Environmental Assessment

For the Proposed Issuance of an Eagle Incidental Take Permit for Goodnight I Wind Project

Texas

Prepared by
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for
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February 2024

Table of Contents

List of Tables

List of Figures

List of Appendices

List of Acronyms and Abbreviations

Applicant	FGE Goodnight I, LLC
APLIC	Avian Power Line Interaction Committee
Audubon	National Audubon Society
BCC	Birds of Conservation Concern
BCR	Bird Conservation Region
CBC	Christmas Bird Count
C.F.R.	Code of Federal Regulations
EA	Environmental Assessment
Eagle Act	Bald and Golden Eagle Protection Act
ECP	Eagle Conservation Plan
ECPG	*Eagle Conservation Plan Guidance*
EMU	Eagle Management Unit
ESA	Endangered Species Act
ft	feet
gen-tie	generation tie
Goodnight I Wind	FGE Goodnight I, LLC
IPaC	Information for Planning and Consultation
km	kilometer(s)
kV	kilovolt
LAP	Local Area Population
m	meter(s)
MBTA	Migratory Bird Treaty Act
mi	mile(s)
MW	megawatt(s)
NEPA	National Environmental Policy Act
PEIS	*Programmatic Environmental Impact Statement for the Eagle Rule Revision*, December 2016
permit	eagle incidental take permit
Project	Goodnight I Wind Project
REA	Resource Equivalency Analysis
SGCN	Species of Greatest Conservation Need
Service	U.S. Fish and Wildlife Service
TBC	Turner Biological Consulting, LLC
U.S.C.	United States Code
USFWS	U.S. Fish and Wildlife Service

1.0 Introduction

This Environmental Assessment (EA) has been prepared to analyze the environmental consequences of the U.S. Fish and Wildlife Service (Service or USFWS) issuing an incidental take permit for the take of bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*) associated with the Goodnight I Wind Project (Project) pursuant to the National Environmental Policy Act (NEPA; 42 United States Code [U.S.C.] §§ 4321–4347). Issuance of an eagle incidental take permit (permit) by the Service for take that is incidental to otherwise lawful activities under the Bald and Golden Eagle Protection Act (Eagle Act; 16 U.S.C. §§ 668–668d and 50 Code of Federal Regulations [C.F.R.] § 22.80) constitutes a discretionary Federal action that is subject to NEPA. This EA assists the Service in ensuring compliance with NEPA, and in making a determination as to whether any "significant" impacts could result from the analyzed actions that require preparation of an Environmental Impact Statement. This EA evaluates the effects of alternatives for the Service's decision whether to issue a permit.

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 50 C.F.R. § 22.6 as "consistent with the goals of maintaining stable or increasing breeding populations in all eagle management units and the persistence of local populations throughout the geographic range of each species."

The applicant, FGE Goodnight I, LLC (Goodnight I Wind), is requesting Eagle Act take coverage for operational activities associated with the Project, as more fully described below. This company is an affiliate of Serena Energy. Goodnight I Wind has requested a 30-year permit for bald and golden eagles under the Eagle Act at the Project. Goodnight I Wind's Eagle Conservation Plan (ECP; Appendix A) is the foundation of the permit application for the Project.

Based on an estimated annual take rate of 5.28 bald eagles and 5.97 golden eagles, Goodnight I Wind requests a permit for the take of up to 159 bald eagles and 180 golden eagles over the 30-year permit term. This EA evaluates whether the issuance of the permit will have significant effects on the human environment. Determining significance under NEPA requires consideration of the potentially affected environment and the degree of effects on that environment (40 C.F.R. § 1501.3).

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; USFWS 2016a; https://www.fws.gov/media/final-programmatic-environmental-impact-statement-eagle-rule-revision). Accordingly, this EA tiers from the 2016 PEIS. Project-specific information not considered in the PEIS (USFWS 2016a) is considered in this EA as described below.

1.1 Purpose and Need

The need for this action is a decision on a permit application from Goodnight I Wind. The decision must comply with all applicable regulatory requirements and be compatible with the preservation of eagles (50 C.F.R. § 22.80(e)(2)(i)).

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 U.S.C. §§ 668–668e) and its regulations (50 C.F.R. Part 22). The PEIS has a full list of authorities that apply to this action (USFWS 2016a, Section 1.6, pages 7–12) that are incorporated by reference here.

1.3 Background

Goodnight I Wind owns and operates the utility-scale Project in Armstrong County, Texas. The Project is located on privately owned land and encompasses 7,957 hectares (19,662 acres). It is located near the town of Claude, Texas, and is approximately 5.6 kilometers (km; 3.5 miles) east of the town of Goodnight, Texas (Figure 1). The Project has a nameplate capacity of 265.5 megawatts (MW), and is comprised of 59 turbines, each capable of generating 4.5 MW of renewable energy. The 4.5-MW turbines have a hub height of 82 meters (m; 269 feet [ft]) and a rotor diameter of 136 m (446 ft). The Project has several supporting facilities, including but not limited to, step-up transformers, underground communication cables, 34.5-kilovolt (kV) underground collector lines, a permanent meteorological tower, a 7.9-km (4.9-mile) 345-kV overhead generation-tie (gen-tie) transmission line, a 34.5-kV/345-kV substation, a switchyard, an operations and maintenance building, an aircraft detection lighting system, and other ancillary facilities or structures (Figure 2). The gen-tie line runs south from the Project's substation in Armstrong County.

Goodnight I Wind developed the Project. Construction commenced in September 2022 and commercial operations started in December 2023. Goodnight I Wind conducted pre-construction avian use surveys from July 2011 to February 2013 and documented no bald or golden eagle observations at 10 survey points during 140 hours of bird survey efforts. Eagle survey efforts did not meet the current data standards of the Service's *Eagle Conservation Plan Guidance* (ECPG; USFWS 2013) or 2016 Eagle Permit Rule (USFWS 2016b), and as such, could not be used as part of the risk assessment. In addition to these surveys, a ground-based evaluation of a potential eagle nest occurred in the Project vicinity in 2011, and raptor nest surveys that followed current Service recommendations were conducted at the Project in January 2014 and February and March 2023, and all documented no active golden eagle or bald eagle nests or nest structures. Goodnight I Wind initiated post-construction mortality monitoring in January 2024. Goodnight I Wind prepared an ECP in March 2023 and submitted its application for a permit to the Service on March 14, 2023.

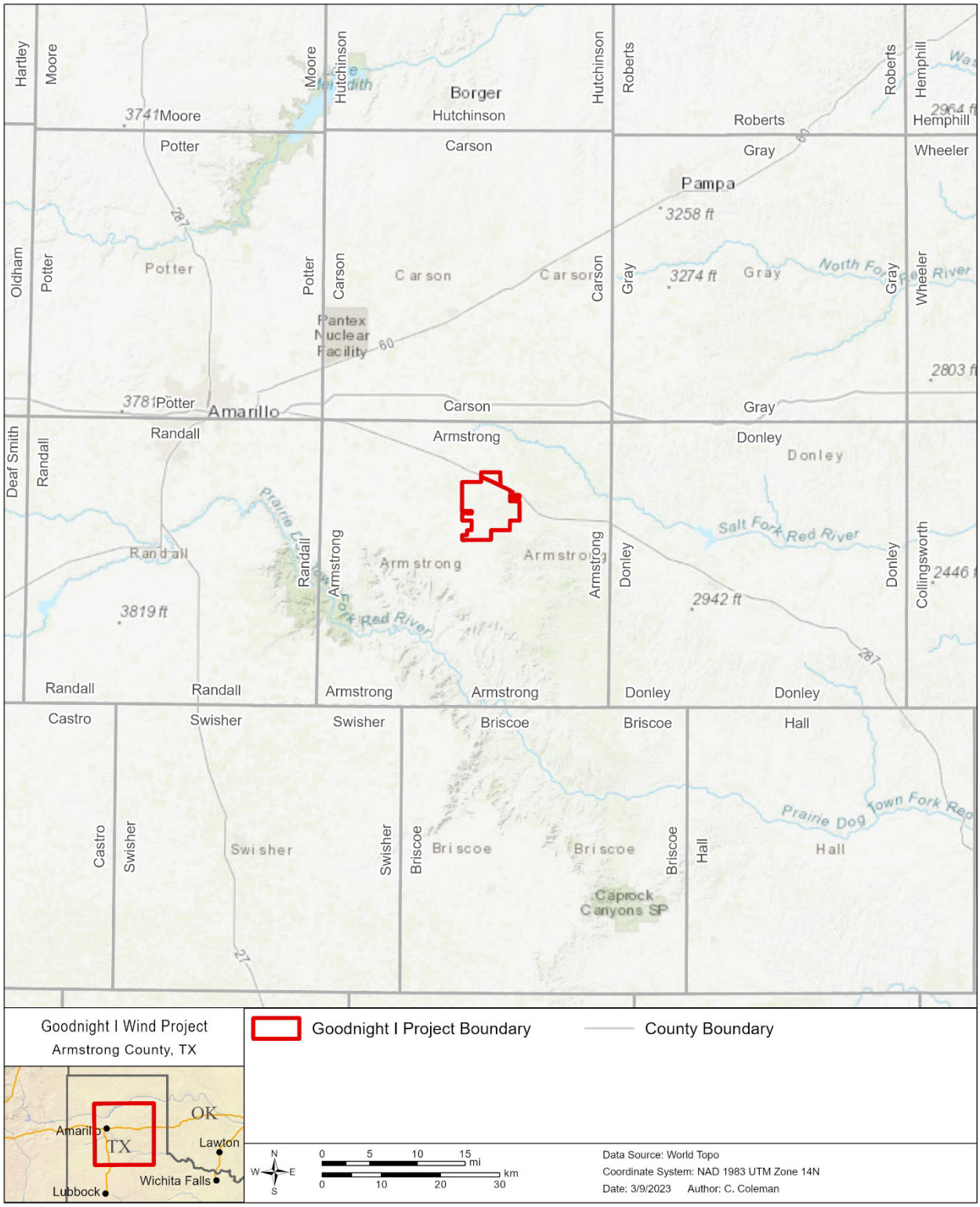

Figure 1. Project location of Goodnight I Wind Project in Armstrong County, Texas.

