if they elect to work with the Service to develop ACPs. The ACPs and plan specifications will then become permit conditions, along with monitoring and reporting requirements more comprehensive than those for individual [Eagle Act] permits. (*Id.* at 46842.)

On the other hand, the preamble also offers a vision of a passive industry response, which any industry should find disturbing:

> We agree that industry standards will evolve over time. After several programmatic permits are in place for one type industry [sic], we may, in developing ACPs for another entity in the same industry, arrive at superior measures that can be achieved. If appropriate, those can be applied to the earlier programmatic permits when those permits are renewed. (*Id.* at 46862.)

For programmatic permits that will be up for renewal some time in the future, this vision of evolution to potentially more stringent requirements renders all the more unfortunate the absence of No Surprises assurances which automatically accompany ESA ITPs. It also raises the specter that no applicant for a new programmatic permit can assume the permit's terms will resemble the terms included in previous programmatic permits for projects similar to the applicant's.

F. Conclusion

Certainly the concept of a permit program to provide incidental take protection under the Eagle Act should be of interest to the regulated community. But, as suggested above, that concept is seriously flawed in its execution and may not be workable for proponents of projects. This result is curious as the FWS already had significant and successful experience under an existing program that embodied that concept, escaped many of those flaws, and could have served as a model – the ESA ITP program. Incidental take authority under the ESA has been

exercised in a manner that has provided widespread protection of listed species and their habitat, while according a measure of relief for companies that are willing and able to undertake protective measures. The Eagle Act programmatic incidental take permit program might achieve the same results for eagles and affected industries if it were revisited and remodeled, perhaps in part to capture particular, more user friendly procedures and standards of the ESA ITP program.

DCIWDMS: 13304017_2

From Quarles, Steve **Date** Thursday, October 14, 2010 10:24:34 AM
To Bean, Michael
Cc
Subject Eagle Act Programmatic Permit Memorandum
13304017_2.pdf (146 KB HTML)

<<13304017_2.pdf>> Here is the version that can be shared

Thanks for your understanding,

Steve

Steven P. Quarles
Crowell & Moring LLP
1001 Pennsylvania Ave., N.W.|Washington, D.C. 20004
Phone: 202/624-2665 | Fax: 202/628-5116
Mobile: 202/236-0066
Email: squarles@crowell.com

From Quarles, Steve **Date** Wednesday, October 13, 2010 6:50:46 PM
To Bean, Michael
Cc
Subject Re: More emails than you'd ever want to receive from me.

Thank you so very much.

Steven P. Quarles
Crowell & Moring LLP
1001 Pennsylvania Ave. NW
Washington, D.C. 20004
(202) 624-2665
(C) (202) 236-0066
(F) (202) 628-5116

Sent by Blackberry; all thumbs
and no spell check.

----- Original Message -----
From: Bean, Michael <Michael_Bean@ios.doi.gov>
To: Quarles, Steve
Sent: Wed Oct 13 18:30:32 2010
Subject: Re: More emails than you'd ever want to receive from me.

Steve: based on your noon email yesterday, I shared it with a few people here (one of whom already had it from somewhere). I will try to limit its further distribution. MBean

----- Original Message -----
From: Quarles, Steve <SQuarles@crowell.com>
To: Bean, Michael
Sent: Wed Oct 13 14:13:21 2010
Subject: More emails than you'd ever want to receive from me.

The client is now fine with your sharing if F. Conclusions is eliminated. I will do that tomorrow and send to you.

Steven P. Quarles
Crowell & Moring LLP
1001 Pennsylvania Ave. NW
Washington, D.C. 20004
(202) 624-2665
(C) (202) 236-0066
(F) (202) 628-5116

Sent by Blackberry; all thumbs
and no spell check.

From Quarles, Steve **Date** Wednesday, October 13, 2010 2:13:35 PM
To Bean, Michael
Cc
Subject More emails than you'd ever want to receive from me.

The client is now fine with your sharing if F. Conclusions is eliminated. I will do that tomorrow and send to you.

Steven P. Quarles
Crowell & Moring LLP
1001 Pennsylvania Ave. NW
Washington, D.C. 20004
(202) 624-2665
(C) (202) 236-0066
(F) (202) 628-5116

Sent by Blackberry; all thumbs
and no spell check.

From Quarles, Steve **Date** Tuesday, October 12, 2010 9:37:18 PM
To Bean, Michael
Cc
Subject Re: Eagle Act Programmatic Incidental Take Permit Program Memorandum

The client does not want it shared broadly but did want you to see it.

Steven P. Quarles
Crowell & Moring LLP
1001 Pennsylvania Ave. NW
Washington, D.C. 20004
(202) 624-2665
(C) (202) 236-0066
(F) (202) 628-5116

Sent by Blackberry; all thumbs
and no spell check.

From: Bean, Michael
To: Quarles, Steve
Sent: Tue Oct 12 11:40:00 2010
Subject: RE: Eagle Act Programmatic Incidental Take Permit Program Memorandum

Thanks, Steve. Do you mind if I share this memo more widely?

Michael J. Bean
Counselor, Assistant Secretary for Fish, Wildlife and Parks
Room 3152
Dept. of Interior
Washington, DC 20240
202-208-4416

From: Quarles, Steve [mailto:SQuarles@crowell.com]
Sent: Tuesday, October 12, 2010 9:59 AM
To: Bean, Michael
Subject: FW: Eagle Act Programmatic Incidental Take Permit Program Memorandum

I thought you might like to see my critical memorandum on the Eagle Act programmatic incidental take permit program prepared for American Wind Energy Association. As I state in the memo: "I count ten factors related to the Eagle Act programmatic permit program that render the permits not very user friendly -- adding perhaps unnecessary or inadvertent procedural roadblocks and substantive stringency." I compare each of the those ten factors unfavorably to the ESA incidental take permit program. Just a suggestion that the permit program -- once operational -- may not be a panacea.

Best,

Steve

Steven P. Quarles
Crowell & Moring LLP
1001 Pennsylvania Ave., N.W. | Washington, D.C. 20004

Phone: 202/624-2665 | **Fax:** 202/628-5116
Mobile: 202/236-0066
Email: squarles@crowell.com

From Quarles, Steve **Date** Tuesday, October 12, 2010 12:11:59 PM
To Bean, Michael
Cc
Subject RE: Eagle Act Programmatic Incidental Take Permit Program Memorandum

If you don't think it will get me in trouble with DOI and FWS folks I work with.

Steve

From: Bean, Michael [mailto:Michael_Bean@ios.doi.gov]
Sent: Tuesday, October 12, 2010 11:40 AM
To: Quarles, Steve
Subject: RE: Eagle Act Programmatic Incidental Take Permit Program Memorandum

Thanks, Steve. Do you mind if I share this memo more widely?

Michael J. Bean
Counselor, Assistant Secretary for Fish, Wildlife and Parks
Room 3152
Dept. of Interior
Washington, DC 20240
202-208-4416

From: Quarles, Steve [mailto:SQuarles@crowell.com]
Sent: Tuesday, October 12, 2010 9:59 AM
To: Bean, Michael
Subject: FW: Eagle Act Programmatic Incidental Take Permit Program Memorandum

I thought you might like to see my critical memorandum on the Eagle Act programmatic incidental take permit program prepared for American Wind Energy Association. As I state in the memo: "I count ten factors related to the Eagle Act programmatic permit program that render the permits not very user friendly -- adding perhaps unnecessary or inadvertent procedural roadblocks and substantive stringency." I compare each of the those ten factors unfavorably to the ESA incidental take permit program. Just a suggestion that the permit program -- once operational -- may not be a panacea.

Best,

Steve

Steven P. Quarles
Crowell & Moring LLP
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Phone: 202/624-2665 | **Fax:** 202/628-5116
Mobile: 202/236-0066
Email: squarles@crowell.com

From Quarles, Steve **Date** Tuesday, October 12, 2010 10:03:00 AM

To Bean, Michael

Cc

Subject FW: Eagle Act Programmatic Incidental Take Permit Program Memorandum

13304017_1.pdf (222 KB HTML)

I thought you might like to see my critical memorandum on the Eagle Act programmatic incidental take permit program prepared for American Wind Energy Association. As I state in the memo: "I count ten factors related to the Eagle Act programmatic permit program that render the permits not very user friendly -- adding perhaps unnecessary or inadvertent procedural roadblocks and substantive stringency." I compare each of the those ten factors unfavorably to the ESA incidental take permit program. Just a suggestion that the permit program -- once operational -- may not be a panacea.

Best,

Steve

Steven P. Quarles
Crowell & Moring LLP
1001 Pennsylvania Ave., N.W. | Washington, D.C. 20004
Phone: 202/624-2665 | **Fax:** 202/628-5116
Mobile: 202/236-0066
Email: squarles@crowell.com

From Quarles, Steve **Date** Tuesday, August 10, 2010 9:39:08 AM

To Bean, Michael

Cc

Subject FAC Death Watch

OLE Memo 6-16-10.pdf (216 KB HTML)

Michael,

Extraordinary! This comes after all our negotiations with Secretary's and Solicitor's offices on the precise language and, as we understood it, sign-off by Sam. And, was fully discussed while representative(s) of Enforcement were sitting in the FAC meeting. This may kill the recommendations even if the FWS doesn't act on it. The industry caucus was already at wit's end watching FWS treat the recommendations so cavalierly and also cherry-picking favorite recommendations for field guidance even before Secretarial approval. Now this.

Steve

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Washington, D.C. 20240

IN REPLY REFER TO:

JUN 16 2010

FWS/OLE

Memorandum

To: Assistant Director, Fisheries and Habitat Conservation

From: Chief, Office of Law Enforcement

Subject: Wind Turbine Guidelines Advisory Committee Final Recommendations

Thank you for the opportunity to review and comment on the Wind Turbine Guidelines Advisory Committee's final recommendations to the Secretary. We outline below a number of concerns with this document that should be taken into consideration as the Service works to develop a final set of guidelines for the wind power industry.

We look forward to participating in the Service Working Group that will be tasked with preparing those guidelines. We nominate Special Agent in Charge Kevin Garlick of our Branch of Investigations to serve as a member of this group with Deputy Chief Gary Mowad as alternate.

Guideline Use and Enforcement

The Committee's description of the relationship between voluntary guideline adherence and enforcement of the Migratory Bird Treaty Act (MBTA) and Bald and Golden Eagle Protection Act (BGEPA) (Chapter 5, p. 73) is of great concern to us. Specifically, the Committee's document states:

> *USFWS will regard such voluntary adherence and communication as evidence of due care with respect to avoiding, minimizing, and mitigating significant adverse impacts to species protected under the MBTA and BGEPA, and will take such adherence and communication fully into account when exercising its discretion with respect to any potential referral for prosecution related to the death of or injury to any such species.*

This language does not accurately represent how the Service approaches MBTA and BGEPA enforcement with respect to take of protected birds caused by other industrial operations that face similar challenges in reducing their impact on wildlife. It also differs significantly from the way the agency has publicly described its position on enforcement vis-à-vis such industries.

We also note that this language is overly simplistic in suggesting that "voluntary adherence and communication" would in themselves be considered "evidence of due care." The timing, degree, and frequency of coordination with the Service in chronological relation to the progression of the project will be critical to assessing whether a project proponent's actions represent "due care."

In the interest of accuracy and consistency, we strongly recommend that Service guidelines for the wind industry instead use the same language that appears in "Suggested Practices for Avian Protection on Power Lines" and the South Florida Water District MOU to state the agency's position on enforcement (see attachment for template language). This language was prepared in conjunction with, and has been endorsed by, attorneys with the Department of Justice (DOJ) and the Office of the Solicitor and thus represents those entities' best legal advice to the Service. We also believe that it is important that the Service clearly counsel industry that following the guidelines does not equate to compliance with Federal or State wildlife laws. Accordingly, we request that final Service guidelines include the following statement within any discussion of the legal liability of project proponents and the Service's position on enforcement (this language also now appears as a second paragraph in the attachment providing our standard template language on enforcement):

> *These guidelines are not intended nor shall they be construed to limit or preclude the USFWS from exercising its authority under any law, statute, or regulation, or from taking enforcement action against any individual, company or agency. These guidelines are not intended to relieve any individual, company or agency of its obligations to comply with any applicable federal, state, tribal, or local laws, statutes, or regulations.*

The Service should also consider ensuring that the guidelines include specific language stating that project proponents who follow the guidelines are still responsible for securing and complying with the terms of any Federal permits relevant to wildlife or other environmental impacts at their site.

Enforcement and Prosecutorial Discretion

The Office of Law Enforcement (OLE) opposes any use of the terms "enforcement discretion" and "prosecutorial discretion" in the Service's final guidelines. These terms appear throughout the Committee's Recommendations, particularly in the "Legal White Paper" in Appendix B.

As the Service's law enforcement priorities indicate, our agents are expected to focus their investigative efforts on particular types of criminal activity. We clearly have neither the resources nor the desire to pursue every possible violation of Federal wildlife laws and regulations, but look instead to conservation impact to guide our efforts.

Similarly, the Department of Justice and U.S. Attorney's Offices across the country routinely make judgments on whether or not to file charges with respect to any investigative matter brought to them for potential Federal prosecution. These decisions represent the exercise of professional judgment and take into account the circumstances of the crime and the value of the case in serving the interests of law and justice.

But it would be both inappropriate and inaccurate to suggest in writing that "discretion" is a commodity to be exchanged for whatever actions a project proponent takes to meet its stewardship responsibilities under Federal wildlife laws. In fact, we see no need to use such terminology since the statement we are providing on the Service's enforcement position adequately addresses this issue:

> *... the Office of Law Enforcement focuses its resources on investigating and prosecuting individuals and companies that take migratory birds without identifying and implementing all reasonable, prudent and effective measures to avoid that take.*

We therefore strongly urge that the Service guidelines omit any references to enforcement or prosecutorial discretion and refrain from discussing such discretion as an "incentive" for adherence to the guidelines.

Incentives

"Incentives "are mentioned numerous times throughout the Committee's Recommendations (see Executive Summary, page ii; Policy Recommendations p. xi; and Chapter 5, p. 75, item 2). Although the Committee indicates that it "has explored a suite of incentives," no explicit details are provided as to the types of incentives envisioned.

If Service guidelines identify incentives for project proponents, these incentives must be clearly described. We also trust that programs and regions will have the opportunity to review and comment in advance on any such incentives proposed for Service guidelines.

MBTA "Bird Letters"

We recognize that the Committee adopted a "Legal White Paper" prepared by its legal subcommittee as part of its final recommendations, but we are troubled by this document's misrepresentation of the issuance of "MBTA bird letters" as standard practice in the Service. While some Service offices may have countenanced the use of such letters on a limited basis in the past, we would strongly object to the agency pursuing such a practice in its dealings with companies and other entities today or in the future.

Recordkeeping

We have concerns about the way in which the Committee addresses recordkeeping by project proponents. Specifically, the discussion on guideline adherence and enforcement referred to previously (Chapter 5, p. 73) states:

> *... Each developer will be responsible for maintaining internal records sufficient to demonstrate adherence to the guidelines. Examples of these records could include: studies performed in the implementation of the tiered approach; an internal or external review or audit process; an Avian and Bat Protection Plan; or a wildlife management plan. USFWS retains its existing authority to inspect and assess the sufficiency of those records.*

We are troubled that the examples provided of "internal records sufficient to demonstrate adherence" include studies, audits, etc. This pairing suggests that the results of such endeavors will be accessible only to the developer and that the primary purpose of conducting such studies, audits, etc. is to produce "internal records" that can help project proponents guard against prosecution. Successful implementation of the guidelines will depend on the exchange of such

information with the Service on an ongoing basis as project proponents work their way through the project development process.

Service guidelines should recommend that project proponents keep records of studies, audits, etc. to document their efforts to reduce wildlife impacts while making it clear that they are expected to share the results of such projects as part of their ongoing cooperation with the Service. We also note that the sentence stating: "USFWS retains its existing authority to inspect and assess the sufficiency of those records" is not accurate. Service authority to inspect records is limited to that provided by specific statutes or regulations, and no such "authority" exists with respect to the type of records in question.

Early Coordination with USFWS

While we recognize that the Service's final product will not have the force of a requirement or mandate, we urge that the agency's guidelines include strong language indicating that early communication with the Service in project siting (i.e., early during Tier 1) is in the project proponents' interest and will serve them well. Failure to coordinate with the Service at the Tier 1 stage puts project proponents at risk both financially and legally.

Early coordination can facilitate investments in projects with a high probability of success and help developers avoid significant investment in projects that may have poor chances of successful permitting or that may involve high survey, monitoring, and operational costs. Early coordination is essential to ensuring proper siting, and proper siting is the single most important factor regarding impacts to trust resources for most projects. Thus, the guidelines cannot overstate the importance of early and complete coordination with the Service as the best means to avoid impacts to birds and the best means for a wind project developer to avoid liability.

Attachment

Attachment

Office of Law Enforcement Recommended Language to Address Enforcement in Situations where Industries Take Active Steps to Avoid Violations

The MBTA prohibits the taking, killing, possession, and transportation, (among other actions) of migratory birds, their eggs, parts, and nests, except when specifically permitted by regulations. While the MBTA has no provision for allowing unauthorized take, the USFWS realizes that some birds may be killed during wind operations even if all known reasonable and effective measures to protect birds are used. The USFWS Office of Law Enforcement carries out its mission to protect migratory birds through investigations and enforcement, as well as by fostering relationships with individuals, companies, and industries that have taken effective steps to avoid take of migratory birds, and by encouraging others to implement measures to avoid take of migratory birds. It is not possible to absolve individuals, companies, or agencies from liability even if they implement bird mortality avoidance or other similar protective measures. However, the Office of Law Enforcement focuses its resources on investigating and prosecuting individuals and companies that take migratory birds without identifying and implementing all reasonable, prudent and effective measures to avoid that take. Companies are encouraged to work closely with USFWS biologists to identify available protective measures when developing project plans and/or avian protection plans, and to implement those measures prior to/during construction or other similar activities."

"These guidelines are not intended nor shall they be construed to limit or preclude the USFWS from exercising its authority under any law, statute, or regulation, or from taking enforcement action against any individual, company, or agency. These guidelines are not intended to relieve any individual, company, or agency of its obligations to comply with any applicable Federal, state, tribal, or local laws, statutes, or regulation.

From Quarles, Steve **Date** Wednesday, July 07, 2010 12:38:29 PM
To Bean, Michael
Cc
Subject Re: Tom Vinson, AWEA, and I would like to have....

Will do. I assume that is 2:30 EST.

Steven P. Quarles
Crowell & Moring LLP
1001 Pennsylvania Ave. NW
Washington, D.C. 20004
(202) 624-2665
(C) (202) 236-0066
(F) (202) 628-5116

Sent by Blackberry; all thumbs
and no spell check.

