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REPLY TO: Sioux Falls 605-332-5999

From the office of Miles F. Schumacher
e-mail address: mschumacher@lynnjackson.com

March 12, 2019

Via Electronic Filing

Ms. Patricia Van Gerpen, Executive Director
South Dakota Public Utilities Commission
Capitol Building, 1st Floor
500 East Capitol Avenue
Pierre, SD 57501-5070

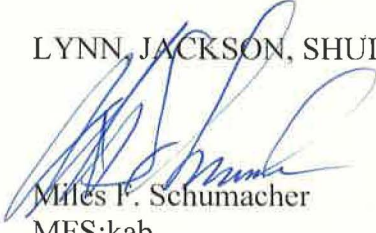
Re: Docket #EL19-003
In the Matter of the Application by Crowned Ridge Wind, LLC
for an Energy Facility Permit of a Wind Energy Facility in
Grant and Codington Counties, South Dakota for Crowned Ridge
Wind Farm

Dear Ms. Van Gerpen:

In connection with the above captioned matter, Crowned Ridge Wind, LLC (Crowned Ridge Wind) is submitting a supplement to Appendix B to the Application, Agency Coordination Dates and Correspondence. The attached correspondence was inadvertently omitted from Appendix B at the time of filing the Application.

Yours very truly,

LYNN, JACKSON, SHULTZ & LEBRUN, P.C.



Miles F. Schumacher
MFS:kab
Enclosures

001154



United States Department of the Interior

FISH AND WILDLIFE SERVICE

South Dakota Ecological Services

420 South Garfield Avenue, Suite 400
Pierre, South Dakota 57501-5408

August 11, 2017

IN REPLY REFER TO:
Crowned Ridge Wind I and II



Ms. Kely Mertz
Senior Project Manager
SWCA Environmental Consultants
200 West 22nd Street, Suite 200
Lombard, Illinois 60148

Dear Ms. Mertz:

This letter is in response to your request dated July 12, 2017, for environmental comments regarding the Crowned Ridge I and II Wind Energy Projects in Codington, Deuel, and Grant counties, South Dakota. These two projects are proposed to be constructed adjacent to each other in late 2018, becoming operational in 2019. Each is 300 MW in size (total 600 MW), with a point of interconnection at the Big Stone South 230 kV substation near Bigstone, South Dakota. Per our agency/developer/consultant conference call on April 19, 2017, Crowned Ridge I is the northern project to be developed and owned by NextEra with Xcel Energy to purchase the power, while Crowned Ridge II is the southern project to be constructed by NextEra, eventually to be owned by Xcel Energy.

As noted in your letter, there has been coordination with our office on Crowned Ridge for some time, although the project size and boundary has changed, and now the single project has been divided into two.

Federal nexus and USFWS easements

In past correspondences, Western Area Power Administration was involved as a federal nexus, but during our April 19, 2017, call, we discussed the potential for the U. S. Fish and Wildlife Service (Service) to be the federal nexus if the projects will impact Service grassland or wetland easement properties. It is our current understanding that these areas will be avoided at the Crowned Ridge projects; please inform our office if that changes. For any questions regarding easement locations or regulations in Codington and Grant Counties please continue your coordination with Connie Mueller at our Waubay Wetland Management District and in Deuel County contact Natoma Hansen at our Madison Wetland Management District who administer the easement program in their respective districts.

001155

Land-based Wind Energy Guidelines

In addition to easement discussions on our April call, you indicated your awareness of our Land Based Wind Energy Guidelines, noting past wildlife surveys. We recommend you continue to apply these guidelines to these two projects. Wildlife surveys have been done at the Crowned Ridge site but may need updating, particularly since the project size and boundary has changed. We request copies of all wildlife and habitat surveys conducted at the Crowned Ridge I and II sites.

Eagle Conservation Plan Guidance

Our Eagle Conservation Plan Guidance was also mentioned on our April, 2017, call. Golden eagles (*Aquila chrysaetos*) may be found throughout the state in winter or during migration. Bald eagles (*Haliaeetus leucocephalus*) occur throughout South Dakota in all seasons. Both species are protected under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act. These laws protect eagles from a variety of harmful actions and impacts. We recommend close adherence to our Eagle Conservation Plan Guidance to determine risk of take to eagles at the Crowned Ridge Project sites. Eagle take at wind farms may be authorized via permitting; should your survey data reveal a risk to eagles and you wish to obtain a permit please contact our office for further assistance. Please provide this office with results of eagle surveys and any modeling efforts per the Guidance.

Threatened/Endangered Species

In accordance with section 7(c) of the Endangered Species Act (ESA), as amended, 16 U.S.C. 1531 et seq., we have determined that the following federally listed species may occur in the project area (this list is considered valid for 90 days):

<u>Species</u>	<u>Status</u>	<u>Expected Occurrence</u>
Dakota Skipper (<i>Hesperia dacotae</i>)	Threatened	Resident in native prairie, northeastern SD
Poweshiek Skipperling (<i>Oarisma poweshiek</i>)	Endangered	Possible resident in native prairie, northeastern SD
Northern Long-eared Bat (<i>Myotis septentrionalis</i>)	Threatened	Summer resident, seasonal migrant, known winter resident in Black Hills
Rufa Red Knot (<i>Calidris canutus rufa</i>)	Threatened	Rare seasonal migrant
Topeka Shiner (<i>Notropis topeka</i>)	Endangered	Resident

Whooping Crane
(*Grus americana*)

Endangered

Migrant

Dakota skipper

The Dakota skipper is a small prairie butterfly listed as a threatened species under the ESA. Dakota skippers are obligate residents of high quality prairie ranging from wet-mesic tallgrass prairie to dry-mesic mixed grass prairie. In northeastern South Dakota, Dakota skippers inhabit dry-mesic hill prairies with abundant purple coneflower (*Echinacea angustifolia*), but also use mesic to wet-mesic tallgrass prairie habitats characterized by wood lily (*Lilium philadelphicum*) and mountain death camas (smooth camas; *Zigadenus elegans*). Their dispersal ability is very limited due in part to their short adult life span and single annual flight.

Extirpation from a site may be permanent unless it occurs within about 0.6 miles of an inhabited site that generates a sufficient number of emigrants. Avoidance of impacts to native prairie habitat is recommended to reduce the risk of adverse effects to this species. If such areas are unavoidable, surveys for Dakota skippers are advisable. Critical habitat has been designated for this species in South Dakota; for details and locations see the following website:

<https://www.fws.gov/Midwest/endangered/insects/dask/index.html>.

Poweshiek skipperling

The Poweshiek skipperling is a small prairie butterfly listed as endangered under the ESA. The habitat of Poweshiek skipperlings is similar to that of Dakota skipper and includes prairie fens, grassy lake and stream margins, moist meadows, and wet-mesic to dry tallgrass prairie.