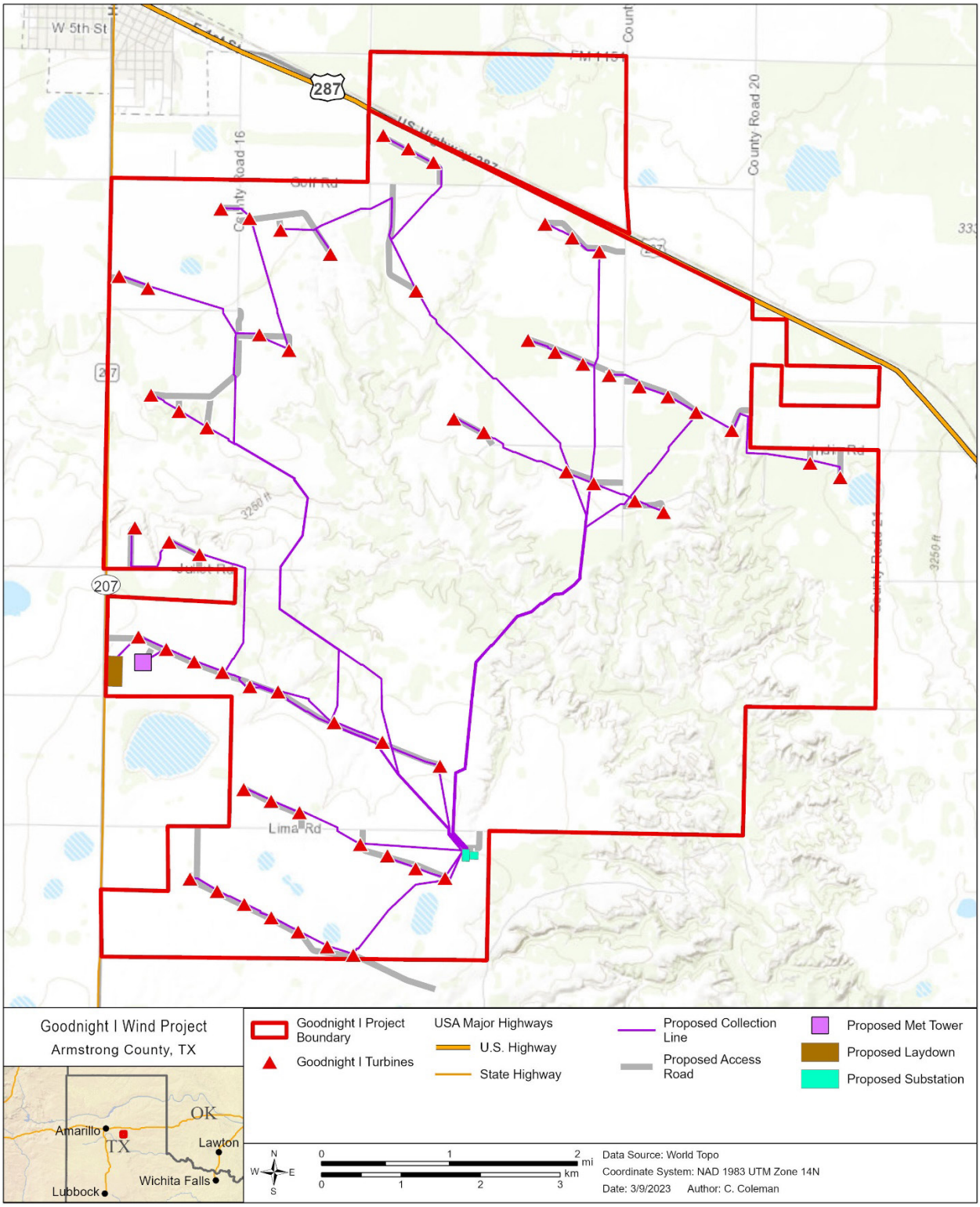

Figure 2. Infrastructure layout for the Goodnight I Wind Project in Armstrong County, Texas.

1.4 Scoping, Consultation, and Coordination

This EA incorporates by reference the scoping performed for the PEIS (USFWS 2016a, Chapter 6, pages 175–180). The draft EA was available for a 45-day public comment period, and it was posted on the Service's Southwest Region NEPA Documents for Eagle Permits website. We received two "No Issue" comments, no other written comments, and no Tribal Consultation requests (see Section 1.5). Goodnight I Wind worked closely with the Service to develop the ECP in support of its application to avoid, minimize, and mitigate adverse effects on eagles (Appendix A).

1.5 Tribal Coordination

This EA incorporates, by reference, the tribal consultation performed for the PEIS (USFWS 2016a, Section 6.2.2, pages 177–180). On December 14, 2023, the Service sent a letter to all Southwest Region (Oklahoma, Texas, New Mexico, and Arizona) Tribes informing them of our review of the permit application and requesting any views, comments, or concerns regarding the proposed permit authorizing incidental take of eagles at the Project. This letter was accompanied by a handout providing additional information on the Project, history, mitigation, and eagle take permit rules (Appendix B).

2.0 Proposed Action and Alternatives

2.1 Proposed Action

The Service proposes to issue a 30-year permit to take up to 159 bald eagles and 180 golden eagles with associated conditions, as allowed by regulation (50 C.F.R. § 22.80). Goodnight I Wind would implement all measures required by other agencies and jurisdictions to conduct the activity at this site and the conservation commitments described in the ECP (Appendix A). The Project would be subject to monitoring and reporting reviews conducted by the Service throughout the permit term. The Service would undertake an administrative permit review at least every five years throughout the permit tenure, in accordance with 50 C.F.R. § 22.80(c)(7)(iii). As requested by the applicant, the first review period for the Project would be at two years post-permit issuance and the following reviews would occur every five years thereafter. As described in more detail in the ECP (Appendix A), Goodnight I Wind would implement Avoidance and Minimization Measures (ECP, Chapter 5), Compensatory Mitigation (ECP, Chapter 5), Mortality Monitoring (ECP, Chapter 6), and Adaptive Management (ECP, Chapter 7) commitments.

Avoidance and Minimization Measures – Goodnight I Wind began implementing avoidance and minimization of risk during the Project design and planning and best management practices during construction. Operational avoidance and minimization measures include, but are not limited to, training of personnel in wildlife and biological resources, reducing vehicle collision risks and removing carrion from the Project, and implementing a Wildlife Incidental Reporting Program to ensure eagle fatalities and any additional eagle concerns encountered during routine maintenance are identified.

Compensatory Mitigation – Goodnight I Wind has committed, and will be required, to fully offset the authorized take of golden eagles by implementing compensatory mitigation as part of the conditions of the permit. Compensatory mitigation for this Project will consist of retrofitting high-risk power poles proportional to the predicted and adjusted golden eagle take estimate calculated by the Service. Other compensatory mitigation measures could be considered in the future if alternatives to power pole retrofits are approved by the Service. Retrofitting could include all types of retrofits performed to be consistent with Avian Power Line Interaction Committee (APLIC; APLIC 2006) suggested practices (e.g., reframe, rebuild, insulating covers, and pole replacement). Goodnight I Wind will either work directly with local utilities to compensate them for retrofitting poles or place the funds to retrofit power poles in a third-party mitigation account. Regardless of the method(s):

- All power poles retrofitted by the Project will be high-risk power poles that pose a high risk of electrocution to golden eagles.
- All power poles retrofitted by the Project will be located within the Central Flyway eagle management unit (EMU).
- All power poles retrofitted by the Project must be in addition to any retrofits that are already being implemented or are already scheduled for retrofitting or replacement by the power company in the foreseeable future.
- An inspection and maintenance program will be required to ensure the retrofits remain effective for the duration of the credited period and will be repaired or replaced if no longer effective in preventing eagle electrocution.
- Reporting requirements will include an accounting of the poles retrofitted, outcomes from the implementation monitoring work, and the agreement with the utility for the long-term maintenance of the retrofits.
- If retrofits involve pole replacement or other land disturbance, a cultural resources assessment must be conducted at the location of each pole and the assessment must be provided to the Service for review and approval before retrofits are conducted.
- The Project will retrofit the required number of poles to offset estimated take of eagles at a 1.2 to 1 mitigation ratio.
- The mitigation plan must be approved by the Service. Any changes to the mitigation program must be coordinated with and approved by the Service.

