

Final Environmental Assessment
for
the Issuance of an Eagle Take Permit
for Black Oak Getty Wind Project

Prepared by
U.S. Fish and Wildlife Service
Division of Migratory Birds, Interior Region 3

U.S. Department of the Interior

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LIST OF ATTACHMENTS

Attachment A	Eagle Conservation Plan
Attachment B	Eagle Collision Risk Model
Attachment C	Intra-Service Section 7 Biological Evaluation

LIST OF ACRONYMS AND ABBREVIATIONS

ABPP	Avian and Bat Protection Plan
Applicant	Black Oak Wind, LLC
Audubon	National Audubon Society
Black Oak Wind	Black Oak Wind, LLC
Black Oak Wind Project	the existing Black Oak Wind Farm and Getty Wind Project
CET	Cumulative Effects Tool
CFR	Code of Federal Regulations
EA	Environmental Assessment
Eagle Act	Bald and Golden Eagle Protection Act
ECP	Eagle Conservation Plan
ECPG	Eagle Conservation Plan Guidance
EIS	Environmental Impact Statement
EMU	Eagle Management Unit
ESA	Endangered Species Act
GHG	greenhouse gas
ITP	incidental take permit
LAP	local area population
LWECS	Large Wind Energy Conversion System
MID	mean inter-nest distance
MOU	Minnesota Ornithologist Union
MN ARNG	Minnesota Army National Guard
MN DNR	Minnesota Department of Natural Resources
MPUC	Minnesota Public Utilities Commission
NEC	National Eagle Center
NEPA	National Environmental Policy Act
O&M	operations and maintenance
OLE	Office of Law Enforcement
PEIS	Programmatic Environmental Impact Statement for the Eagle Rule Revision or the Programmatic Environmental Impact Statement
Project	Black Oak Getty Wind Project
Service	U.S. Fish and Wildlife Service
SOL	Office of the Solicitor
U.S.	United States
USC	United States Code
WMA	Wildlife Management Area
WPA	Waterfowl Production Area

1 Introduction

This Environmental Assessment (EA) has been prepared to analyze the environmental consequences of the U.S. Fish and Wildlife Service (Service) issuing an incidental take permit (ITP) for the take of bald eagles (*Haliaeetus leucocephalus*) associated with the existing Black Oak Wind Farm and Getty Wind Project (collectively, the Black Oak Getty Wind Project, or the Project) pursuant to the National Environmental Policy Act (NEPA) (42 United States Code [USC] 4321–4347). Issuance of a bald eagle ITP by the Service for take that is incidental to otherwise lawful activities under the Bald and Golden Eagle Protection Act (Eagle Act) (16 USC 668–668d and 50 Code of Federal Regulations [CFR] 22.26) constitutes a discretionary Federal action that is subject to NEPA. This EA assists the Service in ensuring compliance with the NEPA, and in making a determination as to whether any “significant” impacts could result from the analyzed actions that would require preparation of an Environmental Impact Statement (EIS). This EA evaluates the effects of alternatives for our decision whether to issue a bald eagle ITP.

The Eagle Act authorizes the Service to issue eagle take permits only when the take is compatible with the preservation of each eagle species, defined (in Service 2016b) as “consistent with the goals of maintaining stable or increasing breeding populations in all eagle management units (EMUs) and the persistence of local populations throughout the geographic range of each species.”

The applicant, Black Oak Wind, LLC (Black Oak Wind or the Applicant) is requesting Eagle Act take coverage for operational activities associated with the Black Oak Getty Wind Project. This company is a wholly owned subsidiary of AEP Renewables, LLC. The Applicant has requested a 30-year ITP for bald eagles under the Eagle Act at the Black Oak and Getty Wind facility. The Applicant’s Eagle Conservation Plan (ECP; Attachment A; also available online: [Eagle Conservation Plan](#)) is the foundation of the permit application for the Project.

Based on an estimated annual take rate of 1.06 bald eagles per year, the Applicant is requesting a permit for the incidental take of up to 32 bald eagles over the anticipated 30-year duration of the permit. To ensure that authorized take is not exceeded over the life of the permit, we would establish 5-year check-in periods. Based on the estimated annual take for the Project, the 5-year check-in benchmark would be 6 bald eagles (1.06 bald eagles per year over 5 years, rounded up to the next whole number). As discussed in additional detail in Section 4.1.1, we anticipate that the predicted level of take would be refined in precision as data from Project-specific monitoring is incorporated into the prediction as part of each 5-year check-in.

This EA evaluates whether issuance of the bald eagle ITP would have significant impacts to the existing human environment. “Significance” under NEPA is defined by regulation at 40 CFR 1508.27, and requires short- and long-term consideration of both the context of a proposal and its intensity.

This proposal conforms with, and carries out, the management approach analyzed in, and adopted subsequent to, the Service's *Programmatic Environmental Impact Statement for the Eagle Rule Revision*, December 2016 (PEIS; Service 2016d). Accordingly, this EA tiers from the 2016 PEIS.

The PEIS (Service 2016d) analyzed eagle take at a national level; Project-specific information has been considered in this EA as described below. Based on this Project-specific analysis, and our confirmation that the Project meets the tiering criteria provided in the PEIS (see Section 4.3 in Attachment A), we have determined that an EA is the appropriate level of review.

1.1 Purpose and Need

The need for this action is a decision on a bald eagle ITP application from Black Oak Wind. The decision must comply with all applicable regulatory requirements, and be compatible with the preservation of bald eagles.

1.2 Authorities

Service authorities are codified under multiple statutes that address management and conservation of natural resources from many perspectives, including, but not limited to the effects of land, water, and energy development on fish, wildlife, plants, and their habitats. This analysis is based on the Eagle Act (16 USC 668–668d) and its regulations (50 CFR Part 22). The PEIS (Service 2016d) has a full list of authorities that apply to this action (PEIS Section 1.6, pages 7–12), which are incorporated by reference here.

1.3 Background

1.3.1 Project Location

The Project is located on a total of 14,720 acres (approximately 22 square miles) in Stearns County, Minnesota (Figure 1). The Project is comprised of two state-permitted projects (Getty Wind Project and Black Oak Wind Farm) that were combined into a single project in 2016 under the ownership of Black Oak Wind. The Getty Wind Project is located in Sauk Centre and Getty Townships, and its boundary encompasses approximately 7,636 acres. The Black Oak Wind Farm is located in Ashley and Raymond townships, and its boundary encompasses approximately 7,084 acres.

1.3.2 Project Description

The Project consists of an existing 39 wind turbines with a total generating capacity of 82 megawatts. Additional Project infrastructure includes: access roads to the turbines; an underground electrical collection system; an aboveground 69-kilovolt transmission line; and an electrical substation. More detailed information on the Project components as well as operations and maintenance (O&M) activities for the Project are described in Section 1.2.2 of the ECP.

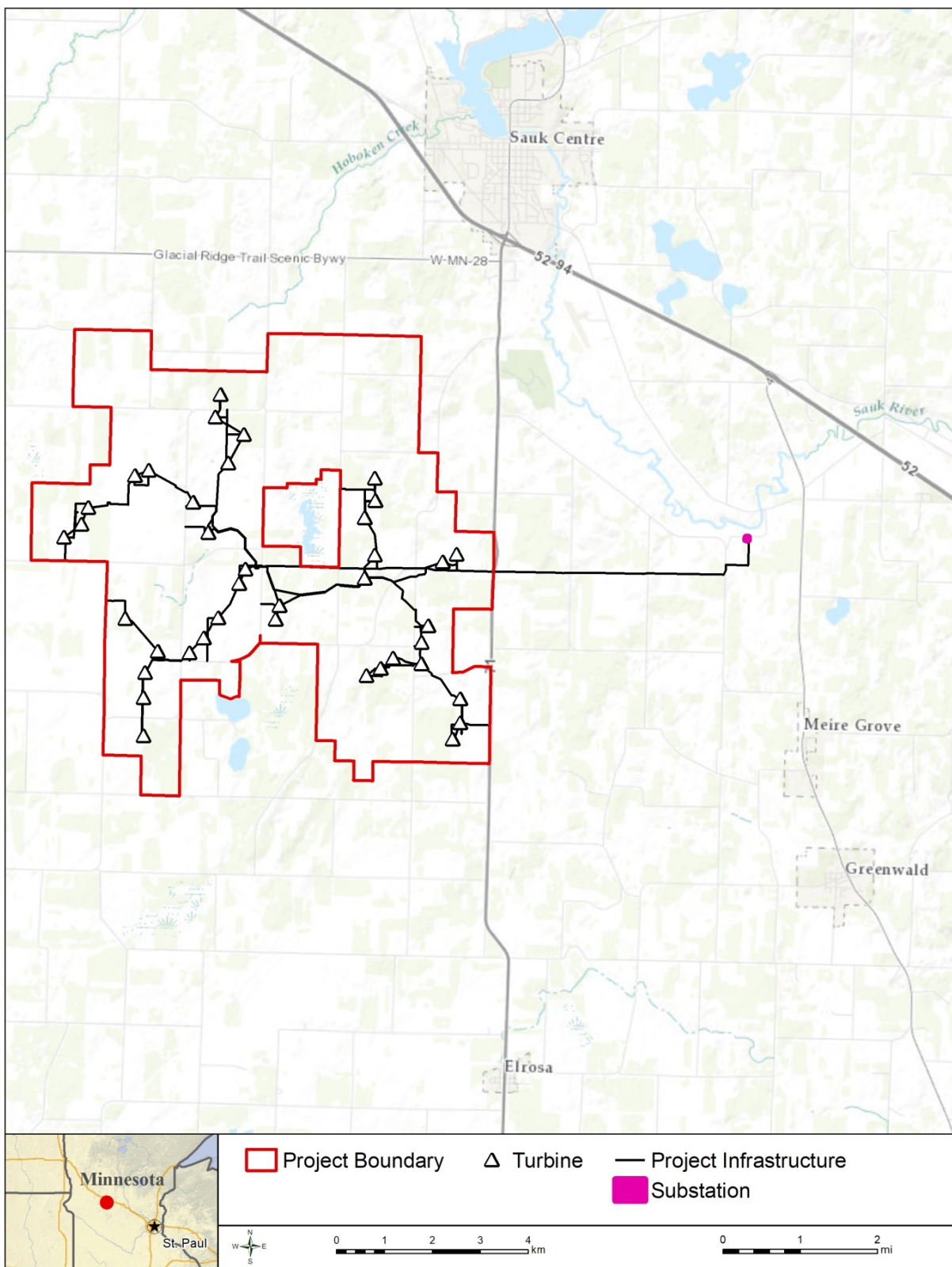


Figure 1: Location of the Black Oak Getty Wind Project

1.4 Scoping, Consultation, and Coordination

Scoping: This EA incorporates by reference the scoping performed for the PEIS (Chapter 6, page 175).

Public Comment: The draft EA, as well as the ECP and other application materials, was made public for 30 days to solicit public comments. These materials were made available on the Service's Midwest Eagle Webpage ([Environmental Assessments for Eagle Permits](#)) on June 5, 2020, and interested parties and stakeholders were notified through targeted mailings. The Service did not receive any comments on the draft EA during the public comment period, and no substantive changes have been made to the final EA.

Coordination: The Applicant worked closely with the Service and other Federal and state agencies, including the U.S. Army Corps of Engineers (Section 404 of the Clean Water Act permitting), Minnesota Department of Natural Resources (MN DNR; state environmental review and permitting), Minnesota Public Utilities Commission (MPUC; Large Wind Energy Conversion System [LWECS] Site Permit), and Minnesota Department of Commerce (environmental review for LWECS Site Permit). These meetings helped to inform development of the ECP in support of its application to avoid, minimize, and mitigate adverse effects on bald eagles.

1.5 Tribal Coordination

In accordance with Executive Order 13175 and the Service's American Indian Policy, the Service consults with American Indian tribal governments whenever actions taken under authority of the Eagle Act may affect tribal lands, resources, or the ability to self-govern. This coordination process is also intended to ensure compliance with the National Historic Preservation Act (54 USC 300101 et seq., 1966), the American Indian Religious Freedom Act (42 USC 1996, 1978), and Executive Order 13175 (Consultation and Coordination with Indian Tribal Governments, 2000).

The Service sent notifications to seven potentially impacted tribal entities who have expressed interest in or have history with Stearns County. The scope of tribal notification was based on tribal interests within 100 miles of the Project footprint. This notification was sent via email prior to posting the draft EA for public comment with an invitation to provide comments.

This outreach to potentially impacted tribes and tribal interests is in addition to the tribal consultation and information on impacts to cultural resources already conducted for the PEIS and is incorporated by reference.

The Service did not receive any comments or letters from tribal entities on the draft EA, and no substantive changes have been made to the final EA based on tribal coordination.