Preferred nectar plants for adult Poweshieks include smooth ox-eye (*Heliopsis helianthoides*) and purple coneflower (*Echinacea angustifolia*), but they also use stiff tickseed (*Coreopsis palmate*), black-eyed susan (*Rudbeckia hirta*), and palespike lobelia (*Lobelia spicata*). Larval food plants are assumed to include spike-rush, sedges, prairie dropseed (*Sporobolus heterolepis*) and little bluestem (*Schizachyrium scoparium*). Like Dakota skippers, Poweshiek skipperlings have one flight per year from about the middle of June through the end of July (depending upon weather). They have a low dispersal capability, and may not cross areas that are not structurally similar to native prairies. Extirpation from fragmented and isolated prairie remnants may be permanent unless it occurs within about 0.6 miles of an inhabited site that generates a sufficient number of emigrants. They are vulnerable to extreme weather conditions, dormant season fire, and other disturbances (e.g., intense cattle grazing). Avoidance of impacts to native prairie habitat is recommended to reduce the risk of adverse effects to this species. If such areas are unavoidable, surveys for the skipperlings are advisable. Critical habitat has been designated for this species in South Dakota; for details and locations see the following website:

<https://www.fws.gov/midwest/endangered/insects/dask/finalch.html>.

Northern long-eared bat

The northern long-eared bat is a medium-sized bat listed as threatened under the ESA. Northern long-eared bats are known to be present in South Dakota during the summer months, primarily roosting singly or in colonies underneath bark, in cavities or in crevices of both live and dead trees. Some hibernacula have been documented in caves/mines in the Black Hills, and the species has been documented in other forested areas in the state during the summer months, as well as along the Missouri River during migration. White nose syndrome, a fungus affecting hibernating bats, is considered a significant threat to this species, but individuals may be harmed

by other activities such as modifications to hibernacula, timber harvest, human disturbance, and collisions with wind turbines. Currently, feathering turbine blades and increasing cut-in speeds are recommended measures to reduce the risk of bat mortality at wind generation facilities. A 4(d) rule has been published that exempts take of Northern long-eared bats in certain circumstances. For more information, see:

<https://www.fws.gov/Midwest/Endangered/mammals/nleb/index.html>.

Rufa red knot

The rufa red knot is a robin-sized shorebird listed as threatened under the ESA. The red knot migrates annually between its breeding grounds in the Canadian Arctic and several wintering regions, including the Southeast United States, the Northeast Gulf of Mexico, northern Brazil, and Tierra del Fuego at the southern tip of South America. Although it is primarily a coastal species, small numbers of rufa red knots are reported annually across the interior United States (*i.e.*, greater than 25 miles from the Gulf or Atlantic Coasts) during spring and fall migration. These reported sightings are concentrated along the Great Lakes, but multiple reports have been made from nearly every interior State, including South Dakota. The red knot likely uses South Dakota habitats similar to those of the least tern and piping plover. The species does not breed in this state.

Topeka shiner

The Topeka shiner is a small endangered minnow known to occupy numerous small streams within eastern South Dakota. The species occurs within the Big Sioux, Vermillion, and James River watersheds and is a resident of several prairie streams in Codington and Deuel counties. Should project activities (*e.g.*, stream crossings, streamside vegetation removal) impact occupied streams or wetlands/streams that are connected to occupied streams, the species may be present and potential impacts may occur. We recommend avoidance of these habitats, and/or by actions such as spanning entire streams/riparian areas where crossings are necessary or directionally boring beneath streams and riparian areas to install connector lines. If impacts to known or potentially occupied streams are unavoidable, please contact this office for further guidance.

Whooping Crane

Endangered whooping cranes occurring in South Dakota are usually from the Aransas/Wood-Buffalo population that migrates through South Dakota twice annually on the way to northern breeding grounds and southern wintering areas; however, individuals from eastern populations are occasionally located in the State. The cranes occupy numerous habitats such as cropland and pastures; wet meadows; shallow marshes; shallow portions of rivers, lakes, reservoirs, and stock ponds; and both freshwater and alkaline basins for feeding and loafing. Overnight roosting sites frequently require shallow water in which to stand and rest. Whooping cranes are large birds with low maneuverability. Line strike mortality is the greatest known threat to fledged whooping cranes; more information on this topic is provided herein (see enclosure dated February 4, 2010, and Power Lines section below). Whooping crane mortality via turbine strikes may also pose a risk if the birds utilize habitat at/near wind farm sites. Loss of stopover habitat in the migration corridor is a concern that may be realized if whooping cranes tend to avoid wind farms in this area. Additionally, should construction occur during spring or fall migration, the potential for disturbances to whooping cranes exists. Disturbance (flushing the birds) stresses them at critical times of the year and should be avoided. These issues should be addressed prior to wind farm

development. Sightings of whooping cranes at any time should be reported to this office. Please note that use of the proposed project area by sandhill cranes may be indicative of the potential presence of whooping cranes since the two species are often observed utilizing the same habitats and migrating together.

Wetlands

According to National Wetlands Inventory maps (available online at <http://wetlands.fws.gov/>), numerous wetlands exist within the proposed project area. If a project may impact wetlands or other important fish and wildlife habitats, the Service, in accordance with the National Environmental Policy Act of 1969 (42 U.S.C. 4321-4347) and other environmental laws and rules, recommends complete avoidance of these areas, if possible; then minimization of any adverse impacts; and finally, replacement of any lost acres; in that order. Alternatives should be examined and the least damaging practical alternative selected. If wetland impacts are unavoidable, a mitigation plan addressing the number and types of wetland acres to be impacted and the methods of replacement should be prepared and submitted to the resource agencies for review.

Migratory Birds

Birds of Conservation Concern; avian avoidance issues

In accordance with Executive Order 13186 regarding migratory bird protection, we recommend avoidance, minimization, and finally compensation to reduce the impacts to species protected by the MBTA. Our Birds of Conservation Concern 2008 publication, online at <https://www.fws.gov/migratorybirds/pdf/grants/BirdsofConservationConcern2008.pdf> provides lists of species for which we recommend proactive measures be taken to ensure populations do not require future additional protections. During the April, 2017, call, we relayed concern for grassland impacts and associated avoidance of turbines by grassland nesting migratory birds, some of which may be listed in that 2008 publication. Some grassland nesting species avoid turbines out to 300 m (approximately a 70-acre circle around each turbine), and the degree of avoidance increases over time (Shaffer and Buhl 2015). A similar avoidance of wetlands has been exhibited by waterfowl (Loesch et al. 2013). We recommend avoidance of grassland and wetland habitats and placement of turbines and infrastructure in cropland or other disturbed sites whenever possible. Prairie habitat restoration or establishment of easements to protect grasslands and/or wetlands offsite is recommended to compensate for avian impacts. If such impacts are anticipated, please inform our office of the location and acreage of impacts and we will provide further assistance and guidance on this issue.