The Service will calculate the required number of poles using the Resource Equivalency Analysis (REA), as outlined in the ECPG (USFWS 2013). Inputs into the Service's REA include the effectiveness of retrofits and the timing of the implementation of compensatory mitigation. Both the length of time that the retrofits are effective in avoiding the loss of eagles (to be determined from the type and quality of the retrofit and the inspection and maintenance commitments) and when the retrofits will be completed affect the number of poles required. To offset the initial take estimate for the first three years of the permit term, Goodnight I Wind will commit to 704 poles for 10-year retrofits or 307 poles for 30-year retrofits to mitigate the loss of 18 golden eagles. This number of poles assumes that a permit, if issued, would be issued in 2024 and retrofits would be completed before the beginning of the golden eagle breeding season in 2027. If there are changes to the longevity or implementation schedule, the Service will recalculate the number of poles that will be required to offset authorized take at a 1.2 to 1 mitigation ratio. Compensatory mitigation will be completed to fully offset take over the duration

of the 30-year permit and will be determined at each permit review based on estimated past take and estimated future take. If the estimated take is less than mitigated take at the permit review, the excess mitigation will be carried forward for the next permit review period. If take is higher than what was mitigated, increased mitigation will be required. Goodnight I Wind's commitment to retrofit power poles to meet or exceed the APLIC 2006 guidelines would minimize the risk of bird electrocution and collision on the retrofitted power poles (APLIC 2006).

Mortality Monitoring – Goodnight I Wind would be required to implement a post-permit mortality monitoring program, including formalized searches for eagle remains, searcher efficiency trials, and carcass persistence trials. The Project would be required to monitor impacts to eagles throughout the duration of the permit term. These data are used to ensure compliance with regulatory requirements, verify that take limits are not being exceeded, update take estimates, and evaluate the overall eagle mortality as related to meeting the objectives of adaptive management. This monitoring also includes searcher efficiency trials (to address bias from imperfect detection of eagle remains by observers) and carcass persistence trials (to address bias from removal of eagle remains by scavengers). These trials are designed to account for uncertainty and to develop robust estimates of mortality at the Project. Fatality estimates would be updated to reflect Project-specific conditions and compensatory mitigation requirements would be adjusted accordingly.

Annual monitoring reports would be prepared within two months of completing each year of mortality monitoring required by the permit, with each report including all raw monitoring data upon which the reports were based. Additionally, any eagle found dead or injured must be reported to the Migratory Bird Permit Office within 48 hours of discovery. Eagle remains will be handled and processed according to current Service procedures and will be sent to the Service's National Eagle Repository.

Adaptive Management – Goodnight I Wind has developed an adaptive management plan to monitor for impacts and avoid and minimize impacts to eagles based on the Project specifics and data available. The stepwise process identified in the ECP (Table 2) would be used to guide the implementation of additional conservation measures, as needed, and applies before take exceeds the permitted take levels (Appendix A). Goodnight I Wind would be required to implement the adaptive management plan, which would result in more extensive or focused conservation measures if take is higher than predicted.

2.2 Alternative 1: No Action

Under the No-Action Alternative, the Service would take no further action on Goodnight I 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 permit being issued. Thus, for purposes of analyzing the No-Action Alternative, we assume that Goodnight I Wind will implement all measures required by other agencies and

jurisdictions to conduct the activity at this site, but the conservation measures proposed in the permit application package would not be required. Under this alternative, we assume that Goodnight I Wind will take some reasonable steps to avoid taking eagles, but Goodnight I Wind will not be protected from enforcement for violating the Eagle Act should take of an eagle occur.

2.3 Alternative 2: 5-year Permit

Under this alternative, the Service would issue a 5-year permit authorizing the incidental take of eagles associated with the Project, pursuant to 50 C.F.R. § 22.80(f). The permit would be for the incidental take of up to 27 bald eagles and 30 golden eagles during the 5-year permit term. This alternative incorporates the same annual rate of eagle fatalities estimated for the Project as was used in the Proposed Action but applies these rates to a 5-year permit duration. The 5-year permit would incorporate the adaptive management, mitigation, monitoring, and avoidance and minimization measures, as appropriate, described for the Proposed Action; however, these commitments would be limited to five years.

2.4 Other Alternatives Considered but Not Evaluated in this Environmental Assessment

The Service considered one other alternative but concluded that this alternative did not meet the purpose and need underlying the action because it was not consistent with the Eagle Act and its regulations. Therefore, the Service did not assess the potential environmental impacts of this alternative. Below is a summary of the alternative considered but eliminated from further review.

2.4.1 Alternative: Deny Permit

Under this alternative, the Service would deny the permit application because the applicant is not eligible for a permit pursuant to 50 C.F.R. § 13.21, or the application fails to meet all regulatory permit issuance criteria and required determinations listed in 50 C.F.R. § 22.80.

Permit issuance regulations at 50 C.F.R. § 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 C.F.R. § 13.21 apply to Goodnight I Wind. We next considered whether the applicant meets all issuance criteria for the type of permit being issued. For eagle incidental take permits, those issuance criteria are found in 50 C.F.R. § 22.80(f). Goodnight I Wind's application meets all the regulatory issuance criteria and required determinations (50 C.F.R. § 22.80) for a permit (Appendix A).

Upon review, the Service has determined that Goodnight I Wind is not disqualified for a permit under 50 C.F.R. § 13.21 and meets all the issuance criteria of 50 C.F.R. § 22.80. Accordingly, denial of the permit is not a reasonable option. Therefore, the alternative of denying the permit was eliminated from further consideration.

3.0 Affected Environment

This section describes the current status of the environmental resources and values that are affected by the Proposed Action and alternatives. Specifically, this section describes golden eagles, bald eagles, migratory birds, threatened and endangered species, cultural and socioeconomic interests, and climate change.

3.1 Golden Eagle

General information on the taxonomy, ecology, distribution, and population trends of golden eagles are given in Section 3.3.1 of the PEIS (USFWS 2016a, pages 71–81) and is incorporated herein by reference.

Annual overall estimates of the golden eagle population size in the western United States from 1997–2016 ranged from 31,229 to 32,257, with annual population growth rates suggesting golden eagle populations were stable across this region (Millsap et al. 2022). Although the overall western United States population has been stable, population trends in specific localities within this broader region may vary; for example, evidence of declining populations have been documented in Washington (Watson et al. 2020). The greatest influence on the golden eagle population size is likely adult survival (Millsap et al. 2022). Golden eagles are susceptible to anthropogenic stressors such as shooting, ingestion of toxic lead shot, or rodenticide contamination (Wiens et al. 2017, Millsap et al. 2022) and disturbances near roosting and foraging areas (USFWS 2011). Infrastructure associated with renewable energy projects (e.g., turbines, roads, and power lines) can cause mortality in golden eagles through collisions with vehicles or energy-related infrastructure and because of electrocution risk from power poles (Wiens et al. 2017). Adverse environmental conditions that affect prey abundance can lead to starvation and poor reproduction levels (Tack et al. 2017). Natural stressors that can lead to eagle mortality include, but are not limited to, starvation and disease, injury, fighting, predation, and drowning (Millsap et al. 2022).

Golden eagles are resident in Texas and breed as high as 2,600 m (8,600 ft) in mountains and canyons within their range in western Texas (Oberholser 1974). Nesting habitat near the Project includes cliff features in the Palo Duro–Caprock Canyon Complex, which are known to historically support golden eagle nests (Rideout et al. 1984). The region hosts both migratory and non-migratory populations of golden eagles (Tweit 2007). Information on specific patterns of migration in the region is sparse, but golden eagles are known to winter in New Mexico and in smaller numbers in western Texas, arriving in October and departing in March (Tweit 2007; Katzner et al. 2020). Additionally, age-specific patterns of migration in this region suggest adult golden eagles overwinter in higher numbers, whereas sub-adult eagles appear to pass through the region, which could include the Project area in northern Texas, in relatively higher numbers at the beginning and end of winter, en route to different wintering areas (Katzner et al. 2020). In addition to providing nesting habitat near the Project, the Palo Duro Canyon and Mulberry Canyon systems may provide suitable migration paths for golden eagles (Turner Biological Consulting, LLC [TBC] 2011, SWCA 2017). A review of eBird county-level data from 1993–2022 revealed eight golden eagle observations within Armstrong County, concentrated in winter (eBird 2022). The closest eBird observations were reported in 2015 and 2016, 2.4 km (1.5 mi) north of the Project in Claude, Texas (eBird 2022). According to the National Audubon Society (Audubon) Christmas Bird Count (CBC) data, 86 golden eagle sightings were recorded from 1954–2021 at the Amarillo survey area, located 21.2 km (13.2 mi) from the Project (Audubon 2021). However, no golden eagles have been observed during the CBC at the Amarillo survey area since 2001.

