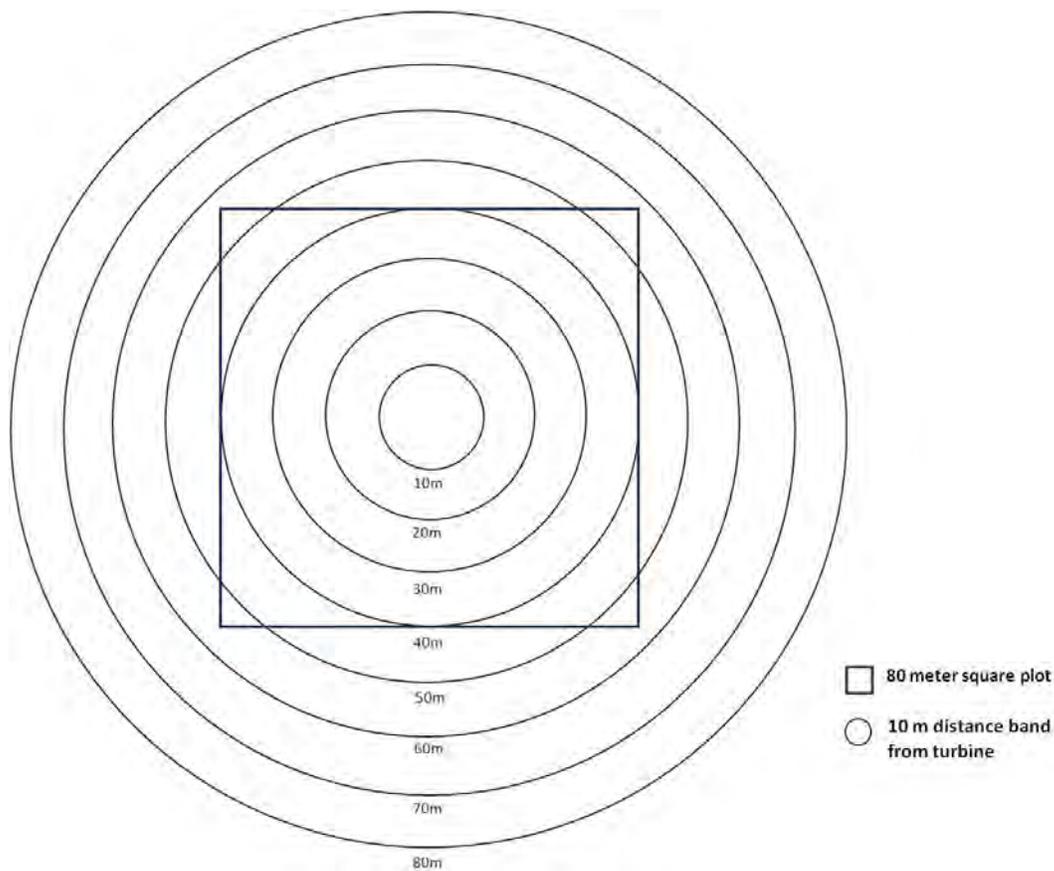


## **Appendix B**

Methodology for Calculating Adjustment Factor for Carcasses  
Falling Outside 80m X 80m Plots In 2010

## Appendix B - Methodology for Calculating Adjustment Factor for Carcasses Found Outside Of 80 X 80-M Square Plots

Casualty estimates from the 2010 fatality study at FRWF were based on searches with 80 m x 80 m square cleared search plots. To account for bat fatalities that might have occurred outside the 80 m x 80 m square plots, the bat mortality estimate was revised based on data from 80 m-radius cleared circular plots monitored at FRWF in 2011. To adjust the data collected in 80 m x 80 m square plots at FRWF in 2010, it was necessary to account for portions of each distance band beyond 40 m that were searched. When 80 m square plots are searched, the corners of the plots are more than 50m away from the turbine, while the sides of the plots are exactly 40 m from the turbine (Figure 4.1). Thus, there was a small proportion of the area beyond 40 m from the turbine that was searched: 42.2% of areas within 40 to 50m from the turbine were searched and 3.9% of areas 50 to 60m from the turbine were searched.



**Figure 4.1** Diagram of search areas included in 80 m X 80 m square plots used for mortality monitoring in 2010 at the FRWF.

Of the 151 fatalities found on cleared plots in 2011, 70.86% were found within 40 m of the turbine, an additional 12.58% of fatalities were found within 50 m of turbines, and 10.60% more were found within 60 m of turbines. The percentage of fatalities found within 80 m x 80 m plots was estimated by averaging the percentage of fatalities that occurred in each distance band, weighted by the proportion of each distance band searched in the 80m x 80m plots (percentage within 80 m x 80 m plot =  $1(70.86) + 0.42(12.58) + 0.04(10.60) = 76.6\%$ )<sup>1</sup>. This resulted in an estimate of approximately 23.4% of fatalities that were likely to have fallen beyond the 80 m x 80 m search plots in 2010.

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<sup>1</sup> Percentage of fatalities falling within the search plot = (proportion of area searched within 40 m of the turbine in 2010 x the percentage of fatalities found within 40 m of the turbine in 2011) + (proportion of area searched between 40 m – 50 m from the turbine in 2010 x percentage of fatalities found between 40 m – 50 m from the turbine in 2011) + (proportion of area searched between 50 m – 60 m from the turbine in 2010 x percentage of fatalities found between 50 m – 60 m from the turbine in 2011).

## **Appendix C**

Bloomington Field Office Draft Indiana Bat (*Myotis sodalis*)  
Mitigation Guidance for Wind Energy Habitat Conservation Plans

# Bloomington Field Office Draft Indiana Bat (*Myotis sodalis*) Mitigation Guidance for Wind Energy Habitat Conservation Plans

## Draft Impact of Take Calculation for Migratory Indiana Bats at Wind Energy Facilities

A. 3:1 ratio of females to males (migratory bats) is supported

1. More females will be in the population further from a hibernaculum
2. Bats migrating in fall likely 75% female based on a 1:1 sex ratio (and 1. above)<sup>1</sup>

B. Impact on Colony Analysis<sup>2</sup>

1. Addresses impact to colony – taken bats and offspring plus habitat
2. Requires key assumptions
  - a) Summer habitat of lost bat remains functional on landscape
  - b) Colony persists with additional loss from wind energy take
  - c) Taken bat is reproductively active adult female
  - d) Taken bat is from stable colony with saturated summer habitat
  - e) Available non-reproductive females will occupy vacant summer habitat within two years
3. Year 1 ( $0.91^3$  survival x  $0.60^4$  fecundity) offspring + Year 2 ( $0.91$  survival x  $0.60$  fecundity) offspring = 1.1 lost bats for every lost female
4. Mitigation debt =  $X^5$  total lost bats +  $X^6$  lost pups (based on lost females only using 3:1 ratio) = impact of take

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<sup>1</sup> Bats leaving maternity colonies will be mostly adult females with pups having a 1:1 male-female ratio.

<sup>2</sup> This analysis incorporates the concept that wind energy facilities take bats and not habitat and that habitat's function is interrupted but not eliminated and therefore remains important to the colony – requires key assumptions.

<sup>3</sup> Thogmartin, et. al paper “stationarity” model fitting to a stationary population in the last 20 years uses 0.96 as adult winter survival and 0.95 as adult summer survival resulting 0.91 adult survival from take in the fall to lost opportunity for reproduction the following summer.

<sup>4</sup> Probability from “stationarity” demographic model of adult propensity to breed (0.78) multiplied by breeding success (0.77). The simplifying assumption of adults only limits assumptions in the numbers.

<sup>5</sup> This number will come from the estimate of take.

<sup>6</sup> This number uses the estimate of take and the formula in B.3.

## Mitigation Framework for Impacts to Bats from Wind Energy Facilities

Mitigation for the impact of taking of Indiana bats associated with wind energy development projects in Indiana is divided into two categories: summer habitat (maternity colony) mitigation, and non-summer habitat (hibernaculum gating and staging/swarming) mitigation. Because of the Indiana bat's complex life-cycle and the importance of both summer and non-summer habitat to this species, and because of the uncertainty inherent in both types of mitigation, the BFO will require that an applicant complete both summer and non-summer habitat mitigation to fully compensate for the impact of the taking. At this point in time, maternity colony, hibernaculum gating, and staging/swarming are the mitigation options that the BFO has confidence will fully compensate for the impact of the taking from wind energy development projects in Indiana. Applicants are encouraged to bring other options to the BFO for discussion and evaluation. White Nose Syndrome (WNS), which seems likely to change the demographics of Indiana bats and other bats in Indiana over the next few years will require new and creative mitigation solutions. One aspect of this may be the need to delay some of an applicant's required mitigation until we understand the impact of WNS. Nevertheless, the applicant will be required to implement some mitigation, typically enough to stay two to three years ahead of the estimated take, early in a project's life.

### I. Summer Habitat Mitigation

#### A. 60-acre summer habitat baseline per female

1. Data indicate that 60 acres supports 1 female Indiana bat (i.e., if 60 acres of habitat is added, the colony can support one additional adult female each reproductive season).<sup>7</sup>
2. The reproductive potential of the added female = 0.55 pup / year (note the 60 acres does not guarantee reproductive habitat for any of these (female) pups).<sup>8</sup>
3. One female bat will occupy the sixty acres each year and produce 0.55 pup each year (note we can't say anything about future generations in part because there may not be habitat for those pups) –one female will be provided with reproductive habitat (the 60 acres) and therefore she will produce offspring - **60 acres = 39 bats = 1 adult / year + 0.55 pups / year for 25 years**).

#### B. Duration of the mitigation benefit

1. Benefit (1.55 bats / 60 acres baseline) accrues every year that the colony persists and the habitat is extant. Since bats have high site fidelity and colonies are known to persist under less than ideal conditions, the Service assumes that the benefits of habitat restoration will accrue for 25 years.<sup>9</sup> Compliance monitoring of the habitat and periodic monitoring to demonstrate that the colony persists must occur over the life of the project.

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<sup>7</sup> This includes the simplifying assumption that individual female home ranges do not overlap.

<sup>8</sup> The estimates used in this calculation follow those of the USGS/FWS model for a stable Indiana bat population over the last two decades. This "stationarity" baseline for estimating parameters in the model is supported by biennial winter survey data over the same period. The parameters with their estimates include: adult winter survival (0.96); adult summer survival (0.95); adult propensity to breed (0.78); and adult breeding success (0.77). We assume that based on the estimates above, there is a high probability (0.55) that a female bat survives both the winter and summer and produces one pup during the breeding period.

<sup>9</sup> Indiana bats exhibit very strong fidelity to maternity colony sites. Although we knew virtually nothing of the reproductive ecology of Indiana bats before the 1970s, we now have documentation of maternity colonies inhabiting the same area for more

### C. Prerequisite conditions for summer habitat mitigation credit

1. A summer habitat mitigation plan (SHMP) outlining what is proposed, how the various components score (see below), where the mitigation will take place, and other relevant information will be provided for the Service's review and approval at least 6 weeks prior to committing resources on the ground (e.g., planting trees, acquiring easements, etc.) No mitigation value is applied to an SHMP; rather it is a required first step in developing a summer habitat mitigation project.

2. All restoration/protection must be directed to existing maternity colonies and must meet the following requirements.<sup>10</sup>

a) Within the home range of a known maternity colony (for BFO this is an area of about 12.6 square miles or 8,064 acres per maternity colony)<sup>11</sup>

b) Within Indiana counties that are 30% or less forested<sup>12</sup>

c) Within the 8-digit hydrologic unit code (HUC) where practical<sup>13</sup>

3. Summer habitat mitigation will occur in 60-acre habitat blocks and a single 60-acre block cannot be "broken-up" across multiple maternity colony sites, but can be "broken-up" within a single maternity colony provided all other requirements are met for each parcel

a) 1 – 39 bats = 60-acre baseline (must occur within 1 maternity colony)

b) 40 – 78 bats = 120-acre baseline (could occur within 2 maternity colonies)

c) 79 – 117 bats = 180-acre baseline (could occur with 3 maternity colonies)

4. All mitigation (protection and restoration) must be protected in fee title, by restrictive easement, or a similar mechanism that protects the integrity and function of the mitigation site(s) for Indiana bats in perpetuity.

5. Publicly owned land is not considered viable summer habitat mitigation except in exceptional cases.<sup>14</sup> The Service will consider these on an individual basis.

6. Summer habitat mitigation cannot mitigate for 100% of the impact of the taking.

### D. Baseline mitigation scoring based on key factors of Indiana bat habitat mitigation - the factors below affect the baseline value.

1. A score approaching 100 equates to baseline (60 acres = 39 bats) and lower scores require additional mitigation acres to reach the baseline number (39) of bats mitigated.

a) Score of 86 - 100 = 60 acres;

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than 20 years when the habitat remains suitable. Therefore we think it is reasonable to conclude that colonies where mitigation occurs would persist for a minimum of 25 years.

<sup>10</sup> A list of acceptable maternity colony mitigation sites will be provided by the Service.

<sup>11</sup> This represents a 2.0 mile radius circle in place of the more common 2.5 mile radius circle.

<sup>12</sup> U.S. Forest Service. 2011. Indiana's Forests, Research Bulletin NRS-45. U.S. Forest Service, Newton Square, PA.

<sup>13</sup> See [http://nwis.waterdata.usgs.gov/tutorial/huc\\_def.html](http://nwis.waterdata.usgs.gov/tutorial/huc_def.html)

<sup>14</sup> Publicly owned land often has suitable protection and management.

- b) Score of 71 - 85 = 65 acres;
- c) Score of 56 - 70 = 70 acres;
- d) Score <56 - project is not viable

#### E. Factors considered in valuing baseline mitigation and scores

1. Existing Summer Habitat Threat – immediate threat to existing summer habitat is intended to address those existing forested areas that are likely to be destroyed or significantly compromised in the near future (e.g., a site is zoned or otherwise designated for development, development has occurred consistently in the direction of the habitat and development is likely to occur in the next 10 years). The Service will review documentation of threat on a case by case basis.

- a) Demonstrable threat score = 10 points
- b) No immediate threat score = 5 points
- c) No existing habitat protected = 0 points

2. Restoration of Habitat – must also include protection (fee simple, easement, or other method agreed upon by the applicant and the Service) and can only be used to enhance travel corridors or enlarge existing blocks of habitat (restoration of stand-alone forest blocks is not accepted).

- a) Project is restoration = 10 points
- b) Project is not restoration = 0 points

3. Forest Cover – generally more benefit to Indiana bats is achieved by implementing mitigation within home ranges of maternity colonies where there is lower forest cover.<sup>15</sup>

- a) <10% forest cover = 25 points
- b) 10 - 19.9% forest cover = 20 points
- c) 20 - 29.9% forest cover = 15 points
- d) 30 - 39.9% forest cover = 10 points
- e) ≥40% forest cover = 5 points

4. Forest blocks – many existing forested blocks within maternity colony home ranges are small – there is benefit in both protecting the larger existing blocks and restoring habitat adjacent to the smaller blocks to increase their size.