----- Original Message -----
From: Bean, Michael <Michael_Bean@ios.doi.gov>
To: Quarles, Steve
Sent: Wed Jul 07 12:32:20 2010
Subject: RE: Tom Vinson, AWEA, and I would like to have....

Steve: Try me at 2:30 today. I have meeting that I hope will be over by then, before beginning a series of meetings at 3.

Michael J. Bean
Counselor, Assistant Secretary for Fish, Wildlife and Parks
Room 3152
Dept. of Interior
Washington, DC 20240
202-208-4416

-----Original Message-----
From: Quarles, Steve [mailto:SQuarles@crowell.com]
Sent: Wednesday, July 07, 2010 11:36 AM
To: Bean, Michael
Subject: Fw: Tom Vinson, AWEA, and I would like to have....

I understand Richard is not in today so my apologies for sending this directly to you.

Steven P. Quarles
Crowell & Moring LLP
1001 Pennsylvania Ave. NW
Washington, D.C. 20004
(202) 624-2665
(C) (202) 236-0066
(F) (202) 628-5116

Sent by Blackberry; all thumbs
and no spell check.

----- Original Message -----
From: Quarles, Steve
To: 'Richard_wheeler@ios.doi.gov' <Richard_wheeler@ios.doi.gov>
Sent: Wed Jul 07 10:22:51 2010
Subject: Tom Vinson, AWEA, and I would like to have....

a quick follow-up call with Michael before a big wind industry meeting on Indiana bat in Chicago early next week. Also our call would be timely as at our meeting two weeks ago Michael asked for a week before we contacted FWS Region 3 again. We are at an all-day meeting at region 6 on whooping crane today. We have a lunch break from 2:00 to 3:00 EST. Any possibility Michael would be available then?

Steven P. Quarles
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(202) 624-2665
(C) (202) 236-0066
(F) (202) 628-5116

Sent by Blackberry; all thumbs
and no spell check.

From Quarles, Steve **Date** Monday, August 24, 2009 4:55:37 PM
To Dave Stout
Cc
Subject RE: Draft "Letter of Assurance"

Dave,

I must be missing something. I do not remember discussing a Wind and Wildlife Management Plan. (Indeed, the one mention of a "conservation plan" in version 4 is highlighted for further discussion (as well it should be since both terms -- "conservation" as well as "plan" -- are controversial).) I am a bit flabbergasted. After all the tiered analyses, a project proponent will still have to write this WWM Plan? I view this WWM Plan as a habitat conservation plan in sheep's clothing; if not intended, nevertheless it will still dress in such garb very quickly after the Guidelines go final.

Please help me understand what the FWS has in mind with this new plan requirement (certainly a "requirement" if a project proponent wants a Letter of Assurance).

Steve

Steven P. Quarles
Crowell & Moring LLP
1001 Pennsylvania Ave., N.W.
Washington, D.C. 20004
PHONE: 202/624-2665
MOBILE: 202/236-0066
FAX: 202/628-5116
squarles@crowell.com

From: Dave_Stout@fws.gov [mailto:Dave_Stout@fws.gov]
Sent: Monday, August 24, 2009 3:47 PM
To: ekimbrell@kearnswest.com; donald.carr@pillsburylaw.com; jrylander@defenders.org; mdaulton@audubon.org; jim.eisen%bp.com._notearsjl@fws.gov; rmanes@tnc.org; Kevin_Garlick@fws.gov; clint_riley@fws.gov; ggoldman@audubon.org; Rick_Sayers@fws.gov; Marjorie_Nelson@fws.gov; John_Fay@fws.gov; mike.azeka@aes.com; Quarles, Steve; pdtraylor@hhlaw.com; ghawk@emth.com; benjamin.jesup@sol.doi.gov; dave.gayer@sol.doi.gov; sam.enfield@windevco.com; Susan_Goodwin@ios.doi.gov; Rachel_London@fws.gov; Cheryl_Amrani@fws.gov; christy_johnsonhughes@fws.gov; aarnold@kearnswest.com; kathy.boydston@tpwd.state.tx.us
Cc: Jeff_Underwood@fws.gov
Subject: Draft "Letter of Assurance"
Importance: High

Hello Legal Sub-committee

The Legal Subcommittee has been exploring a variety of regulatory and non-regulatory options for wind developments that voluntarily comply with the proposed Guidelines. In those discussions, USFWS was asked whether they could provide some interim assurance for wind developments while awaiting a fuller exploration of possible regulatory alternatives. I am attaching a letter that describes a proposed approach to addressing this request. Please share this information with your caucus members and come to next week's Committee meeting prepared to discuss it.

Attached is a draft Letter of Assurance from the Fish and Wildlife Service to a windpower developer. It is based on a scenario where the developer has been working with the Service, is following the Guidelines, and has submitted a Wind and Wildlife Management Plan (Plan) to the Service for review.

The letter contains the standard language the Service has used for transmission lines (under the APLIC Guidelines) regarding enforcement discretion. It also has a paragraph stating that measures in the Plan are adequate to avoid "take" of migratory birds, as long as the developer follows the Plan, and studies confirm prior estimates,

I ask that you share this language with other members of you caucus, so we can discuss this issue at the upcoming meeting.

Thanks!

Dave

David J Stout
Chief, Division of Habitat and Resource Conservation
Fisheries and Habitat Conservation
US Fish and Wildlife Service

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From Quarles, Steve **Date** Tuesday, August 04, 2009 1:46:08 PM
To Bean, Michael; Black, Steve; Farquhar, Ned
Cc
Subject Corrected Version of Sage-Grouse/Simpson Ridge Wind Project paper

8657148_1.DOC (54 KB HTML)

<<8657148_1.DOC>> Sorry, I sent the penultimate version of the document before my last edits. Here is the correct version.

Thanks again,

Steve

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Critical Research on Sage-Grouse and Wind Energy, and Horizon Wind Energy's Simpson Ridge Project

This document outlines the importance of conducting research on greater sage-grouse ("sage-grouse") and the impacts of wind energy, and proceeding with a critical component of that research - - the Simpson Ridge Wind Project ("Project") of Horizon Wind Energy ("Horizon").

A. Background

1. There are no peer-reviewed published studies on the specific impacts of wind energy development on sage-grouse. It is currently unknown how sage grouse, which are accustomed to relatively low vegetation canopy, would respond to wind turbines in the surrounding landscape.

2. Use of past oil and gas research to estimate wind energy's impact to sage-grouse, or using data from related species such as prairie grouse and extrapolating it to potential impacts to sage-grouse from wind energy, is inappropriate (particularly to assume similar levels of impact from the two energy industries) without first conducting research specific to wind energy. The facility footprint, type and intensity of activity, vehicle traffic, and noise and air emissions associated with wind energy are different from oil and gas activity.

3. Wind industry representatives recognize the lack of data and have implemented a comprehensive telemetry research proposal to scientifically assess sage-grouse response to wind energy.

4. In order for this research to be most effective, it must include both pre-construction and post construction data, and be implemented in an area with adequate sage grouse population density. Given the number of factors`that must coalesce to build a wind project (transmission, financing, turbine supply, wind, etc,) there are limited opportunities to conduct a successful scientific study. Most important, a site with a high likelihood of being built in a timely manner is critical to the Before-After-Control-Impact ("BACI") design research.

5. Due to a recent letter from a Wyoming field official of the U.S. Fish and Wildlife Service ("USFWS") stating opposition to any and all projects in sage-grouse core areas, regardless of mitigation and research proposals, the permit for, and consequently the ability to construct, Horizon's Simpson Ridge Project are in jeopardy. Without a project to study, the research opportunity will not progress.

6. The Simpson Ridge Project impacts approximately 0.8% of the sage-grouse population in Wyoming within a 4-mile buffer of the Project's boundary.

B. Timing – A Limited Window

1. Horizon's Simpson Ridge Project is uniquely positioned as the centerpiece of a comprehensive research opportunity – in addition to having a willing participant (Horizon), the Project has all of the necessary prerequisites for a successful and research-timely wind farm, including site control, an interconnection agreement with PacifiCorp, adequate wind

data, wind turbine supply, available financing, and a favorable position to be successful in PacifiCorp's current RFP (which PacifiCorp intends to complete by September 3, 2009). Of critical importance, the Project has the necessary agreements to interconnect to existing transmission lines and does not require the planning and construction of new, high voltage transmission lines, as do most projects in Wyoming.

2. Horizon will file a Wyoming Department of Environmental Quality Section 109 permit application for the construction of the Simpson Ridge Project with the Industrial Siting Council ("ISC") in early August 2009. Agencies have 30 days to comment on the application once it is filed.

3. The Wyoming Game and Fish Commission ("WGFC") meets on August 5-7 to discuss its strategy moving forward based upon the letter USFWS sent WGFD. If the Commission affirms its position based on the letter, it will be more difficult, if not impossible, to implement any refinement to allow this sage-grouse/wind interaction research and its critical component - - the Simpson Ridge Project - - to move forward in a timely manner.

4. Thus, the critical period for the Simpson Ridge Project and the research for which the Project serves as a critical component is early August when the WGFC deliberations occur (8/5-7) and the 30-day comment period on the ISC application begins.

C. A Unique Research Opportunity

1. Horizon's Simpson Ridge Project is uniquely positioned to use as a pilot study to collect much-needed data on effects of wind energy development on sage-grouse. This study has already been initiated with funding from Horizon, Iberdrola Renewables, and the Shirley Basin/Bates Hole Local Sage-Grouse Working Group. Due to the lack of data on wind energy and sage-grouse, the Shirley Basin/Bates Hole Local Sage-Grouse Working Group ranked funding the Project as its top priority out of several applications received for funding sage-grouse research and management. In addition, the research project successfully applied for, and received, a $100,000 grant from the Department of Energy, which again shows the Project's importance not only to the wind industry but to state and federal governments as well.

2. In early April 2009, 75 female sage-grouse were trapped and equipped with radio transmitters to monitor habitat use and demographic parameters (e.g., survival, nest success, brood success) prior to development. The birds marked for this study have been intensively monitored since they were trapped in April, and valuable data on pre-construction habitat use and demographic parameters in the project area have already been obtained. Because of the sage-grouse presence in the area, the Project provides a truly unique opportunity for this research and allows for adequate sample sizes to be maintained throughout the study. For this research study to be successful, it is imperative that the Project be built to take advantage of the data that have already been collected and to obtain scientifically credible data on sage-grouse response to wind energy development.

3. A wind/sage-grouse research collaborative is in initial stages of development. While this collaborative is in its infancy, a team of wildlife agencies and industry representatives hope to launch a $10 million, five-year research effort under the Grassland and Shrub Steppe Species Collaborative subgroup of the National Wind Coordinating Collaborative with Western

Association of Fish and Wildlife Agencies as a key stakeholder. The Department of Energy has already committed $130,000, and the Project is a critical component to this collaborative.

D. Not the Tip of the Iceberg

1. Should Horizon's Simpson Ridge Project be permitted, it would not precipitate a land rush of wind energy development in Wyoming. No other potential wind project has all the prerequisites for development summarized in B.1. above. More fundamentally, existing transmission capacity in Wyoming is severely constrained, thereby sharply limiting the opportunity to develop additional wind projects in the near term. Since the last major transmission infrastructure construction in the 1970s and early 1980s, load growth and increased use of the western transmission system has steadily eroded the surplus capacity of the network. In order to accommodate additional exports from Wyoming, PacifiCorp and independent transmission developers recently announced plans to construct new transmission lines from Wyoming to points in Idaho, Oregon, Utah and the Desert Southwest. These transmission expansion plans are presently in the Western Electricity Coordinating Council's regional planning process. None of these lines is likely to be completed before 2015.

2. Given the severe transmission constraints in Wyoming, the limited commercial opportunities, and the high barriers of entry, it is highly unlikely that other projects similar to the Simpson Ridge Project will be built in Wyoming in the near term.

E. Possible Next Steps

1. Sage-grouse occur in 9 of the 11 Western states. If the United States is to realize the potential for wind energy development in the Western states, understanding potential impacts to sage-grouse from wind energy development and operation is essential. The first step to understanding the potential impact is to study before-and-after-impacts of a wind energy project.

2. If USFWS were to endorse Horizon's Simpson Ridge Project, where research is already occurring, insights gained will suggest mitigation measures to ensure that sage-grouse and wind power are able to co-exist.

3. The benefit of this research will inform future wind development in sage-grouse habitat throughout the western United States.

8657148

From Quarles, Steve **Date** Tuesday, August 04, 2009 1:29:09 PM

To Bean, Michael; Black, Steve; Farquhar, Ned

Cc

Subject Sage-Grouse Research/Simpson Ridge Wind Project

8657148_DRAFT - Critical Research (3).DOC (53 KB HTML)

<<8657148_DRAFT - Critical Research (3).DOC>> I believe Horizon Wind Energy folks will be meeting with you tomorrow at 4:30. We wanted to put this brief document in your hands before then. This bullet-point paper attempts to address a number of questions raised by Michael in a recent meeting and give a general background on the issues concerning sage-grouse and the Simpson Ridge Wind Project in Wyoming.

Thanks,

Steve

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A. Background

1. There are no peer-reviewed published studies on the specific impacts of wind energy development on sage-grouse. It is currently unknown how sage grouse, which are accustomed to relatively low vegetation canopy, would respond to numerous wind turbines in the surrounding landscape.

2. The facility footprint, type and intensity of activity, vehicle traffic, noise and air emissions associated with wind energy are different from oil and gas activity. Use of past oil and gas research to estimate wind energy's impact to sage-grouse, or using data from related species such as prairie grouse and extrapolating it to potential impacts to sage-grouse from wind energy, is inappropriate (particularly to assume similar levels of impact from the two energy industries) without first conducting research specific to wind energy.

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3. The Wyoming Game and Fish Commission ("WGFC") meets on August 5-7 to discuss its strategy moving forward based upon the letter USFWS sent WGFD. If the Commission affirms its position based on the letter, it will be more difficult, if not impossible, to implement any refinement to allow this sage-grouse/wind interaction research and its critical component - - the Simpson Ridge Project - - to move forward.

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1. Sage-grouse occur in 9 of the 11 Western states. If the United States is to realize the potential for wind energy development in the Western states, understanding potential impacts to sage-grouse from wind energy development and operation is essential. The first step to understanding the potential impact is to study before-and-after-impacts of a wind energy project.

2. If USFWS were to endorse Horizon's Simpson Ridge Project, where research is already occurring, insights gained will suggest mitigation measures to ensure that sage-grouse and wind power are able to co-exist.

3. The benefit of this research will inform future wind development in sage-grouse habitat throughout the western United States.

8657148

From Quarles, Steve **Date** Monday, August 03, 2009 6:24:39 PM
To Bean, Michael
Cc
Subject Do we (Horizon Wind Energy) have a meeting with you, Steve and Ned on Wednesday at 4:30?

If so, you could probably use the 11:00 time slot I had grabbed for tomorrow for some higher purpose. Please let me know.

Steve

From Quarles, Steve **Date** Wednesday, June 24, 2009 11:44:32 AM
To Bean, Michael
Cc
Subject RE: our meeting Thursday

I was about to call you and say I need to postpone the meeting (assuming you won't say the hell with it altogether). Eric Glitzenstein has brought an ESA citizen suit against Invenergy to stop the Beech Ridge Wind Energy Project in West Virginia (Indiana bat) unless Invenergy does what no lower 48 wind project has done and apply for an ITS. We expect Eric to file for a TRO or PI on Monday. I am dealing with the company, Spanish investors, and a much disturbed wind industry caucus to the FAC. The next FAC meeting, with potentially much flak (sorry, couldn't resist), is next week in Austin. Any dates in July work for you?

Steven P. Quarles
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From: Michael_Bean@ios.doi.gov [mailto:Michael_Bean@ios.doi.gov]
Sent: Wednesday, June 24, 2009 11:35 AM
To: Quarles, Steve
Subject: our meeting Thursday

Can we push it back to 2:20pm?

Michael J. Bean
Counselor to the Assistant Secretary, FWP
Dept. of the Interior, Room 3151
1849 C Street, NW
Washington, DC 20240
202-208-7400
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michael_bean@ios.doi.gov

Avian and Bat Fatality Study
Peñascal Wind Energy Facility
Kenedy County, Texas

Interim Report
May 2009 – March 2010

Confidential Document
Exempt from FOIA

Prepared for:

Iberdrola Renewables
1125 Northwest Couch Street
Portland, OR 97209-4129

Prepared by:

Western EcoSystems
DeTect
TX-ESA
ECOSTATS

October 28, 2010

EXECUTIVE SUMMARY

(b) (4)

[redacted]

The primary objective of the baseline fatality monitoring study was to determine the level of bird and bat mortality (high, moderate, low levels compared to other facilities) attributable to collisions with wind turbines for the entire facility on an annual basis. If mortality was determined to be in the high range, additional more focused monitoring or mitigation would be considered.