Meteorological Towers

Meteorological towers constructed in association with wind turbines are often similar in design to typical communication towers: tall, lighted, lattice structured, and guyed. Of primary concern are the collision mortality risks posed to migratory birds as towers are currently estimated to kill 6.8 million birds per year in the United States and Canada (Longcore et al. 2012). We have enclosed Service guidance on this issue, our *2013 U.S. Fish and Wildlife Service (USFWS) Revised Voluntary Guidelines for Communication Tower Design, Siting, Construction, Operation, Retrofitting, and Decommissioning*. Among the primary concerns addressed within

our guidelines are the establishment of new towers on the landscape, the heights of these towers, their lighting scheme, and means of structural support. Collocation of communications tower facilities on an existing structure is strongly recommended to avoid any additional impacts to migratory birds. If a new tower is necessary, placement of the new tower near other existing structures is recommended to concentrate the risk posed by the towers to relatively small areas. Minimization of tower height (below 200 feet to preclude the need for Federal Aviation Administration lighting requirements), use of only strobe or flashing lights (no steady-burning lights), and avoidance of guy wires (a great deal of avian mortality is a result of collisions with supporting guy wires) are important components intended to minimize potential impacts to migratory birds.

Power Lines

The construction of additional overhead power lines associated with wind farms creates the threat of avian electrocution, particularly for raptors. Thousands of these birds, including endangered species, are killed annually as they attempt to utilize overhead power lines as nesting, hunting, resting, feeding, and sunning sites. The Service recommends the installation of underground, rather than overhead, power lines whenever possible/appropriate to minimize environmental disturbances. For all new overhead lines or modernization of old overhead lines, we recommend incorporating measures to prevent avian electrocutions. The publication entitled *Suggested Practices for Avian Protection on Power Lines - The State of the Art in 2006* has many good suggestions including pole extensions, modified positioning of live phase conductors and ground wires, placement of perch guards and elevated perches, elimination of cross arms, use of wood (not metal) braces, and installation of various insulating covers. You may obtain this publication by contacting the Edison Electric Institute via their website at: <http://www.eei.org/resourcesandmedia/products/Pages/products.aspx>, or by calling 202-508-5000.

Please note that utilizing just one of the "Suggested Practices . . ." methods may not entirely remove the threat of electrocution to raptors. In fact, improper use of some methods may increase electrocution mortality. Perch guards, for example, may be only partially effective as some birds may still attempt to perch on structures with misplaced or small-sized guards and suffer electrocution as they approach too close to conducting materials. Among the most dangerous structures to raptors are poles that are located at a crossing of two or more lines, exposed above-ground transformers, or dead end poles. Numerous hot and neutral lines at these sites, combined with inadequate spacing between conductors, increase the threat of raptor electrocutions. Perch guards placed on other poles has, in some cases, served to actually shift birds to these more dangerous sites, increasing the number of mortalities. Thus, it may be necessary to utilize other methods or combine methods to achieve the best results. The same principles may be applied to substation structures.

Also note that the spacing recommendation within the "Suggested Practices . . ." publication of at least 60 inches between conductors or features that cause grounding may not be protective of larger raptors such as eagles. This measure was based on the fact that the skin-to-skin contact distance on these birds (i.e., talon to beak, wrist to wrist, etc.) is less than 60 inches. However, an adult eagle's wingspan (distance between feather tips) may vary from 66 to 96 inches depending on the species (golden or bald) and gender of the bird, and unfortunately, wet feathers

in contact with conductors and/or grounding connections can result in a lethal electrical surge. Thus, the focus of the above precautionary measures should be to a) provide more than 96 inches of spacing between conductors or grounding features, b) insulate exposed conducting features so that contact will not cause raptor electrocution, and/or c) prevent raptors from perching on the poles in the first place.

Additional information regarding simple, effective ways to prevent raptor electrocutions on power lines is available in video form. *Raptors at Risk* may be obtained by contacting EDM International, Inc. at 4001 Automation Way, Fort Collins, Colorado 80525-3479, Telephone No. (970) 204-4001, or by visiting their website at: <https://www.edmlink.com/component/zoo/item/video-raptors-at-risk>.

In addition to electrocution, overhead power lines also present the threat of avian line strike mortality. Particularly in situations where these lines are adjacent to wetlands or where waters exist on opposite sides of the lines, we recommend marking them in order to make them more visible to birds. For more information on bird strikes, please see *Reducing Avian Collisions with Power Lines: The State of the Art in 2012* which, again, may be obtained by contacting the Edison Electric Institute via their website at: <http://www.eei.org/resourcesandmedia/products/Pages/products.aspx>, or by calling 202-508-5000.

Please note that, while marking of power lines reduces line strike mortality, it does not preclude it entirely. Thus, marking of additional, existing, overhead lines is recommended to further offset the potential for avian line strike mortality. As noted above, the whooping crane is particularly susceptible to this type of mortality, and your project occurs within the whooping crane migratory corridor. This region of the Service (Region 6) has developed *Guidance for Minimizing Effects From Power Line Projects Within the Whooping Crane Migration Corridor* (copy enclosed). Marking of existing lines elsewhere in the species' corridor is recommended. As indicated previously, a copy of the migration corridor of the Aransas-Wood Buffalo Population of whooping cranes is also enclosed for your information.

Bird and Bat Conservation Strategy

As with Eagle Conservation Plans for wind projects in this region, we have developed a document to further assist companies in following our established national guidance on BBCSs. We have enclosed our Region 6 *Outline for a Bird and Bat Conservation Strategy: Wind Energy Projects*. As stated in the introduction of that document: a BBCS "...is a life-of-a-project framework for identifying and implementing actions to conserve birds and bats during wind energy project planning, construction, operation, maintenance, and decommissioning. It is the responsibility of wind energy project developers and operators to effectively assess project-related impacts to birds, bats and their habitats, and to work to avoid and minimize those impacts." A BBCS explains the actions taken by developers as they progress through the tiers of our Land-Based Wind Energy Guidelines, describing the analyses, studies, and reasoning implemented with the purpose of mitigating for potential avian and bat impacts. It also addresses postconstruction monitoring and habitat impacts. We recommend you develop a BBCS if these projects progress.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act prohibits the taking, killing, possession, and transportation, (among other actions) of migratory birds, their eggs, parts, and nests, except when specifically permitted by regulations. While the MBTA has no provision for allowing unauthorized take, the Service realizes that some birds may be killed as a result of wind farm operations, even if all known reasonable and effective measures to protect birds are used. The Service's Office of Law Enforcement carries out its mission to protect migratory birds through investigations and enforcement, as well as by fostering relationships with individuals, companies, and industries that have taken effective steps to avoid take of migratory birds and by encouraging others to implement measures to avoid take of migratory birds. It is not possible to absolve individuals, companies, or agencies from liability even if they implement bird mortality avoidance or other similar protective measures. However, the Office of Law Enforcement focuses its resources on investigating and prosecuting individuals and companies that take migratory birds without identifying and implementing all reasonable, prudent and effective measures to avoid that take. Companies are encouraged to work closely with Service biologists to identify available protective measures when developing project plans and/or avian protection plans, and to implement those measures prior to/during construction, operation, or similar activities.