- a) Protect largest existing forest blocks
  - i. >20 acres = 10 points
  - ii. 5 - 20 acres = 5 points

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<sup>15</sup> This will typically require a straightforward GIS analysis using a 2 mile radius circle encompassing the center of the home range and calculating the forest cover (based on USGS or other acceptable data) within that 2 mile radius circle.

iii. <5 acres = 0 points

b) Restore contiguous non-forested land to increase the size of smaller existing forested blocks

i. >20 acres = 10 points

ii. 10 - 20 acres = 5 points

iii. <10 acres = 0 points

5. Decreased Fragmentation – decreasing fragmentation increases the effective size of the remaining forest – this can be achieved by providing travel corridors to connect existing forested blocks that are more than 1,000 feet apart (existing blocks less than 1,000 feet apart are not accepted).<sup>16</sup>

a) Restoration of riparian connections between existing forested blocks of at least 10 acres = 25 points<sup>17</sup>

b) Restoration of non-riparian connections between existing forested blocks of at least 10 acres = 20 points

c) No restoration of travel corridors = 0 points

6. Known Roosting Habitat - restoration or protection to enhance known roosting habitat is important to Indiana bats, but this may or may not be easily determined from available data or even data collected as part of the SHMP.

a) Habitat restoration or protection that includes a primary roost = 10 points

b) Habitat restoration or protection that includes an alternate roost = 5 points

c) Habitat restoration or protection includes no roost or the status is unknown = 0 points

#### F. Requirements for protection of existing habitat

1. Roosting or foraging habitat protection must occur in block sizes of 5 acres or larger but stand-alone forest blocks must be a minimum of 20 acres (e.g., protection of a minimum of 5 acres of occupied forest within a block at least 20 acres would be acceptable).

2. Corridors must include protection of a minimum of 5 acres of the occupied habitat and a minimum of 20 acres of the terminus of the corridor (note the terminus could be 20 acres of extant habitat or habitat restored as part of the mitigation), and terminus must be at least 1,000 feet from occupied habitat.

3. Should typically focus on maternity colonies with higher percentage of forest cover or imminent level of threat.

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<sup>16</sup> Typically wider corridors (up to a point where there are diminishing returns) are better; 25 – 50 feet may be a useful metric. Narrower corridors can also function, but would typically have to be at least 2-3 tree rows wide.

<sup>17</sup> Note that corridors must be protected and many riparian zones in Indiana have existing drainage easements.

4. Compliance monitoring for protection of existing habitat will include:

- a) Initial confirmation that the habitat slated for protection is suitable based on Service guidelines for either foraging or roosting habitat.
- b) Monitoring every 2 years from aerial photos (or a report from the land managing agency) confirming that the mitigation requirements are being met.

G. Requirements for restoration of habitat<sup>18</sup>

1. Must occur within Indiana counties that are 30% or less forested.<sup>19</sup>
2. Should occur within the same 8-digit hydrologic unit code (HUC) as the wind facility, where practical.<sup>20</sup>
3. Must be used to: enlarge existing blocks of habitat (completed blocks greater than 20 acres are preferable); or create or enhance travel corridors and their termini – corridors must go from occupied habitat to existing or restored sites of at least 20 acres. Terminus sites must be greater than 1,000 feet from the occupied habitat, and the protected corridor must be a minimum of three trees wide (30 feet). A minimum of 5 acres at the occupied terminus and 20 acres at the restored unoccupied terminus along with the corridor must be permanently protected.
4. Must include each of three categories of trees: softwoods, hardwoods, and cottonwood (*Populus deltoides*) - the percentage of each category can be determined by the individual restoration goals and the site, but no component can equal zero.
5. Must use trees native to the restoration site and where practical, locally adapted.
6. Must use seedlings with a minimum planting density of 544 trees per acre (8 x 10) spacing.
7. Should focus on maternity colonies with a low percentage of existing forest cover (less than 20 percent).
8. Compliance monitoring for restored and protected habitat will include:
  - a) Initial confirmation that the site was planted using an appropriate species mix, spacing, site preparation, etc.
  - b) Monitoring after 3 years to confirm at least a 70% survival rate of planted species and again at 7 years to confirm a minimum stand density of planted and volunteer native trees equal to at least 70% of the planted density (e.g., planting on 8x10 spacing = 544 trees/acre and 70% is 381 native trees per acre).
  - c) Monitoring every 2 years from aerial photos (or a report from the land managing agency) confirming that the mitigation requirements are being met.

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<sup>18</sup> For specific planting guidelines see U.S. Dept of Agriculture, Natural Resource Conservation Service Conservation Practice Standard Code 612, Tree/Shrub Establishment, Indiana NRCS FOTG, October 2006.

<sup>19</sup> U.S. Forest Service. 2011. Indiana's Forests, Research Bulletin NRS-45. U.S. Forest Service, Newton Square, PA.

<sup>20</sup> See [http://nwis.waterdata.usgs.gov/tutorial/huc\\_def.html](http://nwis.waterdata.usgs.gov/tutorial/huc_def.html).

d) Monitor at 7 years for invasive species – invasive species that threaten the function of the mitigation for Indiana bat habitat must be controlled to remove that threat between years 7 and 10.<sup>21</sup>

#### H. Monitoring for Indiana bat maternity colony presence and persistence at mitigation sites

1. Prior to implementing any summer habitat mitigation project, surveys must be conducted to confirm the presence of an existing maternity colony in the area of interest. The presence/probable absence surveys shall:

- a) be carried out by personnel approved and permitted by the Service;
- b) follow established protocols that have been approved by the Service;
- c) include mist-netting efforts that adhere to the *Indiana Bat Mist-Netting Guidelines* and are approved by the Service's Bloomington Field Office;
- d) include telemetry studies to identify roost tree locations.<sup>22</sup>

2. Following implementation of any summer habitat mitigation project, surveys must be conducted every three years to confirm the persistence of a maternity colony in the protected/restored habitat. The presence/probable absence surveys shall:

- a) be carried out by personnel approved and permitted by the Service;
- b) follow established protocols that have been approved by the Service;
- c) include mist-netting efforts that adhere to the *Indiana Bat Mist-Netting Guidelines* and are approved by the Service's Bloomington Field Office. Upon capture of an adult female or juvenile Indiana bat at any mist-net site within the project area further mist-netting efforts at all sites can be discontinued.

#### II. Hibernacula Mitigation (Gating)<sup>23</sup>

There are limited opportunities for this type of mitigation, and cave gating is challenging as a mitigation strategy because there is currently no standard approach for measuring how much Indiana bat take is mitigated for with the installation of a gate. Nonetheless, if a large vulnerable population is under imminent threat of human disturbance at a hibernaculum, then the Service will accept gating as partial mitigation for the impact of take by assuming a gating project would avert a marginal baseline impact equating to loss of 1% of the vulnerable population. If there is not a large, vulnerable population, or if threat is not of sufficient urgency, gating will not be a viable mitigation strategy.

#### A. Prerequisite conditions for a Hibernaculum gating project

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<sup>21</sup> In some cases where invasive species are identified and expected to be problematic, but the site is otherwise suitable, additional monitoring and corrective action may be required.

<sup>22</sup> This is imperative in determining the maternity colony home range.

<sup>23</sup> Other hibernacula – related mitigation projects (e.g., acquisition or restoration) might also provide benefits to Indiana bats, but at the present the BFO is not considering these as acceptable mitigation.

1. Winter habitat mitigation plan (WHMP) - all mitigation projects involving hibernacula (or staging-swarmling habitat) must include the development of a winter habitat mitigation plan outlining what is proposed, how the various components score (see below), where the mitigation will take place, and other relevant information that will be provided for the Service's review and approval at least 6 weeks prior to committing resources on the ground. No mitigation value is applied to a WHMP; rather it is a required first step in developing a winter habitat mitigation project.

2. State and Federal agencies with legal responsibility for Indiana bat management (IDNR and BFO) must support the proposed gating project.

## B. Threat-based strategy for valuing a gating project

1. Presence of vulnerable bats – those potentially benefitted by the mitigation project

a) Acceptable gating projects will have very large numbers of vulnerable bats - the cave housing the vulnerable bats will have had a population of >10,000 bats within the past 10 years (typically Priority 1 hibernacula).<sup>24</sup>

i. Vulnerable bats will typically be directly in harm's way from unauthorized human visitation, degradation of the cave habitat, or other clear threat (effective gates will not be present).

ii. There must be a good estimate of the number of vulnerable bats (e.g., from survey data).

2. Threat – there are two components of threat, the first is the likelihood that an impact will happen, and the second is the impact itself on the threatened bats. Both components must be present for a viable gating project.

a) Likelihood the impact will happen

i. Documented threat – the threat to vulnerable bats is immediate and established through known disturbance. This must be documented unless the factors in (ii) below are evaluated and accepted by the Service.

ii. Potential threat – virtually every cave that has vulnerable bats and that is not effectively gated has some potential for impacts. The applicant will in most cases have to demonstrate more than one of the factors below to the Service, which will evaluate them to determine if potential threat is immediate enough to indicate gating as acceptable mitigation:<sup>25</sup>

- physical evidence and/or other records of past unauthorized entry and/or vandalism;
- distance to nearest public road;
- distance to nearest residence (and possible caretaker);

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<sup>24</sup> This may change based on the impacts of WNS or other factors but for the present time, it is unlikely that the Service will consider projects that do not meet this criterion.

<sup>25</sup> This would typically be part of the WHMP.

- distance from cave entrance to traditional bat roost sites within the hibernaculum; and
- relative popularity of the site with recreational cavers.

b) Impact of unauthorized visits - quantifying the impact of human disturbance on a hibernaculum is problematic and essentially stochastic since any single visit could result in minor impacts or destroy all of the vulnerable bats. The Service, therefore, will assign a very low overall value to gating as mitigation for take of Indiana bats.

i. The baseline mitigation credit will be **1%** of the vulnerable population as of the last official (biennial) census (e.g., if 10,000 vulnerable bats are protected from human disturbance, the mitigation credit will be 100 bats).

ii. Some factors likely increase the probability that an impact will be more severe on vulnerable bats. The following factors, if documented, would allow for a marginal increase in the 1% baseline value of gating mitigation:

- Physical accessibility of bat location(s) to humans - technical/vertical caving gear not required = +0.5% of vulnerable bats
- Average ceiling height of 90% of the hibernating bats (in Service database) is less than 10 feet = +0.5% of vulnerable bats
- The majority of vulnerable bats occur in one or a few discrete roosting areas that are in close proximity of one another (i.e., they have a highly clumped distribution) = +0.5% of vulnerable bats

iii. The maximum value of any gating project with all of the factors in (ii) present would be 2.5% of the total vulnerable population of bats at the gated hibernaculum.

### C. Effectiveness of the mitigation (gate) in removing the threat

#### 1. Project must be installed correctly

a) Compliance monitoring after the project will ensure that the gate was properly installed according to the design specifications and is not hindering the ingress/egress of bats or air.

2. Cave entrance is permanently protected by easement or fee title or must already be in public ownership (and deemed secure by the Service).

3. Effectiveness must be confirmed by monitoring yearly for 12 years (or for the period that vulnerable bats are present) demonstrating that no unauthorized visits have occurred.<sup>26</sup>

a) Documented by data-loggers or other appropriate non-invasive method

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<sup>26</sup> This is a high bar, but is necessary because of the stochastic nature of potential impacts – an unauthorized visit could result in catastrophic impacts.

b) Adaptive management would be applied – if gate is not secure, specific measures to address the problem

4. Hibernaculum mitigation (gating) cannot mitigate for 100% of the impact of the taking.<sup>27</sup>

### III. Mitigation Surrounding Hibernacula (Staging-Swarming Habitat)

Staging/Swarming habitat may not be limiting for most hibernacula (particularly in Indiana). Indiana bats, however, must meet foraging and roosting needs in the area surrounding hibernacula during the fall swarming period. Further, males use these areas year round. Protecting habitat (through acquisition, conservation easement, or management agreements) surrounding hibernacula also provides for long term management predictability. The restoration of forest around hibernacula may also be acceptable mitigation (it is expected that the number of hibernaculum where this would be acceptable is small).

#### A. Prerequisites for staging/swarming mitigation

1. WHMP must be prepared prior to implementing staging/swarming mitigation.
2. Minimum mitigation block is 10 acres.
3. All mitigation must occur within 10 miles of a hibernaculum.<sup>28</sup>

#### B. Mitigation Value

1. Mitigation value is based on the Service's GIS analysis that indicated that each Indiana bat had an average of 9.4 wooded acres available for roosting and foraging within 20 miles of P1 and P2 hibernacula in Indiana.
2. Males and females, juveniles and adult Indiana bats all share staging/swarming habitat around the hibernaculum.
3. Staging/swarming mitigation (similar to hibernaculum gating mitigation) will be assigned a value by the Service less than that assigned to summer habitat because the value of each staging/swarming habitat acre to a female's survival over the winter and reproduction the following year is unknown, but is in most cases (at Indiana hibernacula) less of a limiting factor than is summer habitat. Staging/swarming habitat is one of a number of important factors contributing to overwinter survival and fitness.
4. The value of staging and swarming habitat is therefore calculated as:

a) 10 acres = 0.2 bat/year

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<sup>27</sup> Note that hibernaculum gating and staging/swarming habitat are considered as the same category of mitigation and they cannot mitigate for 100% of the impact of the taking either alone or in combination.

<sup>28</sup> We have data that bats use habitat up to 20 miles or more from hibernacula, but projects within 10 miles likely provide the most benefit.

b) This value will accrue every year for 25 years because Indiana bats return to the same hibernaculum for generations as long as it is functional and therefore use the same staging/swarming habitat - **10 acres = 0.2 bats/year x 25 years = 5 bats.**

c) The 10 acre baseline assumes the mitigation habitat meets criteria for optimal staging/swarming habitat. The baseline 10 acres may increase based on the scoring system outlined in (D, 1) below.

5. Staging/Swarming habitat cannot mitigate for 100% of the impact of the taking.<sup>29</sup>

### C. Mitigation type

1. Mitigation can be restoration with protection

a) Restoration is accepted only at hibernacula where staging-swarming habitat is limiting.<sup>30</sup>

b) Restoration must be contiguous with an existing forest block of at least 10 acres or must connect two forest blocks of at least 5 acres.

2. Mitigation can be protection of existing habitat<sup>31</sup>

a) Where habitat is not considered limiting, protection of existing habitat may be warranted/accepted as mitigation if <50% of the existing staging/swarming habitat within the 10-mile radius is in public ownership or there is a demonstrable threat.<sup>32</sup>

b) Where habitat is considered limiting, protection of existing habitat may be warranted/accepted as mitigation if there is a demonstrable threat. Otherwise restoration is required (see footnote 18).

D. Baseline mitigation scoring based on the estimated value of staging/swarming habitat mitigation - the factors below affect the baseline value.