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Appendix C – Target Counts, Passage Rates, Mean and Median Heights for Winter 2009-2010 Season

INTRODUCTION

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STUDY AREA

(b) (4)

[redacted]

(b) (4) [redacted]

[redacted]

[redacted]

FIELD METHODS

(b) (4) [redacted]

[redacted]

[redacted]

(b) (4)

[redacted]

Biologist Searches

(b) (4)

[redacted]

Experimental Bias Trials

(b) (4)

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

(b) (4) [redacted]

Radar Methods

(b) (4) [redacted]

[redacted]

[redacted]

[redacted]

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(b) (4)

[redacted]

[redacted]

[redacted]

(b) (4)

[redacted]

Radar Data Collection, Processing, and Analysis

(b) (4)

[redacted]

[redacted]

MERLIN Avian Radar Processing Software

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[redacted]

[redacted]

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[redacted]

[redacted]

[redacted]

MERLIN SCADA

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[redacted]

[redacted]

(b) (4)

[redacted]

Curtailment Criteria

(b) (4)

[redacted]

Curtailment Process

(b) (4)

[redacted]

[redacted]

[redacted]

(b) (4)

[redacted]

[redacted]

[redacted]

STATISTICAL METHODS

Descriptive Methods for Fatality

(b) (4)

[redacted]

[redacted]

[redacted]

(b) (4)

[redacted]

Area Adjustment

(b) (4)

[redacted]

Radar Analysis

(b) (4)

[redacted]

(b) (4)

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

(b) (4)

[redacted]

RESULTS

Dog Team Searches

(b) (4)

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

Species Composition[1]

(b) (4)

[redacted]

Eight-day Interval Search Turbines

Fall Migration Period

(b) (4)

[redacted]

[redacted]

[redacted]

Fall Fatality Timing

(b) (4)

[redacted]

Winter Period

(b) (4)

[redacted]

[redacted]

(b) (4)

[redacted]

[redacted]

[redacted]

Winter Fatality Timing

(b) (4)

[redacted]

[redacted]

[redacted]

[redacted]

Experimental Bias Trials

(b) (4) [redacted]

[redacted]

[redacted]

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[redacted]

RESULTS – May 22 – August 23, 2009

(b) (4) [redacted]

[redacted]

Vertical Radar Data

(b) (4) [redacted]

(b) (4) [redacted]

Targets Passage Rates Over Time

(b) (4) [redacted]

[redacted]

Altitudinal Distribution of Targets

(b) (4) [redacted]

[redacted]

[redacted]

Dawns

(b) (4) [redacted]

(b) (4)

[redacted]

Days

(b) (4)

[redacted]

Dusks

(b) (4)

[redacted]

Nights

(b) (4)

[redacted]

(b) (4)
[redacted]

Horizontal Radar Data

(b) (4)
[redacted]

Target Directions

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[redacted]

RESULTS – August 24 – October 7, 2009

(b) (4)
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[redacted]
(b) (4)
(b) (4)
[redacted]

Vertical Radar Data

(b) (4)
[redacted]

(b) (4)

[redacted]

Targets Passage Rates Over Time

(b) (4)

[redacted]

[redacted]

Altitudinal Distribution of Targets

(b) (4)

[redacted]

[redacted]

[redacted]

Dawns

(b) (4) [redacted]

Days

(b) (4) [redacted]

Dusks

(b) (4) [redacted]

Nights

(b) (4) [redacted]

(b) (4)

[redacted]

Horizontal Radar Data

(b) (4)

[redacted]

[redacted]

RESULTS – October 8, 2009 – March 14, 2010

(b) (4)

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[redacted]

Vertical Radar Data

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[redacted]

[redacted]

[redacted]

Altitudinal Distribution of Targets

(b) (4)

[redacted]

[redacted]

(b) (4)

[redacted]

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[redacted]

[redacted]

[redacted]

[redacted]

Nights

(b) (4) [redacted]

Horizontal Radar Data

(b) (4) [redacted]

[redacted]

[redacted]

Seasonal Comparison

(b) (4) [redacted]

[redacted]

[redacted]

[redacted]

(b) (4)

[redacted]

[redacted]

DISCUSSION

No Scientific Collection Permit

(b) (4)

[redacted]

Background Fatality Estimates

(b) (4)

[redacted]

(b) (4) [redacted]

[redacted]

[redacted]

Curtailment Events and Turbine Shutdowns

(b) (4) [redacted]

Radar Assumptions

Insect Contamination

(b) (4) [redacted]

[redacted]

(b) (4) [redacted]

[redacted]

Radar Automation

(b) (4) [redacted].

Detection Probability

(b) (4) [redacted]

Sampled Airspace

(b) (4)

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

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Other

(b) (5)

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CONCLUSIONS

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[redacted]

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Table 1. Bird and bat species found by dog search teams at the daily search turbines during the fall migration period (24 August 2009 and 7 October 2009).

Species	Count
(b) (4) [redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
(b) (4) [redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]

Table 2. The number of large/medium and small bird carcasses found by dog search teams at the daily search turbines during the fall migration period (24 August 2009 and 7 October 2009).

Turbine	Count
(b)(4)	(b)(4)
[redacted]	[redacted]
[redacted]	[redacted]

Table 3. The number of bat carcasses found by dog search teams at the daily search turbines during the fall migration period (24 August 2009 and 7 October 2009).

Turbine	Count
(b) (4) [redacted]	[redacted]
[redacted]	[redacted]

Table 4. Bird and bat species found by dog search teams at the eight-day search interval turbines during the fall migration period (24 August 2009 and 7 October 2009).

Species	Count
(b) (4) [redacted]	[redacted]
(b) (4) [redacted]	
[redacted]	
[redacted]	[redacted]
[redacted]	
[redacted]	
[redacted]	

Table 5. The number of small bird carcasses found by dog search teams at the eight-day search interval turbines during the fall migration period (24 August 2009 and 7 October 2009).

(b) (4) [redacted]

Table 6. The number of bat carcasses found by dog search teams at the eight-day search interval turbines during the fall migration period (24 August 2009 and 7 October 2009).

Species	Count
(b) [redacted]	(b) [redacted]
[redacted]	[redacted]

Table 7. Bird and bat species found by dog search teams at the eight-day search interval turbines during the winter period (8 October 2009 and 14 March 2010).

Species	Count
(b) (4) [redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]

Table 8. The number of large/medium and small bird carcasses found by dog search teams at the eight-day search interval turbines during the winter period (8 October 2009 and 14 March 2010).

Turbine	Count
(b) (4) [redacted]	(b) [redacted]
[redacted]	[redacted]

Table 9. The number of bat carcasses found by dog search teams at the daily search turbines during the winter period (8 October 2009 to 14 March 2010).

Species	Count
(b) (4) (b) (4)	(
[redacted]	[redacted]

Table 10. Bird and bat species found by biologists at turbines or on roads between 19 April 2009 and 24 February 2010.

Species	Count
(b) (4) [redacted]	5
(b) (4) [redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]

Table 11. The number of large/medium and small bird carcasses found by biologists at turbines or on roads between 19 April 2009 and 24 February 2010.

Turbine	Count
(b) (4) [redacted]	[redacted]
[redacted]	[redacted]

Table 12. The number of bat carcasses found by biologist at turbines or on roads between 19 April 2009 and 24 February 2010.

Species	Count
(b) (4) [redacted]	[redacted]
[redacted]	[redacted]

Table 13. Searcher efficiency estimates (SE) for large/medium birds, small birds, and bat between 4 September 2009 and 11 March 2010.

Size	Found	Placed	SE
(b) (4) [redacted]	[redacted]	[redacted]	[redacted]

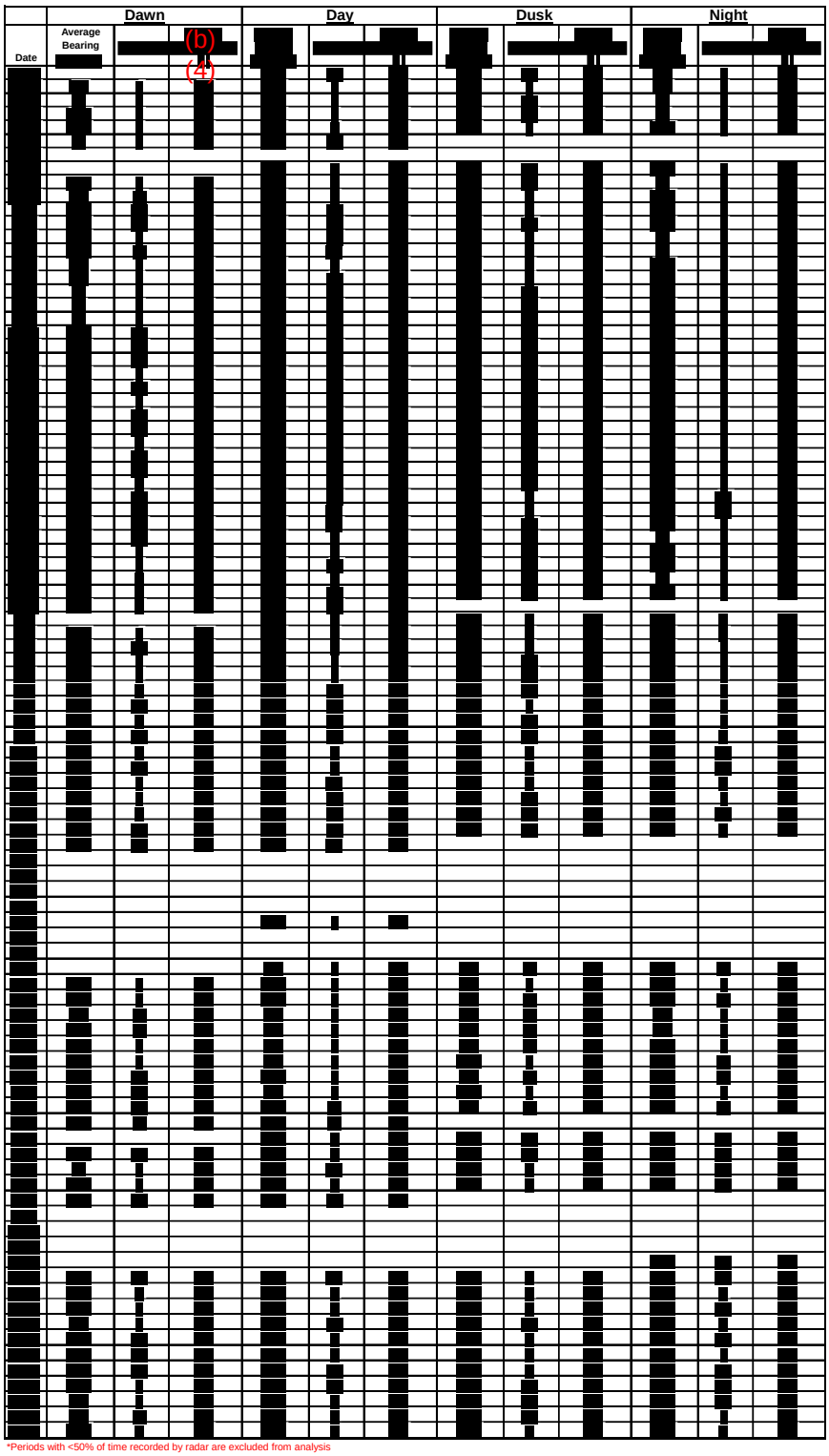
Table 14. Carcass persistence estimates for large/medium birds, small birds, and bat between 3 September 2009 and 9 March 2010.

Size	Placed	Average removal rates (without removing censored observations)	Average removal rates (with removing censored observations)
(b) (4) [redacted]	[redacted]	[redacted]	[redacted]

Table 15. Effort of radar monitoring during the summer 2009 season at the Peñascal Wind Project site.

	Available Time	Time Radar Collected Data	Radar Downtime	Radar Data with Rain	Useable Radar Data
Vertical Radar (hrs)	(b) (4) [redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

Table 16. Average direction and concentration of targets at the Peñascal Wind Project site during the summer 2009 season.



*Periods with <50% of time recorded by radar are excluded from analysis

Table 17. Effort of radar monitoring during the fall 2009 season at the Peñascal Wind Project site.

	Available Time	Time Radar Collected Data	Radar Downtime	Radar Data with Rain	Useable Radar Data
Vertical Radar (hrs)	(b) (4) [redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

Table 18. Average direction and concentration of targets at the Peñascal Wind Project site during the fall 2009 season.

	Dawn			Day			Dusk			Night		
Date	Average Bearing (Degrees)	Direction	Angular Concentration (*r*)	Average Bearing (Degrees)	Direction	Angular Concentration (*r*)	Average Bearing (Degrees)	Direction	Angular Concentration (*r*)	Average Bearing (Degrees)	Direction	Angular Concentration (*r*)
24-Aug	(b) (4)	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

*Periods with <50% of time recorded by radar are excluded from analysis

Table 19. Effort of radar monitoring during the winter 2009 season at the Peñascal Wind Project site.

	Available Time	Time Radar Collected Data	Radar Downtime	Radar Data with Rain	Useable Radar Data
Vertical Radar (hrs)	(b) (4) [redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

Table 20. Average direction and concentration of targets at the Peñascal Wind Project site during the winter 2009/2010 season.

Table 20 (*continued*). Average direction and concentration of targets at the Peñascal Wind Project site during the winter 2009/2010 season.

(b) (4)

[redacted]

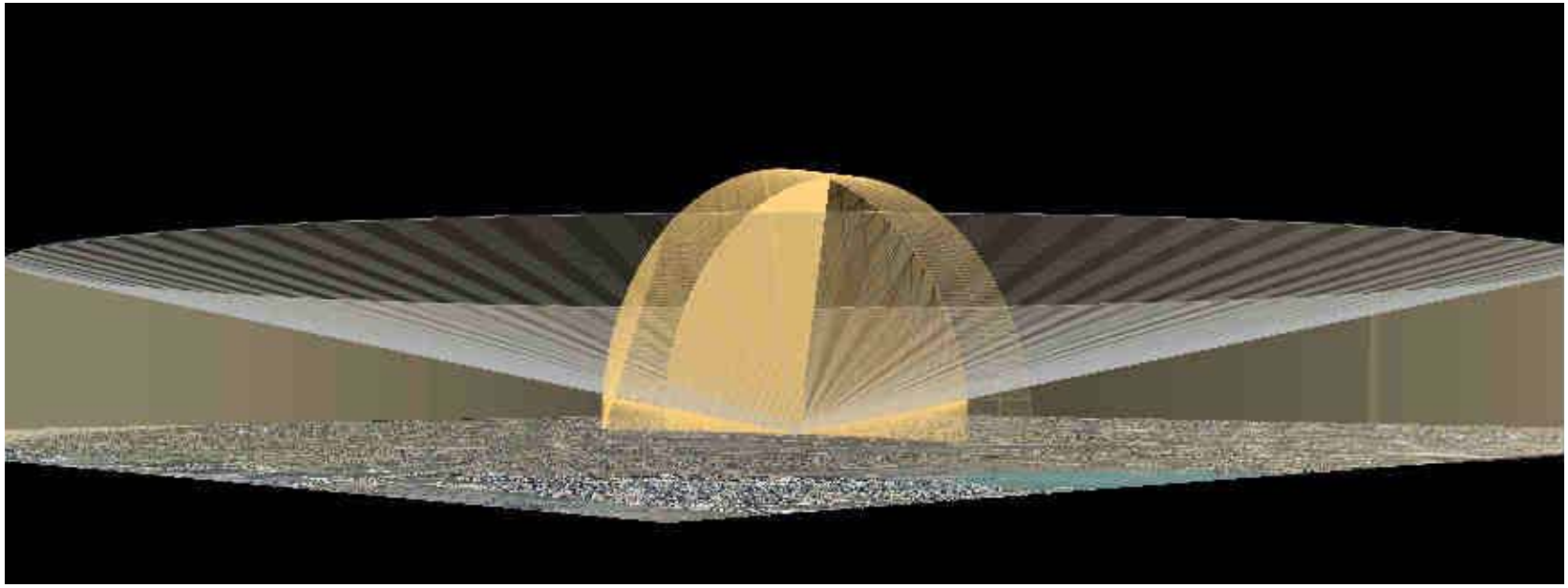


Figure 2. Illustration of beam coverage of the horizontal scanning radar (HSR) and the vertical scanning radar (VSR).

(b) (4)

[redacted]

Figure 3. Merlin SCADA Display, a web-based Merlin SCADA Display that Operations and others can use to observe the curtailment criteria (target count and visibility) relative to their thresholds, and the curtailment order. This display software also includes the 15-minute timer to recall the curtailment order and an email functionality for curtailment and recall of curtailment.

(b) (4)

[redacted]

Figure 4. Spring and fall locations for the radar system at Peñascal.

(b) (4)

[redacted]

Figure 5. Timing of fatalities during the fall study season (24 August 2009 to 7 October 2009). Results are standardized to number of fatalities per week per turbines searched.

(b) (4)

[redacted]

Figure 6. Timing of fatalities at eight-day interval turbines during the fall and winter study season (24 August 2009 to 14 March 2010). Results are standardized to number of fatalities per week per turbines searched.

(b) (4)

[redacted]

Figure 7. Target passage rates at the Peñascal Wind Project site during dawns, days, dusks, and nights of the summer 2009 season.

(b) (4)

[redacted]

Figure 8. Average target passage rates for dawns, days, dusks, and nights of the summer 2009 season.

(b) (4)

[redacted]

(b) (4)

[redacted]

Figure 10. Average hourly target heights above ground level (AGL) at the Peñascal Wind Project site during the summer 2009 season. Error bars represent standard deviation for each hour and red lines represent the top and bottom of the rotor swept zone (34 – 126 m AGL).

(b) (4)

[redacted]

Figure 11. Number of targets occurring in each 50-meter increment at the Peñascal Wind Project site during the summer 2009 season. Red indicates rotor swept heights, and red-blue hashed indicates altitudes partially within rotor swept heights.

(b) (4)

[redacted]

Figure 12. Mean target heights at the Peñascal Wind Project site during dawns, days, dusks, and nights of the summer 2009 season.

(b) (4)

[redacted]

Figure 13. Average mean and median target heights for dawns, days, dusks, and nights during the summer 2009 season. Error bars represent standard deviations.

(b) (4)

[redacted]

Figure 14. Median target heights at the Peñascal Wind Project site during dawns, days, dusks, and nights of the summer 2009 season.

(b) (4)

[redacted]

Figure 15. Target passage rates below, at, and above the rotor swept zone (RSZ) at the Peñascal Wind Project site during dawns of the summer 2009 season.

(b) (4)

[redacted]

Figure 16. Target passage rates below, at, and above the rotor swept zone (RSZ) at the Peñascal Wind Project site during days of the summer 2009 season.

(b) (4)

[redacted]

Figure 17. Target passage rates below, at, and above the proposed rotor swept zone (RSZ) at the Peñascal Wind Project site during dusks of the summer 2009 season.

(b) (4)

[redacted]

Figure 18. Target passage rates below, at, and above the proposed rotor swept zone (RSZ) at the Peñascal Wind Project site during nights of the summer 2009 season.

Figure 19. Distribution of average target movements among eight directions during dawns, days, dusks, and nights at the Peñascal Wind Project site during the summer 2009 season.

(b) (4)

[redacted]

Figure 20. Cumulative target direction of all targets during all dawns, days, dusks, and nights at the Peñascal Wind Project site during the summer 2009 season.

(b) (4)

[redacted]

Figure 21. Target passage rates at the Peñascal Wind Project site during dawns, days, dusks, and nights of the fall 2009 season.

(b) (4)

[redacted]

Figure 22. Average target passage rates for dawns, days, dusks, and nights of the fall 2009 season.

(b) (4)

[redacted]

Figure 23. Hourly activity (average target passage rates) at the Peñascal Wind Project site during the fall 2009 season.

(b) (4)

[redacted]

Figure 24. Average hourly target heights AGL at the Peñascal Wind Project site during the fall 2009 season. Error bars represent standard deviation for each hour and red lines represent the top and bottom of the rotor swept zone (34 – 126 m AGL).

(b) (4)

[redacted]

Figure 25. Number of targets occurring in each 50-meter increment at the Peñascal Wind Project site during the fall 2009 season. Red indicates rotor swept heights, and red-blue hashed indicates altitudes partially within rotor swept heights.

(b) (5)

[redacted]

Figure 26. Mean target heights at the Peñascal Wind Project site during dawns, days, dusks, and nights of the fall 2009 season.

(b) (4)

[redacted]

Figure 27. Average mean and median target heights for dawns, days, dusks, and nights during the fall 2009 season. Error bars represent standard deviations.