1.6 Endangered Species Act Consultation

The Service conducted an Intra-Service Section 7 consultation under the Endangered Species Act (ESA) during the internal review process and as part of the evaluation of the bald eagle ITP application (Attachment C¹). One federally listed species has potential to occur within the county where the Project is located, the northern long-eared bat (*Myotis septentrionalis*). The issuance of a long-term bald eagle ITP would not have significant or negative impacts on the northern long-eared bat. The Service's Intra-Service Section 7 Biological Evaluation documents if and how issuance of the permit (and associated implementation of the ECP and permit conditions) and/or denial of the permit would affect the northern long-eared bat, with the determination that the Project May Affect, but is Not Likely to Adversely Affect the northern long-eared bat (Attachment C). A discussion of northern long-eared bat occurrence within and near the Project is provided below in Section 3.4.1, and in Section 2.1.2 of the Applicant's Avian and Bat Protection Plan (ABPP; Black Oak Wind 2016; available online: [Avian and Bat Protection Plan](#)). Potential impacts to northern long-eared bats are described below in Sections 4.1.4 and 4.2.4.

1.7 Scope of the Environmental Assessment

This EA considers the Proposed Action and the No-Action Alternative (see Sections 2.1 and 2.2, respectively) related to the Applicant's request for a bald eagle ITP to authorize the incidental take of bald eagles resulting from operation of the Project. The proposed federal action is limited to the issuance of a bald eagle ITP, and as such, it is not within the EA's scope to evaluate impacts associated with the siting and construction of the Project. It analyzes the effects of the Service's proposed issuance of a bald eagle ITP on the human environment over the 30-year permit term. In addition, the EA discusses the environmental impacts that will occur whether or not the Service issues a bald eagle ITP.

2 Proposed Action and Alternatives

2.1 Proposed Action

Issuance: We propose to issue a 30-year permit to take up to 32 bald eagles (derived from our Collision Risk Model output of 1.06 bald eagles per year, or up to 6 bald eagles between each 5-year check-in), with associated conditions, as allowed by regulation.

¹ The Intra-Service Section 7 Biological Evaluation (Attachment C), dated November 14, 2019, references the total 30-year permitted take of up to 36 bald eagles. We propose to issue a 30-year permit to take up to 32 bald eagles, as stated in this Environmental Assessment. Please note this numerical error in the Intra-Service Section 7 Biological Evaluation Form; however, this discrepancy does not change the determination of effect or concurrence associated with the Section 7 consultation.

Conditions: The Applicant would implement all measures required by other agencies and jurisdictions to conduct the activity at this site, including two years of intensive post-construction mortality monitoring in accordance with the final LWECS Site Permits issued by the MPUC (2013a, 2013b), Applicant-committed measures, adaptive management, post-construction mortality monitoring, and the conservation commitments described in the Applicant's ECP (see Table 4-1 [page 4-2] and Table 6-1 [page 6-2] in Attachment A).

Avoidance and Minimization Measures: A complete description of the avoidance and minimization measures is in the Applicant's ECP, Section 4 (Avoidance and Minimization of Risk and Compensatory Mitigation) and Section 6 (Adaptive Management). A summary of these measures is in Section 4.1, below.

Mitigation: Because the permitted take for the Project would not be above the Mississippi Flyway EMU threshold or greater than 5% of the Local Area Population (LAP), compensatory (off-setting) mitigation would not be required by the Service. However, the Applicant would voluntarily donate funds to non-profit environmental organizations and/or wildlife rehabilitation centers to support ongoing eagle conservation projects (see Section 4.2.1 in Attachment A).

Monitoring: Monitoring studies conducted to date as required by the LWECS Site Permits as well as proposed post-construction mortality monitoring to ensure permit compliance are summarized below (see Section 5.2) and in Section 5.1 of the Applicant's ECP (Attachment A), and are described in detail in the Applicant's Post-Construction Monitoring Plan for Black Oak Getty Wind Project (included as Appendix A of the Applicant's ECP [Attachment A]).

Adaptive Management: Adaptive management to ensure permit compliance is described in Section 6 of the Applicant's ECP (Attachment A).

2.2 Alternative 1: No-Action

Under the No-Action Alternative, we would take no further action on Black Oak Wind's permit application. In reality, the Service must take action on the permit application, determining whether to deny or issue the permit. We consider this alternative because Service policy requires evaluation of a No-Action Alternative and it provides a clear comparison of any potential effects to the human environment from the Proposed Action.

The No-Action Alternative in this context analyzes predictable outcomes of the Service not issuing a permit. Under the No-Action Alternative, the Project would likely continue to operate without a bald eagle take permit being issued. Thus, for purposes of analyzing the No-Action Alternative, we assume that the Applicant would implement all measures required by other agencies and jurisdictions to conduct the activity at this site, including the MPUC's LWECS Site Permits and the Project-specific ABPP (Black Oak Wind 2016). However, the conservation measures proposed in the bald eagle ITP application package would not be required. The

Applicant may choose to implement some, none, or all of those conservation measures. Under this alternative, we assume that the Applicant would take some reasonable steps to avoid taking bald eagles, but the Applicant would not be protected from enforcement for violating the Eagle Act should take of a bald eagle occur.

2.3 Other Alternatives Considered but Not Evaluated in this Environmental Assessment

The Service considered additional alternatives based on communication with the Applicant but concluded that these alternatives did not meet the purpose and need underlying the action because they are impracticable for the Applicant to carry out. Therefore, the Service did not assess the potential environmental impacts of those alternatives. Below is a summary of the alternatives considered but eliminated from further review.

2.3.1 Alternative 2: Issuance of a 5-year permit

The Service considered issuance of a 5-year permit, for take of 1.06 bald eagles a year, or an estimated 6 bald eagles over the duration of the permit. The assumption with issuance of a 5-year permit is that the Applicant would apply for either another 5-year permit or a 25-year permit once the original permit expires. However, we determined that this alternative was not logical as the Project would be operational for up to 30 years, and bald eagles would be at risk for the entirety of the operation. We eliminated this alternative from further consideration.

2.3.2 Alternative 3: Deny Permit

Under this alternative, the Service would deny the permit application because the Applicant falls under one of the disqualifying factors and circumstances denoted in 50 CFR 13.21, the application fails to meet all regulatory permit issuance criteria and required determinations listed in 50 CFR 22.26, or because we have determined that the risk to bald eagles is so low that a take permit is unnecessary.

Our permit issuance regulations at 50 CFR 13.21(b) set forth a variety of circumstances that disqualify an applicant from obtaining a permit. None of the disqualifying factors or circumstances denoted in 50 CFR 13.21 apply to Black Oak Wind. We next considered whether the Applicant meets all issuance criteria for the type of permit being issued. For bald eagle ITPs, those issuance criteria are found in 50 CFR 22.26(f). Black Oak Wind's application (including the ECP) meets all the regulatory issuance criteria and required determinations (50 CFR 22.26) for bald eagle take permits.

When an applicant for a bald eagle ITP is not disqualified under 50 CFR 13.21 and meets all the issuance criteria of 50 CFR 22.26, denial of the permit is not a reasonable option. Therefore, this alternative—denial of the permit—was eliminated from further consideration.

3 Affected Environment

This section describes the current status of the environmental resources and values that are affected by the Proposed Action and No-Action Alternative.

3.1 Bald Eagle

3.1.1 General Habitat Requirements

General information on the taxonomy, ecology, distribution, and population trends of bald eagles are provided in Section 3.2.1 of the PEIS (Service 2016d). In general, bald eagles are frequently found relatively (but not exclusively) near water or other sources of food such as carrion. Particularly in winter, bald eagles can be found near open water for foraging. During the breeding season (February through August in the Project area), adult bald eagles with nesting territories are not social and will defend their territory from other eagles.

3.1.2 Bald Eagle Populations in Minnesota

Bald eagle populations in Minnesota have been steadily increasing over the past 30 years, and populations increased by 28% between 2000 and 2005 (Baker and Monstad 2005). Bald eagles can be found year-round throughout the state of Minnesota, especially during the breeding and migratory seasons, and overwinter along the Minnesota and Mississippi rivers. Figure 2 shows known active nests in Minnesota as of 2005. Due to the success and recovery of bald eagle populations in Minnesota and the U.S., the MN DNR discontinued bald eagle nest surveys in 2005. We assume bald eagle populations in Minnesota continued to increase resulting in expanding ranges, shrinking territory sizes, and nesting in secondary habitats. Additional information on bald eagles in Minnesota is in Sections 1.6 and 1.7 of the Applicant's ECP (Attachment A).

3.1.3 Bald Eagle Distribution in Project Vicinity

A detailed summary of bald eagle occurrences in the Project area is included in the Applicant's ECP (see Section 2.3 in Attachment A). The Project is located approximately 30 miles west of the Mississippi River, which serves as a major migration corridor and provides suitable nesting habitat for bald eagles. There are also several lakes and numerous Wildlife Management Areas (WMAs) and Waterfowl Production Areas (WPAs) in and near the Project that provide suitable nesting, foraging, and wintering habitat for bald eagles. Temporary standing water often occurs in the surrounding crop fields during the spring time, which provide resting areas for migrating waterfowl and foraging areas for bald eagles.

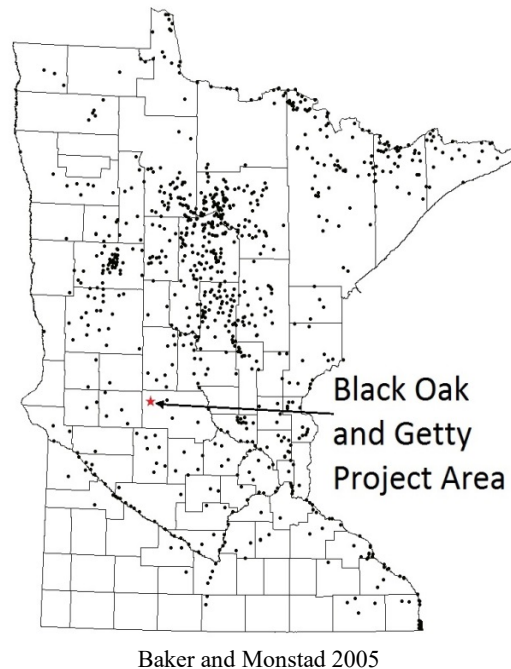


Figure 2: Locations of Known Active Bald Eagle Nests in 2005

3.1.4 Project-Specific Use and Distribution

The Applicant conducted site-specific studies in and near the Project area to assess use and distribution of eagles and other bird species at the Project site. These studies were intended to further define potential eagle risks and inform siting and impact avoidance measures. These studies included avian use survey in 2011, eagle use surveys in 2011/2012 and 2014/2015, and eagle/raptor nest surveys in 2011, 2012, 2014, and 2015. A post-construction fatality monitoring program (focused on birds and bats) began in 2017 after the Project entered operation. Table 1 provides a summary of the surveys conducted in and near the Project.

Eagle use surveys were conducted at fixed-point locations distributed throughout the Project area to include representative habitats and topography. The objective of the fixed-point surveys was to estimate seasonal and spatial use of the Project area by eagles and other avian species.

During avian and large bird/eagle use surveys, bald eagles were documented for a total of 70 minutes, including 34 minutes of flying time within 800 meters of the observer and under 200 meters in height from the ground (Table 2). These surveys indicate that bald eagles regularly occur in the Project area throughout the year, with the largest numbers of observations occurring during the winter and breeding seasons.

The Service recognizes that the avian point counts from which the model was derived may not be fully representative of the eagle use within the Project footprint. The point counts were conducted intermittently between April 2011 and January 2015 (Table 1), and in some instances were

30 minutes in duration, rather than the currently recommended eagle-only 60 minute surveys. The survey effort was not consistent across seasons, with nearly half of the survey hours occurring during the breeding season (Table 2). Due to these reasons, the estimation of eagle risk may be underrepresented. However, the Service uses the conservative take estimate from the 80th Confidence Interval from the Bayesian Collision Risk Model to bolster against underestimation of risk. Additionally, monitoring, yearly check-ins, adaptive management, and updating the model with post-permit issuance monitoring would better refine eagle risk within a reasonable timeframe.

Table 1: Summary of Avian Surveys in and near the Project Area

Survey Type	Season *	Date	Duration	Survey Area
Fixed-point avian use survey**	Breeding	April – June 2011	30-minute counts, 800-meter radius, totaling 66 survey hours	11 fixed-point locations in Project footprint
Fixed-point eagle use survey**	Winter	December 2011 – March 2012	1-hour counts, 800-meter radius, totaling 52 survey hours	4 fixed-point locations in Project footprint
Fixed-point eagle use survey**	Breeding, Fall, Winter	February 2014 – January 2015	1-hour counts, 800-meter radius, totaling 96 survey hours	Project footprint
Ground-based eagle/raptor nest surveys and follow-up eagle nest monitoring	Breeding	April – July 2011	Not available	Project footprint plus 5-mile buffer
Ground-based eagle/raptor nest surveys and follow-up eagle nest monitoring	Winter, Breeding	December 2011 – March 2012	Not available	Project footprint plus 5-mile buffer
Aerial-based eagle nest survey	Breeding	April 2015	1 day	Project footprint plus 10-mile buffer
Follow-up eagle nest monitoring	Breeding	2016 and 2017	2 surveys occurred in 2016, one 2-hour survey and one 4-hour survey One 10-minute survey occurred in 2017 to confirm activity status	1 nest within ~ 1 mile of Project
Post-construction avian and bat mortality monitoring (Year 1)	Breeding, Fall, Winter	March 15 – November 16, 2017	Cleared plot searches conducted 2 times per week; road and pad searches conducted once per week	Cleared plot searches at 5 turbines and road and pad searches at the remaining 34 turbines

Table 1: Summary of Avian Surveys in and near the Project Area

Survey Type	Season *	Date	Duration	Survey Area
Post-construction eagle mortality monitoring (Year 1)	Breeding, Fall, Winter	March 15, 2017 – March 20, 2018	Twice per month between March 15 – November 16; an average interval of 20 days between November 17 – March 20	Eagle scans at the base of each of the 39 turbines
Post-construction avian and bat mortality monitoring (Year 2)	Breeding, Fall	April 1 – October 31, 2018	Once per week	Cleared plot searches at 4 turbines and road and pad searches at all 39 turbines
Post-construction avian and bat mortality monitoring (Year 3)	Breeding, Fall	April 2 – September 30, 2019	Once per week	Road and pad searches at all 39 turbines

* Eagle use seasons: winter (November 1 – February 28), breeding (March 1 – July 31), and fall (August 1 – October 31).