1. A score approaching 100 equates to baseline (10 acres = 5 bats) and lower scores require additional mitigation acres to reach the baseline number of bats (5) mitigated.

a) score of 80 - 100 = 10 acres

b) score of 60 - 79 = 15 acres

c) score of 35 - 59 = 20 acres

d) score <35 - project is not viable

### E. Identifying most beneficial sites for mitigation

1. Conservation of staging/swarming habitat around larger hibernacula is more valuable since the habitat would benefit more bats.

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<sup>29</sup> Note that hibernaculum gating and staging/swarming habitat are considered as the same category of mitigation and they cannot mitigate for 100% of the impact of the taking either alone or in combination.

<sup>30</sup> The Service will provide a list of hibernacula where restoration will be accepted as mitigation.

<sup>31</sup> Protection can take the form of fee title, easement, or other method acceptable to both the applicant and the Service

<sup>32</sup> See I E 1 above for definition of threat.

a) hibernaculum priority score<sup>33</sup>

i. P1 = 50 points

ii. P2 = 30 points

iii. P3 = 15 points

iv. P4 = 5 points

2. Landscape composition within 10 miles of hibernacula<sup>34</sup>

a) Staging/swarming habitat restoration (or protection only if there is a demonstrable threat)<sup>35</sup>

i. <30% forested = 30 points

ii. 30–40% forested = 20 points

iii. 40–50% forested = 10 points

iv. >50% forested = 0 points

b) Staging/swarming habitat protection (where public ownership is <50% or where there is a demonstrable threat).

i. >50 % forested and <50% public ownership = 30 points

ii. >50 % forested and demonstrable threat = 20 points

iii. ≤50% forested and demonstrable threat = 10 points

iv. ≤50% forested and no threat = 0 points (restoration is required)

3. Location of mitigation (restoration with protection or protection only) will be most beneficial if it is an optimal distance from the hibernaculum opening.

a) mitigation is 1 – 5 miles from opening = 20 points

b) mitigation is >5 – 10 miles from opening = 10 points

F. Compliance monitoring for protection of existing habitat will include:

1. Initial confirmation that the habitat slated for protection is suitable based on Service guidelines for either foraging or roosting habitat.

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<sup>33</sup> Points can be adjusted for hibernacula deemed to have “high” or “very high” potential importance for achieving range-wide recovery of the Indiana bat as determined by bat experts familiar with the sites (and approved by the Service and the State) and documented in our hibernacula database.

<sup>34</sup> Note points for either restoration or protection are counted, whichever constitutes the majority of the restoration – each type accounts for 50%, then the higher score will apply.

<sup>35</sup> See summer habitat mitigation above for what constitutes a demonstrable threat.

2. Monitoring every 2 years from aerial photos (or a report from the land managing agency) confirming that the mitigation requirements are being met.

G. Compliance monitoring for restored and protected habitat will include:

1. Initial confirmation that the site was planted using an appropriate species mix, spacing, site preparation, etc.

2. Monitoring after 3 years to confirm at least a 70% survival rate of planted species and again at 7 years to confirm a minimum stand density of planted and volunteer native trees equal to at least 70% of the planted density (e.g., planting on 8x10 spacing = 544 trees / acre and 70% is 381 native trees per acre).

3. Monitoring every 2 years from aerial photos (or a report from the land managing agency) confirming that the mitigation requirements are being met.

4. Monitor at 7 years for invasive species – invasive species that threaten the function of the mitigation for Indiana bat habitat must be controlled to remove that threat between years 7 and 10.<sup>36</sup>

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<sup>36</sup> In some cases where invasive species are identified and expected to be problematic, but the site is otherwise suitable, additional monitoring and corrective action may be required.

## **Appendix D**

Correspondence from the USFWS Bloomington Field Office to the  
Fowler Ridge Wind Farm



**FILE COPY**

United States Department of the Interior  
Fish and Wildlife Service



Bloomington Field Office (ES)  
620 South Walker Street  
Bloomington, IN 47403-2121  
Phone: (812) 334-4261 Fax: (812) 334-4273

October 13, 2006

Ms. Victoria Poulton  
WEST, Inc.  
2003 Central Avenue  
Cheyenne, Wyoming 82001

Dear Ms. Poulton:

Thank you for your letter dated September 18, 2006 concerning a proposed wind energy project near Fowler, Benton County, Indiana. The transmission route study area also includes a small portion of Tippecanoe County along the U.S. 52 Highway corridor.

These comments are being provided pursuant to the Endangered Species Act (ESA), the Migratory Bird Treaty Act, Bald and Golden Eagle Protection Act, and Fish and Wildlife Act of 1956. This information is being provided to assist you in making an informed decision regarding site selection, project design, compliance with applicable laws, and to determine whether a permit to cover anticipated take of species is appropriate under the ESA.

The Fish and Wildlife Service (Service) supports the development of wind power as an alternative energy source, however, wind farms can have negative impacts on wildlife and their habitats if not sited and designed with potential wildlife and habitat impacts in mind. Selection of the best sites for turbine placement is enhanced by ruling out sites with known high concentrations of birds and/or bats passing within the rotoswept area of the turbines or where the effects of habitat fragmentation will be detrimental. In support of wind power generation as a wildlife-friendly, renewable source of power, development sites with comparatively low bird, bat and other wildlife values, would be preferable and would have relatively lower impacts on wildlife.

#### **THREATENED AND ENDANGERED SPECIES**

The area described in your letter is within the range of the Federally endangered Indiana bat (*Myotis sodalis*), the Federally threatened bald eagle (*Haliaeetus leucocephalus*), and a Non-Essential, Experimental population of whooping cranes (*Grus americana*).

The Indiana bat uses woodlands during the summer when maternity colonies occupy trees with loose bark for roosting. These bats forage primarily over wooded stream corridors, although they have been collected in grazed woodlots, mature deciduous forests, and pastures with trees. There are no records of the Indiana bat in Benton County however we are not aware of any surveys conducted in that county. The Indiana bat has been found in adjacent Warren County (along Big Pine Creek and Little Pine Creek), Tippecanoe County (Wabash River and Indian Creek) and Newton County (Kankakee River). Bats in general have been the focus of several recent studies with regard to impacts from wind turbines and mortality appears to be highest during the fall migration period (Johnson et al. 2003). Based on a desktop review of aerial photographs, topographic maps, and other information, there does not appear to be much suitable summer bat habitat within the project area; however, spring and fall migration routes could include areas of Benton County.

Eagles nest in close proximity to lakes, rivers, or reservoirs. They construct their nests near habitat ecotones, such as lakeshores, rivers, and timber management areas (clearcuts or selective cuts). Tolerance of human activity during the nesting season has been variable, but, ideally, human disturbance of eagles should be avoided. The bald eagle's food base from the watershed includes carrion, waterfowl, and especially fish. There are no records for the bald eagle in Benton County but there are currently 2 nests in Tippecanoe County and a new nest in Newton County.

The eastern population of the whooping crane was reintroduced into the Midwest in 2001 and made its first migration to wintering sites in Florida following an ultralight aircraft. The birds make several stops along their fall migration route through Indiana, often including Benton County. The cranes utilize a variety of habitats during migration including croplands, marshes, and riverine areas. The birds stand up to five feet tall and have snowy white body feathers with black wingtips. The head is red and black with a long, pointed beak. The eastern population was listed as a non-essential, experimental population under the Endangered Species Act of 1973 (as amended). This designation relaxes the restrictions of the Endangered Species Act and lessens possible conflicts between people and whooping crane conservation. Whooping cranes are still fully covered under the Migratory Bird Treaty Act, as are most migratory birds.

Tippecanoe County has populations of two federally endangered Unionid mussels, the clubshell (*Pluerobema clava*) and fanshell (*Cyprogenian stegaria*). Both species are in the Wabash and Tippecanoe Rivers upstream from Lafayette and are not likely to occur in the transmission route study area.

Because of the potential for wind power projects to impact endangered bird, bat, or other listed species, they are subject to the Endangered Species Act (16 U.S.C. 1531-1544) section 9 provisions governing "take", similar to any other development project. Take incidental to a lawful activity may be authorized through the initiation of formal consultation, if a Federal agency is involved. If a Federal agency, Federal funding, or a Federal permit are not involved in the project, an incidental take permit pursuant to section 10 (a)(1)(B) of the ESA may be obtained upon completion of a satisfactory habitat conservation plan for the listed species. However, there is no mechanism for authorizing incidental take "after-the-fact".

## OTHER SPECIES OF CONCERN

In addition to the above mentioned species, upland sandpipers (*Bartramia longicauda*), Franklin's ground squirrels (*Spermophilus franklinii*) and other species listed as endangered or special concern by the State Of Indiana may potentially be found near the area. Upland sandpipers are migratory birds that favor grasslands, pastures, and fields in early successional stages. They nest in loose colonies in taller vegetation and feed on insects, seeds of grasses and forbs, as well as waste grains (Castrale et al. 1998). Franklin's ground squirrels are burrowing animals that prefer dense grass/weed habitat which provides good cover. Some of the best remaining habitat may be along railroad embankments. This species feeds primarily on vegetable matter (although insects are sometimes eaten) and hibernates for several months (Mumford and Whitaker 1982). Both species have been recorded near the proposed project area.

These animals are not afforded legal protection under the authorities of the federal Endangered Species Act (as amended); however, because they are State Endangered species the FWS encourages consideration of these species in project planning. We recommend that you consult with the Indiana Department of Natural Resources (IDNR) for more information regarding wildlife species and natural resources of interest to the State that may occur within the study area.

## MIGRATORY BIRDS

The two primary types of wind turbine impacts to migratory birds (and bats) are direct mortality from collisions and indirect impacts from habitat avoidance, disruption and displacement. For these reasons, site selection and evaluation are extremely important. The study area near Fowler appears to be primarily comprised of agricultural row crops, although several small wetlands and areas of grassland/pasture (including several managed areas and Heritage Data Base records) may be present based on a "desktop" review of digital/GIS data. Since some data layers are over 10 years old, field verification may be necessary. These small, isolated areas of grassland and pasture may provide the only remaining habitat for sensitive grassland species, such as Henslow's sparrows, grasshopper sparrows, and upland sandpipers (Jeff Kiefer pers. comm.), as well as habitat for more common migratory grassland species such as dickcissels and eastern meadow larks (Castrale et al. 1998 and Dunning, Jr. and Braile 1998). Additionally, the transmission route study corridor crosses Big Pine Creek and 2 headwater tributaries of Indian Creek containing several wetlands.

The Migratory Bird Treaty Act (16 U.S.C. 703-712; MBTA) implements four treaties that provide for international protection of migratory birds. The MBTA prohibits taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when specifically authorized by the Department of the Interior. Bald and golden eagles are afforded additional legal protection under the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d). Unlike the Endangered Species Act, neither the MBTA nor its implementing regulations at 50 CFR Part 21, provide for permitting of "incidental take" of migratory birds.

While the MBTA has no provision for allowing unauthorized take, the Service recognizes that some birds may be killed at structures such as wind turbines even if all reasonable measures to avoid it are implemented. While it is not possible under the MBTA to absolve individuals, companies, or agencies from liability if they follow these recommended guidelines, the Service's

Office of Law Enforcement and Department of Justice have used enforcement and prosecutorial discretion in the past regarding individuals, companies, or agencies who have made good faith efforts to avoid the take of migratory birds.

The Service's "voluntary" Interim Guidelines on Avoiding and Minimizing Impacts from Wind Turbines may be helpful as you evaluate your proposed wind power generation site (<http://www.fws.gov/habitatconservation/wind.htm>) (attached). The guidance contains a pre-development site evaluation and ranking process to assess potential project impacts, as well as recommendations for conducting post-construction monitoring. The guidance also contains more information on the applicable laws and permitting aspects in Appendices 3 and 5. Service staff welcome the opportunity to work with representatives of your industry.

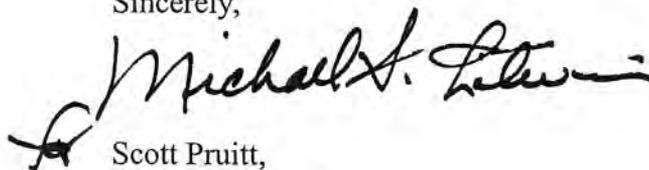
Finally, we recommend that you contact the Indiana Department of Natural Resources, Division of Nature Preserves, and Division of Fish and Wildlife concerning possible State-listed species and other state resource concerns. Their addresses are:

Indiana Department of Natural Resources  
Division of Nature Preserves  
402 West Washington, Rm W267  
Indianapolis, Indiana 46204

Indiana Department of Natural Resources  
Division of Fish & Wildlife  
402 West Washington, Rm W273  
Indianapolis, Indiana 46204

Thank you for the opportunity to provide comments on your wind-power project. If we can be of further assistance during the design and implementation of your project, please contact Mike Litwin of my staff at (812) 334-4261 ext. 205.

Sincerely,

A handwritten signature in black ink, appearing to read "Michael S. Pruitt". The signature is written in a cursive style with a large initial "M".

Scott Pruitt,  
Field Supervisor

cc: Katie Smith, Division of Fish and Wildlife, IDNR, Indianapolis, IN  
John Castrale, Division of Fish and Wildlife, IDNR, Mitchell, IN

ES: mlitwin/fowler wind project.doc/October13, 2006

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Mumford, R.E., and J.O. Whitaker. 1982. *Mammals of Indiana*. Indiana University Press, Bloomington, Indiana. 537pp.



United States Department of the Interior  
Fish and Wildlife Service



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September 10, 2007

*Rene 8 9/17*

Ms. Rene Braud  
BP Alternative Energy  
700 Louisiana, Suite 3300  
Houston, Texas 77002

Dear Ms. Braud:

The US Fish and Wildlife (FWS) appreciates British Petroleum Alternative Energy's (BP) attendance and cooperation at the meeting of June 13, 2007 regarding BP's proposed wind power project proposal near the town of Fowler in Benton County, Indiana. The meeting was also attended by representatives of the Indiana Department of Natural Resources (DNR), the Indiana Audubon Society, and West, Inc. acting as the environmental consultant for BP.

These comments are being provided pursuant to the Endangered Species Act (ESA), the Migratory Bird Treaty Act, Bald and Golden Eagle Protection Act, and Fish and Wildlife Act of 1956.

The FWS submitted general comments regarding endangered species, migratory birds and other wildlife for the Fowler wind project in our letter of October 13, 2006. The main topic at the June 13, 2007 meeting was protection of the American golden plover, a migratory bird species which is heavily dependent upon an area within northwest Indiana and northeast Illinois for staging during its spring migration from South America to the Arctic. The US Shorebird Conservation Plan lists the American golden plover as a Species of High Concern due to its downward population trends and threats during the non-breeding season (Brown et. al. 2001). The Indiana Audubon Society considers this species to be the #1 stewardship species in Indiana (James Cole, Indiana Audubon Important Bird Areas Coordinator, personal communication).