(b) (4)

[redacted]

Figure 28. Median target heights at the Peñascal Wind Project site during dawns, days, dusks, and nights of the fall 2009 season.

(b) (4)

[redacted]

Figure 29. Target passage rates below, at, and above the rotor swept zone (RSZ) at the Peñascal Wind Project site during dawns of the fall 2009 season.

(b) (4)

[redacted]

Figure 30. Target passage rates below, at, and above the rotor swept zone (RSZ) at the Peñascal Wind Project site during days of the fall 2009 **season.**

(b) (4)

[redacted]

Figure 31. Target passage rates below, at, and above the proposed rotor swept zone (RSZ) at the Peñascal Wind Project site during dusks of the fall 2009 **season.**

(b) (4)

[redacted]

Figure 32. Target passage rates below, at, and above the proposed rotor swept zone (RSZ) at the Peñascal Wind Project site during nights of the fall 2009 **season.**

Figure 33. Distribution of average target movements among eight directions during dawns, days, dusks, and nights at the Peñascal Wind Project site during the fall 2009 season.

(b) (5)

[redacted]

Figure 34. Average mean and median target heights for dawns, days, dusks, and nights during the fall 2009 season. Error bars represent standard deviations.

(b) (4)

[redacted]

Figure 35. Target passage rates at the Peñascal Wind Project site during dawns, days, dusks, and nights of the winter 2009-2010 season.

(b) (4)

[redacted]

Figure 36. Average target passage rates for dawns, days, dusks, and nights of the winter 2009-2010 season.

(b) (4)

[redacted]

Figure 37. Hourly activity (average target passage rates) at the Peñascal Wind Project site during the winter 2009-2010 season.

(b) (4)

[redacted]

Figure 38. Average hourly target heights AGL at the Peñascal Wind Project site during the winter 2009-2010 season. Error bars represent standard deviation for each hour and red lines represent the top and bottom of the rotor swept zone (34 – 126 m AGL).

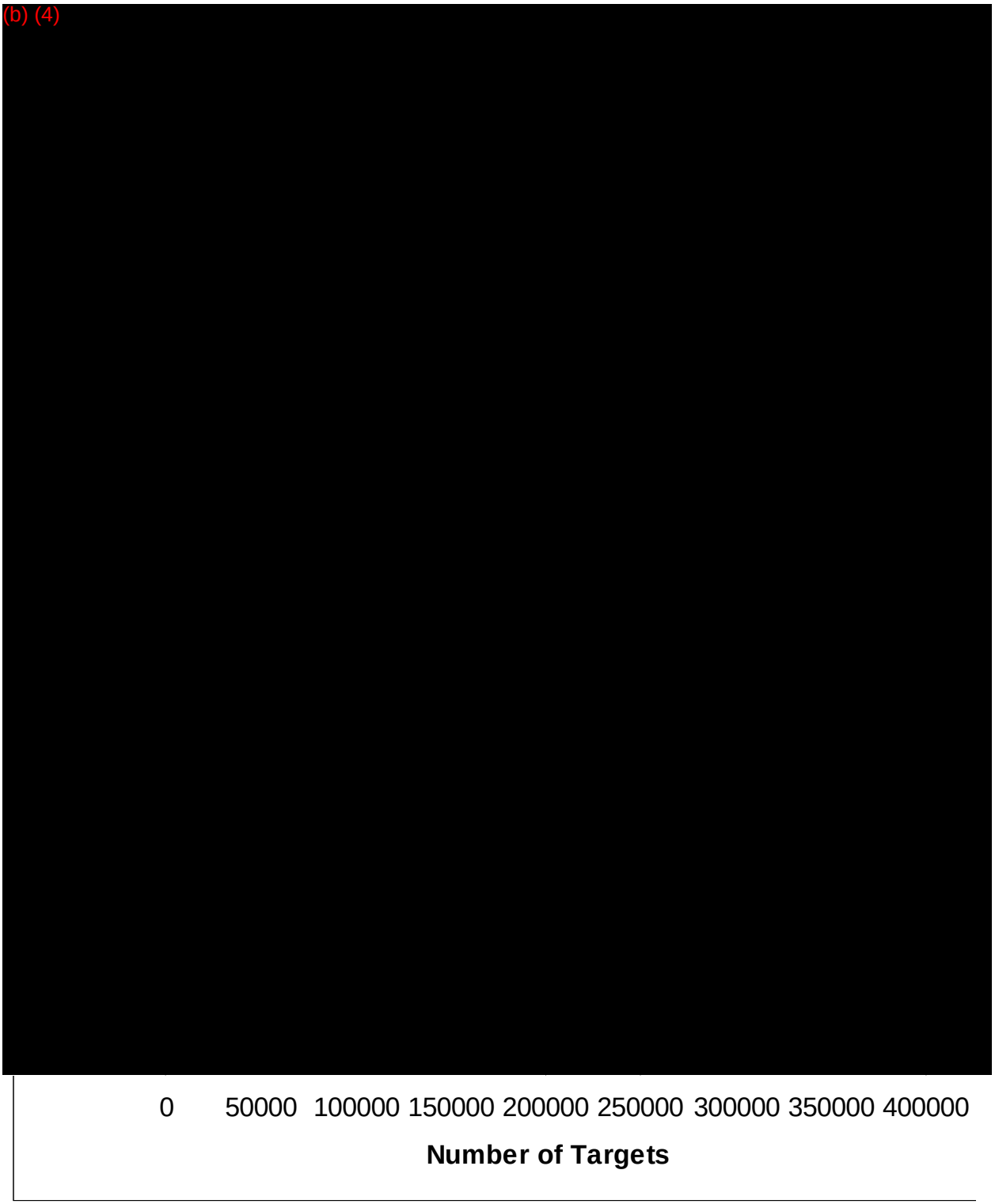


Figure 39. Number of targets occurring in each 50-meter increment at the Peñascal Wind Project site during the winter 2009-2010 season. Red indicates rotor swept heights, and red-blue hashed indicates altitudes partially within rotor swept heights.

(b) (4)

[redacted]

Figure 40. Mean target heights at the Peñascal Wind Project site during dawns, days, dusks, and nights of the winter 2009-2010 season.

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[redacted]

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[redacted]

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[redacted]

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(b) (4)

[redacted]

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(b) (4)

[redacted]

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(b) (4)

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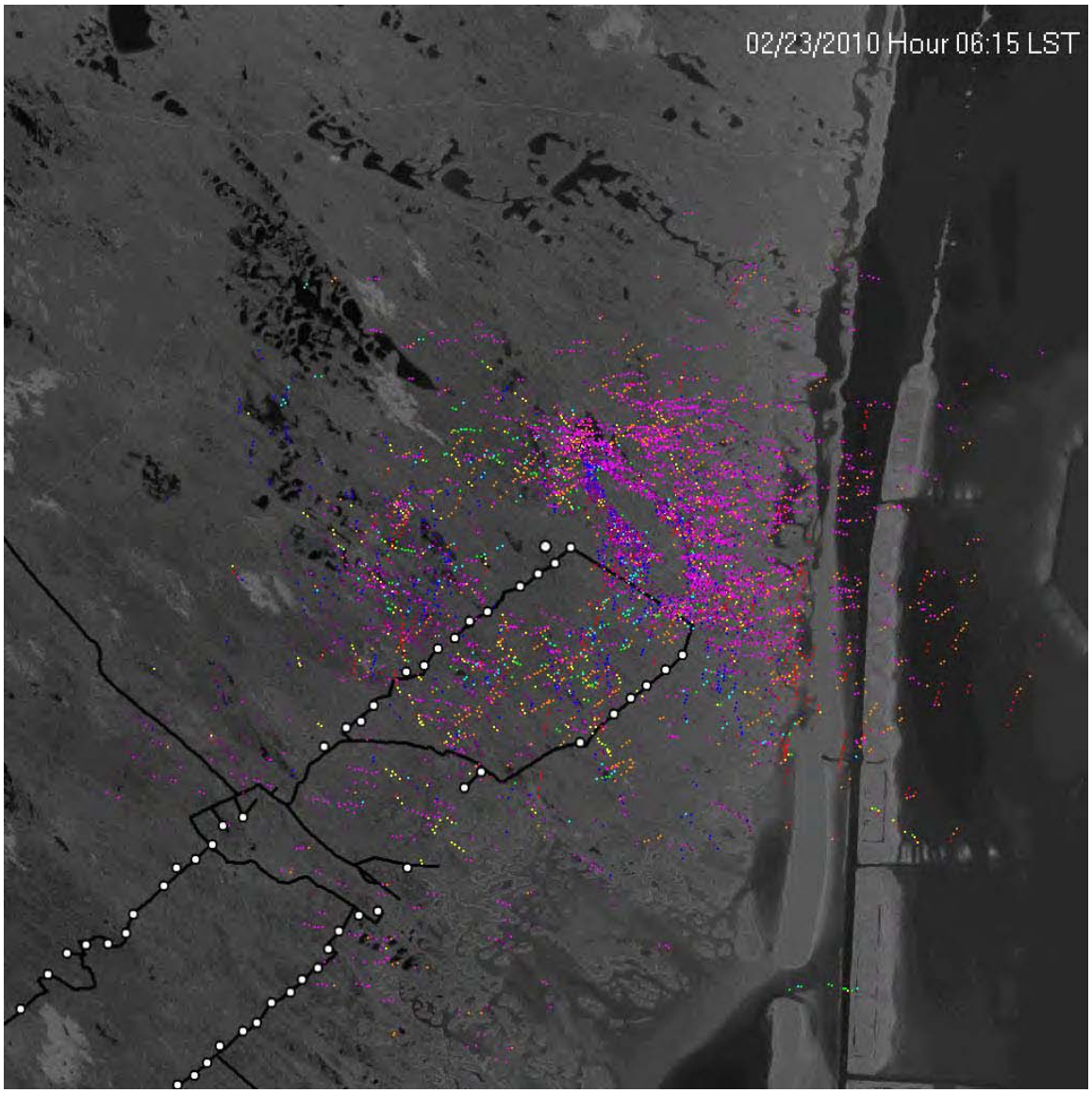

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Appendix A – Target Counts, Passage Rates, Mean and Median Heights for Summer 2009 Season

Appendix A. Target counts, passage rates, mean and median heights during dawns of the summer 2009 season.

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Appendix C. Target counts, passage rates, mean and median heights during nights of the winter 2009-2010 season.

Avian and Bat Fatality Study
Peñascal Windfarm Energy Facility
Kenedy County, Texas

Interim Report
March – May 2010

Confidential Document
Exempt from FOIA

Prepared for:

Iberdrola Renewables
1125 Northwest Couch Street
Portland, OR 97209-4129

Prepared by:

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TX-ESA
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October 28, 2010

EXECUTIVE SUMMARY

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STUDY AREA

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FIELD METHODS

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Dog team searches

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Biologist Searches

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Weather Monitoring

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Turbine Lighting Study

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Radar Methods

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MERLIN SCADA

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STATISTICAL METHODS

Descriptive Methods for Fatality

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Radar Analysis

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RESULTS

Dog Team Searches

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Turbine Lighting Analysis

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Experimental Bias Trials

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Fatality Estimates

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Dusks

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Horizontal Radar Data

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Searchable Area Adjustments

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No Scientific Collection Permit

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Background Fatality Estimates

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Curtailment Events and Turbine Shutdowns

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Radar Assumptions

Insect Contamination

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Turbine Lighting

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cCONCLUSIONS

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Table 1. Bird and bat species found by dog search teams at the daily search turbines during the spring migration period (15 March 2010 and 6 May 2010).

Species	Count
(b) (4) [redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
Brazilian free-tailed bat	14
hoary bat	2
unknown bat	1
Bat Total	**17**

Table 2. The number of large/medium and small bird carcasses found by dog search teams at the daily search turbines during the spring migration period (15 March 2010 and 6 May 2010).

Turbine	Count
(b) (4) [redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]

Table 3. The number of bat carcasses found by dog search teams at the daily search turbines during the spring migration period (15 March 2010 and 6 May 2010).

(b) (4) [redacted]

Table 4. Bird and bat species found by dog search teams at the eight-day search interval turbines during the spring migration period (15 March 2010 and 6 May 2010).

Species	Count
(b) (4) [redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]

Table 5. The number of large/medium and small bird carcasses found by dog search teams at the eight-day search turbines during the spring migration period (15 March 2010 and 6 May 2010).

Turbine	Count
(b) (4) [redacted]	[redacted]
[redacted]	[redacted]

Table 6. The number of bat carcasses found by dog search teams at the eight-day search interval turbines during the spring migration period (15 March 2010 and 6 May 2010).

Turbine	Count
(b) (4) [redacted]	[redacted]

Table 7. Bird and bat species found by biologist at turbines or on roads between 15 March and 6 May 2010.

Species	Count
turkey vulture	1
(b) (4) [redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]

Table 8. The number of large/medium, small bird, and bat carcasses found by Biologist at turbines or on roads between 15 March and 6 May 2010.

Turbine	Count
(b)(4) [redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]

Table 9. Average number of bird and bat carcasses found at turbines lit with FAA aviation strobe lights compared to those at unlit turbines at Peñascal.

	Daily Searched Turbines		
	Lit	**Unlit**	**Overall**
Bats			
(b) (4) [redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]		[redacted]	
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]		[redacted]	

p-value for daily searched turbines for bats = 0.6574
p-value for daily searched turbines for birds = 0.5505

Table 10. Average number of small bird carcasses found at turbines lit with FAA aviation strobe lights compared to those at unlit turbines at Peñascal.

	Daily Searched Turbines		
	Lit	**Unlit**	**Overall**
Small Birds			
(b) (4) [redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]		[redacted]	

p-value for daily searched turbines for small birds = 0.4890

Table 11. Number of searcher efficiency trial bird carcasses in each combination of size and vegetation state used to test each searcher.

Site	Type	Size	VegState	Grand Total
(b) (4) [redacted]	[redacted]	[redacted]	[redacted]	[redacted]
		[redacted]	[redacted]	[redacted]
			[redacted]	[redacted]
			[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
			[redacted]	[redacted]
		[redacted]	[redacted]	[redacted]
			[redacted]	[redacted]
			[redacted]	[redacted]
[redacted]				[redacted]

Table 12. Searcher efficiency (SE), carcass persistence (CP), the probability that a carcass will not be removed prior to searches (r), and detection for Peñascal by search interval, size, age, and vegetation type.

				SE			CP			r			Detection		
Set	Site	Size	Vegetation	SE	LCI	UCI	CP	LCI	UCI	r	LCI	UCI	Detection	LCI	UCI
(b)(4)(4)															
														0.718	0.822

Table 13. Number of CP trial bird and bat carcasses in each combination of size and vegetation state used to estimate average carcass persistence.

Site	Type	Size	Vegetation	Number
(b) (4)				

Table 14. Estimated fatality per turbine, total for the site and per megawatt (MW) for about eight weeks in Spring 2010.

				Per Turbine			Total Site			Per MW		
Site	**Set**	**Type**	**Found**	**Fatality**	**LCI**	**UCI**	**Fatality**	**LCI**	**UCI**	**Fatality**	**LCI**	**UCI**
Pen	(b) (4) [redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted] 1.8	[redacted] 3.4

Table 15. Estimated fatality per turbine, total for the site and per megawatt (MW) for each week

				Per Turbine			Total Site			Per MW		
Site	Type	(b) (4) [redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
		[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	0	0.2

Table 16. Effort of radar monitoring during the spring 2010 season at the Peñascal Windfarm Project site.

	Available Time	Time Radar Collected Data	Radar Downtime	Radar Data with Rain	Useable Radar Data
Vertical Radar (hrs)	(b) (5)	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

Table 17. Average direction and concentration of targets at the Peñascal Windfarm Project site during the spring 2010 season.

	Dawn			Day			Dusk			Night		
Date	Average Bearing (Degrees)	Direction	Angular Concentration (*r*)	Average Bearing (Degrees)	Direction	Angular Concentration (*r*)	Average Bearing (Degrees)	Direction	Angular Concentration (*r*)	Average Bearing (Degrees)	Direction	Angular Concentration (*r*)
15-Mar												
16-Mar												
17-Mar				(b)								
18-Mar	(b) (4)											

*Periods with <50% of time recorded by radar are excluded from analysis

Table 18. Curtailment events and turbine shutdowns at the Peñascal Wind Project during spring 2010 season.

Date / Time Start	Date / Time End	Number of Curtailment Commands in Event	Range of 2-minute Target Passage Rates in the Rotor Swept Zone	Visibility Range (0.5 mile = 805 m = 2640 ft)
(b) (4) [redacted]	[redacted]	[redacted]	[redacted]	
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

(b) (4)

[redacted]

Figure 1. Map of turbines on Peñascal Windfarm denoting the search schedule of searched turbines.

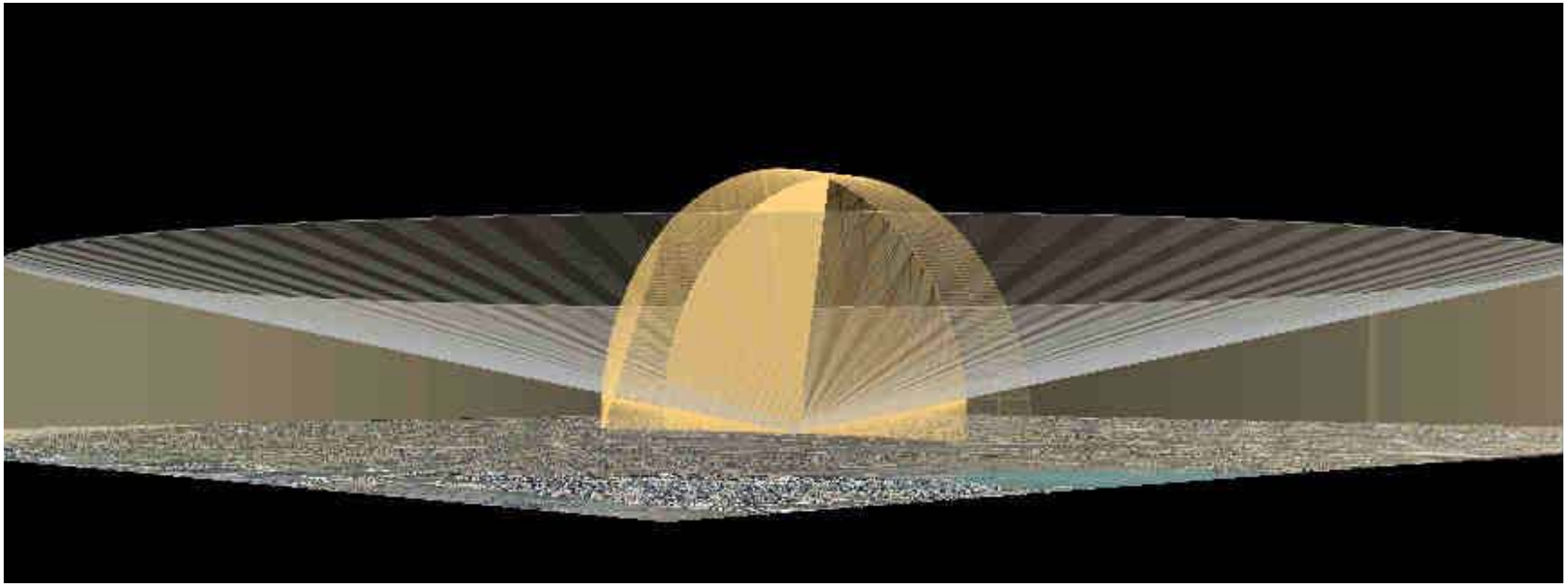

Figure 2. Illustration of beam coverage of the horizontal scanning radar (HSR) and the vertical scanning radar (VSR).