Summary

Below we reiterate the items discussed above that are pertinent to the proposed project, any associated recommended guidance, or related information and suggested actions.

- Service easement properties
 - Avoid easements if possible
 - Continue coordination with Waubay and Madison WMDs
 - Inform this office if easements will be impacted
- Wind farm guidance:
 - Adhere to Land-Based Wind Energy Guidelines
 - Update wildlife surveys
 - Provide results of surveys to this office
- Eagle Guidance:
 - Adhere to Eagle Conservation Plan Guidance
 - Provide results of eagle surveys and modeling to this office
- Threatened/Endangered Species
 - Avoid habitat impacts
 - Surveys may be needed to determine presence
- Wetlands
 - Avoid, minimize, compensate for any wetland impacts (in that order)
- Migratory Birds
 - Avoid impacts to grasslands and wetlands
 - Avoid impacts to Birds of Conservation Concern

- Compensate for unavoidable impacts
- Develop a Bird and Bat Conservation Strategy
- Address meteorological tower impacts
- Address power line impacts

If changes are made in the project plans or operating criteria, or if additional information becomes available, the Service should be informed so that the above determinations can be reconsidered.

The Service appreciates the opportunity to provide comments. If you have any questions on these comments, please contact Natalie Gates of this office at (605) 224-8693, Extension 227.

Sincerely,



Field Supervisor
South Dakota Field Office

LITERATURE CITED

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Enclosures

cc: FWS/Waubay WMD, Connie Mueller
FWS/Madison WMD, Natoma Hansen
Silka Kempema, Biologist, South Dakota Game, Fish and Parks



United States Department of the Interior

FISH AND WILDLIFE SERVICE Mountain-Prairie Region



IN REPLY REFER TO:
FWS/R6
ES


MAILING ADDRESS:
P.O. Box 25486, DFC
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134 Union Boulevard
Lakewood, Colorado 80228-1807

FEB 04 2010

Memorandum

To: Field Office Project Leaders, Ecological Services, Region 6
Montana, North Dakota, South Dakota, Nebraska, Kansas

From: Assistant Regional Director, Ecological Services, Region 6 

Subject: Region 6 Guidance for Minimizing Effects from Power Line Projects Within the Whooping Crane Migration Corridor

This document is intended to assist Region 6 Ecological Services (ES) biologists in power line (including generation lines, transmission lines, distribution lines, etc.) project evaluation within the whooping crane migration corridor. The guidance contained herein also may be useful in planning by Federal action agencies, consultants, companies, and organizations concerned with impacts to avian resources, such as the Avian Power Line Interaction Committee (APLIC). We encourage action agencies and project proponents to coordinate with their local ES field office early in project development to implement this guidance.

The guidance includes general considerations that may apply to most, but not every, situation within the whooping crane migratory corridor. Additional conservation measures may be considered and/or discretion may be applied by the appropriate ES field office, as applicable. We believe that in most cases the following measures, if implemented and maintained, could reduce the potential effects to the whooping crane to an insignificant and/or discountable level. Where a Federal nexus is lacking, we believe that following these recommendations would reduce the likelihood of a whooping crane being taken and resulting in a violation of Endangered Species Act (ESA) section 9. If non-Federal actions cannot avoid the potential for incidental take, the local ES field office should encourage project proponents to develop a Habitat Conservation Plan and apply for a permit pursuant to ESA section 10(a)(1)(B).

Finally, although this guidance is specific to impacts of power line projects to the whooping crane within the migration corridor, we acknowledge that these guidelines also may benefit other listed and migratory birds.

If you have any questions, please contact Sarena Selbo, Section 7 Coordinator, at (303) 236-4046.

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Region 6 Guidance for Minimizing Effects from Power Line Projects Within the Whooping Crane Migration Corridor

- 1) Project proponents should avoid construction of overhead power lines within 5.0 miles of designated critical habitat and documented high use areas (these locations can be obtained from the local ES field office).
- 2) To the greatest extent possible, project proponents should bury all new power lines, especially those within 1.0 mile of potentially suitable habitat¹.
- 3) If it is not economically or technically feasible to bury lines, then we recommend the following conservation measures be implemented:

a) Within the 95-percent sighting corridor (see attached map)

- i) Project proponents should mark² new lines within 1.0 mile of potentially suitable habitat and an equal amount of existing line within 1.0 mile of potentially suitable habitat (preferably within the 75-percent corridor, but at a minimum within the 95-percent corridor) according to the U.S. Fish and Wildlife Service (USFWS) recommendations described in APLIC 1994 (or newer version as updated).
- ii) Project proponents should mark replacement or upgraded lines within 1.0 mile of potentially suitable habitat according to the USFWS recommendations described in APLIC 1994 (or newer version as updated).

b) Outside the 95-percent sighting corridor within a State's borders

Project proponents should mark new lines within 1.0 mile of potentially suitable habitat at the discretion of the local ES field office, based on the biological needs of the whooping crane.

c) Develop compliance monitoring plans

Field offices should request written confirmation from the project proponent that power lines have been or will be marked and maintained (i.e., did the lines recommended for marking actually get marked? Are the markers being maintained in working condition?)