The Fowler wind project site lies within the portion of the staging area most intensively used by migrating golden plovers, including an Audubon Society designated Important Bird Area (IBA). Based on information provided at the June 13 meeting, and on information we have acquired since then, the FWS is submitting a list of recommendations for protection of the migrating golden plover population within the wind project development area. This letter also provides updated information on concerns related to potential impacts from the project on federally endangered species.

At the June 13 meeting it was stated that West, Inc. conducted bird surveys at the project study area in Spring, 2007. During the surveys they observed approximately 61,000 American golden plover (20-30% of the global population) during peak migration from mid-April to early-May. These numbers are consistent with previous observations of golden plovers from surveys in the vicinity of the IBA, and it appears that the migrating population is stable at this time. We are not aware of any previous studies concerning the impact of wind power development on American golden plover staging areas in the Midwestern US, although there have been several wind farm studies where the affected species were other plover species, other shorebird species or grassland birds. The major concerns for these types of birds are avoidance of tall structures, habitat loss and fragmentation, and strike mortality. Avoidance behavior has been studied, and in some cases clearly demonstrated, for other species in other areas of the world, however it is somewhat speculative to extrapolate those results to this situation.

The fish and wildlife agencies, Illinois Natural History Survey and Audubon Society addressed appropriate conservation measures in a conference call on August 3, 2007. In view of the lack of previous data, the extreme importance of the study area to the American golden plover and the scope of potential impacts, the FWS is compelled to make conservative recommendations for protection of this species. The following recommendations, some of which were discussed at the June 13 meeting, are intended to provide a range of options. As many of these recommendations as possible should be implemented.

#### Timing of Development

1. Develop the project in phases, beginning in the southwest portion of the site. This will provide an opportunity to observe the effect on American golden plover use of the developed areas prior to potential development closer to the IBA.

#### Geographic Considerations

2. Shift the footprint of the development further west toward US 41 Highway.
3. Limit wind turbine development to the southwestern portion of the site as far as possible from the IBA.
4. If development occurs in the eastern portion of the site, maintain an undisturbed buffer at least 500 meters wide around the IBA. This measure is focused on avoidance behavior but is also intended to reduce strike mortality.

#### Design Considerations

5. Minimum blade distance from the ground should be higher than the typical American golden plover flying height during foraging. These birds normally fly at 30-40 feet above ground during foraging activity, but may rise considerably higher if alarmed by a predator or other disturbance.
6. Minimize the footprint of roads and other infrastructure.

### Operation and Management

7. Cease or reduce operation of blades during peak incoming and outgoing migration flights. This measure would be most important for turbines nearest the IBA and other areas of heavy bird concentration.
8. Address the issue of vegetation management near turbines during migration season. Lower vegetation would facilitate mortality monitoring, however high vegetation adjacent to the turbine blades might discourage bird use and reduce the potential for blade strike mortality.

### Measures to Offset Impacts on the American Golden Plover

9. For landowners within and near the IBA who anticipated leases for wind turbine construction, substitute conservation easements for leases.
10. Assist with funding of habitat enhancement measures on conservation easements, possibly through partnering with the Department of Agriculture's Wetland Reserve Program or other DOA conservation programs. Appropriate measures could include increased seasonal water regime management, vegetation plantings, and customized vegetation management practices.

### Monitoring

11. Design and implement a plan for monitoring of American golden plover use of the project site and avoidance behavior. This would require at least 3 years of monitoring using a transect methodology as described by Leddy et al. (1999) and Erickson et al. (2007) to evaluate bird use with respect to distance from turbines. Study design should be developed through consultation and concurrence with the Indiana DNR and USFWS.
12. Conduct monitoring of mortality for at least 3 years, utilizing trained dogs to search for carcasses. Study design should be developed through consultation and concurrence with the Indiana DNR and USFWS.

### Smiths Longspur

Another migratory bird species of concern in the project area is Smith's longspur (*Calcarius pictus*). This rare Arctic breeding species stages in eastern Illinois and northwestern Indiana in similar habitat to the American golden plover, although in much smaller numbers at any single location (see attached fact sheet). We are not aware of any data on the effects of wind turbines on Smith's longspur, however due to its small global population and narrow migration pathways, cumulative effects of multiple wind power developments could be of concern.

### **Endangered Species**

The proposed project is within the range of the Federally endangered Indiana bat (*Myotis sodalis*) and a Non-Essential, Experimental population of whooping cranes (*Grus americana*). Our letter of December 13, 2006 included general information on these species with regard to the project area. We are providing the following additional endangered species information.

While there is very little habitat for the Indiana bat within the wind farm study area, there may be more extensive habitat along the power line transmission route(s). Transmission routes should be sited to avoid or minimize forest loss and fragmentation. There are several summer records of this species in adjacent Tippecanoe and Warren Counties, along Mud Pine Creek, Big Pine Creek and Little Pine Creek. Of greatest concern is Big Pine Creek, where there are Indiana bat records within 3 miles downstream of the transmission route depicted in your coordination letter of September 20, 2006. Please notify this office if other transmission routes come under consideration.

The bald eagle (*Haliaeetus leucocephalus*) was recently removed from the federal endangered species list, however this species is still protected from disturbance under the Bald and Golden Eagle Protection Act. The distribution of eagle nests with respect to the project study area has not changed since our previous review of this project, and there are currently no anticipated impacts on bald eagles.

This endangered species information is provided for technical assistance only, and does not fulfill the requirements of Section 7 of the Endangered Species Act.

For further discussion please call Mike Litwin at (812) 334-4261 ext. 205.

Sincerely yours,

  
 Scott E. Pruitt  
Field Supervisor

cc: Matt Buffington, Indiana Division of Fish and Wildlife, Indianapolis, IN  
Jeff Gosse, USFWS, Twin Cities, MN  
Elizabeth McCloskey, USFWS, Chesterton, IN  
Keith Shank, Illinois DNR, Springfield, IL

### Literature Cited

Brown, S., C. Hickey, B. Harrington and R. Gill eds, 2001. The U.S. Shorebird Conservation Plan, 2<sup>nd</sup> ed. Manomet Center for Conservation Sciences. Manomet, MA.

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# Smith's longspur

## *Migratory habitat in the eastern Midwest*

The Smith's longspur regularly migrates through a number of counties in east-central Illinois and northwest Indiana. An unknown number of this rare Arctic species—whose global population is estimated at 75,000—stages in the springtime in the eastern Midwest, preparing for the journey to the northern breeding grounds. Smith's longspurs usually appear in single species flocks or occasionally in mixed flocks with horned lark or Lapland longspur.

Numbers of migrating Smith's longspur are likely to be at most in the tens and low hundreds, not thousands, at any single location in the eastern Midwest.

Sightings are most frequently reported in Benton and Newton counties in Indiana, and in Illinois in McLean, Knox, Mason, Sangamon, Cook, Jasper and Champaign counties. Smith's longspur may also spend time in counties adjacent to those listed above, but both a lack of observers and a focus on targeted surveys in the species' habitat during the narrow spring migration window make this difficult to determine.

Preferred habitat of the Smith's longspur includes agricultural stubble fields and heavily grazed pastures with a large growth of *Aristida* sp., or threecawn, particularly along the edges of wet depressions and recently wet or drying mudflats and along the muddy borders of water bodies in very open country. Historically, these were birds of mid-to

tallgrass prairies in burned or heavily grazed areas and the edges of seasonal wetlands.

The Smith's longspur may be present in the eastern Midwest area from mid March (Illinois) or late March (Indiana) until early May. The species actually occurs in a broader region, extending from western

Ohio as far west as central South Dakota, so only a small portion of the bird's population would be vulnerable at a single location.

Within that broad area though, the only known pathways with a major concentration of Smith's longspurs are quite narrow — an

eastern Dakotas - western Missouri - western Minnesota route, and a route that uses the staging area in east central Illinois and western Indiana, and likely then heads northwest towards breeding grounds that begin on the western shores of Hudson Bay.

The effects of wind turbines on the Smith's longspur are unknown. Cumulative impacts from a large number of projected wind turbines could potentially negatively affect this species.

Smith's longspurs chasing each other on the breeding grounds may ascend out of sight and thus be susceptible to turbine blades. Similar behavior on migration is to be expected on occasion, particularly in late spring.

Generally, the Smith's longspur forages on the ground, and it seldom flies unless it is disturbed by a human or a predator or moves to another field to forage.



Smith's longspur. Credit: Ron Martin



# United States Department of the Interior Fish and Wildlife Service



Bloomington Field Office (ES)  
620 South Walker Street  
Bloomington, IN 47403-2121  
Phone: (812) 334-4261 Fax: (812) 334-4273

August 5, 2011

Robert Myer  
BP Wind Energy NA, Inc.  
700 Louisiana St., 33rd Floor  
Houston, TX 77002

Dear Mr. Myer:

The U.S. Fish & Wildlife Service has completed our review of the spring bat mortality surveys you have completed at the Fowler Ridge Wind Farm, Benton County, Indiana. Surveys were completed during spring migration each year from 2009 – 2011. The results of those surveys reveal that few bat mortalities occur each spring. In addition, no bats of the genus *Myotis* were found. Based on those survey results the Service concludes that the operation of the Fowler Wind Farm during spring migration is not likely to result in the mortality of federally listed Indiana bat (*Myotis sodalis*) and consequently no take permit is needed. Surveys you have completed during fall migration have verified that Indiana bats are taken at your facility during that time and we look forward to working with you to complete your draft Habitat Conservation Plan with a goal of issuing you an Incidental Take Permit to allow for operation during fall migration in compliance with the Endangered Species Act.

Please contact me if you have questions or concerns.

Sincerely,

Scott E. Pruitt  
Field Office Supervisor

## **Appendix E**

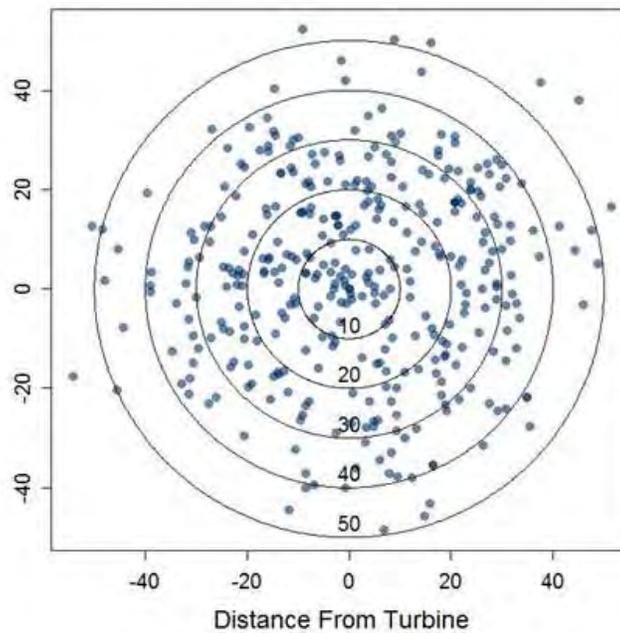
### Carcass Distribution Analysis

## Appendix E - Carcass Distribution Analysis

Carcass distribution is not random within the cleared study plot in regard to carcass distance and orientation from turbine; carcass density (fatalities per square meter) decreases as distance to turbine increases. Carcass orientation to turbine has also been shown to have significant spatial patterns, with more bats found on the downwind side of turbines. The 2010 study at the FRWF had a significant spatial pattern when comparing fatality counts by directional quadrants (chi-sq 2.83, df = 1, p-value = 0.09; Table F-1; Table F-1).

**Table F-1.** Bat fatality counts by quadrant recorded during the 2010 carcass monitoring at the Fowler Ridge Wind Farm.

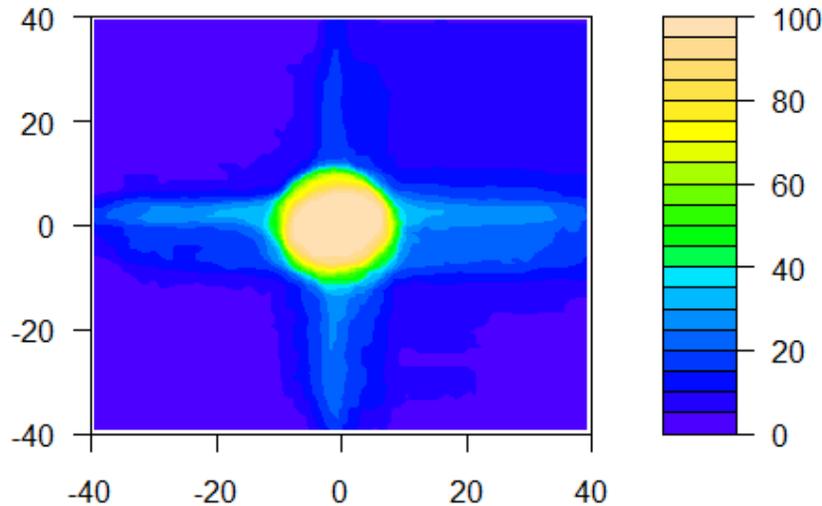
Quadrant	West	East
North	105	112
South	59	91



**Figure F-1.** Locations of bat carcasses surrounding turbines found on 80m x 80m cleared plots by distance and bearing from turbine during 2010 carcass monitoring at the Fowler Ridge Wind Farm.

Adjusted fatality estimates at turbines where only the roads and pads are searched will not be biased because of orientation (regardless of predominant wind direction, nacelle orientation, and road locations), if sampling of roads and pads is representative of all directions. To explore possible orientation bias, the intersection of roads and pads at 136 turbines searched within

80m x 80m plots in 2010 (with points centered at every square meter) were totaled and plotted (Figure F-2). The percent frequency of the number of times each point intersected a road or pad is colored by 5% intervals. Figure F-2 shows no strong visual evidence of unequal sampling by orientation.



**Figure F-2.** Percent frequency of point intersection of 136 road and pad polygons with an 80 x 80-meter square grid with points every square meter for the 2010 carcass monitoring at the Fowler Ridge Wind Farm.

Total road and pad area surveyed for each quadrant during 2010 carcass monitoring at the FRWF ranged from 6.05 acres (263,538 ft<sup>2</sup>) in the southeast quadrant to 7.42 acres (323,215 ft<sup>2</sup>) in the northeast (Table F-3). Since the chi-squared test statistic is dependent on the scale of the data, 10 x 10 m wide blocks were selected based on the expected viewshed of searchers on road and pads (5 m [16 ft] on each side). A chi-squared test for independence of the number of 10 x 10-m (about 33 x 33-ft) blocks throughout the 136 80 x 80-m plots covered by roads and pads by each quadrant was not significant (chi-squared 0.19, df = 1, p-value = 0.66). This suggests that the turbines samples during 2010 studies showed no directional bias and were representative of all directions. Random selection of turbines minimizes the potential bias due to road and pad orientation in relation to prevailing wind direction.