(b) (4)

[redacted]

Figure 3. MerlinSCADA Display, a web-based MerlinSCADA Display that Operations and others can use to observe the curtailment criteria (target count and visibility) relative to their thresholds, and the curtailment order. This display software also includes the 15-minute timer to recall the curtailment order and an email functionality for curtailment and recall of curtailment.

(b) (4)

[redacted]

Figure 4. Spring and fall locations for the radar system at Peñascal.

(b) (4)

[redacted]

Figure 5. Fatalities per turbine by week during the scheduled carcass searches during the spring study season (15 March 2010 to 6 May 2010).

(b) (4)

[redacted]

Figure 6. Fatalities per megawatt (MW) by week during the scheduled carcass searches during the spring study season (15 March 2010 to 6 May 2010).

(b) (4)

[redacted]

Figure 7. Target passage rates at the Peñascal Windfarm Project site during dawns, days, dusks, and nights of the spring 2010 season.

(b) (4)

[redacted]

Figure 8. Average target passage rates for dawns, days, dusks, and nights of the spring 2010 season.

(b) (4)

[redacted]

Figure 9. Hourly activity (average target passage rates) at the Peñascal Windfarm Project site during the spring 2010 season.

(b) (4)

[redacted]

Figure 10. Average hourly target heights AGL at the Peñascal Windfarm Project site during the spring 2010 season. Error bars represent standard deviation for each hour and red lines represent the top and bottom of the rotor swept zone (34 – 126 m AGL).

(b) (4)

[redacted]

Figure 11. Number of targets occurring in each 50-meter increment at the Peñascal Windfarm Project site during the spring 2010 season. Red indicates rotor swept heights, and red-blue hashed indicates altitudes partially within rotor swept heights.

(b) (4)

[redacted]

Figure 12. Mean target heights at the Peñascal Windfarm Project site during dawns, days, dusks, and nights of the spring 2010 season.

(b) (4)

[redacted]

Figure 13. Average mean and median target heights for dawns, days, dusks, and nights during the spring 2010 season. Error bars represent standard deviations.

(b) (4)

[redacted]

Figure 14. Median target heights at the Peñascal Windfarm Project site during dawns, days, dusks, and nights of the spring 2010 season.

(b) (4)

[redacted]

Figure 15. Target passage rates below, at, and above the rotor swept zone (RSZ) at the Peñascal Wind Project site during dawns of the spring 2010 season.

(b) (4)

[redacted]

Figure 16. Target passage rates below, at, and above the rotor swept zone (RSZ) at the Peñascal Wind Project site during days of the spring 2010 season.

(b) (4)

[redacted]

Figure 17. Target passage rates below, at, and above the proposed rotor swept zone (RSZ) at the Peñascal Wind Project site during dusks of the spring 2010 season.

(b) (4)

[redacted]

Figure 18. Target passage rates below, at, and above the proposed rotor swept zone (RSZ) at the Peñascal Wind Project site during nights of the spring 2010 season.

(b) (4)

[redacted]

Figure 19. Distribution of average target movements among eight directions during dawns, days, dusks, and nights at the Peñascal Windfarm Project site during the spring 2010 season.

(b) (4)

[redacted]

Figure 20. Cumulative target direction of all targets during all dawns, days, dusks, and nights at the Peñascal Windfarm Project site during the spring 2010 season.

(b) (4)

[redacted]

Figure 21. Average target passage rates during dawns, days, dusks, and nights of half-monthly periods from September 18, 2009 through May 14, 2010 for a seasonal comparison.

Appendix A – Target Counts, Passage Rates, Mean and Median Heights for Spring 2010 Season

Appendix A. Target counts, passage rates, mean and median heights during dawns of the spring 2010 season.

Sunrise - 30 minutes	Sunrise + 30 minutes	Minutes in Dawn	Minutes Radar On	Minutes with Rain	Total Dawn Minutes	% Dawn with Data	Dawn Count Below RSZ	Dawn Count at RSZ	Dawn Count Above RSZ	Total Dawn Count	Dawn TPR Below RSZ	Dawn TPR at RSZ	Dawn TPR Above RSZ	Dawn TPR	% Targets at RSZ	Mean Target Height AGL (m)	Median Target Height AGL (m)
(b) (4) [redacted]	[redacted]	[redacted]				[redacted]											
[redacted]	[redacted]	[redacted]				[redacted]											
[redacted]	[redacted]	[redacted]				[redacted]											
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
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[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]%	375.7	264.0

TPR = Target Passage Rate (targets / km / hm), RSZ = Rotor Swept Zone (32.5 - 127.5 m), AGL = Above Ground Level

*Periods with <50% of time recorded by radar are excluded from analysis

Appendix A. Target counts, passage rates, mean and median heights during dawns of the spring 2010 season.

Sunrise - 30 minutes	Sunrise + 30 minutes	Minutes in Dawn	Minutes Radar On	Minutes with Rain	Total Dawn Minutes	% Dawn with Data	Dawn Count Below RSZ	Dawn Count at RSZ	Dawn Count Above RSZ	Total Dawn Count	Dawn TPR Below RSZ	Dawn TPR at RSZ	Dawn TPR Above RSZ	Dawn TPR	% Targets at RSZ	Mean Target Height AGL (m)	Median Target Height AGL (m)
(b) (4) [redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
															14.5%	308.7	246.3

TPR = Target Passage Rate (targets / km / hm), RSZ = Rotor Swept Zone (32.5 - 127.5 m), AGL = Above Ground Level

*Periods with <50% of time recorded by radar are excluded from analysis

Appendix A. Target counts, passage rates, mean and median heights during days of the spring 2010 season.

Sunrise + 30 minutes	Sunset -30 minutes	Minutes in Day	Minutes Radar On	Minutes with Rain	Total Day Minutes	% Day with Data	Day Count Below RSZ	Day Count at RSZ	Day Count Above RSZ	Total Day Count	Day TPR Below RSZ	Day TPR at RSZ	Day TPR Above RSZ	Day TPR	% Targets at RSZ	Mean Target Height AGL (m)	Median Target Height AGL (m)
(b) (4) [redacted]	[redacted]	[redacted]				[redacted]											
[redacted]	[redacted]	[redacted]				[redacted]											
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
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[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	17.8%	529.8	353.9

TPR = Target Passage Rate (targets / km / hm), RSZ = Rotor Swept Zone (32.5 - 127.5 m), AGL = Above Ground Level

*Periods with <50% of time recorded by radar are excluded from analysis

Appendix A. Target counts, passage rates, mean and median heights during days of the spring 2010 season.

Sunrise + 30 minutes	Sunset -30 minutes	Minutes in Day	Minutes Radar On	Minutes with Rain	Total Day Minutes	% Day with Data	Day Count Below RSZ	Day Count at RSZ	Day Count Above RSZ	Total Day Count	Day TPR Below RSZ	Day TPR at RSZ	Day TPR Above RSZ	Day TPR	% Targets at RSZ	Mean Target Height AGL (m)	Median Target Height AGL (m)
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5/14/10 6:14	5/14/10 18:40	746	746	45	701	94.0%	45	55	843	943	3.9	4.7	72.2	80.7	6.5% 5.8%	732.1 742.4	643.7 650.1

TPR = Target Passage Rate (targets / km / hm), RSZ = Rotor Swept Zone (32.5 - 127.5 m), AGL = Above Ground Level

*Periods with <50% of time recorded by radar are excluded from analysis

Appendix A. Target counts, passage rates, mean and median heights during dusks of the spring 2010 season.

Sunset - 30 minutes	Sunset + 30 minutes	Minutes in Dusk	Minutes Radar On	Minutes with Rain	Total Dusk Minutes	% Dusk with Data	Dusk Count Below RSZ	Dusk Count at RSZ	Dusk Count Above RSZ	Total Dusk Count	Dusk TPR Below RSZ	Dusk TPR at RSZ	Dusk TPR Above RSZ	Dusk TPR	% Targets at RSZ	Mean Target Height AGL (m)	Median Target Height AGL (m)
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TPR = Target Passage Rate (targets / km / hm), RSZ = Rotor Swept Zone (32.5 - 127.5 m), AGL = Above Ground Level

*Periods with <50% of time recorded by radar are excluded from analysis

Appendix A. Target counts, passage rates, mean and median heights during dusks of the spring 2010 season.

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(b) (4) [redacted]																	
															7.8%	685.4	571.5

TPR = Target Passage Rate (targets / km / hm), RSZ = Rotor Swept Zone (32.5 - 127.5 m), AGL = Above Ground Level

*Periods with <50% of time recorded by radar are excluded from analysis

Appendix A. Target counts, passage rates, mean and median heights during nights of the spring 2010 season.

Sunset + 30 minutes	Sunrise next day - 30 minutes	Minutes in Night	Minutes Radar On	Minutes with Rain	Total Night Minutes	% Night with Data	Night Count Below RSZ	Night Count at RSZ	Night Count Above RSZ	Total Night Count	Night TPR Below RSZ	Night TPR at RSZ	Night TPR Above RSZ	Night TPR	% Targets at RSZ	Mean Target Height AGL (m)	Median Target Height AGL (m)
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TPR = Target Passage Rate (targets / km / hm), RSZ = Rotor Swept Zone (32.5 - 127.5 m), AGL = Above Ground Level

*Periods with <50% of time recorded by radar are excluded from analysis

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Sunset + 30 minutes	Sunrise next day - 30 minutes	Minutes in Night	Minutes Radar On	Minutes with Rain	Total Night Minutes	% Night with Data	Night Count Below RSZ	Night Count at RSZ	Night Count Above RSZ	Total Night Count	Night TPR Below RSZ	Night TPR at RSZ	Night TPR Above RSZ	Night TPR	% Targets at RSZ	Mean Target Height AGL (m)	Median Target Height AGL (m)
(b) (4) [redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
															7.7%	472.8	490.7

TPR = Target Passage Rate (targets / km / hm), RSZ = Rotor Swept Zone (32.5 - 127.5 m), AGL = Above Ground Level

*Periods with <50% of time recorded by radar are excluded from analysis

Project-Specific Avian and Bat Protection Plan for the Peñascal I/II Wind Project: Iberdrola Renewables

Iberdrola Renewables, Inc.
Portland, Oregon

Version: October 2010

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B Post-Construction Protocol, Fall 2010 (August 2010)
C Environmental Compliance Manual for Peñascal Wind Project
D Consultation Letter from USFW, April 24, 2008

1.0 Introduction

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1.1 Project Development Overview

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species and to migratory birds (Tier 3). IBR received written correspondence from USFWS

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Tier 2	Project briefing for USFWS Director Dale Hall (Washington, DC)	April 22, 2008

TABLE 1
Chronology of Development Activities and Studies for the Peñascal Wind Plant

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Tier 4/5	(b) (4) [redacted] study protocol.	October 2010

1.2 Location and Scope

The Peñascal Wind Plant (PWP) is comprised of two wind plants, Peñascal I and Peñascal II. Peñascal I was the first phase of the PWP and became operational in 2009. Peñascal II is the second phase that became operational in 2010. Peñascal I and II each contain 84 Mitsubishi 2.4-MW turbines. Together, the PWP is a 404-megawatt (MW) wind project located in Kenedy County, Texas. The project developer is Iberdrola Renewables, Inc.

The plant is located approximately 27 to 40 miles south and southeast of the City of Kingsville in coastal Kenedy County (see Figure 1). The project area lies within the

boundaries of the John G. Kenedy Jr. Charitable Trust Ranch, an approximately 191,000-acre property. Laguna Madre lies to the east of the plant, and Baffin Bay to the north.

FIGURE 1
Vicinity Map of Peñascal Wind Plant (Peñascal I and II)

Figure 2 shows a project area map for the Peñascal Wind Plant that includes an illustration of the turbine layout. The plant consists of 168 Mitsubishi 2.4-MW turbines (with a tip height of 413 feet); a plant substation, approximately 38 miles of interior access roads (excluding the existing main access road, which was constructed for other ranch uses years ago); and areas to provide for equipment and material storage and placement of construction office trailers.

These facilities occupy approximately 200 acres. This plant and a separate 283-MW plant (Gulf Wind) developed by then Babcock and Brown (now owned and operated by Pattern Energy) on the adjacent John G. and Marie Stella Kenedy Memorial Foundation Ranch are connected by approximately 21 miles of 345-kilovolt (kV) overhead transmission line owned and constructed by American Electric Power (AEP) to a substation south of Sarita, Texas.

(b) (4)

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Legend

- Turbine (as-built) - Penascal I
- Turbine (as-built) - Penascal II
- Permanent Met Tower - Penascal I
- Permanent SODAR - Penascal I
- Merlin Radar - Penascal I

N

0 1 2 3

Miles

As-Built Turbines

Penascal Wind Project

IBERDROLA RENEWABLES

FIGURE 2
Project Area Map for Peñascal Wind Plant (Peñascal I and II)

2.0 Pre-Construction Stage Measures

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2.1 Tier 1: Preliminary Site Screening

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mottes is composed primarily of honey mesquite (*Prosopis glandulosa*), Hercules-club (*Zanthoxylum clava-herculis*), and/or live oak (*Quercus virginiana* var. *virginiana*). It appears that cattle and deer regularly use these patches of trees for shade and as a result ground cover is generally sparse and trampled. The shrubby vegetation consists largely of 4- to 10-foot-tall honey mesquite, Hercules-club, and live oak mixed with yucca, cacti, and various forbs.

TABLE 2
Listed and Rare Species of Kenedy County

Common Name	Scientific Name	Federal Status	State Status	Potential for Impact from Construction
Amphibians				
(b) (4) [redacted]	[redacted]	-	T	(b) (4) [redacted]
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TABLE 2
Listed and Rare Species of Kenedy County

Common Name	Scientific Name	Federal Status	State Status	Potential for Impact from Construction
Fishes				
(b) (4) [redacted]	[redacted]	[redacted]	[redacted]	[redacted]
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TABLE 2
Listed and Rare Species of Kenedy County

Common Name	Scientific Name	Federal Status	State Status	Potential for Impact from Construction
Plants				
(b) (4) [redacted]	[redacted]	[redacted]	[redacted]	[redacted]

[redacted]
December 12, 2007, as modified by notes from Jim Sinclair/TXESA, April 13, 2009.

2.2 Tier 2: Site Characterization

(b) (4) [redacted]

2.3 Tier 3: Field Studies and Impacts Assessment

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(b) (4)

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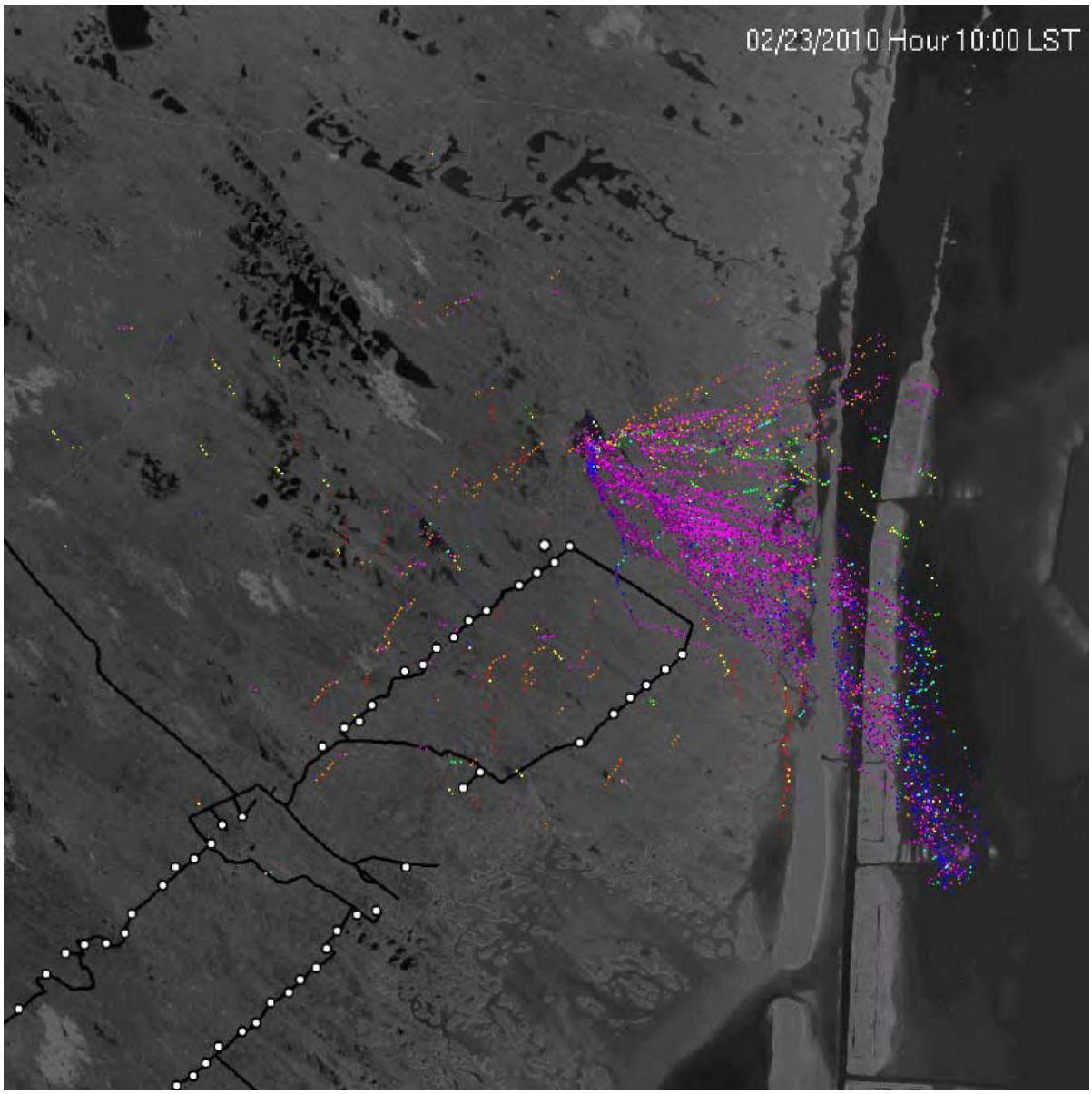

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3.0 Construction Stage Measures

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impacts to listed species habitats as a result of the PWP construction or, to date, its operation.