** Indicates data incorporated into the Collision Risk Model for the Project; described in Section 3.3 of the Applicant's Eagle Conservation Plan (see Table 3-3 in Attachment A; also available online: [Eagle Conservation Plan](#)).

Table 2: Bald Eagle Observations and Minutes by Season during Fixed-point Surveys

Eagle Use Season	Eagle Minutes (all)*	Eagle Risk Minutes (for model)**	Survey Effort (hours)
Winter (November 1 – February 28)	22	14	80
2011	1	1	12
2012	0	0	36
2014	21	13	24
2015	0	0	8
Breeding (March 1 – July 31)	39	17	110
2011	11	3	66
2012	0	0	4
2014	28	14	40
Fall (August 1 – October 31)	9	3	24
2014	9	3	24
Total	70	34	214

* Includes all flight minutes recorded during survey periods at any distance or height.

** Includes minutes where a bald eagle was observed within 800 meters of the observer and under 200 meters in height; used in the Collision Risk Model.

3.1.4.1 Eagle Nest Surveys

Ground-based raptor/eagle nest surveys were conducted from public access roads in April 2011 and April 2014, during the breeding season when raptors/eagles would be actively tending to a nest or incubating eggs. Aerial-based eagle nest surveys were conducted in April 2015. In 2016 and 2017, ground-based activity status checks were conducted for the one nest that was located within 1 mile of the Project. Section 2.3.1 of the ECP (Attachment A) and Section 2.1.2 of the ABPP (Black Oak Wind 2016) provide more details on the methodology and results of the eagle nest surveys and monitoring that have occurred at the Project.

In 2015, seven bald eagle nests were identified within 11 miles of the Project area (Figure 3); no nest surveys, beyond the status check of the nearest nest as described below, have occurred since 2015. The nearest nest was located approximately 1 mile south of Turbine B20 (Table 3) and immediately north of the Padua WMA (referred to as Padua Nest). This nest was confirmed in-use in 2011, 2014, 2015, 2016, 2017, and 2018; no status checks have been completed since 2018. The other six nests documented in the 2015 nest survey are located between 5 and 11 miles from the nearest turbine on the Project site. The mean inter-nest distance (MID) for these seven nests is 8.63 miles.² The ½ MID (which is the presumed territory of the resident bald eagles) associated with Padua Nest overlaps with all turbines in the Project (Service 2013).

Table 3: Bald Eagle Nests Identified Near the Project

Nest Name	Nest Location (latitude, longitude)	Distance from Nearest Turbine (miles)
Padua	45.63398697, -95.01491671	1
McCormic	45.72186208, -94.9037314	5
Westport	45.70703766, -95.19797259	7
Pope	45.68544715, -95.21660108	7
Melrose	45.67738176, -94.78955542	8.5
Spring Hill	45.54944138, -94.77690089	10.5
Brooten	45.46734071, -95.07540846	11
Note: Aside from the Padua Nest, which was last checked in 2018, no status checks of these nests have occurred since 2015 and the current status of all nests is unknown.		

² In 2020, the Service updated bald eagle nest survey recommendations for wind facilities to include an area two miles around the wind farm footprint. Any nest within two miles of the facility is considered to be a potential risk. BOGY conducted bald eagle nest surveys and calculated associated presumed territory size based on Service recommendations that were available at the time (ECPG 2013).

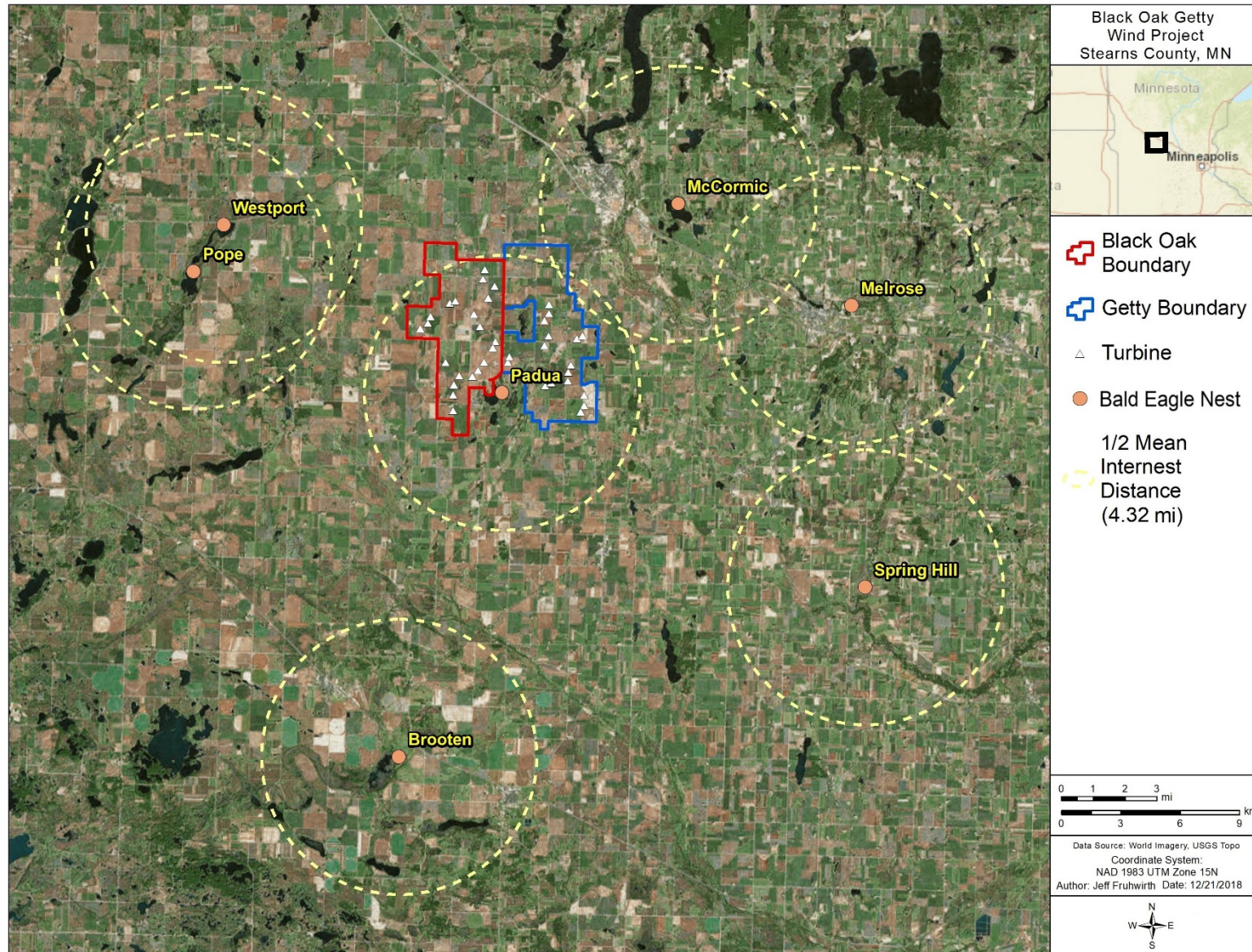


Figure 3: Bald Eagle Nests Identified near the Black Oak Getty Wind Project

3.1.5 Bald Eagle Mortality Associated with Human Development

The four leading anthropogenic causes of injury and mortality for bald eagles likely include poisoning (25.6%), trauma (22.9%), electrocution (12.5%), and shooting (10.2%; Russell and Franson 2014). Based on the Service's Cumulative Effects Tool (CET), which analyzes eagle take within 2 times the LAP around the Project footprint) the leading human causes of bald eagle injury and mortality between 2002 – 2020 were classified as unknown and other causes (42%), followed by lead poisoning (14%), collision with a vehicle (10%), and trauma (9%; see Section 4.1.5, below). More detailed information can be found in Section 4.1.5, below. The Service's CET was run on May 4, 2020, and pulls information from the Service's Injury and Mortality Reporting System database. The CET follows methods outlined in Appendix F of the *Eagle Conservation Plan Guidance: Module 1 – Land-Based Wind Energy* (ECPG; Service 2013).

3.1.6 Bald Eagle Injuries and Mortalities Associated with Wind Energy Development

Pagel et al. (2013) published a report of six substantiated bald eagle fatalities or injuries at wind energy facilities within the U.S. The Service is aware of more bald eagle deaths at wind farms than this, but details of these mortalities are not yet publically available due to ongoing investigations. The Service intends to undertake a comprehensive review of bald eagle deaths at windfarms and will provide the findings when available.

3.2 Golden Eagle

The Service does consider the potential impacts to golden eagles (*Aquila chrysaetos*) as part of the EA, and as described below, finds that the Project is located in an area where golden eagles would not be expected to occur in high numbers and would generally be rare migrants. The Applicant assessed regional and site-specific records of golden eagles and coordinated with the Service on potential risk to golden eagles. The Applicant and the Service agreed that the Project poses low risk to golden eagles and take coverage is not warranted at this time.

The Service would assess the need for future golden eagle monitoring, studies, and take permitting if golden eagles are thought to expand their winter range into the Project area. Conservation measures implemented for bald eagles would benefit golden eagles; however, the Applicant would not be protected from enforcement for violating the Eagle Act should take of a golden eagle occur.

3.2.1 General Habitat Requirements

Golden eagles occur frequently in eastern North America, primarily as winter migrants from breeding areas in Canada (Morneau et al. 2015). The estimated population of golden eagles in eastern North America, including eastern Canada and U.S., is 5,000 (Dennhardt et al. 2015). Additional information on the taxonomy, ecology, distribution, and population trends (including

stressors and sources of mortality) of golden eagles are provided Section 3.3.1 of the PEIS (Service 2016d).

Golden eagles in Minnesota and other Midwestern states, are typically observed in dense forests within the blufflands of the major rivers, often foraging in the open, upland prairies (National Eagle Center [NEC] 2017). Golden eagles prey mostly on squirrels, rabbits, and rodents, but will eat other mammals, birds, reptiles, and some carrion. This species needs open terrain for hunting such as grasslands, savannahs, and early successional stages of forest and shrub habitats (Zeiner et al. 1990).

3.2.2 Golden Eagle Population in Minnesota

According to the Minnesota Ornithologist Union (MOU), there have been numerous reports of golden eagles observed throughout Minnesota in the winter, spring, summer, and fall from most counties. Golden eagles generally are seen migrating through the state between October and mid-April, with a peak migration period in December and January (MOU 2018). Tracking data from three golden eagles fitted with transmitters in Minnesota and tracked by the NEC indicate that these birds migrate to and from breeding areas in northwest Canada (NEC 2018). Golden eagles have not been documented nesting in Minnesota; the nearest population of breeding golden eagles is in North Dakota.

A wintering population of golden eagles inhabits the coulees and bluffs of the Mississippi River in southeast Minnesota, northeast Iowa, and west-central Wisconsin. The NEC and the National Audubon Society (Audubon) Minnesota have conducted an annual wintering survey of golden eagles along the Mississippi River since 2009. This wintering survey is conducted annually on one day in January at various routes throughout the survey area. Golden eagle wintering surveys in the three-state area (2009 – 2016) resulted in a range of 83 golden eagles (2001) to 147 golden eagles (2016). The Project site is located over 125 miles from this surveyed area. In 2016, Camp Ripley (a Minnesota Army National Guard [MN ARNG] Military Base located about 40 miles northeast of the Project) was added as a survey area to the NEC winter survey. No golden eagles were observed during one-day surveys in 2016 and 2017 (MN DNR and MN ARNG 2018). To date, two adult golden eagles have been documented wintering at Camp Ripley. One golden eagle was radio tagged and tracked starting in fall 2012. This bird was tracked to its breeding ground in northwestern Canada in spring 2013 but was not documented south of its original capture site at Camp Ripley (MN DNR and MN ARNG 2018, NEC 2018). This radio ceased working in winter of 2017. A new adult golden eagle was captured and radio-tagged in early 2018 and tracking is on-going (MN ARNG, pers comm).