**Table F-3** Total road and pad acres searched by quadrant for the 136 turbines included in the 2010 carcass monitoring at the Fowler Ridge Wind Farm.

Quadrant	West	East
North	7.29	7.42
South	6.29	6.05

The results of the 2010 study further support the use of road and pad searches for generating comparable and unbiased bat fatality estimates. The 2010 study was designed using a double sampling approach to determine if bat fatality estimates using only road and pad searches were comparable to bat fatality estimates generated from cleared plot searches. Estimates of bat fatality were based on data collected from two independent sets of turbines. One hundred turbines were searched weekly only on roads and pads, and 36 additional turbines were searched daily using 80 x 80-m cleared plots. Two estimates were generated, one based on data collected during carcass searches at the 100 roads and pad turbines, and a second estimate based on data collected during carcass searches at the 36 cleared plot turbines.

The estimates generated from these two independent estimation methods, one using roads and pads and one based on cleared plots, yielded very similar estimates of overall bat fatalities with significantly overlapping confidence intervals. The estimates were 24.17 (90% CI 19.50 – 30.02) for the cleared plots and 20.96 (90% CI 17.52 – 28.78) for road and pad searches (see Appendix A for details of fatality estimation methods and results). The similarity between adjusted fatality estimates from road/pad and cleared plot searches indicates that road and pad orientation in relation to wind direction has a minimal effect on fatality estimates.

## **Appendix F**

Model to Determine Number of Control Turbines for Within-  
Season Adaptive Management

A sample size of 20 was determined to be adequate based on modeling done to determine the chance of FRWF finding that the end-of-year adaptive management threshold was triggered, given a 10% to 60% increase in expected Indiana bat fatalities (Table H.1). When 20 turbines are searched, there is a 33% chance of finding the adaptive management trigger will be exceeded given a 10% increase in fatalities from that expected from minimization efforts. If this pattern persists over two or five years, there is a 56% or 87% chance (respectively) that FRWF will find the adaptive management trigger was exceeded at least once, resulting in increased cut-in speeds. Over the 21 year ITP the chance that FWRW will conclude that an adaptive management change is necessary given a 10% increase in expected fatality is greater than 99% (Table 5.6). This demonstrates that fatality estimates based on 20 control turbines are sensitive enough to capture a 10% increase in expected fatality and trigger necessary adaptive management efforts over the life of the ITP. Larger increases in Indiana bat mortality result in larger chances of exceeding the annual Indiana bat adaptive management trigger. Assuming a 40% increase in Indiana bat mortality above that expected there is a 77% chance of finding the adaptive management trigger will be exceeded that year, and a 95% chance of finding the adaptive management trigger will be exceeded by year two (Table 5.6). With near certainty, all modeled increases in expected fatality will be captured by FRWF over the ITP term and will most likely be captured within the first two to five years of monitoring. This modeling exercise demonstrates that monitoring a subset of 20 control turbines is sufficient to detect changes in Indiana bat mortality and to correct for those changes with adaptive management to ensure that the ITP is not exceeded over the 21-year ITP term.

**Table H.1** Estimated chance of exceeding the annual Indiana bat adaptive management trigger by percent increase from expected Indiana bat fatality under the adaptive management curtailment strategy when searching 20 turbines at the Fowler Ridge Wind Farm.

Percent Increase from Expected Fatality Reduction	Turbines Searched	Chance that FRWF would Find that the Upper Limit of Indiana Bat Mortality was Exceeded At Least Once				
		1 Year	2 Years	5 Years	10 Years	21 Years
10%	20	33%	56%	87%	98%	>99%
20%	20	50%	75%	97%	>99%	>99%
30%	20	64%	87%	99%	>99%	>99%
40%	20	77%	95%	>99%	>99%	>99%
50%	20	86%	98%	>99%	>99%	>99%
60%	20	92%	99%	>99%	>99%	>99%

## **Appendix G**

Implementing Agreement for the Fowler Ridge Wind Farm Habitat  
Conservation Plan

**IMPLEMENTING AGREEMENT**

**for the**

**FOWLER RIDGE WIND FARM HABITAT CONSERVATION PLAN**

**by and between**

**THE UNITED STATES FISH AND WILDLIFE SERVICE**

**and**

**FOWLER RIDGE WIND FARM LLC**

**FOWLER RIDGE II WIND FARM LLC**

**FOWLER RIDGE III WIND FARM LLC**

**FOWLER RIDGE IV WIND FARM LLC**

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This IMPLEMENTING AGREEMENT (IA) for the Fowler Ridge Wind Farm Habitat Conservation Plan (HCP), is entered into by and between the UNITED STATES FISH AND WILDLIFE SERVICE, an agency of the Department of the Interior of the United States of America (FWS), and the Fowler Ridge Wind Farm LLC, the Fowler Ridge II Wind Farm LLC, the Fowler Ridge III Wind Farm LLC and the Fowler Ridge IV Wind Farm LLC (Fowler Ridge or Permittees), hereinafter collectively called the “Parties” and individually, a “Party.” The four companies comprising Fowler Ridge have entered into a Common Facilities Agreement, which covers, among other things, the responsibilities of the Fowler Ridge parties for obligations, costs and expenses under the Incidental Take Permit (ITP) (as hereinafter defined). The Fowler Ridge parties will jointly serve as permittees under the ITP, and are jointly and severally liable for all obligations assigned to them under the ITP, Habitat Conservation Plan (HCP), Programmatic Agreement (PA) and this IA.

## **1.0 RECITALS**

The Parties have entered into this IA in consideration of the following facts:

**1.1** The FWS has jurisdiction over the conservation, protection, restoration, enhancement and management of fish, wildlife, native plants and their habitats under various federal laws, including the Endangered Species Act (ESA) (16 U.S.C. § 1531 *et seq.*), the Migratory Bird Treaty Act (16 U.S.C. § 701 *et seq.*), the Bald and Golden Eagle Protection Act (16 U.S.C. § 668 *et seq.*), the Fish and Wildlife Coordination Act (16 U.S.C. §§ 661-666(c)), and the Fish and Wildlife Act of 1956 (16 U.S.C. § 742(a) *et seq.*).

**1.2** The ESA prohibits the “Take” of species listed as endangered or threatened under the ESA. Under Section 10(a)(1)(B) of the ESA (16 U.S.C. § 1539(a)(1)(B)), the FWS may issue permits authorizing the incidental Take of endangered or threatened species during otherwise lawful activities if certain statutory requirements are met by the applicant and such Take will not appreciably reduce the likelihood of the survival and recovery of the species in the wild. To obtain a federal incidental take permit (ITP), the applicant must submit a habitat conservation plan describing, among other things, the steps the applicant will take to minimize and mitigate to the maximum extent practicable the impact of such Take.

**1.3** Fowler Ridge currently operates 355 wind turbines that were constructed during phases I, II, and III, and proposes to develop phase IV, which will consist of up to 94 turbines. All four phases of the Fowler Ridge wind energy facility (“Facility”) are sited in Benton County, Indiana.

**1.4** The operation of the Facility has been determined to have the potential to affect the federally listed Indiana bat (*Myotis sodalis*) species, referred to as the “Covered Species.”

**1.5** Fowler Ridge, with technical assistance from the FWS, has prepared an HCP and related documents for the Covered Species. Fowler Ridge has developed a series of measures, described in the HCP, to minimize and mitigate to the maximum extent practicable the effects of Take of the Covered Species incidental to Fowler Ridge's Covered Activities.

**1.6** This IA defines the Parties' roles and responsibilities and provides a common understanding of actions that will be undertaken under the HCP and its accompanying ITP, among other things, to minimize and mitigate for Take of the Covered Species incidental to Covered Activities on the Covered Lands.

**THEREFORE**, the Parties hereby agree as follows:

## **2.0 PURPOSES**

The purposes of this IA are:

**2.1** To ensure implementation of the terms of the HCP;

**2.2** To describe remedies and recourse should any Party fail to perform its obligations, responsibilities, and tasks as set forth in the HCP, ITP, PA and this IA; and

**2.3** To provide "No Surprises" assurances to Fowler Ridge pursuant to 50 C.F.R. § 17.22(b)(5).

## **3.0 TERMS USED**

The following terms used in this IA will have the meanings set forth below:

**3.1 Terms Defined in the ESA.** Terms used in this IA and specifically defined in the ESA or in regulations adopted by FWS under the ESA, have the same meaning as in the ESA and those implementing regulations, unless this IA expressly provides otherwise.

**3.2 "Authorized Take"** means the extent of incidental Take of the Covered Species authorized by FWS in the ITP issued to Fowler Ridge under ESA Section 10(a)(1)(B).

**3.3 "Changed Circumstances"** means changes in circumstances affecting a Covered Species or the geographic area covered by the HCP that can reasonably be anticipated by the Parties and that can reasonably be planned for in the HCP (e.g., the listing of a new species or a fire or other natural catastrophic event in areas prone to these events). Changed Circumstances and the planned responses to those circumstances are described in Chapter 8.4 of the HCP. Changed Circumstances are not Unforeseen Circumstances, which are defined in Section 3.14 of this IA and described in Chapter 8.5 of the HCP.

**3.4 “Covered Activities”** means certain activities carried out by Fowler Ridge and its agents on the Covered Lands that may result in Authorized Take of Covered Species during the term of the ITP. These activities include those identified in Chapter 2.2 of the HCP.

**3.5 “Covered Lands”** means the geographic area described in Chapter 1.6 of the HCP upon which Authorized Take of the Covered Species may occur, and the lands to which the HCP’s mitigation measures apply.

**3.6 “Covered Species”** means the Indiana bat (*Myotis sodalis*), which the HCP sufficiently addresses to meet all the criteria for issuing an ITP under Section 10(a)(1)(B) of the ESA.

**3.7 “Facility”** means the wind energy facility, portions of which Fowler Ridge is currently operating and portions of which Fowler Ridge proposes to develop, in Benton County, Indiana.

**3.8 “HCP”** means the Habitat Conservation Plan prepared by Fowler Ridge to address the requirements of Section 10(a)(2)(A) of the ESA and incorporated by reference in this IA.

**3.9 “Listed Species”** means a species, including a subspecies or a distinct population segment of a vertebrate species, which is listed as endangered or threatened under the ESA.

**3.10 “Party” or “Parties”** means any or all of the signatories to this IA.

**3.11 “ITP”** means the ITP issued by FWS to Fowler Ridge under Section 10(a)(1)(B) of the ESA for Take incidental to Covered Activities on the Covered Lands, as it may be amended from time to time.

**3.12 “Permittees”** means Fowler Ridge Wind Farm LLC, Fowler Ridge II Wind Farm LLC, Fowler Ridge III Wind Farm LLC, and Fowler Ridge IV Wind Farm LLC.

**3.13 “Take”** has the same meaning provided by the ESA (to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such act), and its implementing regulations (an act which actually kills or injures wildlife, including significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering), with regard to activities subject to the ESA.

**3.14 “Unforeseen Circumstances”** means changes in circumstances affecting a Covered Species or the Covered Lands that could not reasonably have been anticipated by the Parties at the time of the HCP’s negotiation and development, and that result in a substantial and adverse change in the status of the Covered Species.

**3.15 “Unlisted Species”** means a species, including a subspecies or a distinct population segment of a vertebrate species, that is not listed as endangered or threatened under the ESA, including proposed, candidate, and other species.

#### **4.0 OBLIGATIONS OF THE PARTIES**

##### **4.1 Obligations of Permittees.**

**4.1.1** Permittees will fully and faithfully perform all obligations assigned to them under this IA, the ITP, and the HCP.

**4.1.2** Permittees will promptly notify FWS of any lawsuits filed against them, and of any written notices or letters expressing intent to file suit challenging the issuance of, or compliance with, the HCP and ITP.

**4.1.3** Permittees will notify FWS in writing within ten (10) days of the occurrence of any of the following: (1) any change in the registered name of any of the permittees; (2) the dissolution of any of the permittees; (3) the sale or conveyance of any of the permittees; (4) bankruptcy proceedings by any of the permittees as well as whether the permittee is in receivership; (5) when any of the permittees will no longer perform the Covered Activities in the Covered Lands; (6) the revocation or suspension of any of the Permittees’ corporate authorization to do business in the state or states in which it is registered to do business; and (7) the disqualification of any of the permittees from performing Covered Activities under the ITP for either of the disqualifying factors listed in 50 C.F.R. § 13.21(c) and (d), as may be amended, or under any future FWS regulation.

**4.1.4** If FWS makes a finding of Unforeseen Circumstances, Permittees will avoid contributing to appreciably reducing the likelihood of the survival and recovery of the affected species during the period necessary to determine the nature and location of additional or modified mitigation, if any, subject to the application of No Surprises assurances. (see Section 2.3 and 4.2.1(b) of this IA) .

**4.1.5** The authority issued to Permittees applies to all of Permittees’ officers, directors, employees, agents, subsidiaries, contractors, and subcontractors and their officers, directors, employees, and agents, and consequently the Permittees are liable for any ITP violations that occur by any of the persons and/or entities referenced in this paragraph or by any other persons and/or entities under the control of the Permittees. Permittees shall conduct an educational program to inform all such persons and entities of the ITP and HCP’s terms and conditions, and Permittees shall be responsible for supervising their compliance with those terms and conditions. All applicable contracts between Permittees and such persons and entities, where relevant, shall require their compliance with the HCP, PA, this IA, and the ITP.

## **4.2 Obligations of FWS.**

**4.2.1** Upon execution of this IA by all Parties and satisfaction of all other applicable legal requirements, FWS will issue Permittees an ITP under Section 10(a)(1)(B) of the ESA for Authorized Take by Permittees of the Covered Species resulting from Covered Activities on Covered Lands.

**(a) Permit Coverage.** The ITP will identify all Covered Species. The ITP will become effective for Covered Species that are Listed Species at the time the ITP is issued.

**(b) “No Surprises” Assurances.** The ITP will include the “No Surprises” assurances set forth in 50 C.F.R. § 17.22(b)(5) and articulated in the HCP in Chapter 8.3.

## **5.0 ENVIRONMENTAL REVIEW UNDER NATIONAL ENVIRONMENTAL POLICY ACT.**

FWS’ approval of the HCP and the issuance of the ITP under Section 10(a)(1)(B) of the ESA to Fowler Ridge are actions subject to review under the National Environmental Policy Act (NEPA)(42 U.S.C. § 4321 *et seq.*). FWS is the federal lead agency under NEPA and has evaluated the HCP in compliance with NEPA in the Environmental Impact Statement (EIS).

## **6.0 SECTION 106 REVIEW UNDER NATIONAL HISTORIC PRESERVATION ACT**

FWS’ issuance of an ITP to Fowler Ridge triggers review under Section 106 of the National Historic Preservation Act (NHPA)(16 U.S.C. § 470f) and its implementing regulations (36 C.F.R. Part 800). The Parties have executed a PA , in accordance with 36 C.F.R. Part 800.14(b)(1)(ii), because effects on historic properties cannot fully be determined prior to FWS issuance of the ITP to Fowler Ridge. The stipulations set forth in the PA are to be implemented prior to the start of construction of phase IV and prior to implementation of any Indiana bat mitigation by Fowler Ridge.