4.0 Operation Stage Measures

4.1 Tier 4: Post-Construction Fatality Studies

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[redacted]

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[redacted]

4.1.1 Monitoring Activities

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[redacted]

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[redacted]

4.1.2 Monitoring Outcomes

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[redacted]

4.1.3 Reporting

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[redacted]

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[redacted]

4.2 Tier 5: Other Post-Construction Studies

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[redacted]

4.2.1 Radar System

The MERLIN Avian Radar System is a fully self-contained, trailer-mounted ornithological radar system developed and manufactured by DeTect, Inc. specifically for bird and bat detection and tracking. The MERLIN technology was originally developed for and is currently used by the U.S. Air Force and NASA for precision detection and tracking of hazardous bird activity on and around airfields and launch facilities to support aviation and flight safety (bird-aircraft strike avoidance). The trailer mounted Model XS1030e has been in use at the adjacent Gulf Wind site since October 2006 and at Peñascal I since the fall of 2008.

MERLIN provides detailed data on bird activity that includes flight height and timing continuously and specifically during periods of nocturnal and near-nocturnal low visibility, which are the periods when birds are most likely to be unable to avoid obstacles.

MERLIN radar units will be used at both the Gulf Wind and Peñascal sites. Based on observed flight patterns, in the spring, the radar units will be deployed on the south side of

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4.2.2 Visibility

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4.2.3 Curtailment Conditions

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[redacted] at or

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5.0 Mitigation and Ongoing Measures

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6.0 Retrofitting, Repowering, and Decommissioning

Retrofitting, repowering, and decommissioning will be based on economic and operating aspects and conditions of the plant and associated agreements or permits. Per the FAC Recommendations, BMPs will be applied during the design, installation, construction, reclamation, removal, or subsequent operation and maintenance. Specific actions will be described as site conditions and proposed measures are determined in the future.

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APPENDIX A

Study Protocols: Fall 2009/Spring 2010

Avian and Bat Fatality Monitoring and Curtailment Study for the Peñascal Wind Project

December 2009 Draft

1. Introduction

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[redacted]

2. Project Environmental Setting

Project Location and Scope

The Peñascal Wind Project is a 200 MW wind project located in Kenedy County, TX, developed by Iberdrola Renewables (IBR, previously known as PPM Energy). The project area is located approximately 27 to 40 miles south and southeast of the City of Kingsville in coastal Kenedy County. The wind project area lies within the boundaries of the John G. Kenedy Jr. Charitable Trust, an approximately 191,000-acre property. Laguna Madre lies to the east of the combined project area, and Baffin Bay to the north. The wind project includes construction of 84 Mitsubishi 2.4-MW turbines (with a tip height of 413 feet); a project substation, approximately 38 miles of interior access roads (excluding the existing main access road, which was constructed for other ranch uses years ago), along with clearing of vegetation in some areas to provide for equipment and material storage and placement of construction office trailers. These facilities occupy approximately 200 acres. This and a separate 283-MW project (Gulf Wind) developed by Babcock and Brown on the adjacent John G. and Marie Stella Kenedy Memorial

Foundation Ranch are connected by approximately 21 miles of 345-kV overhead transmission owned and constructed by AEP to a substation south of Sarita.

Habitats Present

The project area lies largely within the Coastal Sand Plain ecoregion, with the east side of the wind project area extending into the Laguna Madre Barrier Islands and Coastal Marshes ecoregion (Griffith et al. 2004). The project area is grazed by cattle, white-tailed deer, and exotic herbivores (e.g., nilgai [Boselaphus tragocamelus]). Vegetation within the wind project area consists primarily of herbaceous wetland and coastal grassland communities. Although the main body of the wind project area consists of a large expanse of grassland, oak mottes are found around the periphery of that grassland and a few isolated oak mottes are located within the grassland area.

3. Study Objectives

(b) (4) [redacted]

[redacted]

4. Radar Methods

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(b) (4) [redacted]

[redacted]

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estimates of the number of percentage of targets at or below maximum blade tip height.

5. Visibility Sensor Methods

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[redacted]

6. Curtailment Conditions

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- [redacted]
- [redacted]

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[redacted]

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[redacted].

7. Post-construction Avian and Bat Mortality Monitoring

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Vegetation/Detectability Mapping

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Searcher Efficiency and Carcass Persistence Trials

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8. Statistical Analysis

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9. Reporting

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Table 1. Approximate search schedule for the Peñascal Wind Project.

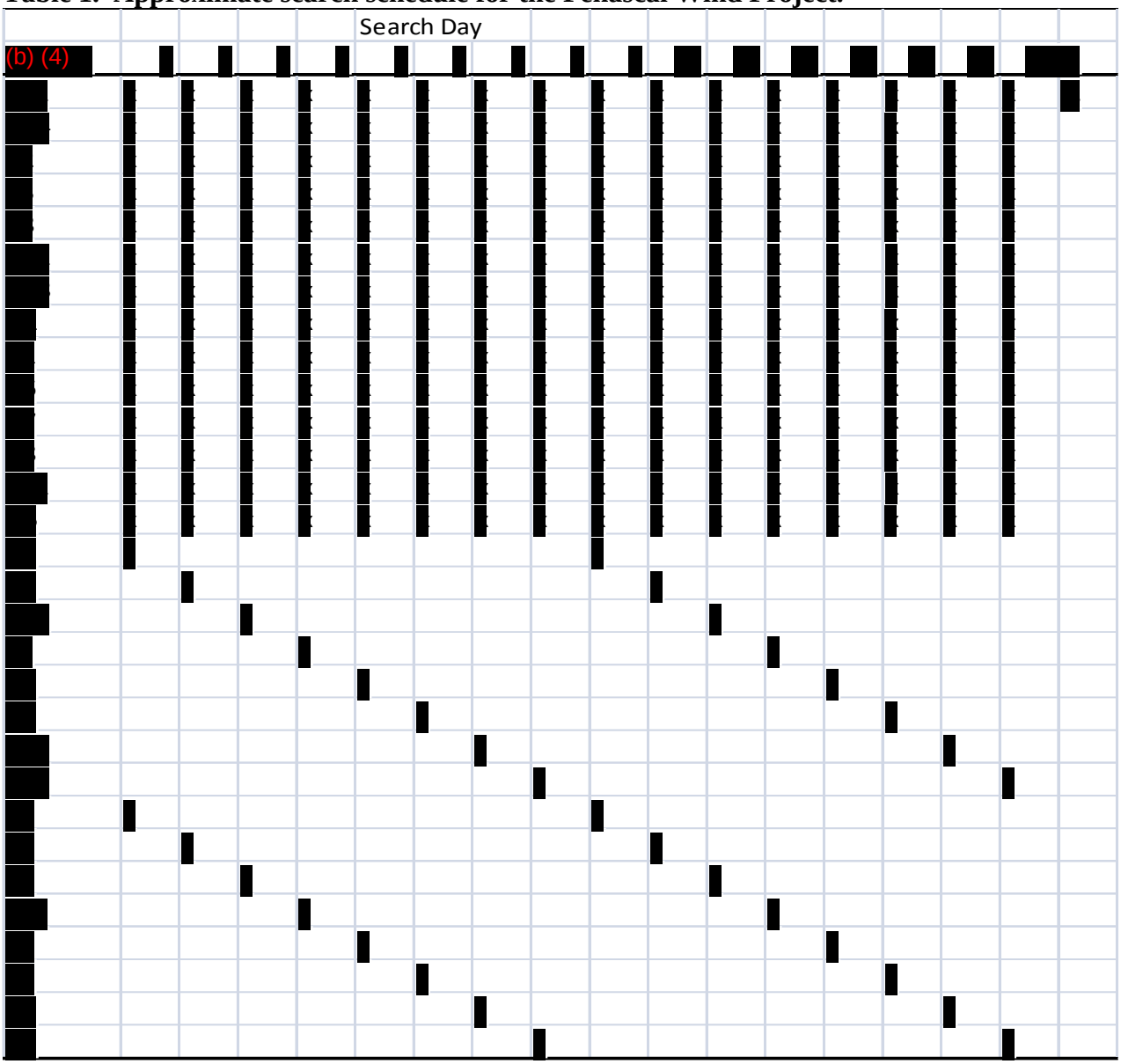

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Figure 1. Radar Locations and coverage for the Peñascal Wind Project.

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Figure 2. Map of turbines searched during the first year of study at the Peñascal Wind Project.

APPENDIX B

Study Protocols: Fall 2010

DRAFT RESEARCH PROTOCOL

Penascal and Gulf Wind Post-Construction Fatality Studies
Kenedy County, Texas

Prepared by:
Western **E**co**S**ystems **T**echnology, Inc.
2003 Central Ave.
Cheyenne, Wyoming 82001
Draft

August 3, 2010

INTRODUCTION

The Peñascal Wind Project is a 200 MW wind project located in Kenedy County, TX, developed by Iberdrola Renewables (IBR, previously known as PPM Energy). The project area is located approximately 27 to 40 miles south and southeast of the City of Kingsville in coastal Kenedy County. The wind project area lies within the boundaries of the John G. Kenedy Jr. Charitable Trust, an approximately 191,000-acre property. Laguna Madre lies to the east of the combined project area, and Baffin Bay to the north. The wind project includes 84 Mitsubishi 2.4-MW turbines (with a tip height of 413 feet); a project substation, approximately 38 miles of interior access roads (excluding the existing main access road, which was constructed for other ranch uses years ago), along with clearing of vegetation in some areas to provide for equipment and material storage and placement of construction office trailers. These facilities occupy approximately 200 acres. The separate 283-MW Gulf Wind project developed by Babcock and Brown and now operated by Pattern Energy is on the adjacent John G. and Marie Stella Kenedy Memorial Foundation Ranch. At the time of this report, the Gulf Wind I Windfarm was completed and consisted of 118 Mitsubishi wind turbines with a power rating of 2.4 Megawatts (MW) which has approximately the following measurements: rotor diameter of 95 m (311.7 ft), tower height of 80 m (262.5 ft), total height of 127.5 m (418.3 ft) when blades are positioned at 12 o'clock, a rotor swept area of 7,088 m2 (76,297 ft2) and a rotor swept zone of 32.5 to 127.5 m (106.6 – 418.3 ft) above the ground. The two wind projects are connected by approximately 21 miles of 345-kV overhead transmission (owned and constructed by AEP) to a substation south of Sarita.

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Environmental Setting

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DATA COLLECTION METHODS

Post-construction Avian and Bat Mortality Monitoring

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searches.

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Searcher efficiency trials will begin after the first round of turbine searches. Personnel

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trials, non-native/non-protected or commercially available species such as house sparrows,

European starlings, rock pigeons and commercially raised gamebirds or waterfowl will be used (b) (4) [redacted]

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[redacted] (b) (4) [redacted]

Curtailment Conditions

Curtailment criteria developed for a project site are as follows:

1. (b) (4) [redacted]

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Radar Monitoring

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such as flight height and timing, including during periods of nocturnal, near-nocturnal, and low

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Visibility Sensor Methods

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[redacted]

Statistical Analysis

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Table 1. Approximate search schedule for 30 randomly selected turbines at the Peñascal Wind Project that will also be used for 30 randomly selected turbines at the Gulf Wind Project.

	Search Day (Fall and Spring)									Search Day (Winter and Summer)							
Turbine	1	2	3	4	5	6	7	8	…	1	2	3	4	5	6	7	8
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Figure 1. Radar Locations and coverage for the Peñascal Wind Project.

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Figure 2. Radar Locations and coverage for the Gulf Wind Wind Project.

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Figure 3. Map of turbines at the Peñascal project showing turbines to be searched on daily and weekly schedules.

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Figure 4. Map of turbines at the Gulf Wind project showing turbines to be searched on daily and weekly schedules.

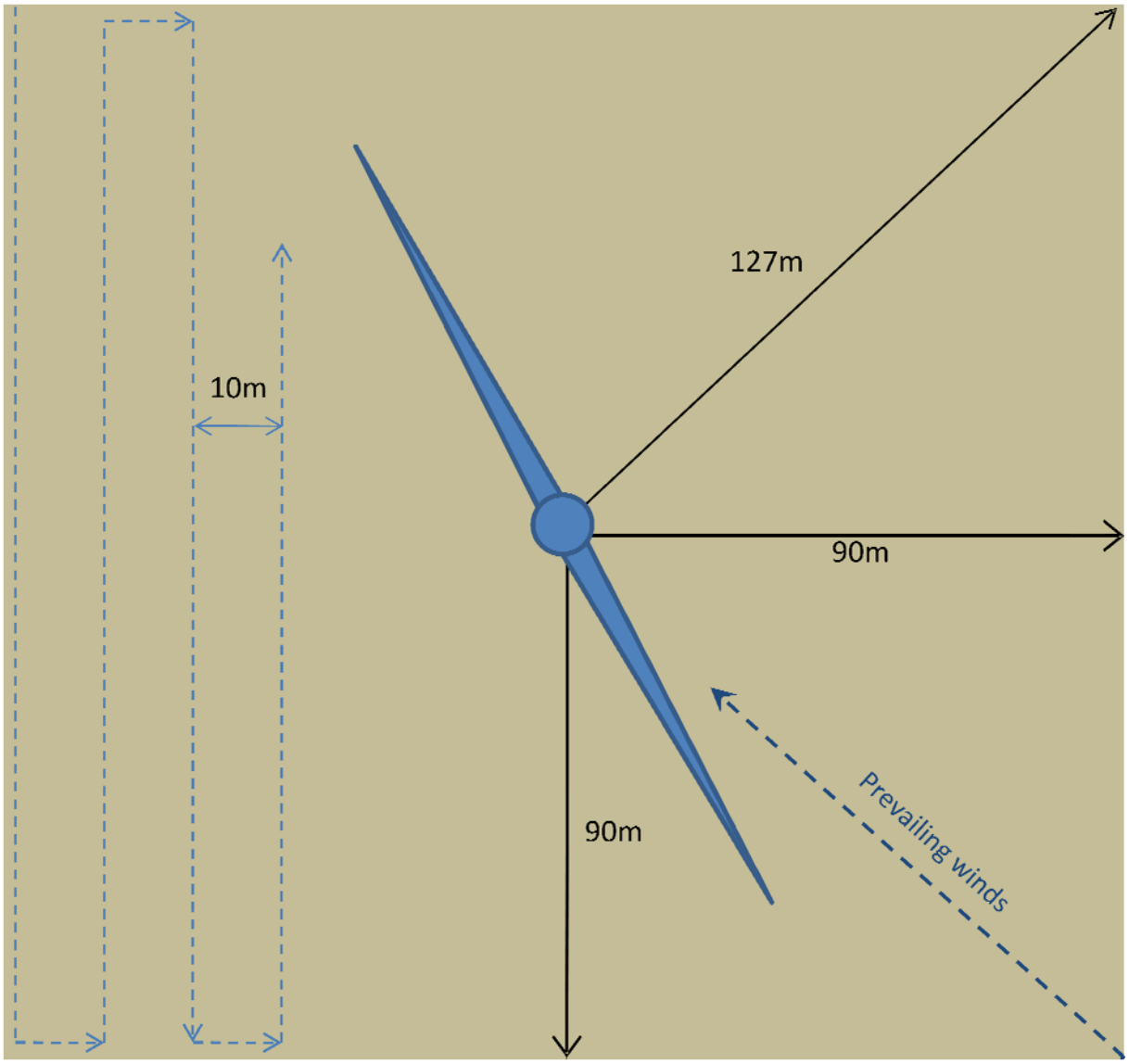

Figure 5. Diagram of search plot showing plot size and transect examples.

Appendix A

RATIONALE BEHIND APPLICATION FOR USFWS SCIENTIFIC COLLECTION PERMIT TO COLLECT CARCASSES AND USE CARCASSES IN EXPERIMENTAL TRIALS

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proportion of turbines searched, and the size of the project), so it is important to take all possible measures to ensure an accurate estimate.