3.2.3 Golden Eagle Distribution in Project Vicinity

Wintering golden eagles could occur within the Project area; however, the Applicant did not observe golden eagles within the Project footprint during the avian use surveys (in 2011, 2012,

2014, and 2015). Based on data from the MOU, nine golden eagle observations have been recorded in Stearns County, with the first observation reported in November 1999 (MOU 2018). Two golden eagle observations have been reported to eBird within Stearns County; one in October 2015 near St. Cloud, and one in March 2018 east of Spring Hill (eBird 2018). The closest golden eagle observation to the Project was the 2018 observation near Spring Hill, located about 10.7 miles southeast of the Project boundary.

Golden eagles are known migrants in the Project vicinity but data on actual numbers are sparse. The Project area provides limited foraging habitat and no suitable nesting sites. Grasslands in and near the Project could provide some foraging opportunities for those golden eagles passing through the area.

3.3 Migratory Birds

The Project is located in the Mississippi Flyway, with a small portion of the bald eagle LAP (86-mile buffer surrounding the Project) extending into the Central Flyway (Figure 4). It is estimated that almost half the migrating birds that pass through contiguous North American states/provinces and up to 40 percent of waterfowl pass through the Mississippi Flyway. More than 325 avian species have been documented within the Mississippi Flyway (Audubon 2018). Avian species that migrate through these flyways are diverse and utilize variable habitats, and will use wetlands (seasonal and permanent) for stopover habitat, along with grasslands, forested patches, and riparian corridors. Birds that breed in Minnesota also use these habitats during nesting season.

Migrating birds use the Project area and numerous nearby WMAs and WPAs for nesting and stopover habitat. A detailed description of migratory bird use in and around the Project area can be found in the Applicant's ABPP.

3.3.1 Project-Specific Use and Composition

Pre-construction avian surveys were conducted in the Project area (Table 1). The 2011 surveys were conducted to collect general information on avian use within the Project area during migration (HDR 2011). A total of 22,863 individual birds, representing 106 species, were documented during these surveys. The most frequently observed passerine species at the Project (71% of all observations) were red-winged blackbird (*Agelaius phoeniceus*), common grackle (*Quiscalus quiscula*), unidentified species of blackbirds, and Lapland longspur (*Calcarius lapponicus*). The next most abundant bird guild (16%) observed at the Project was waterfowl. A total of 23 species of waterfowl were observed in the Project area, with unidentified duck species, Canada goose (*Branta canadensis*), mallard (*Anas platyrhynchos*), and tundra swan (*Cygnus columbianus*) being the most abundant. Waterfowl utilization at the Project and nearby WMAs was highest during the month of April. Raptor use at the Project was relatively low. The six raptor species observed at the site (in order of abundance) include: northern harrier (*Circus*

hudsonius); red-tailed hawk (*Buteo jamaicensis*); bald eagle; American kestrel (*Falco sparverius*); Cooper's hawk (*Accipiter cooperii*); and turkey vulture (*Cathartes aura*).

A list of sensitive avian species observed during the surveys is included in Section 2.1.2 of the ABPP. There were no federally listed avian species observed in the Project area; however, there were seven state-listed species (one state endangered, one state threatened, and four species of special concern) and nine Service-designated birds of conservation concern (Service 2008) observed in the Project area.

3.4 Species Listed under the Endangered Species Act

In accordance with Section 7 of the ESA of 1973 (16 USC 1531-1599), actions that have a Federal nexus such as involvement of Federal land, Federal funding, or a Federal action (such as the decision on whether to issue a permit under the Eagle Act) necessitate consultation with the Service if the action may affect a listed endangered or threatened species. Because the Service is the lead agency in the review of the permit application for the Project, an Intra-Service Section 7 consultation was completed; the Service's Intra-Service Section 7 Biological Evaluation documents if and how issuance of the permit (and associated implementation of the ECP and permit conditions) and/or denial of the permit would affect the northern long-eared bat, with the determination that the Project May Affect, but is Not Likely to Adversely Affect the northern long-eared bat (Attachment C). Additional discussion relating to potential impacts to the northern long-eared bat is provided in Sections 4.1.4 and 4.2.4.

Here we discuss federally listed species that have the potential to occur in the Project area (including known records), and a summary of how this permit issuance would impact these species. Due to uncertainty of actual population numbers of many listed species, it is not feasible to definitively assess a LAP size of these listed species.

3.4.1 Northern Long-eared Bat

The northern long-eared bat is the only federally listed species with documented extant records in Stearns County, and has the potential to occur in the Project area (Service 2017). This species roosts and forages in upland forests during spring and summer, hibernates in caves and mines in the winter, and migrates between foraging areas and hibernacula during the fall. Potential roosting and foraging habitat in the Project area is limited due to the lack of forest (0.1% of the total Project area). A northern long-eared bat hibernaculum was recorded in 1952 in eastern Stearns County about 30 miles from the Project (Goehring 1954). This hibernaculum was recently resurveyed and was found to be active and contain bats, although not northern long-eared bats (MN DNR, pers comm). During a multi-year bat study at Camp Ripley, numerous northern long-eared bats were captured and several roost trees were identified on the base (MN DNR and MN ARNG 2018). Based on this existing information, it appears that northern long-

eared bats may be present in or near the Project area, either during spring or fall migration and/or during summer within roosting and foraging habitat.

A detailed summary of pre-construction bat survey work conducted in and around the Project can be found in Section 2.1.2 of the ABPP. Based on the results of these site-specific bat surveys, it appears that northern long-eared bats likely do not occur in the Project area during the summer months; however, this species could potentially occur at the site during the migration season. Post-construction bird and bat mortality monitoring (Minnesota State Permit requirement) was conducted in 2017, 2018, and 2019; to date, no northern long-eared bat mortalities have been documented (Pickle et al. 2018, 2019, 2020).

3.4.2 Rusty-patched Bumble Bee

The Service currently does not have extant records of the endangered rusty-patched bumble bee (*Bombus affinis*) in Stearns County. However, historic records document the rusty-patched bumble bee in Stearns County (1980s), and a 2017 survey documented rusty-patched bumble bee in adjacent Sherburne County (Sand Dune State Forest; Service 2018). Because no records are known in Stearns County, the Service is not requiring surveys for projects with a federal nexus. Should the Service learn of extant populations of the rusty-patched bumble bee in Stearns County, we would assess whether additional analysis is needed to address impacts of permit issuance on this species.

3.5 Federally Listed Species Not Addressed

The Service has addressed impacts of our Proposed Action to all federally listed species known to, or having potential to occur within the Project area. Should new information become available that shows the likelihood of additional listed species in the Project area, or the status of a species changes, the Service would assess whether these changes warrant additional Section 7 analysis.

3.6 Cultural and Socioeconomic Interests

Cultural: Impacts to cultural values were addressed in Section 1.5, above. No additional cultural concerns were raised during the analysis for this EA.

Socioeconomic: Agricultural use provides an economic value, as crops and livestock produced on these lands are sold. Operation of the Project would continue under all alternatives, making economic impacts the same among all alternatives. None of the alternatives under consideration would affect these social values or the economic base of the area. Therefore, social and economic values will not be further analyzed in this EA.

3.7 Climate Change

Climate change was considered in the PEIS (Section 3.9, page 144 in Service 2016d) and is incorporated by reference here. Issuance of a permit may incrementally increase vehicle emissions, which include greenhouse gas (GHG) emissions, during onsite mortality monitoring operations. However, GHGs generated from mortality monitoring operations would be minor, temporary, and are not anticipated to affect climate change on a local, regional, or global level. Therefore, climate change will not be further analyzed in this EA.

4 Environmental Consequences

This section summarizes the effects on the environment of implementing the Proposed Action or alternatives to the action.

The discussion of overall effects of the bald eagle ITP program is provided in the PEIS (Service 2016d) and is incorporated by reference here. This section of this EA analyzes only the effects that may result from the issuance of a bald eagle ITP for this specific Project.

4.1 Proposed Action

In determining the significance of effects of the Project on bald eagles, we screened the Proposed Action against the analysis provided in the PEIS (Service 2016d) and the Service's 2016 report, *Bald and Golden Eagles: Population demographics and estimation of sustainable take in the United States, 2016 update* (Service 2016a). We also used our eagle-risk analysis (Appendix D in Service 2013), and Cumulative Effects Analysis (Appendix F in Service 2013) to quantify bald eagle fatality risk and cumulative local population level effects.

4.1.1 Bald Eagle

Permitted Take: Under the Proposed Action, we estimate up to 32 bald eagles would be taken over the life of the 30-year permit. As described in additional detail in Section 3.1.4, this prediction is based on avian point counts conducted intermittently between 2011 and 2015, which in some instances were 30 minutes in duration; therefore, a conservative approach was used that may overestimate annual and cumulative take at the outset of permit. We anticipate that the predicted level of take would be refined in precision as data from Project-specific monitoring is incorporated into the prediction as part of each 5-year check-in. The Service's Collision Risk Model summary can be found in Attachment B.

Avoidance and Minimization: A complete description of the avoidance and minimization measures is included in the Applicant's ECP (Attachment A), Section 4 (Avoidance and Minimization of Risk Using Conservation Practices) and Section 6 (Adaptive Management).

The Applicant's ABPP provides additional data on the avoidance, minimization, and agency coordination processes that occurred related to minimizing and avoiding impacts to avian species, including bald eagles. A summary of these measures is as follows:

- Avoidance
 - Minimization of the size of the Project footprint
 - Reduction in the number of turbines to reduce potential avian flight obstacles
 - Padua bald eagle nest monitoring (during construction to assess disturbance and to determine flight paths)
 - Micrositing of turbines to avoid bald eagle flight paths identified associated with Padua nest and other paths identified during eagle use monitoring
- Minimization
 - Siting turbines as far as feasible from Padua nest, with minimum distance of 1.0 mile
 - Avian-safe power lines and flight diverters
 - O&M staff education (identification of new nests and other hazards, detection of dead or injured raptors)
 - Vehicle speed limits to minimize wildlife-vehicle collisions (during construction and operation)
 - Road kill removal (for deer carcasses in particular, handling and disposal of remains would follow any current MN DNR guidelines applicable to Stearns County with regards to managing chronic wasting disease)
 - Livestock carcass removal program (and collaboration with landowners)
 - Trash removal

Adaptive Management: The proposed conservation measures include adaptive management that could result in additional monitoring and operational adjustments. All Applicant-committed conservation measures and adaptive management requirements are described in Sections 4 and 6 of the ECP (Attachment A), and would be incorporated into permit conditions.

A step-wise adaptive management schedule is outlined in Table 4. The Applicant has requested a take threshold of up to 32 bald eagles over the 30-year permit term. While this averages to 6 bald eagles between each 5-year check-in (1.06 bald eagles per year over 5 years, rounded up to the next whole number), a take estimate above 6 bald eagles at the 5-year check-in would not cause non-compliance with the permit conditions. Rather, a higher-than-expected take estimate

would trigger consideration of the following adaptive management responses to ensure the Project stays within permit compliance:

- site evaluation and/or additional years(s) of bald eagle use monitoring and/or post-construction mortality monitoring to better understand the nature of the risk to bald eagles;
- site evaluation to determine if bald eagle attractants exist;
- formulation and implementation of a plan to minimize bald eagle attractants (e.g., remove livestock carcasses);
- coordination with the Service to determine if additional response or management action is needed; and
- testing and implementation of additional conservation measures, including:
 - daily, seasonal, or weather-related shut-downs of targeted turbines;
 - detect and curtail systems; and
 - bald eagle deterrent systems.

As noted above and in Table 4, one potential response may include additional monitoring; at the conclusion of each year when formal third-party monitoring occurs (Years 6, 11, 16, 21, and 26 of the permit term; see Section 5.2, below), coordination between the Applicant and the Service would occur to determine if the existing monitoring plan is providing adequate information to ensure the Project is in compliance with the ITP.

Table 4: Adaptive Management Guidelines for the Black Oak Getty Wind Project

Level	Threshold or Trigger *	Adaptive Management Response
1	One bald eagle fatality estimated** within a 5-year period	<ul style="list-style-type: none"> Continue implementation of conservation measures outlined in the ECP; assess the cause or likely contributing risk factor(s) to the bald eagle fatality and whether a management response is warranted and/or feasible; and if response is warranted, develop a timeline for management response.
2	Up to five bald eagle fatalities estimated** within a 5-year period	<ul style="list-style-type: none"> Level 1 adaptive management responses; evaluate cumulative monitoring effort to date to assess if take estimate is inflated by limitations in survey design; consult with the Service to determine if: <ul style="list-style-type: none"> additional monitoring or change in monitoring design is warranted (if the estimate appears to be inflated by previous survey design limitations); immediate response or management action is needed, such as removal of a livestock carcass or refuse pile that is attracting bald eagles to a particular turbine; and/or a longer term action plan or management response plan should be developed and implemented, such as additional carcass removal or landowner carcass disposal outreach efforts to minimize the presence of bald eagle attractants within the Project; and develop a timeline for each management response to be implemented, including check-ins and benchmarks, as well as measures to determine if the adaptive management response has been successful.
3	Six or more bald eagle fatalities estimated** within a 5-year period	<ul style="list-style-type: none"> Levels 1 and 2 adaptive management responses; as appropriate and in consultation with the Service, implement and test the effectiveness of additional conservation measures to further avoid or minimize risk to bald eagles, such as: <ul style="list-style-type: none"> seasonal, daily, spatially, or weather-related turbine shut-downs (targeting “problem” turbines); detect-and-curtail systems through the use of bio-monitors, radar, or camera imaging systems (or other available systems) that could be used to identify at risk bald eagles and shut-down or slow turbine operations; or detect-and-deter systems that might detect bald eagles and use sound, light, or drones to deter bald eagles from the area; and develop a timeline for each management response to be implemented, including check-ins and benchmarks, as well as measures to determine if the adaptive management response has been successful.