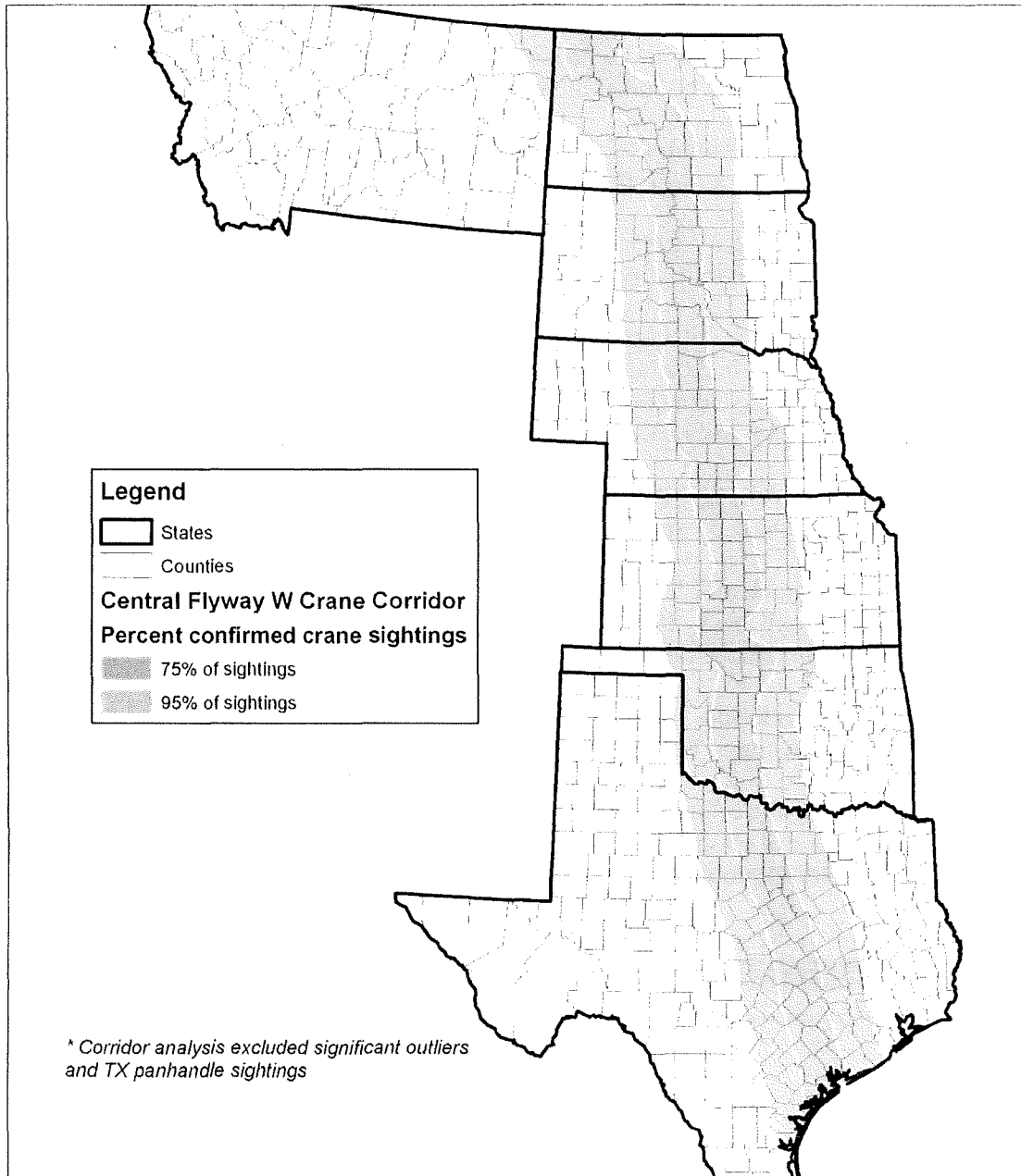
¹ Potentially suitable migratory stop over habitat for whooping cranes includes wetlands with areas of shallow water without visual obstructions (i.e., high or dense vegetation) (Austin & Richert 2001; Johns et al. 1997; Lingle et al. 1991; Howe 1987) and submerged sandbars in wide, unobstructed river channels that are isolated from human disturbance (Armbruster 1990). Roosting wetlands are often located within 1 mile of grain fields. As this is a broad definition, ES field office biologists should assist action agencies/applicants/companies in determining what constitutes potentially suitable habitat at the local level.

² Power lines are cited as the single greatest threat of mortality to fledged whooping cranes. Studies have shown that marking power lines reduces the risk of a line strike by 50 to 80 percent (Yee 2008; Brown & Drewien 1995; Morkill & Anderson 1991). Marking new lines and an equal length of existing line in the migration corridor maintains the baseline condition from this threat.



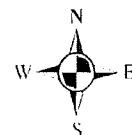
U.S. Fish & Wildlife Service

United States Central Flyway Whooping Crane Migration Corridor *



Produced for Ecological Services
Grand Island, NE
Current to: 2008
Basemap (Date): U.S. Counties
Meridian:
File:

0 70 140 280 420 560 Miles



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U.S. Fish and Wildlife Service, Region 6, Mountain-Prairie Region

Outline for a Bird and Bat Conservation Strategy: Wind Energy Projects

A Bird and Bat Conservation Strategy (BBCS) is a life-of-a-project framework for identifying and implementing actions to conserve birds and bats during wind energy project planning, construction, operation, maintenance, and decommissioning. It is the responsibility of wind energy project developers and operators to effectively assess project-related impacts to birds, bats and their habitats, and to work to avoid and minimize those impacts.

A wind project BBCS should be updated regularly as new information, including monitoring of project impacts and technical advancements, becomes available. A BBCS is a strategy for assessing impacts, avoiding/minimizing impacts, guiding current actions, and planning future impact assessments and actions to conserve birds and bats. It provides reference to project history and previous impact assessments and actions. A BBCS contains the studies, analyses, and reasoning leading to project-specific decisions and implementation of actions. The 2012 U.S. Fish and Wildlife Service (USFWS) Land-Based Wind Energy Guidelines (WEG) provides comprehensive guidance on the process for addressing bird and bat conservation at all stages of wind energy development.

Decisions made through the BBCS framework include determining if there is a need to develop other bird and bat conservation plans such as an Eagle Conservation Plan (2013 USFWS Eagle Conservation Plan Guidance) or Habitat Conservation Plan (Endangered Species Act, section 10(a)(1)(B)). Specific surveys needed to support those plans may be most effectively conducted in tandem with surveys to develop the BBCS.

Wind energy projects currently in operation which have not been planned, developed, or operated following a BBCS framework, will, at a minimum, need to supplement assessments of impacts to birds and bats with Post-Construction Assessments and Adaptive Management Studies, working closely with the USFWS.

The following outline is provided by USFWS Region 6 as a guide for developing and organizing a BBCS.

Outline

I. Statement of Purpose

Identify how the BBCS functions as a strategy to address bird and bat conservation during all project phases.

II. Regulatory Framework

A. Fish and Wildlife Laws, Regulations, and Policies

Include the language provided and do not reference USFWS law enforcement or prosecutorial discretion in the BBCS.

1. Migratory Bird Treaty Act (MBTA)

The MBTA is the cornerstone of migratory bird conservation and protection in the United States. The MBTA implements four treaties that provide for international protection of migratory birds. It is a strict liability statute, meaning that proof of intent, knowledge, or negligence is not an element of an MBTA violation. The statute's language is clear that actions resulting in a "taking" or possession (permanent or temporary) of a protected species, in the absence of a USFWS permit or regulatory authorization, are a violation. The MBTA states, "Unless and except as permitted by regulations ... it shall be unlawful at any time, by any means or in any manner, to pursue, hunt, take, capture, kill ... possess, offer for sale, sell ... purchase ... ship, export, import ... transport or cause to be transported... any migratory bird, any part, nest, or eggs of any such bird ..." 16 U.S.C. 703. The word "take" is defined by regulation as "to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to pursue, hunt, shoot, wound, kill, trap, capture, or collect" 50 CFR 10.12. The USFWS maintains a list of all species protected by the MBTA at 50 CFR 10.13. This list includes over one thousand species of migratory birds, including eagles and other raptors, waterfowl, shorebirds, seabirds, wading birds, and passerines.