APPENDIX B – FIELD FORMS

CASUALTY SEARCH FORM ***PROJECT NAME:*** _____

DATE:_____ OBSERVER(s):_____ TURBINE NO.: _____

TIME BEGIN:_____ TIME END:_____ (observer #2) TIME BEGIN:_____ TIME END:_____

CASUALTIES FOUND:

Species	Casualty ID (e.g. 010109-BARS-T1-1)	Dominant Veg Cover	Visibility Index

SEARCHER EFFICIENCY CARCASSES FOUND:

Species	Distance (m)/Bearing from turb	Id Tag	Dominant Veg Cover	Visibility Index
	/			
	/			

CASUALTY INFORMATION FIELD FORM ***Project Name:*** _____

TURBINE BEING SEARCHED: _____ **Searcher:** _____

Casualty ID # (example ID: 010109-BARS-T1-1) **:** _____

Date Found: _____ **Time Found:** _____

Found During (circle one): Scheduled Carcass Search Incidental Find

CASUALTY **(circle one for each option)**

Bird / Bat **Live / Fatality** **If Live:** Euthanized / Released / Transported to rehab. facility

Collected: Yes No

Left for Carcass Removal Trial: Yes No **Carcass Removal ID No.**: _____

Species Name and Code (e.g. *barn swallow, BARS*) **:** _____

Age: A J U **Sex:** M F U

Position: Face Up Face Down

Physical Condition at time of find: Complete Partial Feather Spot Scavenged

Describe injuries: _____

_____

Scavenging: Yes No **Possible Scavengers:** (circle the most prevalent) small carnivores large carnivores rodents corvids or other birds unknown insects (external scavenging) other: _____

Scavenging Notes:_____

_____

Carcass Condition:

_____ Fresh (no visible signs of decomp.)

_____ Decomposing – early (flesh mostly present)

_____ Decomposing – late (flesh mostly absent)

_____ Desiccated

_____ N/A (e.g., feathers only)

Infestation:

_____ None _____ Flies

_____ Ants _____ Maggots

_____ Bees/Wasps _____ Beetles

_____ Grasshoppers _____ Other

Eyes:

_____ Round/fluid filled

_____ Dehydrated

_____ Sunken

_____ Absent (empty skull)

_____ N/A (e.g., head missing)

Estimated time of death:

_____ Last night _____ > 2 weeks

_____ 2 – 3 days _____ > 1 Month

_____ 4 – 7 days _____ Unknown/Undetermined

_____ 7 – 14 days

Photo Numbers (at least 4 photos of fatality and surrounding landscape):_____

Additional Notes: _____

_____

_____

_____

LOCATION (Part # 1)

Nearest turbine (number): _____

Quadrant: NE SE NW SW **Bearing from turbine:** _____ **Distance from turbine (m):** _____

Transect #:_____ Perpendicular Distance to Transect (m):_____

UTM: Datum: _____ (i.e. NAD 27) Northing:_____ Easting:_____

Found Outside of plot? Yes No

LOCATION (Part # 2)

Nearest turbine (number): _____

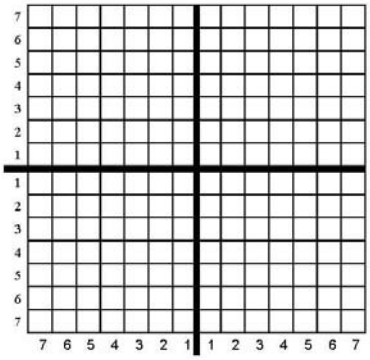
Quadrant: NE SE NW SW **Bearing from turbine:** _____ **Distance from turbine (m):** _____

Transect #:_____ Perpendicular Distance to Transect:_____

UTM: Datum: _____ (i.e. NAD 27) Northing:_____ Easting:_____

Found Outside of plot? Yes No

Map Approx. Location on diagram: (label with part number)



VEGETATION (w/in 1 m² of carcass)

Dominant Cover (choose only one):

_____ Bare Ground (0% veg; e.g., road, gravel, dirt)
_____ Wooly croton
_____ Spartina
_____ Bermuda grass/Mixed grass
_____ Water
_____ Unsearchable
_____ Other: _____

% Veg cover w/in 1 m radius of carcass (circle one):
<10 11-25 26-50 50-75 75-99 100

Visibility Index:

_____ Easy (e.g. ≥ 90% bare ground)
_____ Moderate (e.g., ≥ 25% bare ground with ≤ 6" veg height)
_____ Difficult (e.g., ≤ 25% bare ground with ≥ 12" veg height)
_____ Very Difficult (e.g., little or no bare ground, 25% of veg cover ≥ 12")
_____ Not searched (dense shrub/tree cover)

Slope >25%: Yes No

Veg. Height: Max_____ Avg._____

Additional Notes: _____

Carcass Removal Trial Field Form

Carcass # Placed by_____ Date _____ Time _____

Information Regarding Carcass When Placed										
Species	Age	Size	Dominant Veg cover	Visibility Index	Plot/Turbine	Dist from Turbine (m)	Bearing from Turbine	UTM datum (i.e. NAD 27)	Northing	Easting

Condition of Carcass on Day Checked																
Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10	Day 11	Day 12	Day 13	Day 14	Day 15	Day 16	Day 17
											Possible Scavenger					
Day 18	Day 19	Day 20	Day 21	Day 22	Day 23	Day 24	Day 25	Day 26	Day 27	Day 28						

Additional Notes about location of each carcass, habitat, and other carcass specific comments:

Carcass # Placed by_____ Date _____ Time _____

Information Regarding Carcass When Placed										
Species	Age	Size	Dominant Veg cover	Visibility Index	Plot/Turbine	Dist from Turbine (m)	Bearing from Turbine	UTM datum (i.e. NAD 27)	Northing	Easting

Condition of Carcass on Day Checked																
Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10	Day 11	Day 12	Day 13	Day 14	Day 15	Day 16	Day 17
											Possible Scavenger					
Day 18	Day 19	Day 20	Day 21	Day 22	Day 23	Day 24	Day 25	Day 26	Day 27	Day 28						

Additional Notes about location of each carcass, habitat, and other carcass specific comments:

Carcass # Placed by_____ Date _____ Time _____

Information Regarding Carcass When Placed										
Species	Age	Size	Dominant Veg cover	Visibility Index	Plot/Turbine	Dist from Turbine (m)	Bearing from Turbine	UTM datum (i.e. NAD 27)	Northing	Easting

Condition of Carcass on Day Checked																
Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10	Day 11	Day 12	Day 13	Day 14	Day 15	Day 16	Day 17
											Possible Scavenger					
Day 18	Day 19	Day 20	Day 21	Day 22	Day 23	Day 24	Day 25	Day 26	Day 27	Day 28						

Additional Notes about location of each carcass, habitat, and other carcass specific comments:

Searcher Efficiency Trials: Carcass Placement Log ***Project Name:***

General Information: Season_____ Month_____ Other_____

No.	Date	Time	Placed by	Species		Age	Size	Turbine #	Dist. (m)	Bearing from Turbine	UTM datum (i.e.NAD 27)	Northing	Easting	Dominant Veg cover	Visibility Index	Found (y/n)	Retrieved (y/n)	Available (y/n)
				Bird	Bat													
1																		
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		
11																		
12																		
13																		
14																		
15																		

Weather notes for days that carcasses are placed:

Date_____ Time_____ Temp_____ Wind Dir._____ Wind Speed_____ Precip_____

Date_____ Time_____ Temp_____ Wind Dir._____ Wind Speed_____ Precip_____

Date_____ Time_____ Temp_____ Wind Dir._____ Wind Speed_____ Precip_____

Date_____ Time_____ Temp_____ Wind Dir._____ Wind Speed_____ Precip_____

Additional Comments:

_____

_____

CARCASS FREEZER TAG- ***to be placed with carcass when collected.***
Project:_____

DATE: _____ OBSERVER: _____ **Casualty ID #** (e.g. 1/1/01_BARS_T1_1)**:**

TIME: _____SPECIES/GROUP:
LOCATION (TURBINE NUMBER, MET TOWER NUMBER, OR OTHER):

Found During (circle one): Scheduled Carcass Search Incidental Find

---

CARCASS FREEZER TAG- ***to be placed with carcass when collected.***
Project:_____

DATE: _____ OBSERVER: _____ **Casualty ID #** (e.g. 1/1/01_BARS_T1_1)**:**

TIME: _____SPECIES/GROUP:
LOCATION (TURBINE NUMBER, MET TOWER NUMBER, OR OTHER):

Found During (circle one): Scheduled Carcass Search Incidental Find

---

CARCASS FREEZER TAG- ***to be placed with carcass when collected.***
Project:_____

DATE: _____ OBSERVER: _____ **Casualty ID #** (e.g. 1/1/01_BARS_T1_1)**:**

TIME: _____SPECIES/GROUP:
LOCATION (TURBINE NUMBER, MET TOWER NUMBER, OR OTHER):

Found During (circle one): Scheduled Carcass Search Incidental Find

---

CARCASS FREEZER TAG- ***to be placed with carcass when collected.***
Project:_____

DATE: _____ OBSERVER: _____ **Casualty ID #** (e.g. 1/1/01_BARS_T1_1)**:**

TIME: _____SPECIES/GROUP:
LOCATION (TURBINE NUMBER, MET TOWER NUMBER, OR OTHER):

Found During (circle one): Scheduled Carcass Search Incidental Find

FREEZER LOG

Date	Casualty ID	Bird or Bat	Found during SCS or IF[1]	O&M or BIOL	Collector's Initials

[1] SCS – Scheduled Carcass Search or IF – Incidental Find

INCIDENTAL OBSERVATIONS **Project Name:**_____ Page____of_____

OBSERVER: _____
DATE of first observation on this pg: _____ DATE of last observation on this pg: _____

DATE	OBS. No.	Time	Species	Sex	Age	No. in group	Dist from observer (m)	Habitat[a]	LOCATION Observed between pts: OR UTMs for sensitive spp.		Notes
								SB GR BG AG CR FR RO OT			
								SB GR RI WA CR FR RO OT			
								SB GR RI WA CR FR RO OT			
								SB GR RI WA CR FR RO OT			
								SB GR RI WA CR FR RO OT			
								SB GR RI WA CR FR RO OT			
								SB GR RI WA CR FR RO OT			
								SB GR RI WA CR FR RO OT			
								SB GR BG AG CR FR RO OT			
								SB GR RI WA CR FR RO OT			
								SB GR RI WA CR FR RO OT			
								SB GR RI WA CR FR RO OT			
								SB GR RI WA CR FR RO OT			
								SB GR RI WA CR FR RO OT			
								SB GR RI WA CR FR RO OT			
								SB GR RI WA CR FR RO OT			
								SB GR RI WA CR FR RO OT			
								SB GR RI WA CR FR RO OT			
								SB GR RI WA CR FR RO OT			
								SB GR BG AG CR FR RO OT			

[a]SB-shrub-steppe, GR-grassland, BG- bare ground, AG-agriculture, CR-CRP, FR-forest/woodlot, RO-rocky outcrop/cliff, OT-other

APPENDIX C

Environmental Compliance Manual for Peñascal Wind Project

CONSTRUCTION ENVIRONMENTAL COMPLIANCE MANUAL

Peñescal Wind Energy Project

PPM Energy

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Abbreviations and Acronyms

ESA	Endangered Species Act
Foundation	Sarita Kenedy Charitable Foundation
FWS	U.S. Fish and Wildlife Service
NMFS	National Marine Fisheries Service
PPM	PPM Energy
SWPPP	Stormwater Pollution Prevention Plan
TPWD	Texas Parks and Wildlife Department
Trust	John G. Kenedy Charitable Trust
TX ESA	Texas Endangered Species Act
USACE	U.S. Army Corps of Engineers

Project Description

The historic Kenedy Ranch has been subdivided into tracts that have been managed independently. The two primary units are the John G. Kenedy Charitable Trust (the Trust) and the Sarita Kenedy Charitable Foundation (the Foundation). Both units are managed for charitable purposes, primarily benefiting Catholic charities through the Diocese of Corpus Christi. The proposed project is located on properties belonging to the Trust (**figure 1**). PPM Energy, Inc. (PPM) is making an investment on the Trust tract to develop the wind energy resource on the site.

PPM proposes the development of a wind farm with generating capacity of between 200 and 600 megawatts. The project would be constructed in phases. The turbines will be approximately 97 meters in diameter, with a hub height of 100 meters. The total height of the turbines will be up to approximately 150 meters.

The actual construction site will be on the eastern portion of the site, from Peñescal Point, south along the eastern shore of the Laguna Madre Bay (**Figure 2**). The area is preferred because it receives the most reliable and strongest wind. It is also largely open grassland, with few areas of brush or oak motte habitat. The site has a few barren sand dunes. The prevailing southeast winds have shaped a series of upland ridges that are oriented in a southeast to northwest direction.

Wetlands at the site are present both as tidally influenced marshes along the edges of the bays and the Laguna Madre Bay and as freshwater marshes, inland from the shoreline. There are also areas of unvegetated mud flats that are subject to the ebb and flow of the tide.

Purpose of the Manual

The purpose of this manual is to familiarize construction crews with some of the protocols that must be followed during construction to assist the construction crews in remaining in compliance with environmental regulations and permits. It is not meant to be a comprehensive guide to these regulations. If situations arise that are not covered in this document, the on-site Environmental Inspector, PPM Environmental staff, or the appropriate State or Federal agency should be consulted before further action is taken.

Wetlands

Many areas of wetlands are found on the project site. Wetlands are defined by the U.S. Army Corps of Engineers *Wetlands Delineation Manual* (U.S. Army Corps of Engineers [USACE], 1987), as:

> *"… those areas inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas."*

PPM's desire to avoid all wetland impacts on the site has resulted in turbines and roads being located outside of wetland boundaries. The project site is highly dynamic. After heavy precipitation events areas of ponding can occur due to the presence of an aquatard clay layer and little to no topographic relief. During construction if turbine or road locations are flooded, the on-site Environmental Inspector from CH2M HILL (contact information list later in this document) should be contacted so that a wetland determination can be made. In areas that are determined to be a wetland, no activities, including but not limited to: clearing, grading, trenching, driving vehicles, or placing fill material, should occur.

There are four categories of wetlands that have been identified within the project area. These include:

- Salt marsh
- Brackish marsh
- Freshwater marsh and
- Unvegetated mudflats

Salt Marsh

Salt marshes are areas of low ground that are subject to regular or occasional flooding by tides. Salt marshes are dominated by halophytic (salt tolerant) herbaceous plants. Dominant plant species include glassworts (*Salicornia* sp.) and saltwort (*Batis maritima*).

Salt Marsh on the Kenedy Ranch

Brackish Marsh

Brackish marshes are areas that are affected by tidal action as well as water movement from freshwater marshes. Brackish marshes have a greater variety of plant life, and are dominated by cordgrasses such as Gulf cordgrass (*Spartina spartinae*).

Freshwater Marsh

Freshwater marshes are areas that are flooded for extended periods of time during the growing season, and are dominated by herbaceous emergent vegetation. Typical vegetation includes Asiatic pennywort (*Centella asiatica*), marsh pennywort (*Hydrocotyle umbellata*), Gulf cordgrass (*Spartina spartinae*), common rush (*Juncus effusus*), and various grasses in the genera *Panicum, Paspalum, and Andropogon*.

Mudflat

Mudflats are unvegetated areas consisting of mud and sand, and are regularly exposed and flooded by the tides. These habitats are typically found on the project site in close proximity to the Laguna Madre Bay.

Survey/Mitigation Techniques

- The on-site Environmental Inspector must clear all areas scheduled for construction and this should be confirmed prior to commencing construction activities.
- Confirmation that there are no wetlands could occur hours to days in advance of construction activities.
- Wetlands will be marked by the on-site Environmental Inspector with flagging and/or construction fencing while construction activities are active in that area.
- The on-site Environmental Inspector will complete wetland delineation documentation forms at each construction site (turbine location or road construction). Documentation should be competed as close to the date of construction as possible to provide PPM supporting evidence that every effort was taken to maximize avoidance and minimize impacts (targeted at zero impacts).
- The area should be monitored during construction by the construction contractor and the on-site Environmental Inspector. If heavy precipitation events occur after an area was initially cleared, the on-site Environmental Inspector should revisit the area and confirm that no activities are within wetlands.

Endangered Species

Legislative Authority

The federal Endangered Species Act (ESA) was passed by Congress in 1973 in an attempt to protect species that are threatened or in danger of extinction. The ESA attempts to do this by prohibiting the "take" of listed species and protecting the habitats that are required by listed species. Take is defined by the ESA as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in such conduct" (ESA § 3(19)).

The ESA charges the U.S. Fish and Wildlife Service (FWS) and the National Marine Fisheries Service (NMFS) with determining which species are eligible for listing as "endangered" or "threatened." Endangered is defined by the ESA as "any species which is in danger of extinction throughout all or a significant portion of its range." (16 U.S.C. § 1532(6); 50 C.F.R. § 424.02 (e)) and threatened is defined as "any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range" (16 U.S.C. § 1532(20); 50 C.F.R. § 424.02 (m)).

In the 1973 the Texas legislature passed a state Endangered Species Act (TX ESA) and authorized the Texas Parks and Wildlife Department (TPWD) to establish a list of threatened or endangered animal species. The TX ESA also prohibits the take of a listed species. This legislation defined endangered as those species which the Executive Director of the TPWD has determined to be "threatened with statewide extinction" (Chapters 67 and 68 of the Texas Parks and Wildlife Code and Sections 65.171-65.176 of Title 31 of the Texas Administration Code). Threatened species are defined as those species that are likely to become endangered in the future.

In 1988 the Texas legislature added plants to the TX ESA. Endangered plants are defined as those species that are "in danger of extinction throughout all or a significant portion of its range" (Chapter 88 of the Texas Parks and Wildlife Department Code and Sections 69.01-69.9 of the Texas Administrative Code). The definition of threatened remained the same.

Listed Species

Both the state and federal endangered species lists provide species status at the county level. However, there are no data to determine if the listed species would necessarily be found on a particular tract of land. Table 1 shows the listed species for Kenedy County and the probability of the species being impacted by the project. There are 43 state and federally listed species in Kenedy County. Based on analysis of habitats in the project area there are only two species that have a potential of being impacted during construction.

Prior to the start of construction, contractors will be trained by CH2M HILL environmental inspectors on how to identify the two listed species that have potential to be impacted by construction, their habitat, and how to survey for them. Prior to ground disturbing activities the area will be surveyed for these species by the on-site Environmental Inspector using the techniques discussed later in this document.

Table 1. Listed and Rare Species of Kenedy County

Common Name	Scientific Name	Federal Status	State Status	Potential for Impact from Construction
Amphibians				
Black-spotted Newt	*Notophthalmus meridionalis*	-	T	(b) (4) [redacted]
Mexican Treefrog	*Smilisca baudinii*	-	T	
Sheep Frog	*Hypopachus cariolosus*	-	T	
South Texas Siren	*Siren sp 1*	-	T	
Birds				
American Peregrine Falcon	*Falco peregrinus anatum*	DL	E	
Arctic Peregrine Falcon	*Falco peregrinus tundrius*	DL	T	
Brown Pelican	*Pelecanus occidentalis*	E	E	
Cactus Ferruginous Pygmy Owl	*Glaucidium brasilianum cactorum*	-	T	
Eskimo Curlew	*Numenius borealis*	E	E	
Northern Aplomado Falcon	*Falco femoralis septentrionalis*	E	E	
Northern Beardless Tyrranulet	*Camptostoma imberbe*	-	T	
Peregrine falcon	*Falco peregrinus*	DL	T	
Piping Plover	*Charadrius melodus*	T	T	
Reddish Egret	*Egretta rufescens*	-	T	
Rose-throated Becard	*Pachyramphus aglaiae*	-	T	
Sooty Tern	*Sterna fuscata*	-	T	
Texas Botteri's Sparrow	*Aimophila botterii texana*	-	T	
Tropical Parula	*Parula pitiayumi*	-	T	
White-faced Ibis	*Plegadis chihi*	-	T	
White-tailed Hawk	*Buteo albicaudatus*	-	T	
Wood Stork	*Mycteria Americana*	-	T	
Zone-tailed Hawk	*Buteo albonotatus*	-	T	
Fishes				
Opossum pipefish	*Microphis brachyurus*	-	T	
Mammals				
Coues' Rice Rat	*Oryzomys couesi*	-	T	
Jaguar	*Panthera onca*	E	E	

Common Name	Scientific Name	Federal Status	State Status	Potential for Impact from Construction
Jaguarundi	*Herpailurus yaguarondi*	E	E	Unlikely; no suitable habitat found in the project area
Ocelot	*Leopardus pardalis*	E	E	(b) (4) [redacted]
Red Wolf	*Canis rufus*	-	E	[redacted]
Southern Yellow Bat	*Laisurus ega*	-	T	[redacted]
West Indian Manatee	*Trichechus manatus*	-	E	[redacted]
White-nosed Coati	*Nasua narica*	-	T	[redacted]
Reptiles				[redacted]
Atlantic Hawksbill Sea Turtle	*Eretmochelys imbricate*	E	E	[redacted]
Black-striped Snake	*Coniophanes imperialis*	-	T	[redacted]
Green Sea Turtle	*Chelonia mydas*	T	T	[redacted]
Indigo Snake	*Drymarchon corais*	-	T	[redacted]
Kemp's Ridley Sea Turtle	*Lepidochelys kempii*	E	E	[redacted]
Leatherback Sea Turtle	*Dermochelys coriacea*	E	E	[redacted]
Loggerhead Sea Turtle	*Caretta caretta*	T	T	[redacted]
Northern Cat-eyed Snake	*Leptodeira septentrionalis septentrionalis*	-	T	[redacted]
Texas Horned Lizard	*Phrynosoma cornutum*	-	T	[redacted]
Texas Scarlet Snake	*Cemophora coccinea lineri*	-	T	[redacted]
Texas Tortoise	*Gopherus berlandieri*	-	T	[redacted]
Plants				[redacted]
South Texas ambrosia	*Ambrosia cheiranthifolia*	E	E	[redacted]

DL= De-listed, T= Threatened, E= Endangered

Texas Horned Lizard (Phrynosoma cornutum)

Status: State listed Threatened

Description

A small, wide-bodied, spiny lizard with long spines on the head. The Texas Horned Lizard ranges in size from 2 ½ -4 ½ inches in length. The ventral surface (belly) of the lizard is either gray or tan. The dorsal surface (back) of the lizards is mainly brown, yellowish, tan, reddish, or gray with dark brown spots on the neck, back, and tail.