* Because 5-year check-ins would likely adjust the permitted number, the number of bald eagle fatalities that trigger a change in action may also change. However, the level of action (adaptive management response) associated with this trigger would stay the same.

** The Service would use Evidence of Absence (Dalthorp et al. 2017), or another statistically sound estimator, to develop an estimate of bald eagle fatalities based on the results of post-construction mortality monitoring at 5-year check-ins. The adaptive management response would also be initiated (within the same season) following the discovery of any bald eagle remains documented at the site; for example, if two bald eagle carcasses are documented during third-party or operations and maintenance staff monitoring, in addition to reporting the remains to the Service as described in Section 5.2, the adaptive management responses and processes described in Level 2 of this table would be followed, regardless of when the next 5-year check-in would occur.

Consultation between the Applicant and the Service would occur as needed following discovery (both incidental finds and from systematic searches) of injured bald eagles or remains at the Project. In these situations, neither party would wait for the 5-year check-in to determine if assessment and/or implementation of adaptive management are needed. The Applicant would follow the responses described in Table 4 when the associated threshold is met; while the Applicant would follow the processes described at each level, the specific corrective response (for example, carcass removal, additional monitoring, and/or implementation of additional conservation measures) would be developed through coordination with the Service and analysis of the data to determine the most appropriate response.

If incidental take were to reach the estimated level of 6 bald eagles within a 5-year period, additional adaptive management measures would be implemented as outlined in Level 3 of Table 4. As described in Table 4, the Service would work with the Applicant to identify what additional conservation measures are appropriate. Such conservation measures (e.g., targeted shut-downs of turbines, curtailment, and/or deterrent systems) would be tested, and if determined to be effective at reducing the risk to bald eagles at the Project, the measures would be continued as long as the specific risk they are intended to minimize is still present at the Project. As an alternative to long-term implementation of Level 3 adaptive management measures, the Applicant could request an amendment to the bald eagle ITP based on a revised take estimate.

Implementation of the adaptive management measures is intended to bring the Applicant back into compliance with the permit threshold, and could also result in decreased bald eagle fatalities over the 30-year permit term (i.e., projected less than 32 bald eagles). This anticipated decrease cannot be quantified at this time, but would have the potential to reduce the 30-year total to less than 32 bald eagles; the monitoring and compliance checks that would occur as part of each 5-year check-in would result in regular updates to the estimated bald eagle fatalities over the 30-year permit term. Additionally, the post-construction monitoring occurring as a requirement of the ITP under this alternative has been designed to provide a fatality estimate for bald eagles at the facility, and determine whether the permitted take level (up to 6 bald eagles over a 5-year period, derived from our Collision Risk Model output of 1.06 bald eagles per year) is accurate.

Mitigation: The Proposed Action incorporates measures to avoid and minimize risk to the maximum extent practicable, as required by regulation. To ensure that regional bald eagle populations are maintained consistent with the preservation standard, compensatory mitigation is required for any take that cannot practicably be avoided and is above EMU take limit and may be required for take greater than 5% of the LAP, if necessary to maintain the persistence of local bald eagle populations throughout their geographic range (Service 2016d). Based on the *Final Environmental Assessment, Proposal to Permit Take as Provided under the Bald and Golden Eagle Protection Act* (Service 2009) and the thresholds described in the ECPG (Service 2013), the Service has determined that compensatory mitigation targeted to offset estimated mortality would not be required for the Project (Service 2016a). This determination is based on the

proposed bald eagle permitted take number being below the EMU take limit and less than 5% of the LAP; therefore, no compensatory mitigation is needed to meet the Eagle Act preservation standard. Additionally, the bald eagle population in Minnesota has increased over the past 20 to 25 years (MN DNR 2019), indicating that the LAP of bald eagles around the Project is not anticipated to decrease over time. Although not required, the Applicant has proposed voluntary mitigation, which is described in Section 4.2.1 of the ECP (Attachment A).

Monitoring: Monitoring is a critical component of adaptive management. The mortality monitoring associated with the Proposed Action is described in Section 5.1 of the Applicant's ECP (Attachment A), and would allow the Service and permittee to estimate the total number of annual bald eagle fatalities. The impacts of monitoring would primarily be limited to the potential for bald eagle-vehicle collisions, which would be minimized through implementation of vehicle speed limits; impacts associated with monitoring would be minimal and would not exceed those analyzed in the PEIS (Service 2016d).

The Applicant has proposed to monitor bald eagle fatalities using independent, third-party monitors that report directly to the Service during Years 1 and 2 of the permit term. During Years 3, 4, and 5 of the permit term, O&M staff would conduct bald eagle fatality monitoring at the Project. For the remaining 25 years of the permit term, third-party monitoring would occur at 5-year intervals (Years 6, 11, 16, 21, and 26). In the years when third-party monitoring is not conducted in the remaining 25 years, O&M staff would visit each turbine regularly; during visits, the staff would inspect roads, pads, and any other cleared area in the immediate vicinity of turbines visible from their vehicle. For both third-party monitors and O&M staff, estimates of searcher efficiency would be used to adjust the total number of carcasses found for those missed by searchers, correcting for detection bias. Permit compliance monitoring is described in additional detail in the Post-Construction Monitoring Plan for Black Oak Getty Wind Project (appended to the Applicant's ECP [Attachment A]). The need for additional post-construction mortality monitoring would be discussed if estimated take approaches or is above the predicted levels (see Table 4), or if high uncertainty exists regarding take estimates.

Significance Criteria: Under the Proposed Action, the Service recognizes that the Project is already built and operational in a lawful manner at the time of permit issuance. Additionally, all Applicant-committed measures and adaptive management requirements as outlined in the ECP (Attachment A) and permit conditions would be fulfilled. The Service estimates that approximately 6 bald eagles may be killed or injured over any 5-year period between check-ins (derived from our Collision Risk Model output of 1.06 bald eagles per year, and rounded up to the next whole number), and up to 32 bald eagles over the 30-year permit duration.

As documented in Section 3.2.2 of the PEIS, the Service has determined that take levels like those predicted at the Project (which result in a cumulative authorized take less than 5% of LAP and do not exceed the EMU take limit) would not result in significant impacts to bald eagle

populations, and are compatible with permit issuance criteria. The Applicant's proposed approach would be compatible with the preservation of bald eagles, both within the EMU as well as the LAP. Based on the intensity and context of these effects and consideration of the elements associated with this alternative, the Proposed Action is not expected to result in significant adverse effects to the bald eagle population.

4.1.2 Golden Eagle

Permitted Take: The Proposed Action does not involve take authorization for golden eagles at the Project. No golden eagles have been observed within the Project footprint during surveys or by incidental observations. Based on data from the MOU and eBird, a total of 11 golden eagle sightings have been recorded in Stearns County between 1999 and 2018 (MOU 2018, eBird 2018).

Given the low (and seasonal) occurrence of golden eagles in Minnesota, and that no golden eagles were detected during Project surveys, the current likelihood of take of this species appears to be low. After coordinating with the Service, the Applicant opted not to seek coverage for golden eagles based on the low presumed risk of take. Based on the regional and site-specific records, we agree the risk of golden eagle take is low and that take coverage is not warranted at this time. We ran the Service's Collision Risk Model for golden eagles based on presumed seasonal use of the Project site and using non-site-specific exposure priors, assuming golden eagles were only present on site (and therefore only at risk) from October through April. The model estimated a take of 0.03 golden eagle per year (80th Confidence Interval from the Collision Risk Model), or 1 golden eagle over the 30-year life of the Project.

Avoidance and Minimization: Measures proposed by the Applicant to avoid or minimize impacts on bald eagles could also be effective for golden eagles. However, these effects would be expected to have a negligible impact on golden eagles due to their rarity in the area.

Adaptive Management: Applicant-committed conservation measures and adaptive management requirements detailed for bald eagles that would be implemented in compliance with the ECP under this alternative would also serve to minimize risk to golden eagles.

Mitigation: Offsetting mitigation would not be conducted, as take is not being requested.

Monitoring: The Service would consider the need for golden eagle monitoring, studies, minimization measures, and take permitting if golden eagles are documented in the Project area. Post-construction mortality monitoring for bald eagles may also discover any golden eagles that may be taken at the Project. If an unpermitted golden eagle injury or fatality were to occur, the Applicant would follow the recovery and notification protocol outlined in the ECPG (Service 2013) and outlined in Section 5.3 of the ECP. The Service would work with the Applicant in conjunction with the Office of Law Enforcement (OLE) and the Office of the

Solicitor (SOL) to determine next steps. If appropriate, the stepwise approach to adaptive management described in Table 4 may be applied. After approval from OLE and SOL, the Service would likely work with the Applicant to determine if there is a need to amend the ECP and permit to include golden eagles. Amending the permit to include golden eagles would require compensatory mitigation and additional NEPA analysis. Amending the ITP to include golden eagles would likely also trigger additional post-construction mortality monitoring.

Significance Criteria: The Applicant is not requesting take for golden eagles at this time; no significant impacts to golden eagle populations are anticipated under the Proposed Action.

4.1.3 Migratory Birds

Under the Proposed Action, all Applicant-committed minimization measures, fatality monitoring, and adaptive management processes as described in the ABPP would be followed, including minimization of disturbance areas, minimization of lighting, and appropriate management of nests in Project area (Black Oak Wind 2016). Direct impacts associated with operation of the Project on migratory bird populations were quantified through fatality monitoring during the first three years of operation (conducted in compliance with the LWECS Site Permits and ABPP), which did not indicate potential significant impacts to migratory bird populations.³

While wind facilities in general can have negative impacts on migratory birds, the issuance of our bald eagle take permit is not anticipated to increase these impacts. Additionally, the effects on non-eagle migratory birds (generally anticipated to be neutral to slightly beneficial) from implementation of the minimization measures and adaptive management process outlined in the ECP would be realized for the life of the Project. Examples include regular removal of livestock and road kill carcasses and reducing speed limits on access roads.

Through implementation of the ABPP and ECP, the Proposed Action is compatible with the significance criteria listed in Section 3.5.2.1 of the PEIS (Service 2016d) for evaluating effects on migratory birds that would be anticipated to occur.

4.1.4 Other Federally Protected Species

The issuance of an ITP for bald eagles and implementation of the ECP would not have a significant impact on bats, including the northern long-eared bat. While wind facilities in general have negative impacts on migratory bats, we do not anticipate the issuance of our bald eagle take permit to increase or decrease this impact. No impacts to forested habitat are

³ The reports summarizing the results of post-construction mortality monitoring at the Project are available on the Minnesota Department of Commerce's project docket (Docket No. IP6853/WS-10-1240). The results of monitoring in 2017 are available by entering Document ID [20183-141073-01](#), the results of monitoring in 2018 are available by entering Document ID [20193-151123-01](#), and the results of monitoring in 2019 are available by entering Document ID [20203-161362-01](#).

anticipated under the Proposed Action, and all Applicant-committed minimization measures, fatality monitoring, and adaptive management processes described in the ABPP would be followed. Additionally, the impacts of permit issuance on bats (anticipated to not have significant impacts) from implementation of the minimization measures and the adaptive management process outlined in the ECP would be realized for the life of the Project. Any modifications to turbine operation for the purposes of minimizing risk to bald eagles may slightly reduce potential collision risk to bats, although because these modifications would likely occur during daylight hours, they would be expected to have a neutral to minimally beneficial impact to bats. As documented in the ABPP, the Applicant has developed multiple measures during the siting (Section 2.2 of the ABPP), construction (Section 6.0 of ABPP), and operation of the Project (Section 7.0 of the ABPP) to avoid and minimize impacts to bats, including the northern long-eared bat.

The Service's Intra-Service Section 7 Biological Evaluation documents if and how issuance of the permit (and associated implementation of the ECP and permit conditions) and/or denial of the permit would affect the northern long-eared bat. Based on this evaluation, the Service determined that the Project May Affect, but is Not Likely to Adversely Affect the northern long-eared bat (Attachment C).