2. Bald and Golden Eagle Protection Act (Eagle Act)

Under authority of the Eagle Act, 16 U.S.C. 668–668d, bald eagles and golden eagles are afforded additional legal protection. The Eagle Act prohibits the take, sale, purchase, barter, offer of sale, purchase, or barter, transport, export or import, at any time or in any manner of any bald or golden eagle, alive or dead, or any part, nest, or egg thereof, 16 U.S.C. 668. The Eagle Act also defines take to include "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb," 16 U.S.C. 668c, and includes criminal and civil penalties for violating the statute. See 16 U.S.C. 668. The term "disturb" is defined as agitating or bothering an eagle to a degree that causes, or is likely to cause, injury to an eagle, or either a decrease in productivity or nest abandonment by substantially interfering with normal breeding, feeding, or sheltering behavior, 50 CFR 22.3.

3. Endangered Species Act (ESA)

The ESA directs the USFWS to identify and protect endangered and threatened species and their critical habitat, and to provide a means to conserve their ecosystems. Among its other provisions, the ESA requires the USFWS to assess civil and criminal penalties for violations of the Act or its regulations. Section 9 of the ESA prohibits take of federally-listed species. Take is defined as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct" 16 U.S.C. 1532. The term "harm" includes significant habitat alteration which kills or injures fish or wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering, 50 CFR 17.3. Projects involving Federal lands, funding or authorizations will require consultation between the Federal agency and the USFWS, pursuant to section 7 of the ESA. Projects without a

Federal nexus should work directly with USFWS to avoid adversely impacting listed species and their critical habitats.

B. Other Federal, State, County, Local and Tribal Laws, Regulations, and Policies

III. Project Description

Provide descriptions and maps of all project elements (e.g., roads, power lines, met towers) during all phases of pre-construction, construction, operation, maintenance, and decommissioning. Describe and provide maps of the project impact area (inside and outside project area boundary) where the project may potentially impact birds, bats and their habitats..

IV. Project History of Bird and Bat Presence, and Risk Assessments

A. Preliminary Site Evaluation (WEG Tier 1)

1. Site Description

Describe proposed wind energy site(s) within the broader geographic landscape of bird and bat distribution, use, and habitats.

2. Decision to Abandon Site(s) or Select Site(s) for Additional Assessments in WEG Tier 2

Describe evaluations of sites by answering questions in WEG Tier 1, Chapter 2: (1) Are species or habitats of concern present? (2) Does the landscape contain areas precluded by law or areas that are designated as sensitive? (3) Are there critical areas of wildlife congregation? (4) Is there potential to fragment large intact habitats for species that are sensitive to habitat fragmentation? Based on the answers to these questions, describe the decision to abandon sites or identify project modifications to effectively avoid and minimize potential adverse impacts.

B. Site-specific Characterization and Decisions (WEG Tier 2)

Continue landscape-scale assessments and include site reconnaissance evaluations.

1. Site Description

Provide additional site information obtained through more detailed Tier 2 assessment.

2. Evaluation and Decisions

(a) Abandon Site or Advance to Field Surveys to Support a BBCS

Describe evaluations of sites by answering the four questions from WEG Tier 1, plus questions from WEG Tier 2, Chapter 3: (5) Are plant communities or vegetation habitats of conservation concern present? (6) What species of birds and bats are likely to use the proposed site? (7) Is there potential for significant adverse impacts to those species? If there is a high probability of significant adverse impacts that cannot be avoided or minimized, the site should be abandoned.

(b) Determine Need for Other Bird or Bat Conservation Plans

Describe determination of need, and reference field surveys, for an Eagle Conservation Plan) or Habitat Conservation Plan.

C. Field Studies to Document Wildlife and Habitat, and Predict Project Impacts (WEG Tier 3)

Describe the goals, methods, results, analyses and conclusions of field studies, and include maps to assess the presence of, and project risks to, birds and bats and their habitats. Describe potential project impacts by answering the seven questions from WEG Tier 1 and Tier 2, plus questions

from WEG Tier 3, Chapter 4: (8) What are the distributions, abundance, behaviors and site-use of birds and bats, and what project elements expose these species to risk? (9) What are the potential risks to individuals and local populations of birds and bats and their habitats? (10) How can impacts to birds and bats be avoided and minimized? (11) What studies should be initiated and continued post-construction to evaluate predictions of impacts to birds and bats? Describe the level of scientific rigor of studies, and coordination and sharing of data with USFWS field offices.

1. Bird and Bat Status Assessments

Describe how assessment studies were of sufficient duration and intensity to ensure adequate data were collected to accurately characterize bird and bat use of the area.

(a) Bird and Bat Species Presence

(i) Species Presence by Season

(ii) Species of Concern (WEG, p. 63)

(iii) Species of Habitat Fragmentation Concern (WEG, p. 63)

(b) Bird and Bat Habitats

Describe, quantify, and map.

(c) Bird and Bat Use Patterns

Describe, quantify and map survey data (e.g., from point counts, acoustic surveys, and migration surveys).

(d) Baseline (Pre-construction) Habitat Management

Describe the management of habitat at the proposed site prior to construction.

2. Bird and Bat Risk Assessment and Decisions Based on Assessments

Describe assessment methods and assumptions.

(a) Project Risk Assessment

(i) Direct Impacts:

Describe direct project impacts on birds and bats (e.g., wind turbine collisions, powerline electrocutions and collisions, vehicle collisions, barotrauma, disturbance, displacement, behavioral changes, and habitat loss, degradation and fragmentation).

(ii) Indirect Impacts

Describe indirect project impacts on birds and bats (e.g., loss of population vigor, attraction to modified habitats, and increased exposure to predation).

(iii) Cumulative Impacts

(b) Risk Assessment Decisions

(i) Decision Criteria to either Abandon Site or Advance Project

(ii) Decision of Need for Other Bird and Bat Conservation Plans

Describe decision to develop other plans such as an Eagle Conservation Plan, Habitat Conservation Plan, Candidate Conservation Plan with Assurances, or a plan to address state-managed species.

- V. Conservation Measures to Avoid and Minimize Adverse Impacts (during project construction, operation, maintenance, and decommissioning)
Describe conservation measures and when and how each measure will be applied. Some measures will apply to all project phases, but other measures will only apply to specific phases of the project (e.g., construction versus operation). See WEG Chapter 7 for examples. While the following topics in the outline should all be included, the organization of this section may be modified (e.g., conservation measures may be organized by project phase, project elements, or category of conservation action).