## **7.0 INCORPORATION OF HCP**

The HCP and each of its provisions are intended to be, and by this reference are, incorporated herein. In the event of any direct contradiction between the terms of this IA and the HCP, the terms of this IA will control only for purposes of interpreting this IA. The provisions of the HCP, ITP, PA and this IA shall be interpreted to be consistent with and complementary to each other. This IA is not intended to negate or nullify any provision of the ITP, PA and/or the HCP.

## **8.0 TERM**

**8.1 Initial Term.** This IA and the HCP will become effective on the date that FWS issues the ITP. Upon the effective date, Permittees may Take the Covered Species while

carrying out Covered Activities on the Covered Lands, as authorized by and subject to the conditions of this IA, the HCP, the PA and the ITP. This IA, the HCP, the PA and the ITP will remain in effect for twenty-two (22) years from issuance of the original ITP, except as provided below.

**8.2 Permit Suspension or Revocation.** FWS may suspend or revoke the ITP in accordance with the laws and regulations in force at the time of the suspension or revocation (see 5 U.S.C. § 558; 16 U.S.C. § 1539(a)(2)(C); 50 C.F.R. §§ 13.27-13.29). The suspension or revocation may apply to the entire ITP, or only to specified Listed Species, Covered Lands, or Covered Activities. In the event of suspension or revocation, Permittees' obligations under this IA and the HCP will continue until FWS determines that all Take of Covered Species that occurred under the ITP has been fully mitigated in accordance with the HCP.

**8.3 Renewal of the Permit.** Upon agreement of the Parties and compliance with all applicable laws and regulations, the ITP may be renewed beyond its initial term in accordance with FWS regulations in force on the date of the renewal. If Permittees desire to renew the ITP, they will notify FWS at least 30 days before the then-current term is scheduled to expire. Renewal of the ITP constitutes extension of the HCP, the PA and this IA for the same amount of time, subject to any amendments that FWS may require at the time of renewal.

**8.4 Relinquishment.** Permittees may relinquish the ITP. Such relinquishment shall be in accordance with the regulations of FWS in force, if any, on the date of relinquishment (see 50 C.F.R. § 13.24, §13.26). If no such regulations exist, Permittees shall provide ninety (90) days written notice to FWS of their intent to relinquish the ITP. Notwithstanding relinquishment of the ITP, Permittees shall remain responsible for any outstanding minimization and mitigation measures required under the terms of the ITP for Take that occurs prior to relinquishment of the ITP. The ITP shall be deemed cancelled only upon a determination by FWS that such minimization and mitigation measures have been implemented. Upon relinquishment of the ITP, no further Take shall be authorized under the terms of the relinquished ITP

## **9.0 FUNDING**

Permittees warrant that they have, and will expend, funds necessary to fulfill their obligations under the HCP. Permittees will notify FWS within thirty (30) days of the Permittees becoming aware of any material change in Permittees' financial ability to fulfill their obligations. In addition to providing this notice, Permittees will provide FWS with a confidential copy of their annual audited financial statements each year of the ITP, or with other reasonably available financial information that the Parties agree will provide adequate evidence of Permittees' ability to fulfill their obligations.

## **10.0 MONITORING AND REPORTING**

**10.1 Planned Periodic Reports.** Permittees will provide FWS with the reports described in Chapter 5.4.1.7 of the HCP at the notice address then in effect for FWS, and will provide any available information requested by FWS to verify the information contained in such reports.

**10.2 Other Reports.** Permittees will provide, within thirty (30) days of being requested by FWS, any additional information in their possession or control related to the HCP's implementation that FWS reasonably requests to assess whether the terms and conditions of the ITP and the HCP are being fully implemented.

**10.3 Certification of Reports.** All reports will include the following certification from a responsible company official who supervised or directed preparation of the report:

“I certify under penalty of law, that to the best of my knowledge, after appropriate inquiries of all relevant persons involved in the preparation of this report, the information submitted is true, accurate and complete in all material respects.”

**10.4 Monitoring by FWS.** FWS may conduct inspections and monitoring in connection with the ITP in accordance with FWS regulations.

## **11.0 CHANGED CIRCUMSTANCES**

**11.1 Permittees-Initiated Response to Changed Circumstances.** Permittees will give notice to FWS within seven (7) days after learning that any of the Changed Circumstances listed in Chapter 8.4 of the HCP has occurred. Permittees will modify their activities in the manner described in Chapter 8 of the HCP to the extent necessary to mitigate the effects of the Changed Circumstances on Covered Species as soon as practicable, but no later than thirty (30) days after learning of the Changed Circumstances, or such other period necessary to make the modification(s), as agreed to by FWS and the Permittees, and will report to FWS on their actions. Permittees will make these modifications without awaiting notice from FWS.

**11.2 FWS-Initiated Response to Changed Circumstances.** If FWS determines that Changed Circumstances provided for in the HCP have occurred and that Permittees have not responded in accordance with Chapter 8.4 of the HCP, FWS will notify Permittees and will direct Permittees to make the required changes. Permittees will report to FWS on their actions or intended actions within thirty (30) days after receiving notice from the FWS and shall make the required changes in the period of time necessary to implement the changes, as agreed to by FWS and the Permittees. Such changes are provided for in the HCP and hence do not constitute Unforeseen Circumstances or require amendment of the ITP or HCP.

**11.3 Listing of Species that are not Covered Species.** In the event that a non-Covered Species that may be adversely affected by Covered Activities becomes listed under the ESA, Permittees will evaluate the potential for Take based upon the HCP and other relevant

information. If Permittees notify FWS that the Covered Activities may Take the species, or if FWS disagrees with Permittees' determination that the Covered Activities will not Take the species, the Parties shall meet and confer in order to develop an appropriate response. Permittees will implement reasonable measures necessary to prevent take and/or jeopardy identified by FWS until (1) Take of the non-Covered Species is authorized under Section 10 of ESA, either by amendment to the existing ITP and HCP, issuance of a new ITP and corresponding HCP, or negotiation of a Safe Harbor Agreement; or (2) FWS notifies Permittees that the measures are no longer needed to avoid jeopardy to the non-Covered Species, take of the non-Covered Species, or adverse modification of the critical habitat of the non-Covered Species.

## **12.0 ADAPTIVE MANAGEMENT**

**12.1 Permittees-Initiated Adaptive Management.** Permittees will implement the adaptive management provisions in Chapter 5.4 of the HCP when changes in management practices are necessary to achieve the HCP's biological objectives or to respond to monitoring results or new scientific information. Permittees will make these changes without awaiting notice from FWS and will report to FWS on any actions taken under this Chapter.

**12.2 FWS-Initiated Adaptive Management.** If FWS determines that one or more of the adaptive management provisions in the HCP have been triggered and that Permittees have not changed their management practices in accordance with Chapter 5.4 of the HCP, FWS will notify Permittees and will direct Permittees to make the required changes. Permittees will report to FWS on their actions or intended actions within thirty (30) days after receiving notice from the FWS and shall make the required changes in the period of time necessary to implement the changes, as agreed to by FWS and the Permittees. These changes are provided for in the HCP and hence do not constitute Unforeseen Circumstances or require amendment of the ITP or HCP.

**12.3 Reductions in Mitigation.** Permittees will not implement adaptive management changes that may result in less mitigation than provided for the Covered Species under the original terms of the HCP unless FWS first provides written approval. In such circumstances, Permittees may propose the adaptive management changes by notice to FWS, specifying the adaptive management modifications proposed, the basis for them, including supporting data, and the anticipated effects on the Covered Species, and other environmental impacts. Within one hundred twenty (120) days of receiving the notice, FWS will either approve the proposed adaptive management changes, approve them as modified by FWS, or notify Permittees that the proposed changes constitute permit amendments that must be processed in accordance with Chapter 8.6 of the HCP.

**12.4 No Increase in Take.** This Section does not authorize any modifications that would increase the amount of Take or increase the impacts of Take of Covered Species beyond

those analyzed under the original HCP and any amendments thereto. Any such modification must be processed in accordance with Chapter 8.6 of the HCP.

### **13.0 LAND TRANSACTIONS**

**13.1 Acquisition of Land by Permittees.** Nothing in this IA, the HCP, the PA or the ITP limits the Permittees' right to acquire additional lands. The ITP will not cover any lands that Permittees acquire except upon amendment of the ITP as provided in Chapter 8.6 of the HCP.

**13.2 Disposal of Land by Permittees.** Permittees may not sell any lands included in Covered Lands, or exchange any portion thereof, to any new party during the term of this IA, unless (a) the ITP and HCP are modified to delete such lands; or (b) the lands are transferred to a third party who has agreed to be bound by the terms of the HCP. In responding to any requests to remove lands from Covered Lands, the FWS shall consent to such proposed removal unless it finds that the proposed removal of land would materially compromise the effectiveness of the HCP. In such a case, the FWS shall notify Permittees in writing of this determination, and the Parties shall promptly meet to discuss potential modifications to the ITP, PA and HCP to address the FWS' concerns. If Permittees sell or exchange any of the Covered Lands, upon sale or exchange such lands shall not be deemed a portion of the Covered Lands.

### **14.0 MODIFICATIONS AND AMENDMENTS**

#### **14.1 Minor Amendments.**

**14.1.1** Any Party may propose minor modifications to the HCP or this IA by providing notice to each Party. Such notice shall include a statement of the reason for the proposed modification and an analysis of its environmental effects, including its effects on operations under the HCP and on Covered Species. The Parties will use reasonable efforts to respond to proposed modifications within sixty (60) days of receipt of such notice. Proposed modifications will become effective upon all Parties' written approval. If for any reason a receiving Party objects to a proposed modification, the modification must be processed as an amendment of the ITP in accordance with subsection 13.2 of this section. The FWS will not propose or approve minor modifications to the HCP or this IA if FWS determines that such modifications would result in operations under the HCP that are significantly different from those analyzed in connection with the original HCP, adverse effects on the environment that are new or significantly different from those analyzed in connection with the original HCP, or additional Take not analyzed in connection with the original HCP.

**14.1.2** Minor modifications to the HCP and this IA processed pursuant to this subsection may include but are not limited to the following:

(a) corrections of typographic, grammatical, and similar editing errors that do not change the intended meaning;

(b) corrections of any maps or exhibits to correct minor errors in mapping or to reflect previously approved changes in the ITP or HCP; and

(c) minor changes to survey, monitoring or reporting protocols.

**14.1.3** Any other modifications to the HCP or this IA will be processed as amendments of the ITP in accordance with subsection 13.2 of this section.

**14.2 Amendment of the ITP.** The ITP may be amended in accordance with all applicable legal requirements, including but not limited to the ESA, NEPA, and FWS' regulations. The Party proposing the amendment shall provide a statement of the reasons for the amendment and an analysis of its environmental effects, including its effects on operations under the HCP and on Covered Species.

## **15.0 REMEDIES, ENFORCEMENT, AND DISPUTE RESOLUTION**

**15.1 In General.** Except as set forth below, each Party shall have all remedies otherwise available to enforce the terms of this IA, the ITP, the PA and the HCP.

**15.2 No Monetary Damages.** No Party shall be liable in damages to any other Party or other person for any breach of this IA, any performance or failure to perform a mandatory or discretionary obligation imposed by this IA or any other cause of action arising from this IA.

**15.3 Injunctive and Temporary Relief.** The Parties acknowledge that the Covered Species are unique and that therefore injunctive and temporary relief may be appropriate to ensure compliance with the terms of this IA.

**15.4 Enforcement Authority of the United States.** Nothing contained in this IA is intended to limit the United States government's authority to seek civil or criminal penalties or otherwise fulfill its enforcement responsibilities under the ESA or other applicable law.

**15.5 Dispute Resolution.** The Parties recognize that disputes concerning implementation of, compliance with, suspension of, or termination of this IA, the HCP, the PA and the ITP may arise from time to time. The Parties agree to work together in good faith to resolve any disputes, using the informal dispute resolution procedures set forth in this section or other procedures upon which the Parties may later agree. However, if at any time any Party determines that circumstances warrant, it may seek any available remedy without waiting to complete informal dispute resolution. Unless the Parties agree upon another dispute resolution process, or unless an aggrieved Party has initiated administrative proceedings or suit in federal court as provided in this section, the Parties may use the following process to attempt to resolve disputes:

**15.5.1** The aggrieved Party will notify the other Party of the provision that may have been violated, the basis for contending that a violation has occurred, and the remedies it proposes to correct the alleged violation.

**15.5.2** The Party alleged to be in violation will have thirty (30) days, or such other time as may be agreed, to respond. During this time it may seek clarification of the information provided in the initial notice. The aggrieved Party will use its best efforts to provide any information then available that may be responsive to these inquiries.

**15.5.3** Within thirty (30) days after the response was provided or was due, the Parties' representatives having authority to resolve the dispute will meet and negotiate in good faith toward a solution satisfactory to all Parties, or will establish a specific process and timetable to seek a solution.

**15.5.4** If any issues cannot be resolved through negotiations, the Parties will consider non-binding mediation and other alternative dispute resolution processes and, if a dispute resolution process is agreed upon, will make good faith efforts to resolve all remaining issues through that process.

**15.5.5** The Parties reserve the right, at any time without completing informal dispute resolution, to use whatever powers and remedies are available by law or regulation to ensure enforcement of or adherence to the HCP, this IA, the PA and the ITP, including but not limited to, in the case of the FWS, suspension or revocation of the ITP and civil or criminal penalties.

## **16.0 MISCELLANEOUS PROVISIONS**

**16.1 No Partnership.** Neither this IA, the PA nor the HCP shall make or be deemed to make any Party to this IA the agent for or the partner of any other Party.

**16.2 Notices.** Any notice permitted or required by this IA shall be in writing, delivered personally to the persons listed below, or shall be deemed given five (5) days after deposit in the United States Mail, certified and postage prepaid, return receipt requested and addressed as follows, or at such other address as any Party may from time to time specify to the other Party in writing. Notices may be delivered by facsimile or other electronic means, provided that they are also delivered personally or by certified mail, and such electronic notices shall thereafter be deemed effective upon receipt. Notices shall be transmitted so that they are received within the specified deadlines.

Fowler Ridge:

Fowler Ridge Wind Farm  
C/O: Asset Management  
700 Louisiana St., 32nd floor  
  
Houston, Texas 77002

Telephone: (713) 354-2100  
Fax: 713-354-2120

USFWS:

Field Office Supervisor  
Bloomington, Indiana Field Office  
U.S. Fish & Wildlife Service  
620 South Walker Street  
Bloomington, Indiana 47403-2121  
Telephone: (812) 334-4261  
Fax: (812) 334-4273

**16.3 Severability.** If any provision of this IA is found invalid or unenforceable, all other provisions shall remain in effect to the extent they can be reasonably applied in the absence of the invalid or unenforceable provision.