Pre-construction avian use surveys conducted from July 2011 – February 2013 documented no golden eagles for 140 hours of survey effort (Appendix A). However, pre-construction eagle use

surveys were not conducted following the survey protocols outlined in the ECPG (USFWS 2013) and the 2016 Eagle Permit Rule (USFWS 2016b), spatial coverage of the avian use surveys was poor, and no recent use data was collected. Although no golden eagles were observed during these pre-construction surveys that occurred at the Project, the Service has telemetry data on three tagged golden eagles within 16 km (10 mi) of the Project from 2021–2022, two of which appeared to be located within the Project (K. McDonnell, USFWS, pers. comm. 2022). A ground-based visit to evaluate a report of a single potential eagle nest occurred in the Project vicinity in 2011, with no eagle nest documented (TBC 2011). In 2014, an aerial survey to identify eagle nests within 16 km of the Project was conducted, and no golden eagle nests or nest structures were documented (TBC 2014). In 2023, a ground-based survey to identify eagle nests within 3.2 km (2.0 mi) of the Project was conducted and no golden eagle nests or nest structures were documented (Marrugo and Palmer 2023).

A concentrated prey base assessment was conducted in 2017 via desktop evaluation (SWCA 2017), and a field-based survey for black-tailed prairie dog (*Cynomys ludovicianus*) colonies was conducted in 2022 (Marrugo and Palmer 2022). No black-tailed prairie dog colonies were identified within 500 m (0.3 mi) of the Project infrastructure (Appendix A). The Project area is within the ranges of mule deer (*Odocoileus hemionus*), white-tailed deer (*O. virginianus*), and pronghorn (*Antilocapra americana*). There is potential for big game individuals to occur as occasional, road-killed opportunities for scavenging by golden eagles.

3.2 Bald Eagle

General information on the taxonomy, ecology, distribution, and population trends of bald eagles is given in Section 3.2.1 of the PEIS (USFWS 2016a, pages 44–60) and is incorporated herein by reference.

The estimated median population size of bald eagles in the Central Flyway EMU is 30,427 (USFWS 2021a). Throughout its range, the bald eagle population continues to grow, most notably since the ban of dichlorodiphenyltrichloroethane (DDT) in 1972 (USFWS 2021a). Like the golden eagle, the greatest influence on the bald eagle population size is likely adult survival (USFWS 2021a). Bald eagles are susceptible to anthropogenic stressors such as vehicle collisions, electrocution, and poisoning, but starvation and disease are also major causes of mortality as identified in telemetry studies (Russell et al. 2014, Millsap et al. 2004). Lead poisoning, specifically, may act to suppress bald eagle population growth (Slabe et al. 2022). Additionally, human activities that cause disturbance to nesting, communal roost sites, or foraging areas may disrupt reproduction, interfere with foraging behavior, or result in displacement to lower-quality habitat; however, bald eagle tolerance of human activities varies, and in some locations bald eagles are becoming increasingly tolerant of human activities (USFWS 2016a).

Bald eagles are year-long residents across most of Texas, except for southern and western Texas, where non-breeding populations occur (Buehler 2022). Bald eagles breed from near sea level to approximately 1,100 m (3,609 ft) in and around large bodies of water or large rivers and are known to nest within their range in eastern Texas (Oberholser 1974, Buehler 2022). Bald eagles also winter in and migrate through Texas (Buehler 2022). Migration stopover habitat is influenced by food availability (Buehler 2022). Bald eagles most commonly hunt and forage near

large, open lakes, reservoirs, and rivers (Buehler 2022). Playa lakes and wetlands present in the Project area may provide suitable habitat for prey species, and, thus, foraging opportunities, as well as habitat for a migratory stopover. Bald eagles may forage less frequently over open grasslands, which are present within the Project area, to take advantage of secondary food sources, such as carrion, waterfowl, or other small- to medium-sized animals. A review of eBird county-level data from 1978–2022 revealed 16 bald eagle observations in Armstrong County occurring in winter (eBird 2022). The closest eBird bald eagle observation was reported in 2020 along Highway 207, within 0.8 km (0.5 mi) of the Project (eBird 2022). According to CBC data, 295 bald eagle sightings were recorded from 1954–2021 at the Amarillo survey area, located 21.2 km from the Project (Audubon 2021).

Pre-construction survey methods for bald eagles were the same as survey methods for golden eagles, described in Section 3.1; no eagle use surveys following the survey protocols outlined in the ECPG (USFWS 2013) and the 2016 Eagle Permit Rule (USFWS 2016b) were conducted, and no recent use data was collected. No bald eagles were observed during the July 2011 – February 2013 avian use surveys, and no bald eagle nests or nest structures were documented during the 2011 nest evaluation, 2014 aerial nest surveys, or 2023 ground-based nest surveys. Concentrated prey base assessments were conducted in 2017 via desktop evaluation as described in Section 3.1. The Project is within the ranges of mule deer, white-tailed deer, and pronghorn. As such, there is potential for big game individuals to occur as occasional, road-killed opportunities for scavenging by bald eagles. Waterbodies, freshwater emergent wetlands, and playa lakes identified during the wetland assessment may provide temporary foraging opportunities for bald eagles by supporting concentrated prey bases, such as waterfowl, sandhill cranes (*Antigone canadensis*), shorebirds, and other avian species. However, previous assessments concluded the wetland and waterbody features within the Project area were unlikely to be a significant attractant for eagles due to their size and seasonality (SWCA 2017).

3.3 Migratory Birds

Many of the Migratory Bird Treaty Act (MBTA) protected species (16 U.S.C. §§ 703-712 and 50 C.F.R. § 10.13) use the Project area. Some MBTA species are year-round or seasonal (summer or winter) residents while others are only present during spring and fall migrations. The Project area is located in the Central Flyway migration corridor. Managed areas may attract or concentrate wildlife use at the Project. There are four areas managed for wildlife within 40 miles (64 km) of the Project: the Palo Duro State Park, a conservation easement managed by the Natural Resources Conservation Service, the Buffalo Lake National Wildlife Refuge, and the Caprock Canyons State Park. The closest of these areas managed for wildlife is the Palo Duro State Park, located in Palo Duro Canyon, 12.6 miles (20.3 km) west of the Project. Migrating birds may use these features, along with the playas in the Project vicinity, as stopover habitat. There are no other known unique habitats or topographical features (like major river corridors) in the Project that would be expected to attract or concentrate migrating birds.

The Project is located within the Shortgrass Prairie Bird Conservation Region (BCR) 18 and borders the Central Mixed Grass Prairie BCR 19 on the east. BCRs are defined as ecologically distinct regions with similar bird communities and habitats (North American Bird Conservation Initiative 2000). The Service's Birds of Conservation Concern (BCC) Report identifies species, subspecies, and populations of migratory nongame birds that could become candidates for listing

under the Endangered Species Act (ESA) without additional conservation actions. An updated BCC Report and list of BCC was released in 2021 (USFWS 2021b). The Project's Bird and Bat Conservation Strategy (Energy Renewal Partners, LLC 2023) lists 17 avian species of concern based on their federal and state status and the Service's 2021 BCC Report.

Using the current federal and state status, 31 bird species of concern have the potential to occur in the Project area based on the number of BCC identified within the Shortgrass Prairie BCR 18 (USFWS 2021b) and a query of the Information for Planning and Consultation (IPaC) review on March 9, 2023. One of these species is the bald eagle, which is covered elsewhere in the EA. Of the remaining 30 migratory bird species of concern, 22 species have a low potential to occur within the Project area, and eight species have a high potential to occur within the Project area (Table 1).

Avian use surveys were conducted at the Project from July 2011 to February 2013; while no species-specific surveys for listed species were conducted, no species considered to be endangered or threatened were observed at the time of the surveys (TBC 2013). However, the northern harrier (*Circus hudsonius*) was observed during the surveys and is considered a Species of Greatest Conservation Need (SGCN) in the state of Texas (Texas Parks and Wildlife Department 2020).

Table 1. Migratory Bird Species of Concern and Their Potential for Occurrence in the Goodnight I Wind Project Area.