In accordance with the LWECS Site Permits, the Applicant submits quarterly avian and bat reports to the MPUC (see Section 7.3.2 of the ABPP). Based on the results of monitoring, the Applicant has committed in Section 7.3.4 of the ABPP, to consider the need for adaptive management measures commensurate with the impact, in consultations with the agencies. Adaptive management measures would be designed to resolve identifiable, unanticipated effects from the operation of the wind farm. Further, in the event that five or more dead or injured bats, or a single dead or injured state-listed threatened, endangered, species of special concern; or federally listed species (including northern long-eared bat) are discovered in the vicinity of the rotor swept area, the Service, MPUC, and MN DNR would be notified within 24 hours. If the status of the northern long-eared bat changes to endangered, existing exemptions would no longer apply (final 4(d) rule (50 CFR 17.40(o)), and if a northern long-eared bat were to be found as a fatality, the Project could be subject to enforcement action.

Should new information become available that shows the likelihood of additional listed species in the Project area, or the status of a species changes, the Applicant would coordinate with the Service to determine Project risk and whether any additional measures are recommended, such as operational minimization during high risk periods and/or coverage for take of federally listed species under Section 10 of the ESA through development and implementation of a Habitat Conservation Plan.

We do not find any significant impacts to known listed species in the Project area (northern long-eared bats) through implementation of the ABPP, ECP, or proposed permit conditions as a result of this Proposed Action.

4.1.5 Cumulative Effects of the Proposed Action

Take of bald eagles has the potential to affect the larger bald eagle population. Accordingly, the 2016 PEIS analyzed the cumulative effects of permitting take of bald eagles in combination with ongoing unauthorized sources of human-caused bald eagle mortality and other present or foreseeable future actions affecting bald eagle populations. As part of the analysis, the Service determined sustainable limits to bald eagle permitted take within each EMU. The take that would be authorized by this permit does not exceed the Service's EMU take limit, so would not significantly impact the bald eagle population within the Mississippi Flyway EMU. The avoidance and minimization measures that would be required under the permit, along with the additional adaptive management measures, are designed to further ensure that the permit is compatible with the preservation of the bald eagle at the regional EMU population scale.

Additionally, to ensure that bald eagle populations at the local scale are not depleted by cumulative take in the local area, the Service analyzed in the PEIS (Service 2016d) the amount of take that can be authorized while still maintaining the LAP (the bald eagle population within an 86-mile radius, which is the median natal dispersal distance of female bald eagles; Service 2016a). In order to issue a permit, cumulative authorized take must not exceed 5 percent of an LAP unless the Service can demonstrate why allowing take to exceed that limit is still compatible with the preservation of bald eagles. The bald eagle ITP regulations require the Service to conduct an individual LAP analysis for each permit application as part of our application review.

We, therefore, considered cumulative effects to the LAP surrounding the Project to evaluate whether the take to be authorized under this permit, together with other sources of bald eagle permitted take and bald eagle unpermitted mortality, may be incompatible with the persistence of the Project LAP. We incorporated data provided by the Applicant, our data on other bald eagle take authorized and permitted by the Service, and other reliably documented unauthorized bald eagle mortalities to estimate cumulative impacts to the LAP. Our cumulative effects analysis examined bald eagle permitted take and bald eagle unpermitted take within an 86-mile radius (the natal dispersal distance of female bald eagles) of the Project footprint, which we are considering the Project LAP. In order to look at the *cumulative* impact of our proposed bald eagle permitted take on this LAP, we expanded our search to two times the Project LAP (172 miles); this enabled us to examine the LAPs of bald eagle permitted take where they overlap with the Project LAP, and to consider a larger area of bald eagle unpermitted take. We conducted our cumulative effects analysis as described in the Service's ECPG (Appendix F in Service 2013).

4.1.5.1 Project Permit Proposed Take

We are proposing to issue a permit with a take of up to 32 bald eagles over the 30-year permit term, derived from our Collision Risk Model output of 1.06 bald eagles per year. The Project LAP falls mostly within the Mississippi Flyway EMU (as defined in the 2016 PEIS), but a small area extends into the Central Flyway EMU. Prior to the 2016 Eagle Rule, the Service managed bald eagles using different EMUs (defined in the 2009 Eagle Rule) that were smaller, geographically; as shown in the 2016 PEIS, the Project's LAP falls mostly within the Great Lakes Region with a small portion in the Rocky Mountains and Plains Region according to these 2009 EMUs. Because the 2016 PEIS (Service 2016d) analyzed both the 2009 and 2016 EMUs, we used the bald eagle densities associated with the more site-specific Eagle Density Units for the Great Lakes Region EMU that was proposed in the 2016 draft PEIS for the LAP analysis, rather than the average bald eagle densities for the entire Mississippi or Central Flyway EMUs.

We note that the modeling conducted for this Project was specific and should not be considered as guidance for future projects. Portions of the data were collected prior to the ECPG (Service 2013), and thus may not be fully representative of bald eagle use or risk in the area. In order to address this uncertainty, we have considered the predicted take estimate at the upper 80th Confidence Interval from the Collision Risk Model, would conduct annual 5-year check-ins with the Applicant, and would employ adaptive management (Table 4) as appropriate.

4.1.5.2 Local Area Population Benchmarks

As discussed in the Service's 2016 PEIS, if existing bald eagle permitted take exceeds 1 percent of the estimated population size within the LAP, additional take is of concern. If take exceeds 5 percent of the estimated population size within the LAP, additional take is considered inadvisable unless the permitted activity would actually result in a lowering of take levels.

We estimate the number of bald eagles within the Project LAP to be 1,253.89 bald eagles. The distribution of bald eagle density and the LAP benchmarks are displayed in Table 5. The 1% and 5% benchmarks of the Project LAP are provided in Table 6.

Table 5: Estimated Number of Bald Eagles within 86-miles of the Project (Project LAP)

Project LAP by Bald Eagle Density Unit	Estimated Number of Bald Eagles within Project LAP
Great Lakes	1,251.78
Rocky Mountains and Plains	2.11
Project LAP (total)	1,253.89

Table 6: Benchmarks for Sustainable Bald Eagle Take within 86-miles of the Project (Project LAP)

Benchmark Take	Number of Bald Eagles
1% Project LAP Benchmark	12.54
5% Project LAP Benchmark	62.69

The PEIS analyzed take of up to 5 percent of the LAP benchmark; take higher than this can be permitted but would require additional NEPA analysis and additional mitigation if necessary to maintain the persistence of local bald eagle populations throughout their geographic range.

To evaluate cumulative impacts to bald eagles, we followed the guidance provided in Appendix F of the ECPG (Service 2013). To quantify cumulative impacts of our permit issuance, we used the Service's CET run on May 4, 2020. The CET calculates the LAP of bald eagles for an activity or project under consideration for a permit (focal project), and then summarizes existing and ongoing take that may affect the same LAP. This includes all known sources of bald eagle permitted take and bald eagle unpermitted take within the LAP and areas surrounding the LAP. The analysis allows for a contextual assessment of cumulative impacts on the LAP of bald eagles associated with the focal project, and provides a scientifically defensible decision process for determining the allowable levels of bald eagle take that can be permitted sustainably under each permit.

Because the number and location of bald eagle permitted take is precisely known in relation to the Project LAP, it can be quantified with a higher level of accuracy than bald eagle unpermitted take, which is based on opportunistic or incidental reports. For this reason, bald eagle permitted take and bald eagle unpermitted take are discussed separately in the sections below.

Bald Eagle Permitted Take

We ran the Service's CET on May 4, 2020, using the most current data available on bald eagle permitted take. We found 19 permitted projects that had overlapping LAPs with the Project LAP. The majority of these were bald eagle nest disturbance permits. The total overlapping take for one year was 6.70 bald eagles (0.53 percent of the Project LAP; Table 7). Overlapping take is estimated by taking the LAP of existing permitted projects and determining percent overlap with the Project LAP, and multiplying the authorized take by that percentage. If the Project is permitted to allow take of 1.06 bald eagles per year, this would be a cumulative impact of 7.76 bald eagles per year (0.62 percent of the Project LAP). This percentage of the Project LAP is below the 1 percent threshold; the effects of which have been analyzed in the PEIS and found to be within the preservation standard of bald eagles.

Table 7: Combined Existing Overlapping Bald Eagle Permitted Take with Proposed Annual Take within the Project LAP

Results	Number of Bald Eagles	Percent of Project LAP
Total Overlapping Take	6.70	0.53
Project Predicted Take	1.06	0.08
Project + Total Overlapping Take	7.76	0.62

Bald Eagle Unpermitted Take

In order to account for bald eagle unpermitted take, we reviewed data from the Service's proprietary Injury and Mortality Database, accessed through the CET/LAP tool on May 4, 2020. These bald eagle mortality records represent the best available data on bald eagle unpermitted deaths. However, most records were obtained opportunistically or through incidental reporting, and not from systematic survey efforts to detect bald eagle mortalities using a statistically valid protocol or sampling methodology, and therefore could underestimate bald eagle unpermitted take within the LAP. For most records, no searcher efficiency or carcass persistence trials were associated with the record, so a bias correction factor could not be applied. Some industries that impact bald eagles self-report bald eagle mortalities at a higher rate than other industries, and some types of bald eagle mortalities lend themselves better to discovery and reporting (e.g., road collisions). Additionally, the location and date of the fatality is not always known or exact. Finally, some recent bald eagle fatality records may not be available in the database due to ongoing investigations by the Service's Office of Law Enforcement or backlog in entering mortality data. We recognize the inherent bias associated with these data and recommend this data be reviewed with a qualitative, rather than quantitative lens.

We reviewed known bald eagle deaths within the period from 2002 to 2020. Data were examined on both a temporal (year) and spatial (e.g., state, county) scale, as well as by suspected cause. We looked at the overlap of the Project LAP and the LAP of the bald eagle unpermitted take; thus, some bald eagle unpermitted take may have occurred within the distance of up to two times the Project LAP (172 miles; to account for the cumulative impact of overlapping LAPs; Figure 4).

Between 2002 and 2020, there were 106 reported bald eagle deaths with an LAP that overlapped with the Project LAP. Averaged over the 19-year period, this yields 5.58 bald eagle deaths per year, which represents 0.44 percent of the Project LAP at a maximum. The bald eagle unpermitted take analysis does not provide percent overlap with the Project LAP.

When we examined bald eagle unpermitted take within the analysis area by state, we did not observe a consistent pattern. Minnesota (where the majority of the 172-mile analysis area occurs; Figure 4) did not have a disproportionally higher number of bald eagle unpermitted take compared to other states in the analysis area (North Dakota, South Dakota, Iowa, and Wisconsin; Figure 4); however, no fatalities were reported in Iowa. Because reporting compliance may vary by state, we are not able to identify any patterns in the geographic distribution of bald eagle unpermitted take by state. We did not examine bald eagle unpermitted take on a finer-scale than state because our database does not always provide exact location within a county.

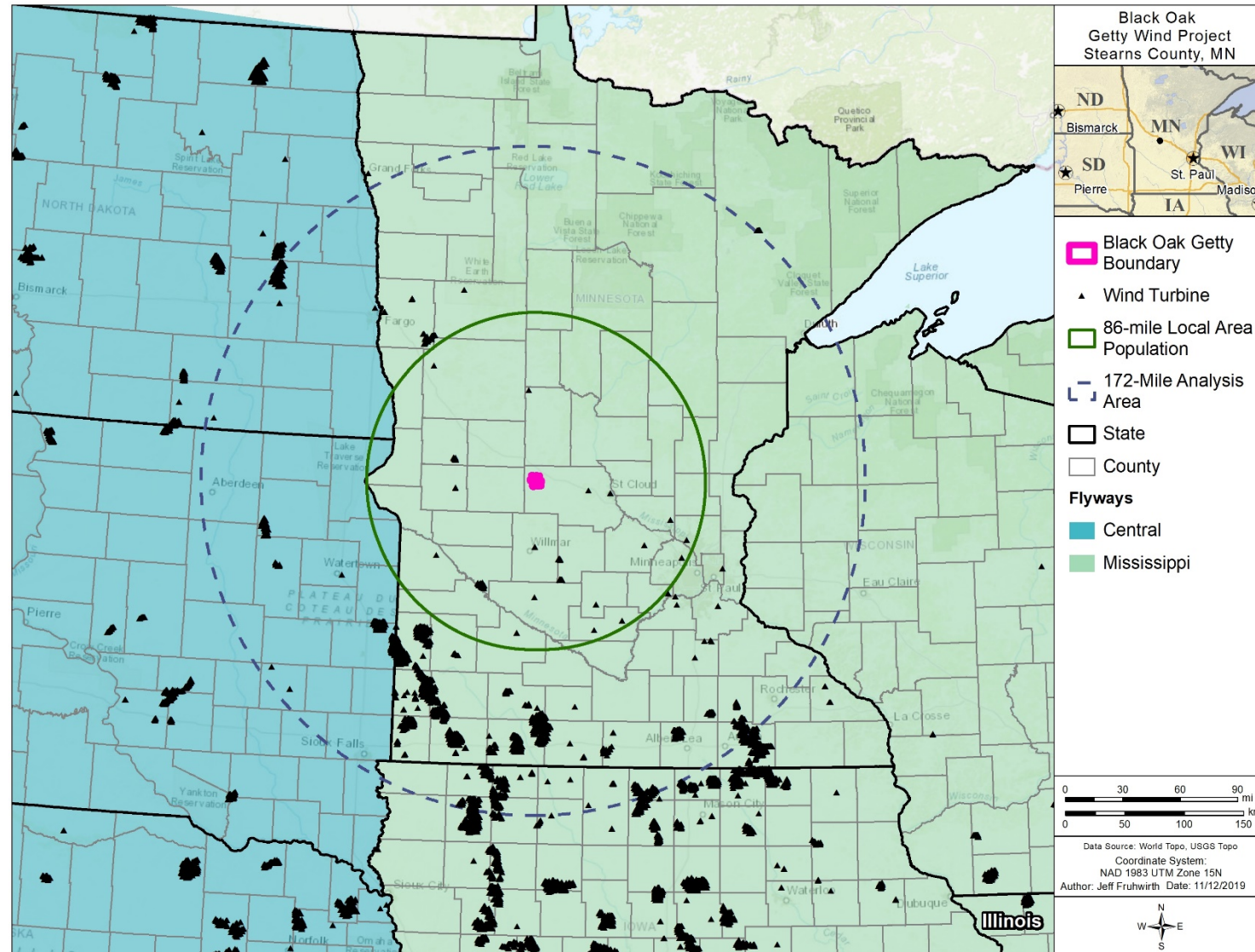


Figure 4: Other Wind Farms within the Local Area Population of Bald Eagles associated with the Black Oak Getty Wind Project