**16.4 Entire Agreement.** This IA, together with the HCP, ITP, and PA, constitute the entire agreement among the Parties. Excepting the HCP, ITP, and PA, this IA supersedes any and all other agreements, either oral or in writing, among the Parties with respect to the subject matter hereof and contains all of the covenants and agreements among them with respect to said matters, and each Party acknowledges that no representation, inducement, promise or agreement, oral or otherwise, has been made by any other Party or anyone acting on behalf of any other Party that is not embodied herein. Further, no separate agreement among the permittees, including but not limited to the Common Facilities Agreement dated June 10, 2009, as amended, shall in any way limit, restrict, diminish or otherwise affect in any respect the joint and several liability of the permittees for the obligations assigned to them under the ITP, HCP, PA and this IA.

**16.5 Elected Officials not to Benefit.** No member of or delegate to Congress shall be entitled to any share or part of this IA, or to any benefit that may arise from it.

**16.6 Availability of Funds.** FWS' implementation of this IA, the PA and the HCP is subject to the requirements of the Anti-Deficiency Act (31 U.S.C. § 1341) and the availability of appropriated funds. Nothing in this IA will be construed by the Parties to require the obligation, appropriation, or expenditure of any money from the United States Treasury. The Parties acknowledge this IA does not require FWS to expend any federal agency's appropriated funds unless and until an authorized official of that agency affirmatively acts to commit to the expenditures as evidenced in writing.

**16.7 Duplicate Originals.** This IA may be executed in any number of duplicate originals, and shall be deemed effective as of the date of the signature of the last Party to sign. A complete original of this IA shall be maintained in the official records of each of the Parties hereto.

**16.8 No Third-Party Beneficiaries.** Without limiting the applicability of rights granted to the public under the ESA or other federal law, this IA shall not create any right or interest in the public, or any member thereof, as a third-party beneficiary hereof, nor shall it authorize anyone who is not a Party to this IA to maintain a suit for personal injuries or damages pursuant to the provisions of this IA. The Parties' duties, obligations, and responsibilities with respect to third parties shall remain as imposed under existing law.

**16.9 Relationship to the ESA and Other Authorities.** The terms of this IA shall be governed by and construed in accordance with the ESA and applicable federal law. In particular, nothing in this IA is intended to limit FWS' authority to seek civil or criminal penalties or otherwise fulfill its responsibilities under the ESA. Moreover, nothing in this IA is intended to limit or diminish the legal obligations and responsibilities of FWS as an agency of the federal government. Nothing in this IA will limit the right or obligation of any federal agency to engage in consultation required under ESA Section 7 or other federal law; however, it is intended that Permittees' rights and obligations under the HCP, ITP, PA and this IA will be considered in any consultation affecting Permittees' use of the Covered Lands. Nothing in this IA is intended to limit Permittees' rights under the HCP, the PA, this IA, and the ITP and ability to exercise those rights under applicable law.

**16.10 References to Regulations.** Any reference in this IA, the HCP, the PA or the ITP to any FWS regulation or rule shall be deemed to be a reference to the regulation or rule in existence at the time an action is taken.

**16.11 Applicable Laws.** All activities undertaken under this IA, the HCP, the PA or the ITP must be in compliance with all applicable state and federal laws and regulations.

**16.12 Successors, Assigns, and Transfers.** This IA and each of its covenants and conditions shall be binding on and shall inure to the benefit of the Parties and their respective successors and assigns. Assignment or other transfer of the ITP shall be governed by the FWS regulations in force at the time.

**16.13 Authorized Parties.** Each Party warrants that the signatory below is authorized to execute this IA on behalf of that Party.

IN WITNESS WHEREOF, THE PARTIES HERETO have executed this IA to be in effect as of the date last signed below.

United States Fish and Wildlife Service

BY: \_\_\_\_\_

Date\_\_\_\_\_

**Charles Wooley**

**Deputy Regional Director, FWS**

**Region 3 - Bloomington, MN**

Fowler Ridge Wind Farm LLC

Fowler Ridge II Wind Farm LLC

Fowler Ridge III Wind Farm LLC

Fowler Ridge IV Wind Farm LLC

BY: \_\_\_\_\_

Date\_\_\_\_\_

**Larry Folks**

**Management Committee Representative and Senior Vice President**

**700 Louisiana St.**

**Houston, TX 77002**

## **EXHIBITS**

- A. Fowler Ridge Wind Farm Habitat Conservation Plan

## **Appendix H**

USFWS Template Language  
to be Included in Easement and Fee Simple Conveyances

**USFWS TEMPLATE LANGUAGE  
TO BE INCLUDED IN EASEMENT AND FEE SIMPLE CONVEYANCES**

**Real property deeds, transfers, and conservation easements take a variety of forms. To provide uniformity and consistency when implementing the Habitat Conservation Plan and Incidental Take Permit (HCP/ITP) mitigation requirements, this Template presents the legal text to be included when drafting those conveyance documents. Where indicated, there may be flexibility in terms of the language used or the content of a particular provision.**

**This Template reflects the organization and content of a standard conveyance document in that it includes recitals, purpose, rights, interpretation and miscellaneous provisions. Restrictions on uses and reserved rights appear at the end.**

\*\*\*\*\*

**The following legal recitals must be included in any legal document conveying a real property interest over conservation lands. Due to variations in state law and the type of conveyance that may be used, and the preferences of the parties as to the format of their documentation, the wording of these recitals may need to change, but must remain substantially similar in content. The parties are entitled to include other recitals that are not contradictory.**

RECITALS

WHEREAS, this \_\_\_\_\_ [insert type of conveyance] is conveyed this \_\_\_\_\_ day of \_\_\_\_\_, from \_\_\_\_\_ [name], a \_\_\_\_\_ [description of entity], Grantor, with an address of \_\_\_\_\_, to \_\_\_\_\_ [name], a \_\_\_\_\_ [description of entity], Grantee, with an address of \_\_\_\_\_; and

WHEREAS, the Grantor is [the owner in fee simple of][current holder of an easement or lease, over, through and across] certain real property, hereinafter called the "Protected Property," which has ecological, scientific, educational and aesthetic value in its present state as a natural area which has not been subject to development or exploitation [or describe status with respect to development or exploitation] , which property is located in \_\_\_\_\_ and is more particularly described in Exhibit A, attached hereto and incorporated by this reference; and

**(If applicable)** WHEREAS, the Grantee, is a nonprofit corporation incorporated under the laws of [State, Commonwealth, or District] as a tax-exempt public charity under Section 501(c)(3) and/or 509(a)(1) of the Internal Revenue Code of 1986, as amended, and the regulations promulgated pursuant thereto ("IRC"); Grantee, whose purpose is to preserve natural areas for scientific, charitable, educational and aesthetic purposes, is qualified under section 170(h) of the IRC to receive qualified conservation contributions; and

**(If applicable)** WHEREAS, the Protected Property is a significant natural area which qualifies as a "...relatively natural habitat of fish, wildlife, or plants, or similar ecosystem," as that phrase is used in P.L. 96-541, 26 USC 170(h)(4)(A)(ii), as amended, and in regulations promulgated thereunder; specifically, the Protected Property is habitat for the \_\_\_\_\_ [ESA listed species for which mitigation is required]; and

WHEREAS, the Protected Property consists of \_\_\_\_\_ [general description of habitat] and conservation of the Protected Property will protect and enhance \_\_\_\_\_ [describe habitat values to be conserved], particularly as it relates to the [ESA listed species] with regard to \_\_\_\_\_ [discuss species needs and behaviors (e.g., breeding, feeding, sheltering, migration, etc.); the Protected Property's \_\_\_\_\_ [describe habitat values] provides [or will provide] suitable \_\_\_\_\_ habitat for the \_\_\_\_\_ [ESA listed species]; and

WHEREAS, the United States Fish and Wildlife Service (the "USFWS") within the United States Department of the Interior, is authorized by federal law to administer the federal Endangered Species Act (hereinafter "ESA"), 16 U.S.C. § 1531 et seq., and other laws and regulations; and

WHEREAS, the \_\_\_\_\_ [ESA listed species] has been listed as \_\_\_\_\_ [insert species listing status; e.g., endangered or threatened] by the USFWS under the ESA; and

WHEREAS, \_\_\_\_\_ applied to the USFWS for the issuance of an Incidental Take Permit (the "ITP"), submitted a Habitat Conservation Plan ("HCP") pursuant to ESA Section 10 regarding its \_\_\_\_\_, and was issued an ITP on \_\_\_\_\_ [insert date]; and

WHEREAS, \_\_\_\_\_ is required to mitigate for take of ESA listed species, including \_\_\_\_\_ [species to be conserved through this conveyance], in a manner and amount consistent with the terms of its HCP, and intends to accomplish said mitigation through acquisition and permanent preservation of the Protected Property, and implementation of mitigation measures on the Protected Property, if necessary; and

WHEREAS, the specific conservation values of the Protected Property are documented in an Easement Documentation Report, prepared by \_\_\_\_\_ [insert name of entity preparing report] and signed and acknowledged by the Grantor, establishing the baseline condition of the Protected Property at the time of this grant and including reports, maps, photographs, and other documentation; and

WHEREAS, the Grantor and Grantee have the common purpose of conserving the above-described conservation values of the Protected Property in perpetuity; and

**[If through a conservation easement]** WHEREAS, the State [or Commonwealth] of \_\_\_\_\_ has authorized the creation of Conservation Easements pursuant to \_\_\_\_\_ [insert citation to state law] and Grantor and Grantee wish to avail themselves of the provisions of that law;

NOW, THEREFORE, the Grantor, for and in consideration of the facts above recited and of the mutual covenants, terms, conditions and restrictions herein contained and as an absolute and unconditional gift [or consideration of \$1], does hereby give, grant, bargain, sell and convey unto

the Grantee, a \_\_\_\_\_ [insert type of conveyance] in perpetuity over the Protected Property of the nature and character and to the extent hereinafter set forth.

\*\*\*\*\*

**The following provisions should be incorporated in their entirety. Any deviation must be both substantially similar and approved by U.S. Fish and Wildlife USFWS, in consultation with its Solicitor, prior to execution and recording.**

#### PURPOSE

It is the primary purpose of this \_\_\_\_\_ [insert type of conveyance] to assure that the Protected Property will be retained forever in its \_\_\_\_\_ [insert type of habitat] as suitable for the \_\_\_\_\_ [insert ESA listed species], irrespective of the federal listing status of the species; *[optional, depending on Grantee's interest: and also to the extent consistent with the primary purpose, to protect any other rare plants, animals, or plant communities on the Protected Property, and to ensure the Protected Property remains permanently in a natural, scenic and \_\_\_\_\_ [describe habitat , e.g., forested, etc.] condition;* and to prevent any use of the Protected Property that will significantly impair or interfere with the conservation values or interests of the Protected Property described above. Grantor intends that this \_\_\_\_\_ [insert type of conveyance] will confine the use of the Protected Property to such activities as are consistent with the purpose of this \_\_\_\_\_ [insert type of conveyance].

#### THE USFWS AS THIRD-PARTY BENEFICIARY: ENFORCEMENT AND REMEDIES

1. The parties hereto agree that, because of the USFWS's duties and powers arising under the ESA and consistent with \_\_\_\_\_'s commitments to its HCP and ITP, the USFWS has a clear and substantive interest in the preservation and enforcement of this \_\_\_\_\_ [insert type of conveyance]. Therefore, the parties grant to the USFWS, its agents, successors and assigns, the rights and standing to be noticed, to enter the Protected Property, to approve or disapprove requests, and to enforce this \_\_\_\_\_ [insert type of conveyance] as described in this section and according to its terms.
2. Grantor or Grantee, as appropriate, shall notify the USFWS in writing of the names and addresses of any party to whom the Protected Property, or any part thereof, is to be granted, conveyed or otherwise transferred, said notice to be provided at or prior to the time said transfer is consummated.
3. This \_\_\_\_\_ [insert type of conveyance] does not convey a general right of access to the public, except that the USFWS, its agents, contractors, and assigns, may enter onto the Protected Property at any time upon 24 hours notice to Grantor or Grantee, as appropriate, for the purpose of conducting inspections to determine compliance with the terms contained herein, for the purpose of assessing the \_\_\_\_\_ [ESA listed species] population status and vegetative habitat suitability, in accordance with the terms of the ITP, HCP and the ESA implementing regulations at 50 C.F.R. Parts 13, Subparts C

and D, or for the purpose of conducting \_\_\_\_\_ [specific management or monitoring activities] in accordance with the terms of the HCP.

4. In addition to any other rights and remedies available to the USFWS at law or in equity, the USFWS shall have the right, but not the obligation to enforce this \_\_\_\_\_ [insert type of conveyance] and is entitled to exercise the same remedies available to Grantee, identified in paragraph \_\_\_\_\_ [paragraph that lists Grantee enforcement rights]. The USFWS may do so upon the written request of Grantee or if Grantee fails to enforce the \_\_\_\_\_ [insert type of conveyance]. Prior to taking any enforcement action, the USFWS shall notify Grantee in writing of its intention and shall afford Grantee a reasonable opportunity to negotiate a remedial action and settlement with Grantor or commence its own enforcement action. No failure on the part of the USFWS to enforce any term, condition, or provision hereof shall discharge or invalidate such term, condition, or provision to affect its right or that of Grantee or Grantor to enforce the same.

#### OTHER MANDATORY PROVISIONS

Assignment. The parties hereto recognize and agree that the benefits of this \_\_\_\_\_ [insert type of conveyance] are in gross and assignable, and the Grantee hereby covenants and agrees that in the event it transfers or assigns \_\_\_\_\_ [property interest], it shall obtain written concurrence of the USFWS, and the organization receiving the interest will be a qualified organization as that term is defined in Section 170(h)(3) of the IRC (or any successor section) and the regulations promulgated thereunder, which is organized and operated primarily for one of the conservation purposes specified in Section 170(h)(4)(A) of the IRC, and Grantee further covenants and agrees that the terms of the transfer or assignment will be such that the transferee or assignee will be required to continue to carry out in perpetuity the conservation purposes which the contribution was originally intended to advance.

Subsequent Transfers. The Grantor agrees that the terms, conditions, restrictions and purposes of this grant or reference thereto will be inserted by Grantor in any subsequent deed or other legal instrument by which the Grantor divests any retained, reserved or reversionary interest and by Grantee if Grantee subsequently transfers any fee simple title or possessory interest in the Protected Property; and Grantor and Grantee further agree to notify Grantee or Grantor, as appropriate, and the USFWS of any pending transfer at least thirty (30) days in advance.

Government Permits and Approvals. The conveyance of this \_\_\_\_\_ [insert type of conveyance] by the Grantor to the Grantee does not replace, abrogate, or otherwise set aside any local, state or federal laws, requirements or restrictions applicable to the Protected Property and shall not relieve Grantor of the obligation and responsibilities to obtain any and all applicable federal, state, and local governmental permits and approvals, if necessary, to exercise Grantor's retained rights and uses of the Protected Property even if consistent with the conservation purposes of this \_\_\_\_\_ [insert type of conveyance].