A. Measures to Avoid/Minimize Direct Impacts

1. Fatalities

2. Disturbance/Displacement/Behavioral Changes

(a) Nest/Roost/Hibernacula Management

Describe how impacts to nests and nesting attempts will be avoided or minimized during all phases of the project. For example, constructing outside the breeding season or using nest buffers may be appropriate during construction, but measures to discourage or prevent birds from nesting in a sub-station may be needed during operation.

(b) Management of Other Habitat-use Areas (e.g., Foraging Areas)

3. Habitat Loss/Degradation/Fragmentation

B. Measures to Avoid/Minimize Indirect Impacts

For example, address measures to avoid loss of population vigor and increased exposure to predation.

C. Measures to Offset and/or Compensate for Habitat-Related Impacts

D. Measures to Avoid and Minimize Other Identified Project-Specific Risks

VI. Post-construction Studies to Estimate Impacts (WEG Tier 4)

Provide assessments of ongoing project risks to birds and bats and the effectiveness of conservation measures. Describe study methods and the level of survey effort (i.e., how many of each survey type was conducted, over what time period and seasons, and location and geographic coverage).

A. Carcass Surveys

B. Nest/Roost/Hibernacula Surveys

C. Habitat Surveys

D. Other Surveys

A need for surveys, such as point counts, acoustic surveys, mist net surveys, may be identified through measuring project impacts.

VII. Other Post-construction Studies and Adaptive Management (WEG Tier 5)

Describe adaptive management studies which may (1) be planned during development of the BBCS via measuring impacts during post-construction and the discovery that conservation measures are not adequate to avoid and minimize impacts, or may (2) address unplanned or unforeseen impacts. Describe the actions taken during the following steps.

- A. Evaluate need for action (1) based on assessing effectiveness of conservation measures through post-construction monitoring of impacts, or (2) as determined by unforeseen impacts or circumstances.
- B. Identify potential technical/operational option(s) to avoid and minimize impacts (e.g., via scientific literature or industry innovation).
- C. Present technical/operational option(s) to agency/authority for review to determine if it merits field testing or application. If, after review, field testing or application is not merited, go to step B. If field testing or application is merited, go to step D.
- D. Field test or apply technical/operational option(s), with agency/authority concurrence of methods, in settings which will not increase adverse impacts to birds and bats nor will result in impacts exceeding those allowable in permits or other project-related plans.
- E. Evaluate and report effectiveness of technical/operational option(s) with review by agency/authority. If ineffective, go to step B. If effective go to step F.
- F. Apply effective avoidance and minimization measures.
- G. Monitor effectiveness (update post-construction monitoring in BBCS, if necessary, with agency/authority review).
- H. Update BBCS Section on Conservation Measures, return to step A to evaluate need for further action.

VIII. Project Permits Addressing Birds and Bats

Identify need for permits. For example, migratory bird permits would be required for active nest relocation, temporary possession, depredation, salvage/disposal, and scientific collection.

- A. Bird and Bat Permits
Identify permits needed for project construction, operation, and/or maintenance.
- B. Agency and Process for Permit Issuance
Identify the responsive agency and processes to apply for and comply with permits.

IX. Reporting Formats and Schedule

Describe formats and schedule for reporting data and study results to responsive agencies.

- A. Preconstruction Survey Data
- B. Operation/Post-construction Monitoring
- C. Adaptive Management
- D. Permits

X. Personnel Training

Describe process and curriculum for providing personnel and contractors with education about wildlife laws; processes to follow upon finding injured birds, bats or carcasses; and actions they can take to avoid impacts to birds and bats.

- XI. Contacts/Key Resources
 - A. List of Contacts and Key Resources
 - B. Coordination Processes
 - Who/when/where a company should initiate contact and under what circumstances.
- XII. References and Literature Cited
- XIII. Appendices
 - A. Baseline Survey Reports
 - B. Post Construction Reports
 - 1. Carcass Monitoring
 - 2. Nest/Roost/Hibernacula Surveys
 - 3. Habitat Surveys
 - 4. Other Surveys: For example, point counts, acoustic surveys, mist net surveys
 - C. Adaptive Management Studies
 - D. Other Plans Guiding Bird and Bat Conservation (e.g., ECP)
 - E. Permits Related to Birds and Bats

2013 U.S. Fish and Wildlife Service (USFWS) Revised Voluntary Guidelines for Communication Tower Design, Siting, Construction, Operation, Retrofitting, and Decommissioning –

Suggestions Based on Previous USFWS Recommendations to FCC Regarding WT Docket No. 03-187, FCC 06-164, Notice of Proposed Rulemaking, "Effects of Communication Towers on Migratory Birds" (2007), Docket No. 08-61, FCC's Antenna Structure Registration Program (2011), Service 2012 Wind Energy Guidelines, and Service 2013 Eagle Conservation Plan Guidance

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[Comm Tower 2013 Revised Guidance-to FCC-AMM.docx]

1. Collocation of the communications equipment on an existing communication tower or other structure (e.g., billboard, water and transmission tower, distribution pole, or building mount) is strongly recommended. Depending on tower load factors and communication needs, from 6 to 10 providers should collocate on an existing tower or structure provided that frequencies do not overlap/"bleed" or where frequency length or broadcast distance requires higher towers. New towers should be designed structurally and electronically to accommodate the applicant's antenna, and antennas of at least 2 additional users – ideally 6 to 10 additional users, if possible – unless the design would require the addition of lights and/or guy wires to an otherwise unlit and/or unguyed tower. This recommendation is intended to reduce the number of towers needed in the future.

2. If collocation is not feasible and a new tower or towers are to be constructed, it is strongly recommended that the new tower(s) should be not more than 199 feet above ground level (AGL), and that construction techniques should not require guy wires. Such towers should be unlighted if Federal Aviation Administration (FAA) regulations and lighting standards (FAA 2007, Patterson 2012, FAA 2013 lighting circular anticipated update) permit. Additionally, the Federal Communications Commission (FCC) through recent rulemaking now requires that new towers \geq 450 ft AGL contain no red-steady lights. FCC also recommends that new towers 350-450 ft AGL also contain no red-steady lights, and they will eventually recommend that new towers $<$ 350 ft AGL convert non-flashing lights to flash with existing flashing lights. LED lights are being suggested as replacements for all new construction and for retrofits, with the intent of future synchronizing the flashes. Given these dynamics, the Service recommends using lattice tower or monopole structures for all towers $<$ 200 ft AGL and for taller towers where feasible. The Service considers the less than 200 ft AGL option the "gold standard" and suggests that this

is the environmentally preferred industry standard for tower placement, construction and operation – i.e., towers that are unlit, unguyed, monopole or lattice, and less than 200 ft AGL.