Common Name	Scientific Name	Federal Status[1]	State Status[2]	Potential for Occurrence[3]
black rail	*Laterallus jamaicensis*	T	T; SGCN	Low
broad-tailed hummingbird	*Selasphorus platycercus*	BCC	—	Low
buff-breasted sandpiper[4]	*Calidris subruficollis*	BCC	—	Low
chestnut-collared longspur	*Calcarius ornatus*	BCC	SGCN	High
chimney swift	*Chaetura pelagica*	BCC	—	High
Clark's grebe	*Aechmophorus clarkii*	BCC	—	Low
ferruginous hawk	*Buteo regalis*	BCC	SGCN	High
Franklin's gull	*Leucophaeus pipixcan*	—	SGCN	High
grasshopper sparrow	*Ammodramus savannarum*	BCC	SGCN	High
Hudsonian godwit[4]	*Limosa haemastica*	BCC	SGCN	Low
lark bunting	*Calamospiza melanocorys*	—	SGCN	High
lesser prairie-chicken	*Tympanuchus pallidicinctus*	E	SGCN	Low
lesser yellowlegs[4]	*Tringa flavipes*	BCC	—	Low
Lewis's woodpecker	*Melanerpes lewis*	BCC	—	Low
long-billed curlew	*Numenius americanus*	BCC	SGCN	Low
long-eared owl	*Asio otus*	BCC	—	Low
mountain plover	*Charadrius montanus*	BCC	SGCN	Low
northern harrier	*Circus hudsonius*	BCC	SGCN	High
pectoral sandpiper[4]	*Calidris melanotos*	BCC	—	Low
pinyon jay	*Gymnorhinus cyanocephalus*	BCC	—	Low
piping plover	*Charadrius melodus*	T	T; SGCN	Low
pyrrhuloxia	*Cardinalis sinuatus*	BCC	—	Low
red knot	*Calidris canutus rufa*	T	T; SGCN	Low
red-headed woodpecker	*Melanerpes erythrocephalus*	BCC	SGCN	Low
short-eared owl[4]	*Asio flammeus*	BCC	SGCN	Low
snowy plover	*Charadrius nivosus*	BCC	SGCN	Low

Common Name	Scientific Name	Federal Status[1]	State Status[2]	Potential for Occurrence[3]
Sprague's pipit[4]	*Anthus spragueii*	BCC	SGCN	Low
thick-billed longspur	*Rhynchophanes mccownii*	BCC	—	High
whimbrel[4]	*Numenius phaeopus*	BCC	—	Low
white-faced ibis	*Plegadis chihi*	—	T, SGCN	High
whooping crane	*Grus americana*	E	E, SGCN	Low

[1.] BCC = Birds of Conservation Concern; E = Endangered; T = Threatened (U.S. Fish and Wildlife Service [USFWS] 2021b).
[2.] T = Threatened; SGCN = Species of Greatest Conservation Need (Texas Parks and Wildlife Department 2020).
[3.] High = The species has been documented in the Project vicinity by a reliable observer; Low = Project is within or peripheral to the species' known range and vegetation communities may resemble those known to be used by the species, but the species has not been documented in the Project vicinity by a reliable observer; wayward individuals and other atypical occurrences (e.g., storm system-caused vagrancy) are not evidence of potential occurrence since those occasions constitute unforeseeable anomalies.
[4.] Non-breeding within the Bird Conservation Region 18 Shortgrass Prairie (USFWS 2021b).

3.4 Species Listed under the Endangered Species Act

An Intra-Service Section 7 Biological Evaluation was completed on October 30, 2023, to fulfill the requirements of the ESA to confirm the issuance of a permit would not likely jeopardize the existence of any listed species or result in the destruction or adverse modification of designated critical habitat.

Two species listed under the ESA were identified through an IPaC review that have the potential to occur within the Project area. These include the piping plover (*Charadrius melodus*) and rufa red knot (*Calidris canutus rufa*). No critical habitat for these species intersects the Project area. Neither of these species were documented within the Project area during pre-construction general avian use surveys that occurred in 2011–2013 (TBC 2013). However, no species-specific surveys for any listed species have been conducted at the Project. The Service determined permit issuance would have no effect on the piping plover and red knot.

The Project is already operational and the Service's decision regarding the permit will not alter the physical footprint of the Project and will not alter its impacts to federally threatened and endangered species.

3.5 Cultural and Socioeconomic Interests

Cultural and socioeconomic interests were considered in the PEIS (USFWS 2016a, Sections 3.7 and 3.8, pages 117–144) and are incorporated by reference here. The PEIS examined the cultural importance of eagles to Native American tribes and the American people and impacts on businesses and industries likely to develop in areas where eagles occur and recreational and aesthetic values of the public (USFWS 2016a). Since the Project is already operational, no additional ground disturbance or other impacts will occur associated with issuance of the permit. Thus, no cultural and socioeconomic interests beyond those addressed in the PEIS are expected to occur with issuance of the permit.

As noted in Section 3.7 of the PEIS (USFWS 2016a), eagle take can have spiritual or emotional impacts to Tribes. Although the PEIS notes that the issuance of any permit seeks to reduce eagle take through applicant-committed avoidance, minimization, or mitigation, Tribal notification and

the opportunity to consult is required for all projects that seek a permit. As addressed fully above, this notification occurred for this permit.

3.6 Climate Change

Climate change was considered in the PEIS (USFWS 2016a, Section 3.9, pages 144–148) and is incorporated by reference here.

4.0 Environmental Consequences

This section summarizes the effects on the environment of implementing the Proposed Action or alternatives. The discussion of overall effects of the permit program is provided in the PEIS (USFWS 2016a) and is incorporated by reference here. This section of this EA analyzes only the effects that were not analyzed in the PEIS that may result from the issuance of a permit for this specific project. Any effects associated with developing, constructing, and operating a wind project will occur regardless of permit issuance; therefore, this criterion is not being evaluated across alternatives.

4.1 Golden Eagle

4.1.1 Effects Common to All Alternatives

The primary risk to golden eagles under all the alternatives is collision with rotating turbine blades. Mortality or injury is the direct adverse effect of golden eagles colliding with turbine blades. All three alternatives have the potential to result in the future take of eagles, whether permitted or not.

The Service uses a collision risk model to estimate the number of eagle fatalities at wind energy facilities (USFWS 2013). At the Project, we estimate a take rate of 5.97 golden eagles annually (estimate at the 80th quantile). This estimate was generated using updated national priors for golden eagle exposure and collision probability (USFWS 2021c). Eagle use data were not included in the Service's fatality estimate because they did not meet data quality standards required for permit applications at 50 C.F.R. § 22.80(d)(3)(ii) of the 2016 Eagle Permit Rule or the assumptions of the collision risk model, including (1) sampling was not conducted for two or more years, (2) spatial coverage of sample plots did not include at least 30% of the Project footprint, (3) sampling design was not spatially representative of the Project footprint, (4) duration of the survey for each visit to each sample plot was not at least one hour, and (5) eagle minutes were not recorded.

4.1.2 Proposed Action

Under the Proposed Action, we estimate 5.97 golden eagles may be taken annually (180 over the 30-year life of the permit). However, the take authorized by the permit would be fully offset by the compensatory mitigation provided by Goodnight I Wind and would not significantly impact local area eagle populations. To fully offset the authorized take of golden eagles over the 30-year period, Goodnight I Wind is committing to retrofitting high-risk power poles. Power pole electrocution has been shown to cause a significant number of eagle mortalities (APLIC 2006). Therefore, retrofitting high-risk electric poles is an effective way to minimize mortalities in eagle

populations (USFWS 2013). Retrofits are also an effective and quantifiable compensatory mitigation measure to offset any mortalities that may occur as a result of operation of a project.

The required compensatory mitigation commitments to offset the estimated take of eagles were calculated using the Service's REA per the ECPG (USFWS 2013). Both the credited period for the effectiveness of power pole retrofits and the timing of the implementation affect the number of poles required for compensatory mitigation. Goodnight I Wind commits to completing 307 poles for 30-year retrofits or 704 poles for 10-year retrofits as compensatory mitigation to fully offset the estimated take of 18 golden eagles for the first three years of the permit term. This number of retrofits is needed to achieve the 1.2 to 1 mitigation ratio required by regulation for authorized take of golden eagles to ensure that take is consistent with eagle preservation (USFWS 2016b). The final mitigation program may encompass a percentage of both retrofit types, resulting in a final number of pole retrofits. Compensatory mitigation to fully offset take over the duration of the permit is determined based on estimated past take and estimated future take. Goodnight I Wind will retrofit the required number of poles to offset the take of eagles over the 30-year life of the permit at a 1.2 to 1 mitigation ratio. Retrofitted power poles will be monitored and maintained for the effective life of the retrofits. The mitigation program will be coordinated with and approved by the Service.

A number of conservation measures would be implemented. These include training all operations personnel on practices used to avoid and minimize impacts to wildlife and other biological resources, including identification of potential wildlife conflicts and the proper response, sensitivity to eagles and other wildlife, and education on wildlife laws (already implemented during construction and to be continued under operations); taking action to reduce vehicle collision risk to animals and remove carrion from the Project; instructing Project personnel and visitors to drive at low speeds (less than 25 miles per hour) and be alert for wildlife, especially in low visibility conditions (already implemented during construction and to be continued under operations); implementing a baseline eagle mortality monitoring study following the start of Project operations, including eagle-specific carcass searches to estimate impacts to eagles at the Project and implementing the required post-permit eagle mortality monitoring; and implementing a Wildlife Incidental Reporting Program at the start of operations and continued for the life of the Project to ensure operations personnel document eagle mortalities encountered during routine maintenance work or at any time when personnel are within the Project (Appendix A). These measures are anticipated to minimize risk to golden eagles.

Monitoring is a critical component of adaptive management. If a permit is issued, eagle mortality monitoring will be conducted using a study design consistent with the ECPG (USFWS 2013) and approved by the Service. Goodnight I Wind would commit to implementing eagle mortality monitoring throughout the permit tenure. The eagle mortality monitoring associated with this alternative (e.g., evaluating all turbines during a monitoring year) allows the Service and Goodnight I Wind to estimate the total number of annual eagle fatalities and required compensatory mitigation to ensure compliance with regulatory requirements.