Eminent Domain. Whenever all or part of the Protected Property is taken in exercise of eminent domain by public, corporate, or other authority so as to abrogate the restrictions imposed by this \_\_\_\_\_ [insert type of conveyance], the Grantor and the Grantee shall join in appropriate actions at the time of such taking to recover the full value of the taking and all incidental or direct damages resulting from the taking, which proceeds shall be divided \_\_\_\_\_ [insert method], and \_\_\_\_\_

[discuss how proceeds will be spent]. All expenses incurred by the Grantor and the Grantee in such action shall be paid out of the recovered proceeds.

Interpretation. This \_\_\_\_\_ [insert type of conveyance] shall be interpreted and performed pursuant to the laws of the State in which it is recorded, the federal Endangered Species Act, and other applicable federal laws.

Severability. If any provision in this instrument is found to be ambiguous, an interpretation consistent with the purposes of this \_\_\_\_\_ [insert type of conveyance] that would render the provision valid shall be favored over any interpretation that would render it invalid. If any provision of this \_\_\_\_\_ [insert type of conveyance] or the application thereof to any person or circumstance is found to be invalid, the remainder of the provisions of this \_\_\_\_\_ [insert type of conveyance] and the application of such provisions to persons or circumstances other than those as to which it is found to be invalid shall not be affected thereby.

Successors and Assigns. The term "Grantor" shall include the Grantor and the Grantor's successors and assigns and shall also mean the masculine, feminine, corporate, singular or plural form of the word as needed in the context of its use. The term "Grantee" shall include \_\_\_\_\_ and its successors and assigns.

Notices. Any notices, consents, approvals or other communications required in this \_\_\_\_\_ [insert type of conveyance] shall be sent by registered or certified mail to the appropriate party or its successor in interest at the following address or such address as may be hereafter specified by notice in writing:

Grantor:  
Grantee:  
USFWS:  
[Others:]

Counterparts. The parties may execute this instrument in two or more counterparts, which shall, in the aggregate, be signed by both parties; each counterpart shall be deemed an original instrument as against any party who has signed it. In the event of any disparity between the counterparts produced, the recorded counterpart shall be controlling.

Captions. The captions herein have been inserted solely for convenience of reference and are not a part of this \_\_\_\_\_ [insert type of conveyance] and shall have no effect upon construction or interpretation.

\*\*\*\*\*

**Additionally, each conveyance must include provisions to address the following topics. The contents of these provisions must be negotiated by the parties. They may therefore differ considerably depending on the property, values to be conserved, and the intensity of management and monitoring required. There is no prescribed template for the following provisions. But the USFWS has recommended language it can provide the parties if desired:**

Monitoring and Management;

Endowment [if applicable];  
Cost and Liabilities;  
Taxes;  
Title;  
Standing;  
Extinguishment;  
Merger;  
Parties subject to the conveyance; and,  
Grantee Rights of Entry and Enforcement [which must include, at a minimum, the right to: 1) prevent any activity on or use of the Protected Property that is inconsistent with the purpose of the conveyance and to require the restoration of such areas or features of the Protected Property that may be damaged by any inconsistent activity or use; 2) bring an action at law or equity in a court of competent jurisdiction to enforce the terms of the conveyance; 3) require the restoration of the Protected Property to its previous condition; 4) enjoin non-compliance by ex parte temporary or permanent injunction in a court of competent jurisdiction; and/or, 5) recover any damages arising from such noncompliance.]

\*\*\*\*\*

**Also, each conveyance *must* include the following text regarding force majeure. This text may be revised only to reflect any binding contingencies for adaptive management and changed circumstances, if any, memorialized in the HCP or ITP. But any changes must first be reviewed and approved by the USFWS in consultation with its Solicitor.**

Neither absence of [ESA listed species] from the Protected Property nor a loss of or significant injury to conservation values for the \_\_\_\_\_ [ESA listed species] due to circumstances including, but without limitation, fire, flood, storm, disease, or seismic events, shall be construed to render the purpose of this \_\_\_\_\_ [insert type of conveyance] impossible to accomplish and shall not terminate or extinguish this \_\_\_\_\_ [insert type of conveyance] in whole or in part. In the case of loss of or significant injury to any of the conservation values for the [ESA-listed species] due to fire, flood, storm, disease, seismic events or similar circumstances, the Grantor or Grantee may, but shall not be required to, seek to undertake measures in consultation with the USFWS to restore such conservation values, subject to the terms of the HCP/ITP.

**INDIANA BAT (SUMMER/SWARMING HABITAT)  
USE RESTRICTIONS AND RESERVED RIGHTS<sup>1</sup>**

**RESTRICTIONS**

General Description	Legal Description to be included in Conveyance
<b>No Industrial Use</b>	No industrial activities, including but not limited to the construction or placement of buildings or parking areas, shall occur on the Protected Property
<b>No New Residential Use</b>	No new residential structures or appurtenances, including but not limited to the construction or placement of new homes, mobile homes or storage sheds, shall be constructed on the Protected Property.
<b>No Commercial Use</b>	No commercial activities shall occur on the Protected Property, except for the low impact recreational uses explicitly identified under Reserved Rights.
<b>No Agricultural Use</b>	No new agricultural activities that were not previously documented as part of the baseline conditions shall occur on the Protected Property, including the use of the Protected Property for cropland, waste lagoons, detention or collection ponds, or pastureland.
<b>No Vegetative Clearing</b>	No forestry or timbering activities shall occur on the Protected Property, except that 1) Grantee maintains the right to conduct silvicultural modifications with the intent to improve listed species habitat within the Protected Property through reforestation, afforestation or silvicultural management to improve the health of the Indiana bat habitat; and 2) limited vegetative clearing may occur as described under Reserved Rights only.
<b>Development Rights Extinguished</b>	No development rights which have been encumbered or extinguished by this _____ [insert type of conveyance] shall be transferred pursuant to a transferable development rights scheme or cluster development arrangement or otherwise.
<b>No Subdivision</b>	The Protected Property may not be divided or subdivided. Further, the Protected Property may not be divided, partitioned, nor conveyed except in its current configuration as an entity.

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<sup>1</sup>USFWS acknowledges that there may be limited or extenuating circumstances that may warrant a deviation from this required boilerplate. The nature of the restrictions and consideration of allowable uses will necessarily depend on the land to be protected. Grantors or Grantees who wish to alter the language of these provisions bear the burden of demonstrating to the satisfaction of \_\_\_\_\_ and USFWS that doing so would not diminish or interfere with the conservation of Indiana bats and their habitat. Any such change(s) must be approved by USFWS in writing, after consulting with agency counsel, and prior to execution of the conveyancing document.

## **Appendix I**

Indiana Department of Natural Resources Monitoring  
Commitments at the Wyandotte Cave for the Fowler Ridge Wind  
Farm Habitat Conservation Plan



February 28, 2013

Mrs. Blayne Gunderman  
Environmental Manager  
BP Wind Energy NA, Inc.  
700 Louisiana St, 33<sup>rd</sup> Floor  
Houston, Texas 77002  
(713)299-3100

Mr. Scott Pruitt  
Field Supervisor  
U.S. Fish and Wildlife Service  
Ecological Services Field Office  
620 S. Walker Street  
Bloomington, Indiana 47403  
(812)334-4261 Ext. 1214

Dear Mrs. Gunderman and Mr. Pruitt:

The purpose of this letter is to address the proposed gating project and subsequent monitoring activities at Wyandotte Cave. Wyandotte Cave is a state owned property and occurs within the O'Bannon Woods State Park located in Crawford County. The Indiana Department of Natural Resources (IDNR) has conducted various monitoring activities at the cave over the past several decades.

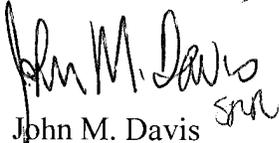
As a requirement of their Habitat Conservation Plan (HCP), the Fowler Ridge Wind Farm (FRWF) proposes to remove and replace the current gate at Wyandotte Cave in order to protect Indiana bats (*Myotis sodalis*) that are currently hibernating in an area of the cave that is outside of the current gate. The IDNR will have final approval authority concerning the location and design of the new gate and will provide Section 106 coordination for the gate construction. This gating project is being implemented to mitigate for the incidental take of Indiana bats as a result of the operation of the FRWF. In addition to the mitigation actions, the HCP requires monitoring be completed to ensure success of those mitigation actions.

This letter serves as confirmation that the IDNR will continue to conduct monitoring activities at Wyandotte Cave and will provide all necessary information to FRWF to ensure compliance with their HCP. Monitoring activities to be done include: 1) weekly checking of the gate by O'Bannon Woods State Park personnel to ensure the gate is intact and has not been damaged or breached; 2) installation and maintenance of dataloggers, and downloading of data collected by the dataloggers (i.e. temperature, humidity, air flow inside the cave); and 3) installation and

maintenance of speloggers, and downloading of data collected by the speloggers (i.e. human visitation occurrences). A summary report of monitoring activities will be provided annually for 12 years following installation on the new gate and will include: data from speloggers and dataloggers, digital photographs of the gate and cave entrance, and any management recommendations. To ensure that any required management actions can be taken prior to the upcoming hibernation period, the winter habitat mitigation report will be submitted to FRWF annually by June 30. In the event the IDNR cannot continue these monitoring activities, the IDNR will work with FRWF to ensure subsequent monitoring under the HCP is performed by qualified personnel using approved protocols.

Please contact Scott Johnson via phone (812-334-1137) or email ([sjohnson@dnr.IN.gov](mailto:sjohnson@dnr.IN.gov)) with any questions or concerns.

Sincerely,

A handwritten signature in black ink that reads "John M. Davis" with a stylized flourish at the end.

John M. Davis  
Deputy Director  
Dept. of Natural Resources  
402 W. Washington St. Rm W256  
Indianapolis, Indiana 46204

## **Appendix J**

### Financial Impact of Minimization Options

**Fowler Ridge Wind Farm (FRWF)  
Financial Impact of Minimization Options  
Prepared as Supplemental Information in Support of  
Maximum Extent Practicable in the Proposed HCP Application**

**Introduction**

This paper presents the most straightforward answer to the Service's question about "How does the conservation plan affect the bottom line?" The tipping point for the Project's minimization efforts exists at feathering the turbine blades and raising the cut-in speed up to 5.0 m/s during the fall migration season, resulting in a previously unaccounted for loss of revenues and cost increases in the already tight financial structure over the life of the project. When combined with the costs to monitor and report the results under the proposed HCP, we believe that this represents the Maximum Extent Practicable minimization for the Project. Clearly, operational changes that limit turbine rotation during low wind periods offer the greatest benefit to bats by providing a safe wind window for when they are actively feeding, swarming or migrating. Conversely, any increase in the turbine's cut-in speed beyond 5.0 m/s further reduces energy production and shows, by way of increased financial impact to the project and a declining benefit to the species, that it exceeds economic practicability.

**Background on Operational Project's Financial Constraints and Contractual Obligations**

Large wind energy projects require complex financing to ensure project success and investor security. Once financing is in place, it can be very difficult, and expensive, to modify. Phases I, II and III of the Fowler Ridge Wind Farm (FRWF) are fully constructed and operational. Each Phase was financed independently among the three partners and involves multiple financial institutions. These financial agreements each contain specific conditions which must be met to avoid a breach of contract with severe economic repercussions. The terms of the financing were based on expected production, expected fixed and variable costs, and relative risk of the project. Significant changes to project performance reduces the revenue stream which adds risk, may require lender approval and can potentially impact the terms of the loans and project viability. These constraints must be acknowledged when making the determination of Maximum Extent Practicable (MEP) for minimization and mitigation measures in the Habitat Conservation Plan

In addition to financial contracts, FRWF produces power for various off-takers under multiple, long term (20 years or greater) power sales agreements. These contracts are legally binding agreements with guaranteed production levels and availability terms. Each of these established power sales agreements were negotiated prior to the discovery of Indiana bat on site, and thus, accommodations for any form of mitigation or minimization including long-term curtailment were not anticipated. The adoption of any turbine curtailment or cut-in speed adjustment will reduce availability and power production from the FRWF. The non-performance penalties associated with failure to meet contractual obligations could ultimately lead to default on the banking agreements. Further, power off-take agreements can be negotiated at a price that fully

considers all costs, including those to comply with an HCP. As described above, the FRWF contracts were negotiated when interested parties, including representatives of the USFWS, did not expect to discover the presence of an Indiana bat at the project site, and did not consider the costs of minimization and mitigation to comply with an HCP.

Revenues were forecast on the existing wind profile coupled with the design and production capabilities of the various styles of wind turbines. Costs were projected based on known and estimated expenses associated with operating the turbines. Modifying the way a turbine utilizes the wind makes it less efficient, which in turn reduces its ability to generate electricity. Since there are no corresponding changes to the cost structure, the result is a direct reduction in profitability due to the reduction in revenues.

#### **Other Contractual Considerations**

In addition to the direct financial costs, other contractual implications were analyzed. Each of the Fowler Phases I, II, and III are currently in operation and are selling power under long-term power purchase agreements (contracts). In these contracts, the FRWF project phases have certain obligations to maintain a guaranteed level of availability. That is, FRWF guaranteed to keep the wind turbines available to generate electricity for at least a certain percentage of the year. If the extreme of full nightly curtailments was used as the treatment technique, the actual availability would fall below guarantees and the project would face material penalties with the off-takers. Contractual penalties associated with failing to achieve these guarantees can be as high as \$65 million to the Fowler owners, which could ultimately bankrupt the ventures.

#### **Summary**

[REDACTED]

[REDACTED]

[REDACTED] The only real variable for Fowler profitability is actual generation. Since generation is a function of wind speed, reducing the opportunity for the turbine to generate by raising the cut in speed directly reduces income and hence profitability.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

The Fowler owners consider the raised cut in speed of 5 m/s, [REDACTED] to be the absolute maximum extent practicable operational change that can be made and still maintain a healthy cash flow, as expected by our investors.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

**Fowler Ridge Wind Farm (FRWF)  
Response to Maximum Extent Practicable Question  
Specific to Fowler Ridge IV Wind Farm**

**Q: Given that Fowler Ridge IV Wind Farm (Fowler 4) is still in development and does not yet have any power purchase agreements, can the impact of mitigation be priced into any subsequent agreements?**

A: Fowler 4 has been actively marketing their output to buyers of renewable generation anticipating the minimization impacts included in the draft HCP. That is, the sales price at which Fowler 4 could earn a reasonable return was based on a generation profile that included 5 m/s cut-in speed adjustments during the fall migration season. [REDACTED]

[REDACTED] It is our believe that if Fowler 4 were burdened by a more restrictive minimization requirement, the resulting pricing impact would significantly disadvantage the project in the market.