Range and Life History

In North America, the range extends from extreme western Missouri and central Kansas to southeastern Colorado, and south and west throughout most of Oklahoma and Texas, eastern and southern New Mexico, and southeastern Arizona. In Texas, they are usually only seen in the western third of the state, but suitable habitat is present at Peñescal and the species may be present.

The Texas Horned Lizard is a diurnal lizard. Lizards are usually seen basking in the sun during early morning hours, and spend the hotter hours of the day in burrows, or hiding in the shade. Texas Horned Lizards hibernate in burrows from late summer to late spring.

The Texas Horned Lizard's diet consists mainly of ants, though they will supplement these with termites, beetles, and grasshoppers. Breeding occurs in late spring upon emergence from hibernation. Females lay clutches of 14 to 60 eggs in shallow burrows in moist, sandy areas.

Habitat Requirements

The Texas Horned Lizard inhabits flat, open, arid and semiarid regions (deserts, prairies, dunes, foothills) with sparse vegetation. Lizards are found on soils that vary in texture from sandy to rocky.

Survey/Mitigation Techniques

- Prior to construction, contractors will be trained on the identification, habitat, and survey techniques for this species.

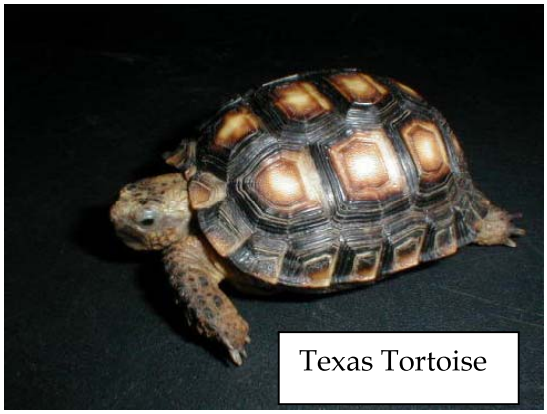
- The on-site Environmental Inspector must clear all areas scheduled for construction and this should be confirmed prior to commencing construction activities. Confirmation that there is no habitat present could occur hours to days in advance of construction activities.
- Trained Contractors will walk in the area to be disturbed immediately prior to earth disturbing activities to confirm that no individuals are present.
- The area should be monitored during construction by the construction contractor and the on-site Environmental Inspector.
- If an individual is encountered it should be allowed to leave the area, or it should be carefully moved to an area outside of the construction area and the onsite CH2M HILL environmental inspector should be contacted.
- The Texas horned lizard must not be captured, injured, or removed from the site.

Texas Tortoise (Gopherus berlandieri)

Status: State Listed Threatened

Description

The Texas Tortoise has yellowish-orange, "horned" scutes (plates) on its shell, and elephant-like hind legs. Texas Tortoises range in size from 5 ½ to 8 inches. Care must be taken to not confuse this tortoise with the Ornate Box Turtle (*Terrapene ornata ornata*) (see photos).



Range and Life History

The Texas Tortoise occurs generally south of the line connecting Del Rio, San Antonio, and Rockport in Texas. In Mexico, the range extends southward through eastern Coahuila and Nuevo Leon into San Luis Potosi.

The Texas Tortoise is active during early morning and late afternoon hours in the summer and during midday in the spring and fall. Tortoises hibernate during the winter months. Females lay groups of one to several eggs in spring and summer. Eggs are laid in nests in soil near or under bushes. The Texas Tortoise has the slowest growth rate of any species within its genus, but may live 40 years or more.

The Texas Tortoise is an herbivore and eats primarily cacti, grasses and forbs. However, they have been documented to eat insects, land snails, and tortoise and rabbit feces.

Habitat Requirements

The Texas Tortoise' preferred habitat is dry, open brush land with a grass understory. They normally spend their time resting in shallow depressions, though they will occasionally burrow. They will often utilize mammal burrows to conceal themselves.

Survey/Mitigation Techniques

- Prior to construction contractors will be trained on the identification, habitat, and survey techniques for this species.
- The on-site Environmental Inspector must clear all areas scheduled for construction and this should be confirmed prior to commencing construction activities. Confirmation that there is no habitat present could occur hours to days in advance of construction activities.
- Trained Contractors will walk in the area to be disturbed immediately prior to earth disturbing activities to confirm that no individuals are present.
- The area should be monitored during construction by the construction contractor and the environmental inspector.
- If an individual is encountered it should be allowed to leave the area, or it should be carefully moved to an area outside of the construction area and the onsite CH2M HILL environmental inspector should be contacted.
- The Texas tortoise must not be captured, injured, or removed from the site.

Erosion and Sediment Control

The provisions of this section are covered under separate cover in the Storm Water Pollution Prevention Plan (SWPPP).

Invasive and Nuisance Species Control

Exotic species are defined as "those that exist outside their natural range or natural zone of dispersal and include domesticated and feral species and all hybrids" (Langeland and Burks, 2000). Many exotic species have been naturalized without adversely impacting native floral communities. Exotic species that, due to their rapid colonization and growth, out-compete and cause a decrease of native species are classified as invasive. Invasive species often reduce the species diversity of an area and impact animals which forage on native species. In general, these plants are also considered to be "nuisance" species.

Responsibility

Based on habitat identification during initial field work, no areas of invasive or nuisance species were observed. However, care must be taken to prevent the spread of these species onto the project site from other areas. The contractor is responsible for ensuring that equipment comes on site clean and free of plant matter. The PPM onsite construction manager and the onsite Environmental inspector have the authority to require that dirty equipment be turned around, taken off site and cleaned before reentering the site. This will prevent seeds or pieces of vegetation from being transplanted onto the site.

Post Construction Monitoring

Once turbine locations have been constructed, all exposed areas must be covered with hay and top seeded with coastal grasses to reduce erosion. The Trust will be consulted in the final selection of specific species of grasses. In some cases the construction manager may determine that further erosion control methods, such as armament maybe needed. Hay should be acquired from the on site source provided by the Trust. Should these sources not be sufficient, local hay sources should be used to minimize the inadvertent introduction of nuisance plant species.

Post construction, the project area and the specific construction sites should be monitored once every three months during the growing season (March to November) for the presence of invasive or nuisance species. If invasive species are identified, an appropriate control method (biological, mechanical, chemical) should be implemented as soon as possible to reduce the risk of the species spreading and becoming established. Once a control method has been established the appropriate contractor who is qualified to conduct the work will be identified by PPM or their designate. This should continue until such time as the disturbed areas have re-vegetated to preconstruction levels with native species. Re-vegetation should occur within two growing seasons. If this has not occurred these areas should be reseeded.

Literature Cited

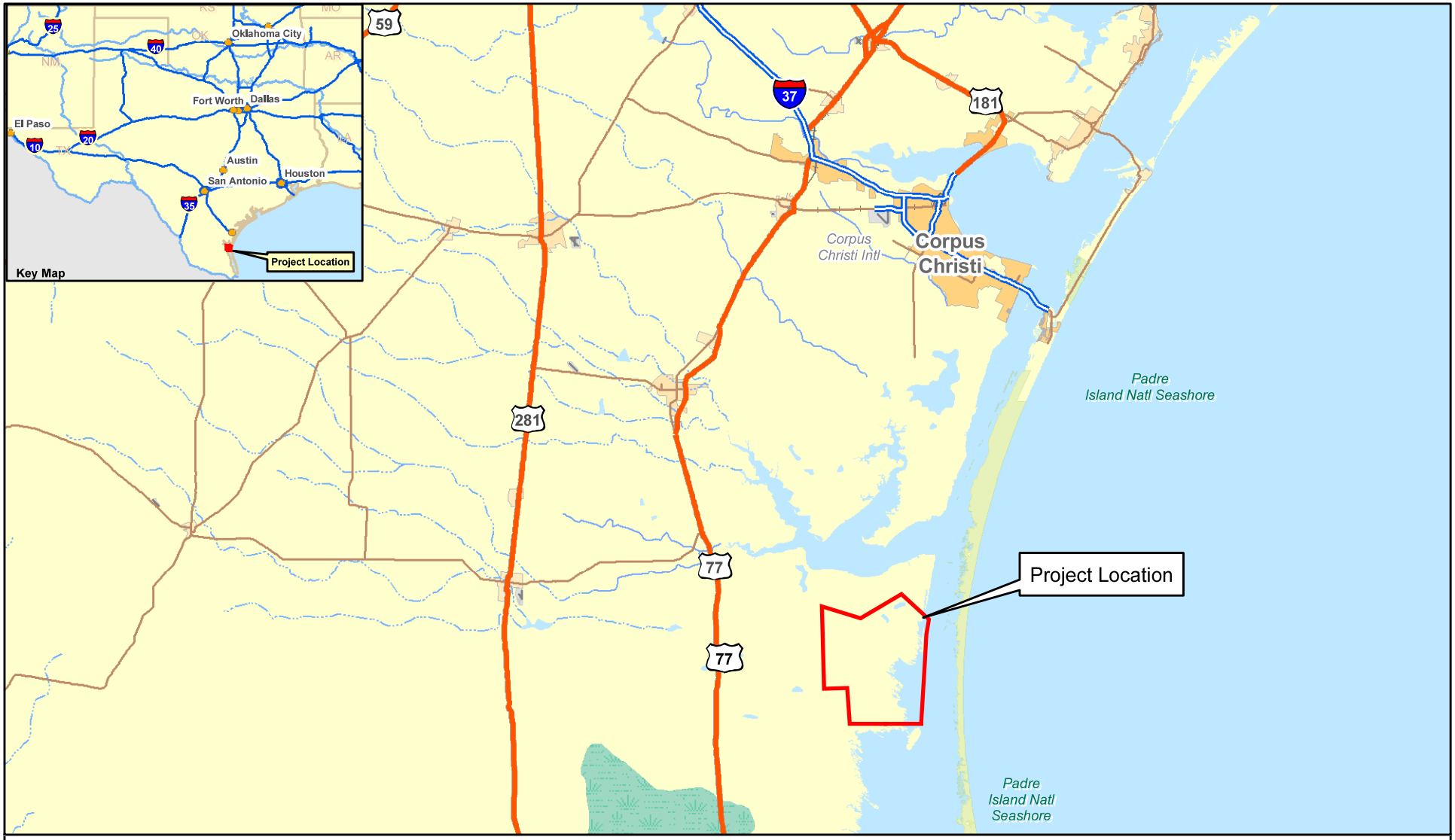
U.S. Army Corps of Engineers Environmental Laboratory (USACOE). 1987. Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.

Langeland, K. A. and K. C. Burks. 2000. Identification and Biology of Non-Native Plants in Florida's Natural Areas. Agronomy Department. University of Florida, Gainesville, Florida.

Contact Numbers

Federally Endangered Species Ecological Services Field Office U.S. Fish and Wildlife Service c/o Corpus Christi State University Campus Box 338 6300 Ocean Dr. Corpus Christi, Texas 78412 316-994-9005	***Project Biologist*** Mike Robbins Office: 713-462-0169 ext 261 Cell (b) (6) [redacted] CH2M HILL 7600 West Tidwell Road, Suite 600 Houston, Texas 77040
State Endangered Species Texas Parks and Wildlife Department 4200 Smith School Road Austin, Texas 78744 512-912-7011	***Project Biologist*** Jennifer Korenek Office: 713-462-0169 ext 232 Cell: (b) (6) [redacted] CH2M HILL 7600 West Tidwell Road, Suite 600 Houston, Texas 77040
Wetlands U.S. Army Corps of Engineers John Wong 5151 Flynn Parkway, Suite 306 Corpus Christi, Texas 78411 361-814-5847 ext 126	***PPM Project Manager*** Erik Lallum Office: 503-796-6929 Cell: (b) (5) [redacted] 1125 NW Couch, Suite 700 Portland, Oregon 97209
CH2M HILL Project Manager Chris McCarthy Office: 713-462-0169 ext 314 Cell: (b) (6) [redacted] CH2M HILL 7600 West Tidwell Road, Suite 600 Houston, Texas 77040	***PPM Environmental Staff*** Andy Linehan Office: 503-796-6955 Cell: (b) (5) [redacted] Sara Parsons Office: 503-796-7732 Cell: (b) (6) [redacted]

Figures



Legend

Approximate Project Boundary

N

5 0 5 10 15 Miles

Figure 1
Vicinty Map

Penascal Windfarm Project
Kenedy County, Texas

CH2MHILL

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(b) (4)

[redacted]

- Proposed Turbine
- Alternate Turbine
- Proposed Permanent Met Tower
- Proposed Permanent Sodar
- Proposed Substation
- Proposed Access Roads
- Proposed Transmission Routes
- Existing Transmission Line
- Ephemeral Marshes
- Oak Mottes
- Oak Mottes Setback (400m)
- Ephem Marshes Setback (200m)
- Kenedy Ranch Boundary (Approx.)
- Initial Phase Development Area
- Depressions
- Sand Dunes (2004)
- Mud Flats

N

0 0.5 1 1.5 2

Miles

Figure 2

Project Facilities

Penascal Wind Project

PPM Energy
A ScottishPower Company

File Path: Z:\Projects\TX\Penescal\MapDocuments\O-Drive\Project Facilities (C-size).mxd, Date: December 3, 2007 2:42:17 PM

APPENDIX D

Consultation Letter from USFW, April 24, 2008

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Services
c/o TAMU-CC, Campus Box 338
6300 Ocean Drive
Corpus Christi, Texas 78412

April 24, 2008

Stephen W. Carothers, Ph.D.
SWCA
4407 Monterey Oaks Blvd, Building 1
Suite 110
Austin, TX 78749

Consultation No. 21410-2008-I-0186

Dear Dr. Carothers:

This responds to your April 9, 2008, letter and report on PPM Energy, Inc.'s Penascal Wind Project near Kingsville in Kenedy County, Texas. The project is proposed to be built over 12 months and will include installation of 84 wind turbines with about 38 miles of interior access roads, associated vegetation clearing, and construction material stockpiling. The U.S. Fish and Wildlife Service (Service) has previously coordinated on this project with site visits and meetings.

On February 8, 2008, the Service corresponded with PPM Energy about acquiring additional documentation of effects or take determinations for threatened and endangered species potentially in the project area. We appreciate receiving the April 9 "Analysis of the Potential for Impacts to Federally Listed Species at the Penascal Wind Energy Development, Kenedy County, Texas." The Service has reviewed the report.

The piping plover (*Charadrius melodus*), interior least tern (*Sterna antillarum athalassos*), and brown pelican (*Pelecanus occidentalis carolinensis*) are listed species known from Kenedy County that are not predicted to be impacted by the project. Interior least terns and piping plovers are not expected to be in the project area, and brown pelicans are not expected to regularly occur in the project area and are being delisted. Also, South Texas ambrosia (*Ambrosia cheiranthifolia*) is listed for Kenedy County because potential habitat is present but no plants are known from the ranch property so it is not expected to be impacted.

The northern apolomado falcon (*Falco femoralis septentrionalis*) is known from Kenedy County. However, the project area lacks many nesting or hunting structures such as tree snags or yuccas and a high number of great horned owls are reported on site. The owls are known to prey on Aplomado falcons. It is also believed that any falcons that might pass through the area would have keen sight and likely avoid turbines so no harm is anticipated to Aplomado falcons. Endangered ocelots (*Leopardus pardalis*) and jaguarundi (*Herpailurus yaguarondi*) are not

expected to regularly use the project area as the woodlands on site are scattered and without dense understory preferred by the cats. No dens or home ranges for ocelots or jaguarundis are known to be in the area. In order to minimize any possibility of a dispersing ocelot or jaguarundi that might move across the ranch being harmed, the following measures will be implemented:

- To minimize potential impacts to the endangered cats construction trade workers will be bussed in from the main highway to minimize the potential for vehicles strikes.

- Low speed limits of 25 miles per hour will be posted and 15-foot wide shoulders will be mowed along the roadways so that wildlife, ocelots in particular, are visible to drivers.

- Construction trade workers will attend an environmental training to learn to reduce risks to ocelots and other wildlife.

PPM has agreed to implement the above measures to protect endangered species and we understand that the company believes that the risk of the project taking a listed species is very low. The Service also understands that the wind project will not be constructed, authorized or funded by a federal agency and is being carried out by private non-federal interests and based on our meetings, conversations, the April 9 report, and the measures being implemented we believe the potential for taking a listed species has been minimized.

Should project plans change, additional information on the distribution of listed or proposed species becomes available, the potential for endangered species to be taken increases, or a federal nexus is identified, we recommend PPM contact the Service for further Endangered Species Act options such as a section 7 consultation and/or a section 10(a)(1)(B) incidental take permit.

State Listed Species

The State of Texas protects certain species. Please contact the Texas Parks and Wildlife Department (Endangered Resources Branch), Fountain Park Plaza Building, Suite 100, 3000 South IH-35, Austin, Texas 78704 (telephone 512/912-7011) for information concerning fish, wildlife, and plants of State concern or visit their website at http://www.tpwd.state.tx.us/nature/endang/animals/mammals/.

Thank you for your concern for endangered and threatened species and other wildlife resources. If we can be of further assistance please contact Pat Clements at (361) 994-9005.

Sincerely,

for Allan M. Strand
Field Supervisor

cc: Andrew Linehan, PPM Energy
David Hayes, Latham & Watkins LLP
David Savage, Baker Botts LLP