We examined bald eagle unpermitted take by suspected cause from 2002 to 2020 (i.e., anthropogenic, natural causes, and undetermined). The largest source of bald eagle unpermitted take was undetermined. This indicates a greater need for listing the cause of death or necropsy of recovered bald eagle remains, but we are not able to use this information to identify specific causes of death or areas of concern within the Project LAP. The majority of reported bald eagle unpermitted take for which the cause has been determined can be attributed to anthropogenic causes; specifically, lead poisoning. The level of anthropogenic bald eagle unpermitted take does not rise to a level that would require additional analysis, which the Service's 2016 PEIS identified as 10 percent of the LAP. Identified types of bald eagle unpermitted take allows for focus of future conservation efforts, if needed, within the Project LAP (e.g., lead abatement, vehicle-collision public information campaigns).

4.1.5.3 Cumulative Effects not Analyzed through the Service's Project-Specific LAP Analysis

Minnesota contains many operational windfarms, as well as windfarms that will be operational in the coming years. Within the Project LAP, there are currently an additional 22 wind facilities, totaling 56 additional turbines (Figure 4; Hoen et al. 2019). It is feasible that bald eagles within the Project LAP may pass through areas containing these wind turbines. The anticipated mean build-out for wind power in Minnesota from 2016–2030 is 2,030 megawatts (Service 2016c). While the Project LAP has not been the site of rapid wind facility development, as other areas of the state become saturated with wind facilities, there will likely be additional turbines constructed within the Project LAP.

Within a 172-mile radius of the Project (two-times the Project LAP, which is the extent to which another project's LAP may overlap with this Project LAP) there are 221 additional wind facilities totaling 5,768 additional turbines (Hoen et al. 2019). It is feasible that the impacts to bald eagles from operation of the various wind farms could overlap, contributing to a cumulative landscape level impact. However, without site-specific information from bald eagle-related impacts of these projects, we cannot accurately assess the impact of this potential cumulative take.

Currently there are two wind facilities (totaling 118 turbines) within 172 miles of the Project that are likely to be issued bald eagle take permits in 2020 or 2021. Impacts from the Black Oak Getty Wind Project will be analyzed as part of the bald eagle permitted take analysis for those future permit applications. The Service only knows the predicted take associated with one of the two projects, which has an estimated take of 2.60 bald eagles per year; the overlapping take from this project with the Black Oak Getty Wind Project is anticipated to be an additional 0.83 bald eagle per year. This additional potential take has a negligible increase in the take within the Project LAP (an increase of 0.06 percent take within the Project LAP). The Service also anticipates future receipt of applications for bald eagle disturbance and nest removal within the

Project LAP. However, these permits tend to be short-term in duration (1–3 years), and we anticipate the level of impact from these permits will stay consistent every year. Currently, the amount of bald eagle take from short-term disturbance and nest removal permits overlapping the Project LAP is 5.04 bald eagles per year, with an overlapping impact of 0.40 percent of the LAP. Even with the anticipated impact of issuance of future long-term bald eagle take permits and yearly issuance of short-term disturbance and bald eagle nest removal permits, the Service's LAP and EMU take limits are not expected to be exceeded.

While existing unpermitted wind developments, additional future wind developments, and other activities may further increase bald eagle take within the Project LAP during the 30-year permit term, the Service cannot reasonably predict the resulting impacts to bald eagles of such projects when important aspects (e.g., size, location, configuration, lifespan, and site-specific risk to bald eagles) are currently unknown. There is no reasonable basis to consider such speculative impacts in this EA.

As described in the ECP (Section 2.3.1 of Attachment A), the Padua Nest was first observed in April 2011, and has been confirmed in-use during the 2011, 2014, 2015, 2016, 2017, and 2018 breeding seasons. Monitoring of the nest occurred between April and July 2011, and bald eagle flight paths observed in the general of the nest were recorded during avian use surveys in 2011/2012 and 2014/2015. The results of the surveys suggest occasional, general bald eagle activity within the Project. The turbine layout was examined in relation to the documented bald eagle flight paths. In particular, bald eagle use near the turbines closest to the Padua Nest, which are positioned north of the nest/Padua WMA and south of Trisko WPA, were examined due to the potential for bald eagles to use this area for flight between the foraging and nesting areas. However, bald eagle flights documented were to the southeast of and did not cross paths with the turbine locations. The bald eagle flight paths out of Padua WMA followed the wetland directly northeast of the WMA and continued in a northeast direction toward Trisko WPA. Given the increasing bald eagle population in the LAP and observed bald eagle activity associated with the Padua Nest, it is not expected that the impact to this specific nesting pair would be significant over the long term. Because long-term monitoring is not proposed, we would utilize publicly available information (e.g., eBird database and MOU observation records) as well as incidental observations reported by O&M staff to keep apprised of the status of the Padua Nest.

Golden Eagle

As described in Section 4.1.2, because golden eagles were not observed during pre-construction avian surveys at the Project, documented occurrences in the vicinity of the Project are low, and the Project area provides limited foraging habitat and no suitable nesting sites for this species, projected take of golden eagles is low. As such, the Proposed Action's contribution to cumulative impacts would be negligible. However, if golden eagles were to occur in the area, risk could potentially be minimized by implementation of the conservation measures that would

be adopted by the Proposed Action, as outlined in the Applicant's ECP (Section 4.2 of Attachment A). The Service's Collision Risk Model estimated a take of one golden eagle over the 30-year permit term (Section 4.1.2).

Migratory Birds

As noted above in Section 4.1.3, fatality monitoring was conducted during the first three years of operation, which did not indicate potential significant impacts to migratory bird populations, and no more than six carcasses were found of any species during any of the three years of post-construction mortality monitoring (Pickle et al. 2018, 2019, 2020). The Proposed Action would include implementation of conservation measures outlined in the Applicant's ECP (Section 4.2 of Attachment A), which could further reduce impacts or have beneficial effects to migratory birds. As a result, the Proposed Action's contribution to cumulative impacts on migratory birds are expected to be minor.

Federally Listed Species

As described in Section 4.1.4, the issuance of an ITP for bald eagles and implementation of the ECP would not have a significant or negative impact on the northern long-eared bat. If northern long-eared bats were to occur in the Project area, risk could potentially be minimized by implementation of some of the conservation measures that would be adopted by the Proposed Action outlined in the Applicant's ECP (Section 4.2 of Attachment A) and Sections 6 and 7 of the ABPP (Black Oak Wind 2016).

4.1.6 Significance of Impacts

The take that would be authorized by this permit for the Project does not exceed 5 percent of the Project LAP and would not significantly impact the Project LAP for bald eagles. Known bald eagle unpermitted take within the Project LAP does not exceed 10 percent and does not appear concentrated by region or type of take. Granting the 30-year permit would meet the purpose and need by permitting potential bald eagle take through operation of the Project and is consistent with the preservation standard as identified in the Service's 2016 Eagle Rule Revision.

4.1.7 Purpose and Need

The Proposed Action meets the purpose and need by issuing a bald eagle take permit to Black Oak Wind. The Applicant has met all the permit issuance criteria. This action complies with all applicable regulatory requirements, and is compatible with the preservation of bald eagles.

4.2 Alternative 1 – No-Action

Even though we would take no action on the permit application under the No-Action Alternative, the Project would likely continue to operate without authorization for take of bald eagles. Under

this alternative, we assume that the Applicant would take some reasonable steps to avoid taking bald eagles, but the Applicant would not be protected from enforcement for violating the Eagle Act should take of a bald eagle occur. Because offsetting mitigation is not required for this permit, the total number of bald eagles taken under this Project would likely remain the same. However, the lack of requirements for the Applicant to follow the ECP, monitor the take of bald eagles over the life of the Project, and/or implement an adaptive management plan in response to unexpected levels or take or changes in the bald eagle population outside of the context of a permit would result in less certainty over the effect of the Project compared to the Proposed Action.

4.2.1 Bald Eagle

Under this alternative, direct impacts of the Project on the bald eagle population would be identified through fatality monitoring during the first three years of operation, which the Applicant conducted in compliance with the state-required ABPP. As described in Section 2.1, the LWECS Site Permits required two years of post-construction mortality monitoring (MPUC 2013a, 2013b); the first year of monitoring occurred from March 15, 2017 through March 20, 2018, and the second year occurred from April 1 through October 31, 2018 (see Table 1 and Section 5.2). Additional post-construction mortality monitoring was conducted from April 2 through September 30, 2019, which focused on further assessment of general bat fatality rates.

Under this alternative, direct impacts of the Black Oak Getty Wind Project on the bald eagle population over the 30-year life of the Project are expected to be up to 32 bald eagles (derived from our Collision Risk Model output of 1.06 bald eagles per year). This take would not be offset by compensatory mitigation.

Given the estimated effects of this alternative (presumed use of some voluntary avoidance and minimization measures to reduce risk), it is likely that the take of bald eagles associated with Alternative 1 would be similar to what is estimated for the Proposed Action (although as stated in Section 4.1.1, it is anticipated that the monitoring and adaptive management that would occur under the Proposed Action could reduce the take to less than 32 bald eagles over 30 years. Therefore, while Alternative 1 could potentially result in somewhat higher take of bald eagles than the Proposed Action, the expected take amount would still be up to 32 bald eagles over 30 years, which is not expected to result in significant adverse effects to the bald eagle population. However, the lack of requirements for the Applicant to follow the ECP, monitor the take of bald eagles, or implement an adaptive management plan over the life of the Project outside of the context of a permit would result in less certainty of the Project's impact.

4.2.2 Golden Eagle

Under Alternative 1, the Service would take no action on the permit application (for take of bald eagles) and no permit would be issued. Under this alternative, direct impacts of the Project on

the golden eagle population would be identified based on the two years of post-construction mortality monitoring required by the LWECS Site Permits (MPUC 2013a, 2013b), and the third year of monitoring conducted to further assess general bat fatality rates. As stated above for bald eagles, we assume the Applicant would take some reasonable steps to avoid taking golden eagles, but the Applicant would not be protected from enforcement for violating the Eagle Act should take of a golden eagle occur. Also, the lack of monitoring and implementation of an adaptive management plan associated with issuance of a bald eagle take permit would result in additional uncertainty of the Project's impacts to golden eagles.

Although the current risk to golden eagles at this Project is low, this risk may increase in the future should the golden eagle population increase (either in the EMU or LAP), and without implementation of measures in the ECP, this risk may impact golden eagles in the Project area.

4.2.3 Migratory Birds

Under Alternative 1, all Applicant-committed measures regarding minimizing risk to migratory birds as described in the ABPP (see Sections 6 and 7) would be followed, absent the issuance of a permit for the taking of bald eagles. Direct impacts of the Project on migratory bird populations were quantified through state-required fatality monitoring during the first two years of operation, and a third year of fatality monitoring that was conducted to further assess general bat fatality rates (Pickle et al. 2018, 2019, 2020). Impacts to migratory birds under Alternative 1 are assumed to be similar to those under the Proposed Action.

4.2.4 Other Federally Protected Species

The northern long-eared bat is the only federally listed or candidate species whose known range currently overlaps the Project area. Under Alternative 1, all Applicant-committed measures regarding minimizing risk to listed bats as described in the ABPP (see Sections 6 and 7) would be followed, absent the issuance of a permit for the taking of bald eagles. Direct impacts of the Project on listed bat populations were quantified through fatality monitoring during the first three years of operation, which did not document mortality of northern long-eared bats. As noted above in Section 3.5, should new information become available that shows the likelihood of additional listed species in the Project area, or the status of a species changes, the Applicant may coordinate with the Service to determine Project risk and whether any additional measures are recommended, such as operational minimization during high risk periods and/or coverage for take of federally listed species under Section 10 of the ESA through development and implementation of a Habitat Conservation Plan.