3. If constructing multiple towers, the cumulative impacts of all the towers to migratory birds – especially to Birds of Conservation Concern (FWS 2008) and threatened and endangered species, as well as the impacts of each individual tower, should be considered during the development of a project.

4. The topography of the proposed tower site and surrounding habitat should be clearly noted, especially in regard to surrounding hills, mountains, mountain passes, ridge lines, rivers, lakes, wetlands, and other habitat types used by raptors, Birds of Conservation Concern, and state and federally listed species, and other birds of concern. Active raptor nests, especially those of Bald and Golden Eagles, should be noted, including known or suspected distances from proposed tower sites to nest locations. Nest site locations for Golden Eagles may vary between years, and unoccupied, inactive nests and nest sites may be re-occupied over multiple years. The Service's 2013 Eagle Conservation Plan Guidance, Module 1, Land-based Wind Energy, Version 2, available on our website, is a useful document (USFWS 2013).

5. If at all possible, new towers should be sited within existing "antenna farms" (i.e., clusters of towers), in degraded areas (e.g., strip mines or other heavily industrialized areas), in commercial agricultural lands, in Superfund sites, or other areas where bird habitat is poor or marginal. Towers should not be sited in or near wetlands, other known bird concentration areas (e.g., state of federal refuges, staging areas, rookeries, and Important Bird Areas), in known migratory, daily movement flyways, areas of breeding concentration, in habitat of threatened or endangered species, or key habitats for Birds of Conservation Concern (FWS 2008). Disturbance can result in effects to bird populations which may cumulatively affect their survival. The Service has recommended some disturbance-free buffers, e.g., 0.5 mi around raptor nests during the nesting season, and 1-mi disturbance free buffers for Ferruginous Hawks and Bald Eagles during nesting season in Wyoming (FWS WY Ecological Services Field Office, referenced in Manville 2007:23). The effects of towers on "prairie grouse," "sage grouse," and grassland and shrub-steppe bird species should also be considered since tall structures have been shown to result in abandonment of nest site areas and leks, especially for "prairie grouse" (Manville 2004). The issue of buffers is currently under review, especially for Bald and Golden Eagles. Additionally, towers should not be sited in areas with a high incidence of fog, mist, and low cloud ceilings.

6. If taller (> 199 ft AGL) towers requiring lights for aviation safety must be constructed, the minimum amount of pilot warning and obstruction avoidance lighting required by the FAA should be used. Unless otherwise required by the FAA, only white strobe or red strobe lights (red preferable since it is generally less displeasing to the human eye at night), or red flashing incandescent lights should be used at night, and these should be the minimum number, minimum intensity (< 2,000 candela), and minimum number of flashes per minute (i.e., longest duration between flashes/"dark phase") allowable by the FAA. The use of solid (non-flashing) warning lights at night should be avoided (Patterson 2012, Gehring et al. 2009) – see recommendation #2 above. Current research indicates that solid red lights attract night-migrating birds at a much higher rate than flashing lights (Gehring et al. 2009, Manville 2007, 2009). Recent research

indicates that use of white strobe, red strobe, or red flashing lights alone provides significant reductions in bird fatalities (Patterson 2012, Gehring et al. 2009).

7. Tower designs using guy wires for support, which are proposed to be located in known raptor or waterbird concentrations areas, daily movement routes, major diurnal migratory bird movement routes, staging areas, or stopover sites, should have daytime visual markers or bird deterrent devices installed on the wires to prevent collisions by these diurnally moving species. The efficacy of bird deterrents on guy wires to alert night migrating species has yet to be scientifically validated. For guidance on markers, see Avian Power Line Interaction Committee (APLIC). 2006. *Suggested Practices for Avian Protection on Power Lines -- State of the Art in 2006*. Edison Electric Institute, APLIC, and the California Energy Commission. Washington, DC, and Sacramento, CA. 207 pp, and APLIC. 2012. *Reducing Avian Collisions with Power Lines -- the State of the Art in 2012*. Edison Electric Institute and APLIC. Washington, DC. 159 pp. Also see www.aplic.org, www.energy.ca.gov, or call 202-508-5000.

8. Towers and appendant facilities should be designed, sited, and constructed so as to avoid or minimize habitat loss within and adjacent to the tower "footprint." However, a larger tower footprint is preferable to the use of guy wires in construction. Several shorter, un-guyed towers are preferable to one, tall guyed, lighted tower. Road access and fencing should be minimized to reduce or prevent habitat fragmentation, disturbance, and the creation of barriers, and to reduce above ground obstacles to birds in flight.

9. If, prior to tower design, siting and construction, if it has been determined that a significant number of breeding, feeding and roosting birds, especially of Birds of Conservation Concern (FWS 2008), state or federally-listed bird species, and eagles are known to habitually use the proposed tower construction area, relocation to an alternate site is highly recommended. If this is not an option, seasonal restrictions on construction are advised in order to avoid disturbance, site and nest abandonment, especially during breeding, rearing and other periods of high bird activity.

10. Security lighting for on-ground facilities, equipment and infrastructure should be motion- or heat-sensitive, down-shielded, and of a minimum intensity to reduce nighttime bird attraction and eliminate constant nighttime illumination, but still allow safe nighttime access to the site (USFWS 2012, Manville 2011).

11. Representatives from the USFWS or researchers from the Research Subcommittee of the Communication Tower Working Group should be allowed access to the site to evaluate bird use; conduct dead-bird searches; place above ground net catchments below the towers (Manville 2002); and to perform studies using radar, Global Position System, infrared, thermal imagery, and acoustical monitoring, as necessary. This will allow for assessment and verification of bird movements, site use, avoidance, and mortality. The goal is to acquire information on the impacts of various tower types, sizes, configurations and lighting protocols.

12. Towers no longer in use, not re-licensed by the FCC for use, or determined to be obsolete should be removed from the site within 12 months of cessation of use, preferably sooner.

13. In order to obtain information on the usefulness of these guidelines in preventing bird strikes and better understanding impacts from habitat fragmentation, please advise USFWS personnel of the final location and specifications of the proposed tower, and which measures recommended in these guidelines were implemented. If any of these recommended measures cannot be implemented, please explain why they are not feasible. This will further advise USFWS in identifying any recurring problems with the implementation of the guidelines, which may necessitate future modifications.

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**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF SOUTH DAKOTA**

IN THE MATTER OF THE APPLICATION)
BY CROWNED RIDGE WIND, LLC FOR A)
PERMIT OF A WIND ENERGY FACILITY)
IN GRANT AND CODINGTON COUNTIES)
)

EL19-003

CERTIFICATE OF SERVICE

I hereby certify that true and correct copies of a supplement to Appendix B to the Application in this matter was served electronically to the parties listed below on the 12th day of March, 2019, addressed to:

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