In coordination with the Service, Goodnight I Wind developed adaptive management measures that will be applied over the course of the 30-year permit. The adaptive management framework establishes triggers throughout the life of the Project to allow for continuous improvement regarding decisions and actions taken to avoid or minimize impacts to eagles and the implementation of specific conservation measures, as necessary (Table 2). Each trigger level results in an increasing level of effort to understand and address golden eagle mortalities should unanticipated mortalities occur. Results from mortality monitoring will be used to inform adaptive management triggers. The Service will review monitoring data with Goodnight I Wind at the first 2-year review period and at subsequent 5-year review periods to assess whether adaptive management responses are appropriate.

If a permit is issued, administrative permit reviews will occur at least every five years as required under permit regulations at 50 C.F.R. § 22.80(c)(7)(iii). Each review would include an evaluation of eagle take and update of the fatality estimate and required compensatory mitigation based on the mortality monitoring data collected at the Project, and an evaluation of the effectiveness of adaptive management, avoidance and minimization, and mortality monitoring measures that were implemented.

Together, the retrofitting of power poles, conservation measures, adaptive management plan, and 5-year reviews ensure there will be no significant impacts to golden eagle populations.

4.1.3 Alternative 1: No Action

Under the No-Action Alternative, the Service would not issue a permit, as described in Section 2.2. As with all alternatives, golden eagles are expected to be directly impacted through mortalities from collisions with turbines. Even though the Service would not issue a permit under the No-Action Alternative, the Project would likely continue to operate without Service authorization for the take of golden eagles. If take of golden eagles occurs under the No-Action Alternative, Goodnight I Wind would be in violation of the Eagle Act. Because no measures would be required to avoid or minimize risk to golden eagles under this No-Action Alternative, the risk to eagles is expected to be higher under this alternative as compared to the other alternatives. Under this alternative, direct impacts of the Project on the golden eagle population are estimated to be the take of up to 180 golden eagles over 30 years. No adaptive management measures would be triggered if the take exceeded that level. None of the impacts to golden eagles would be offset by compensatory mitigation, resulting in a net loss of eagles under this alternative.

This alternative does not meet the purpose and need for the action because, by regulation (50 C.F.R. § 13.21), when in receipt of a completed application, the Service must either issue or deny a permit to the applicant. The No-Action Alternative also does not meet the purpose and need for the action because it would result in the adverse, unmitigated effects to golden eagles described above; effects that are not compatible with the preservation of golden eagles.

Table 2. Summary of stepwise adaptive management process for bald and golden eagle take at the Goodnight I Wind Energy Project, based on a permitted take rate averaging 5.97 golden eagles/year and 5.28 bald eagles/year and totaling 180 golden eagles and 159 bald eagles (rounded) over the 30-year permit term. Triggers are based on the number of eagles found assuming a minimum average detection probability (g) of 0.35[1] for each 5-year review period (following the initial 2-year check in) and using an 80% credible interval for both golden and bald eagles. Triggers refer to and would be reached as a result of golden or bald eagle remains found, not estimates of fatalities.

Step	Trigger	Adaptive Management Measure
Step I	One or more golden or bald eagle remains found	At the beginning of the next year of compliance monitoring, implement all of the following: • Assess eagle fatalities to determine if cause or risk factors can be determined (e.g., season, weather, presence of prey/carrion, fire, or other events). • Provide assessment results and other relevant data to U.S. Fish and Wildlife Service (USFWS).
Step II	≥ 10 golden eagle or 9 bald eagle remains found in first 5 years OR ≥ 20 golden eagle or 18 bald eagle remains found in first 10 years OR ≥ 31 golden eagle or 27 bald eagle remains found in first 15 years	At the beginning of the next year of compliance monitoring, implement all of the following: • Implement Step I adaptive management response. • Complete additional studies (e.g., eagle use surveys) to better understand risk factors • Coordinate with USFWS to determine next steps.
Step III	≥ 21 golden eagle or 19 bald eagle remains found in first 10 years OR ≥ 32 golden eagle or 28 bald eagle remains found in first 15 years OR ≥ 42 golden eagle or 37 bald eagle remains found in first 20 years	At the beginning of the next year of compliance monitoring, implement all of the following: • Implement Step I and Step II adaptive management response. • Test one or more conservation measures designed to reduce the likelihood of future take (i.e., deterrent designed to reduce the number of eagles exposed to collision risk, curtailment designed to reduce the source of collision risk, or other measures designed to reduce collisions with turbines) agreed upon in consultation with the USFWS. • Effectiveness study design of any conservation measure implemented must be approved by the USFWS.
Step IV	≥ 43 golden eagle or 38 bald eagle remains found in first 20 years OR ≥ 53 golden eagle or 47 bald eagle remains found in first 25 years	Immediately upon meeting this trigger, implement the following: • If technology, biological monitors, or other conservation measures have previously been implemented at the Project, alter the programming or implementation of those effort(s) to enhance effectiveness, or implement another conservation measure agreed upon in consultation with the USFWS. The effectiveness of any measure or enhanced measure must be studied with the study design approved by the USFWS.

Step	Trigger	Adaptive Management Measure
Eagle Nests	If a new golden eagle nest is discovered within 1 mile of any Project turbine and/or if a new bald eagle nest is discovered within 0.5 miles of any Project turbine	Immediately upon meeting this trigger, implement the following: • Immediately report the discovery of the new nest to the USFWS and discuss, in consultation with the USFWS, the potential impacts of Project-related activities, if any, on the nesting eagles, and whether temporary or permanent nest take may be appropriate. • Effective immediately, do not conduct activities that are not in response to a safety emergency or essential turbine maintenance if the activities a) will occur within one mile of an in-use golden eagle nest during the nesting season (December 1 to July 31) and is within line-of-sight of the nest, b) will occur within 0.5 miles of an in-use golden eagle nest during the nesting season (December 1 to July 31), or c) will occur within 660 feet of an in-use bald eagle nest during the nesting season (October 20 to July 31). This restriction must remain in place until coordination with the USFWS occurs while minimizing the risk of nest disturbance. This may include implementation of practical measures to avoid nest disturbance, or the issuance of a nest disturbance permit if no practical measures can be implemented. • Monitor the nest status twice annually to determine if it is in-use and if it was successful. If in-use, monitor the eagle activity surrounding the nest once every 10 years (in a year when the nest is in-use) to determine if the territory or home-range associated with the nest is likely to overlap with the Project footprint. At a minimum, this would entail conducting one point-count for one full day (sunrise to sunset) every week for the duration of the breeding season (from the date the nest is determined to be in-use until July 31) or as long as the nest remains in-use during that season. The survey would be performed at a strategically placed point to determine if and how frequently one or both adults and/or fledglings (if applicable) are entering the project footprint and how often this may be occurring. In addition, if the nest produces nestlings, those nestlings must be banded with federal (U.S. Geological Survey) aluminum bands if it is safe to do so. Other method(s) could be used to satisfy this requirement, but must be approved by the USFWS prior to implementation.

[1.] If the minimum average site-wide g-value (probability that eagle remains will be detected by monitoring efforts) of 0.35 is not achieved in any 5-year review period or searcher efficiency rates, as determined through on-site bias trials, are not quantifiable for every search method used during the 5-year review period, then more rigorous fatality monitoring to achieve an average g of 0.35, and/or additional searcher efficiency trials will be required. This may be implemented through additional years of third-party monitoring and/or enhanced operations monitoring (e.g., increased search frequency, increased search area coverage) including searcher efficiency trials for each novel search method (e.g., full plot transect searches, scans, road and pad searches, incidental monitoring) employed during the 5-year review period.

4.1.4. Alternative 2: 5-year Permit

Under this alternative, the Service would issue a 5-year permit for the take of up to 30 golden eagles over the 5-year period as described in Section 2.3. The permit would need to be renewed every five years for the life of the Project to have continued take coverage. The impacts of direct take on golden eagles are the same as the Proposed Action. In addition, all adaptive management, compensatory mitigation, mortality monitoring, and avoidance and minimization measures would be implemented for a duration of five years, as appropriate, for this alternative. Together, these commitments ensure there will be no significant impacts to golden eagles only during the 5-year permit term. This alternative meets the purpose and need for the action but provides Goodnight I Wind and the Service less long-term certainty.

4.2 Bald Eagle

4.2.1 Effects Common to All Alternatives

The primary risk to bald eagles under all the alternatives is collision with rotating turbine blades. Mortality or injury is the direct adverse effect of bald eagles colliding with turbine blades. All three alternatives have the potential to result in the future take of eagles, whether permitted or not.

The Service uses a collision risk model to estimate the number of eagle fatalities at wind energy facilities (USFWS 2013). At the Project, we estimate a take rate of 5.28 bald eagles annually (estimate at the 80th quantile). This estimate was generated using updated national priors for bald eagle exposure and collision probability (USFWS 2021c). As stated above in Section 4.1.1, eagle use data were not included in the Service's fatality estimate because they did not meet data quality standards required for permit applications at 50 C.F.R. § 22.80(d)(3)(ii) of the 2016 Eagle Permit Rule or the assumptions of the collision risk model.