Impacts to federally listed species (currently only the northern long-eared bat) under Alternative 1 are assumed to be similar to those under the Proposed Action.

4.2.5 Cumulative Effects

The cumulative effects of Alternative 1 are similar to that of the Proposed Action; the Project would continue to be operational and bald eagle take would likely be the same or similar. Predicted take of bald eagles at the Project would be sustainable at both the LAP and EMU levels, and therefore complies with the preservation standard set forth in the Eagle Act. However, any bald eagle take that occurs would not be authorized. Additionally, the absence of requirements for the Applicant to follow the ECP, monitor the take of bald eagles over the life of the Project, and/or implement an adaptive management plan in response to unexpected levels or take or changes in the bald eagle population outside of the context of a permit would result in less certainty compared to the Proposed Action.

The cumulative effects of Alternative 1 on golden eagles, migratory birds, and the northern long-eared bat would be similar to that of the Proposed Action. Because risk of take of golden eagles is low, cumulative impacts would be negligible. Similarly, fatality monitoring conducted during the first three years of operation did not indicate potential significant impacts to migratory bird populations, and no more than six carcasses were found of any species during any of the three years of post-construction mortality monitoring (Pickle et al. 2018, 2019, 2020). Therefore, cumulative impacts to migratory birds are expected to be minor. Because northern long-eared bats likely do not occur in the Project area during the summer months, impacts to this species would be limited to the migration season; post-construction mortality monitoring did not document mortality of the northern long-eared bat (Black Oak Wind 2016). With the continued implementation of the ABPP, cumulative impacts to this species are expected to be negligible.

4.2.6 Significance of Impacts

Under Alternative 1, the Service would take no action on the permit application and no permit would be issued. Under this alternative, direct impacts of the Project on the bald eagle population would occur, likely at a similar rate as estimated for Proposed Action because the Applicant is anticipated to take measures to minimize and avoid the take of bald eagles at the Project in order to minimize the risk of violating the Eagle Act. The take estimate for the 30-year life of the Project is up to 32 bald eagles (up to 6 bald eagles between each 5-year check-in). Similar to the Proposed Action, Alternative 1 would be compatible with the preservation of bald eagles, both within the EMU as well as the LAP. Based on the intensity and context of these effects and consideration of the elements associated with this alternative, the Proposed Action is not expected to result in significant adverse effects to the bald eagle population. However, there would be greater uncertainty around the actual number of bald eagles taken by the Project, and the Service would lose the ability to refine the Collision Risk Model with post-construction mortality data.

4.2.7 Purpose and Need

This alternative does not meet the purpose and need for the action because, by regulation (50 CFR 13.21), when in receipt of a completed application, the Service must either issue or deny a permit to the Applicant.

No additional alternatives were evaluated in detail in this EA.

4.3 Comparison of Effects of Alternatives

The effects of the Proposed Action and Alternative 1 are compared in Table 8.

Table 8: Comparison of the Proposed Action and Alternative 1

	Proposed Action – Issue Permit	Alternative 1 – No-Action
Bald Eagle Take Levels	Up to 32 bald eagles over 30 years (approximately 6 bald eagles between each 5-year check-in)	<ol style="list-style-type: none"> 1. 32 bald eagles over 30 years (up to 6 bald eagles between each 5-year check-in) 2. No ability to update collision risk estimates 3. Uncertainty over actual take levels
Avoidance and Minimization ¹	<ol style="list-style-type: none"> 1. Operations and maintenance (O&M) staff education 2. Vehicle speed limits to minimize wildlife-vehicle collisions 3. Bald eagle nest monitoring 4. Road kill removal 5. Livestock carcass removal program (and collaboration with landowners) 6. Experimental conservation measures to reduce on-going bald eagle take as part of adaptive management protocol, which <i>may</i> include: <ol style="list-style-type: none"> a. Daily, seasonal, or weather-related shut-downs of targeted turbines b. Detect and curtail systems c. Bald eagle deterrent systems 	<ol style="list-style-type: none"> 1. None required 2. Applicant would likely implement some, but not all measures 3. Service would have no documentation of efficacy of avoidance and minimization measures
Compensatory Mitigation	None Required ²	None provided
Unmitigated Bald Eagle Take	No mitigation required for predicted take of up to 32 bald eagles over 30 years ³	32 bald eagles over 30 years

Table 8: Comparison of the Proposed Action and Alternative 1

	Proposed Action – Issue Permit	Alternative 1 – No-Action
Adaptive Management ⁴	<ol style="list-style-type: none"> 1 estimated bald eagle fatality within 5-year period; assess with Service re: additional measures 5 estimated bald eagle fatalities within 5-year period; assess with Service, increase carcass removal programs and landowner education, development of long-term action plan 6 or more estimated bald eagle fatalities within a 5-year period; above actions plus implement and test additional conservation measures (e.g., experimental measures, informed curtailment) 	None
Data Collected by Service	<ol style="list-style-type: none"> 1. Annual monitoring report: <ol style="list-style-type: none"> a. Report of bald eagle fatalities from 3rd party monitors conducting post-construction mortality monitoring for two years b. Report of bald eagle fatalities from monitoring conducted by O&M staff during subsequent years 2. Quarterly incident report in accordance with state Site Permits 3. Reporting of injured bald eagles 4. Information on the effects of specific applied conservation measures 	<ol style="list-style-type: none"> 1. Quarterly incident report in accordance with state Site Permits 2. Service would be notified within 24 hours of the discovery of a bald eagle mortality
Company Liability for Bald Eagle Take	No (if in compliance with permit conditions)	Yes

¹ A number of pre-construction avoidance and minimization measures were implemented, but because the Project has already been constructed we are only examining operational avoidance and minimization.

² Voluntary mitigation from the Applicant is detailed in the Applicant's ECP (see Section 4.2.1 in Attachment A).

³ Offsetting mitigation is not required because requested take is within EMU and LAP threshold limits and supports the preservation standard.

⁴ Adaptive management is discussed in Section 6 of the Applicant's ECP (Attachment A) and in Section 4.1 of this EA. Because 5-year check-ins would likely adjust the permitted number, the number of bald eagle fatalities that trigger a change in action may also change. However, the adaptive management responses would stay the same.

5 Mitigation and Monitoring

5.1 Mitigation

For bald eagles: The Proposed Action incorporates measures to minimize and avoid to the maximum degree practicable, as required by regulation. To ensure that regional bald eagle

populations are maintained consistent with the preservation standard, our regulations require that any take that cannot practicably be avoided and is above EMU take limits must be offset by compensatory mitigation. In this case, authorized take remains below the EMU take thresholds and no compensatory mitigation is needed to meet the Eagle Act preservation standard.

For golden eagles: The Applicant is not requesting take of golden eagles in this permit application. However, the Proposed Action incorporates measures to minimize and avoid impacts to the bald eagle to the maximum degree practicable, as required by regulation, which would also benefit golden eagles. To ensure that regional golden eagle populations are maintained consistent with the preservation standard, regulations require that any golden eagle take that cannot practicably be avoided and is above EMU take limits must be offset by compensatory mitigation at a 1.2 to 1 ratio. As golden eagle take limits for all EMUs were determined to be zero (Service 2016d), compensatory mitigation is necessary to offset any authorized take of golden eagles. No golden eagle mitigation would be provided under this action; therefore, permitted take levels of the eastern golden eagle EMU would not need to be adjusted.

5.2 Monitoring

The first year of state-required post-construction mortality monitoring commenced in March 2017. In the first year of surveys, between March 15 and November 15, 2017, a cleared area of 120 m by 120 m was searched around five turbines two times per week, and a road and pad search was conducted around the remaining 34 turbines to a distance of 60 m from the turbine once per week. For the remainder of the year (November 16, 2017 – March 14, 2018), a 100-m radius around all 39 turbines was scanned at an average search interval of 20 days, with monthly scans being used at the beginning of winter and an interval of 14 days between scans during the latter half of winter (Pickle et al. 2018). A second year of surveys focusing on bat and bird mortality (not eagle-specific) were conducted weekly at the Project from April 1 through October 31, 2018, which included cleared plot searches at four turbines and road and pad searches at the remaining 35 turbines; no eagle scans were conducted during the second year of post-construction mortality monitoring (Pickle et al. 2019). A third year of surveys focusing on general bat mortality (not eagle-specific) were conducted weekly at the Project from April 2 through September 30, 2019, which included road and pad searches at each of the 39 turbines; no eagle scans were conducted during the third year of post-construction mortality monitoring (Pickle et al. 2020). The data collected during the three years of post-construction mortality monitoring may be incorporated into our Collision Risk Model at the 5-year check-in, if appropriate. No eagles were documented as fatalities during any of the three years of post-construction eagle mortality monitoring.

As detailed in the Post-Construction Monitoring Plan for Black Oak Getty Wind Project (appended to the Applicant's ECP [Attachment A]), Black Oak Wind has proposed to monitor

eagle fatalities using independent, third-party monitors that report directly to the Service during Years 1 and 2 of the permit term. During Years 3, 4, and 5 of the permit term, O&M staff would conduct eagle fatality monitoring at the Project. O&M staff would scan, using binoculars, every turbine on a quarterly basis out to 150 m. Searcher efficiency trials of the O&M staff would be conducted during Years 3, 4, and 5, and raptor carcass persistence rates measured in Years 1 and 2 would be used to estimate eagle fatality numbers for these monitoring periods.

For the remaining 25 years of the permit term, third-party monitoring would occur at 5-year intervals (Years 6, 11, 16, 21, and 26), which would follow the same general approach described below for Years 1 and 2 (see Section 5.1 in Attachment A). In the years when third-party monitoring is not conducted in the remaining 25 years of the permit term, O&M staff would visit each turbine regularly; during visits, the staff would inspect roads, pads, and any other cleared area in the immediate vicinity of turbines visible from their vehicle. No bias trials are proposed during these years; if eagle remains are found by O&M staff, they would be reported to the Service within 24 hours and coordination would occur to determine if any additional action may be appropriate.

For the third-party monitoring (in Years 1, 2, 6, 11, 16, 21 and 26 of the permit term), all Project turbines would be checked twice monthly, although searches may be discontinued when crops are greater than 12 inches high and/or significantly obstruct the view. Biologists would visually scan, using binoculars, out to a distance of 150 m from each turbine during these searches. Searcher efficiency trials and carcass persistence trials would occur during these third-party monitoring years in order to provide sufficient statistical data to estimate the number of eagle fatalities.

The bald eagle take estimate that results from monitoring would be used to estimate the take of bald eagles; these estimates would be used to determine if adaptive management may be necessary, per the process described in Table 4 of this EA.

Because long-term data is not available on the efficacy of similar eagle monitoring plans, the Service and the Project would coordinate at the conclusion of each year that formal eagle monitoring occurs to review data collected (including systematic searches, bias trials, and scavenging rates). If results reveal bald eagle mortality rates above what was predicted, or uncertainty exists regarding the confidence of estimated bald eagle mortalities, the Service and the Project would determine whether additional and/or different bald eagle mortality monitoring methods are needed for the duration of the permit term.

At 5-year intervals, the Service would review the bald eagle fatality data and other pertinent information, as well as information provided by Black Oak Wind and independent third-party monitors, assessing whether Black Oak Wind is in compliance with the terms and conditions of the permit and has implemented all applicable adaptive management measures specified in the permit, and ensuring bald eagle take has not exceeded the amount authorized within that time frame. We would update bald eagle fatality predictions, authorized bald eagle take levels, and

compensatory mitigation, as needed, for future years of the permit. If authorized bald eagle take levels for the period of review are exceeded in a manner or to a degree not addressed in the adaptive management conditions of the permit, based on the observed levels of bald eagle take using approved protocols for monitoring and estimating total bald eagle take, the Service may require additional actions including, but not limited to: adding, removing, or adjusting avoidance, minimization, or compensatory mitigation measures; modifying adaptive management conditions; modifying monitoring requirements; and suspending or revoking the permit.

6 List of Preparers

U.S. Fish and Wildlife Service

Margaret Rheude – Migratory Bird Program, Interior Region 3

Deanne Endrizzi – Migratory Bird Program, Interior Region 3

Tom Cooper, Migratory Birds Chief, Interior Region 3

Western EcoSystems Technology, Inc.

Joyce Pickle, Environmental Project Manager

Janelle Rieland, Wildlife Biologist, NEPA Review

Alaini Schneider Cossette, Biologist

Jeff Fruhwith, GIS Analyst

Katie Wynne, Technical Editor

Applicant

Black Oak Wind, LLC

488 8th Ave

San Diego, CA 92101

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Attachment A
Eagle Conservation Plan

Available online at

<https://www.fws.gov/midwest/eagle/permits/pdf/BOGYECP.pdf>

Attachment B
Eagle Collision Risk Model

Available online at

<https://www.fws.gov/midwest/eagle/permits/pdf/BOGYfEAAttachmentBEagleModel.pdf>

Attachment C
Intra-Service Section 7 Biological Evaluation

Available online at

<https://www.fws.gov/midwest/eagle/permits/pdf/BOGYfEAAttachmentCSection7.pdf>