4.2.2 Proposed Action

Under the Proposed Action, we estimate 5.28 bald eagles may be taken annually (159 over the 30-year life of the permit). The take of bald eagles that would be authorized by the permit does not exceed the EMU take limit; therefore, compensatory mitigation for bald eagles is not required. However, compensatory mitigation required for take of golden eagles may benefit bald eagles by reducing electrocution risk associated with high-risk power poles.

A number of conservation measures would be implemented. These include training all operations personnel on practices used to avoid and minimize impacts to wildlife and other biological resources, including identification of potential wildlife conflicts and the proper response, sensitivity to eagles and other wildlife, and education on wildlife laws (already implemented during construction and to be continued under operations); taking action to reduce vehicle collision risk to animals and remove carrion from the Project; instructing Project personnel and visitors to drive at low speeds (under 25 miles per hour) and be alert for wildlife, especially in low visibility conditions (already implemented during construction and to be continued under operations); implementing a baseline eagle mortality monitoring study following the start of Project operations, including eagle-specific carcass searches to estimate impacts to eagles at the Project and implementing the required post-permit eagle mortality monitoring; and implementing

a Wildlife Incidental Reporting Program at the start of operations and continued for the life of the Project to ensure operations personnel document eagle mortalities encountered during routine maintenance work or at any time when personnel are within the Project (Appendix A). These measures are anticipated to minimize risk to bald eagles.

Monitoring is a critical component of adaptive management. If a permit is issued, eagle mortality monitoring will be conducted using a study design consistent with the ECPG (USFWS 2013) and approved by the Service. Goodnight I Wind would commit to implementing eagle mortality monitoring throughout the permit tenure. The eagle mortality monitoring associated with this alternative (e.g., evaluating all turbines during a monitoring year) allows the Service and Goodnight I Wind to estimate the total number of annual eagle fatalities to ensure compliance with regulatory requirements.

In coordination with the Service, Goodnight I Wind developed adaptive management measures that will be applied over the course of the 30-year permit. The adaptive management framework establishes triggers throughout the life of the Project to allow for continuous improvement regarding decisions and actions taken to avoid or minimize impacts to eagles and the implementation of specific conservation measures, as necessary (Table 2). Each trigger level results in increasing level of effort to understand and address bald eagle mortalities should unanticipated mortalities occur. Results from mortality monitoring will be used to inform adaptive management triggers. The Service will review monitoring data with Goodnight I Wind at the first 2-year review period and at subsequent 5-year review periods to assess whether adaptive management responses are appropriate.

If a permit is issued, administrative permit reviews will occur at least every five years as required under permit regulations at 50 C.F.R. § 22.80(c)(7)(iii). Each review would include an evaluation of eagle take and update of the fatality estimate based on the mortality monitoring data collected at the Project, and an evaluation of the effectiveness of adaptive management, avoidance and minimization, and mortality monitoring measures that were implemented.

Together, the retrofitting of power poles that would be implemented to offset golden eagle take, conservation measures, adaptive management plan, and 5-year reviews ensure there will be no significant impacts to bald eagle populations.

4.2.3 Alternative 1: No Action

Under the No-Action Alternative, the Service would not issue a permit, as described in Section 2.2. As with all alternatives, bald eagles are expected to be directly impacted through mortalities from collisions with turbines. Even though the Service would not issue a permit under the No-Action Alternative, the Project would likely continue to operate without Service authorization for the take of bald eagles. If take of bald eagles occurs under the No-Action Alternative, Goodnight I Wind would be in violation of the Eagle Act. Because no measures would be required to avoid or minimize risk to bald eagles under this No-Action Alternative, the risk to eagles is expected to be higher under this alternative as compared to the other alternatives. Under this alternative, direct impacts of the Project on the bald eagle population are estimated to be the take of up to 159 bald eagles per year over 30 years. No adaptive management measures

would be triggered if take exceeded that level. None of the benefits to bald eagles that could occur due to compensatory mitigation for golden eagles would occur under this alternative.

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

4.2.4 Alternative 2: 5-year Permit

Under this alternative, the Service would issue a 5-year permit for the take of up to 27 bald eagles over the 5-year period as described in Section 2.3. The permit would need to be renewed every five years for the life of the Project to have continued take coverage. The impacts of direct take on bald eagles are the same as the Proposed Action. In addition, all adaptive management, mortality monitoring, and avoidance and minimization measures would be implemented for a duration of five years, as appropriate, for this alternative. Together, these commitments, along with the compensatory mitigation that will be implemented to offset golden eagle take, ensure there will be no significant impacts to bald eagles only during the 5-year permit term. This alternative meets the purpose and need for the action but provides Goodnight I Wind and the Service less long-term certainty.

4.3 Migratory Birds

The Proposed Action and 5-year Permit Alternative would issue a permit for bald and golden eagles and would not affect other migratory birds; however, conservation and compensatory mitigation measures outlined in the ECP may benefit other migratory birds (Appendix A). Under the No-Action Alternative, no conservation and compensatory mitigation measures would be required.

4.4 Species Listed under the Endangered Species Act

Two species listed under the ESA and identified by an IPaC review could potentially occur within the Project area. Turbine operations, and any effects on wildlife or plant populations, will occur whether or not a permit is issued; therefore, this criterion is not being evaluated across alternatives. Under the Proposed Action and the 5-year Permit Alternative, the Service determined permit issuance would have no effect on the piping plover and red knot. No conservation or compensatory mitigation measures would be required under the No-Action Alternative.

4.5 Cultural and Socioeconomic Interests

Eagles and their feathers are sacred in many Native American traditions. Tribal notification and the opportunity to comment and consult occurred for this proposed permit as required. Selection of the Proposed Action is not expected to interfere substantially with cultural practices and ceremonies related to eagles, or to affect the ability of Tribes to use eagles, parts, or feathers consistent with Federal law. Since eagle remains that are discovered at the Project will be sent to the Service's National Eagle Repository and, if in good condition, will be distributed to permitted members of federally recognized Tribes, eagle remains are being made available for cultural practices and ceremonies. However, with a requirement under the Proposed Action for mortality monitoring that extends through the 30-year permit duration, it is likely that more eagle

remains could be discovered under the Proposed Action compared to the 5-year Permit and No-Action alternatives. The largest percentage of eagle remains may be found under the Proposed Action, ultimately increasing the number of eagles available to Native Americans over time for their use for ceremonial purposes. If the No-Action Alternative is selected, Goodnight I Wind will not be required to implement mortality monitoring. Although on-site staff may continue to report eagle mortalities found incidentally, without regular mortality monitoring it is likely that a smaller percentage of eagle remains will be found. This would reduce the number of eagles collected and made available to Native Americans for their use for ceremonial purposes. Permitting the incidental take of eagles is not expected to interfere with other priority uses or eagle permits during the permit term because the eagle preservation standard is expected to be achieved through the implementation of the ECP (Appendix A).

Power pole retrofits required to offset take of eagles under the Proposed Action and 5-year Permit Alternative may have the potential to affect historic and cultural resources if the retrofit requires pole relocation and that relocation requires associated ground-disturbing activity. However, because pole replacements are likely to be a rare component of required retrofits and the activities associated with retrofitting poles will involve the use of standard utility equipment on existing service roads and in previously disturbed habitat, no impacts to cultural resources or historic properties are expected. Nonetheless, Goodnight I Wind will conduct a cultural resources assessment for each power pole they select for retrofitting if pole replacement is necessary, and a report from these assessments at all selected poles would be provided to the Service as part of the approval process for the compensatory mitigation method. Based on that information, Goodnight I Wind would consult with the State Historic Preservation Officer and the Service would consult with interested Native American tribes as appropriate.

Under the Proposed Action, a greater number of power pole retrofits will be required to offset the take of eagles over the 30-year permit term. The 5-year Permit Alternative would require power pole retrofits to offset take but for a 5-year duration, and the No-Action Alternative would not require compensatory mitigation, resulting in a net loss to eagle populations.

4.6 Climate Change

Climate change was considered in the PEIS (USFWS 2016a, Section 3.9, pages 144–148) and is incorporated by reference here. There are no climate change impacts expected from the issuance of the permit.

4.7 Comparison of Effects of Alternatives

Table 3 compares the effects of the Proposed Action and alternatives.

4.8 Cumulative Effects

Under our Eagle Act implementing regulations, we must determine whether the direct and indirect effects of the take and required mitigation, together with the cumulative effects of other permitted take and additional factors affecting the eagle populations within the EMU and the local area population (LAP) are compatible with the preservation of bald or golden eagles (50 C.F.R. § 22.80(f)(1)). Thus, we are assessing cumulative effects here pursuant to our obligations under NEPA and the Eagle Act.

Table 3. Comparison of effects of the Proposed Action and alternatives for the Goodnight I Wind Project, Armstrong County, Texas.

Effect	**Proposed Action** **Issue 30-Year Permit**	**Alternative 1** **No-Action**	**Alternative 2** **Issue 5-Year Permit**
Estimated Annual Eagle Take	5.97 golden eagles and 5.28 bald eagles	5.97 golden eagles and 5.28 bald eagles	5.97 golden eagles and 5.28 bald eagles
Avoidance and Minimization	Train all operations personnel on practices used to avoid and minimize impacts to wildlife and other biological resources, including identification of potential wildlife conflicts and the proper response, sensitivity to eagles and other wildlife, and education on wildlife laws. Take action to reduce vehicle collision risk to animals. Instruct Project personnel and visitors to drive at low speeds (under 25 miles per hour) and be alert for wildlife, especially in low visibility conditions. Implement baseline eagle mortality monitoring study, as soon as practicable, following the start of Project operations. Implement a Wildlife Incidental Reporting Program (Appendix A, Chapter 6.2) at the start of Project operations to ensure personnel document eagle casualties encountered during routine maintenance work or at any time when personnel are at the Project.	None required	Same as Proposed Action but limited to 5-year permit term
Mortality Monitoring	Monitoring over the 30-year permit term as described in the ECP (Appendix A, Chapter 6.0)	None required	Monitoring over the 5-year permit term as described in the ECP (Appendix A, Chapter 6.0)
Compensatory Mitigation	307 to 704 high-risk pole retrofits, depending on retrofit longevity and mitigation schedule, mitigating take of 18 golden eagles for the first three years. Mitigation required over the life of the permit to be determined based on estimated past and future take to fully offset 30-year take of golden eagles at a 1.2 to 1 mitigation ratio.	None	496 to 1,140 high-risk pole retrofits, depending on retrofit longevity and mitigation schedule, mitigating take of 30 golden eagles.
Unmitigated Eagle Take	None	180 golden eagles over 30 years	None during the 5-year permit term
Adaptive Management	See Table 2	None	Same as Proposed Action but limited to 5-year permit term
Data Collected by the Service	Annual monitoring report of mortalities; reporting of injured eagles; information on the effects of specific, applied, conservation measures; report on completion of pole retrofits	None	Same as Proposed Action but for a 5-year duration
Company Liability for Eagle Take	None (if in compliance with permit conditions)	Company liable	None during the 5-year permit term (if in compliance with permit conditions)

Take of eagles has the potential to affect the larger eagle population. Accordingly, the PEIS, incorporated herein by reference, analyzed the cumulative effects of permitting take of eagles in combination with ongoing unauthorized sources of human-caused eagle mortality and other present or foreseeable future actions affecting eagle populations (USFWS 2016a). As part of the analysis, the Service determined sustainable limits to permitted take within each EMU. Take limits for golden eagles in all EMUs are set to zero; therefore, all permits for golden eagle take must incorporate offsetting compensatory mitigation after all appropriate and practicable avoidance and minimization measures are applied. The take that would be authorized by this permit will be offset by the compensatory mitigation that will be provided by Goodnight I Wind and does not exceed the EMU take limit for bald eagles; therefore, it will not significantly impact the EMU eagle populations. The avoidance and minimization measures 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 bald and golden eagles at the regional EMU population scale.

Additionally, to ensure that eagle populations at the local scale are not depleted by cumulative take in the local area, the Service analyzed in the PEIS (USFWS 2016a) the amount of take that can be authorized while still maintaining the LAP of eagles. In order to issue a permit, cumulative authorized take must not exceed 5% of a LAP, nor can cumulative unauthorized take exceed 10% of a LAP, unless the Service can demonstrate why allowing take to exceed these limits is still compatible with the preservation of eagles (USFWS 2016b, 2016c). Permit 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 permitted take and unpermitted eagle mortality, may be incompatible with the persistence of the Project LAP. We incorporated data provided by the applicant, our data on other eagle take authorized and permitted by the Service, and other reliably documented unauthorized eagle mortalities to estimate cumulative impacts to the LAP. The scale of our analysis is a 175-km (109-mile) radius for golden eagles and a 138-km (86-mile) radius for bald eagles around the Project footprint. We conducted our cumulative effects analysis as described in the Service's ECPG (Appendix F in USFWS 2013).

4.8.1 Authorized Take

The Project LAP is estimated to be approximately 218 golden eagles and 683 bald eagles (USFWS Cumulative Effects Tool, run 30 October 2023, using current bald eagle population size estimates for the Central Flyway [USFWS 2021a]). Using this estimate, the 5% annual take threshold for the Project's LAP is 11 golden eagles and 34 bald eagles.

As of October 2023, there are two projects that overlap with the Project LAP that are permitted to take golden eagles. The estimated take for the Project combined with the authorized take from overlapping projects could result in a total annual take of 6.25 golden eagles, representing 2.86% of the LAP, which is below the 5% threshold.

As of October 2023, there are no projects that overlap with the Project LAP that are permitted to take bald eagles. The estimated take for the Project combined with the authorized take from overlapping projects could result in a total annual take of 5.28 bald eagles, representing 0.77% of the LAP, which is below the 5% threshold.

4.8.2 Unauthorized Take

An important caveat to consider when using the Service's eagle mortality database is that it primarily includes records of eagle mortalities that are incidentally discovered and reported. Therefore, they represent the minimum number of unpermitted eagle mortalities. There are likely more mortalities that were not discovered and/or reported. Additionally, some industries have self-reported incidental eagle mortalities at a higher rate than others, and some types of eagle mortalities (e.g., from vehicle collision) lend themselves to incidental discovery and reporting while mortalities that typically occur in remote locations are unlikely to be discovered. Thus, some causes of mortality (e.g., poisoning) may be under-represented in the Service's database. Hence, there are many types of bias associated with these records since they are not from a systematic mortality survey effort. However, the information presented below is the best information available to us regarding eagle mortalities within and around the LAP.

Based on records in the Service's eagle mortality database, 27 unauthorized anthropogenic golden eagle mortalities and 2 unauthorized anthropogenic bald eagle mortalities were reported in the area from 2014–2023, for an average of 2.7 and 0.2 per year, respectively.

Known anthropogenic causes of mortality for golden eagles in this time period include 7 (25.9%) due to electrocution, 1 (3.7%) due to being shot, and 10 (37.0%) due to collision with wind turbines. On an annual basis, 2.7 unpermitted anthropogenic golden eagle mortalities near the Project are approximately 1.2% of the total estimated golden eagle population in the LAP associated with the Project. This amount of unauthorized take is below the 10% unauthorized take threshold for the Project's LAP.

Known anthropogenic causes of mortality for bald eagles in this time period includes one (50%) due to collision with a wind turbine and one (50%) due to an unknown cause. On an annual basis, 0.2 unpermitted anthropogenic bald eagle mortalities near the Project are approximately 0.01% of the total estimated bald eagle population in the LAP associated with the Project. This amount of unauthorized take is below the 10% unauthorized take threshold for the Project's LAP.

4.8.3 Reasonably Foreseeable Future Potential Impacts

We examined the general impacts within a distance of two times the Project golden eagle LAP to include information from all LAPs that overlap the Project. Within 218 miles (351 km) of the Project (i.e., a distance that would capture overlapping LAPs), there are currently 289 operational wind energy facilities (Hoen et al. 2023). The potential impacts from the other operational wind energy facilities are unknown because their fatality and monitoring data are not publicly available.

In terms of general human population growth, Texas' population grew 21.3% from 2010 to 2023 (World Population Review 2023). This rate of growth is trending upwards at a faster pace than the rest of the nation. The major industries of Armstrong County include healthcare and social assistance; construction; and agriculture, forestry, fishing, and hunting (Data USA 2023). Long-term plans for the Project area include continued agricultural use and wind energy.

4.8.4 Conclusion

Authorizing take of bald and golden eagles at the Project would not lead to a cumulative authorized take exceeding 5% of the LAP for bald or golden eagles so the take authorized by this permit, if issued, will not significantly impact local area eagle populations. In our review of known unauthorized bald or golden eagle take within the LAP, we did not identify evidence to conclude local sources of eagle take differ from those discussed in the PEIS (USFWS 2016a, Section 4.1, pages 150–165). Further, as described in this EA, the golden eagle take authorized by this permit, if issued, would be offset by the compensatory mitigation that will be provided by Goodnight I Wind, so would not significantly impact the EMU eagle population. Bald eagle take would not exceed the EMU take limit so would not significantly impact the EMU eagle population. The avoidance and minimization measures and additional adaptive management measures that would be required under the permit ensure that the permit is compatible with the preservation of bald and golden eagles at the regional EMU population scale.

5.0 Mitigation and Monitoring

The Proposed Action incorporates measures to minimize and avoid take to the maximum degree practicable, as required by regulation (50 C.F.R. § 22.80). To ensure that regional eagle populations are maintained consistent with the preservation standard, regulations require that any take that cannot practicably be avoided and is above EMU take limits must be offset by compensatory mitigation (50 C.F.R. § 22.80). Authorized take for bald eagles remains below the EMU take thresholds and no compensatory mitigation is needed to meet the Eagle Act 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 1.0 ratio to ensure regional eagle populations are maintained consistent with the preservation standard (50 C.F.R. § 22.80, USFWS 2016b). As golden eagle take limits for all EMUs are zero (USFWS 2016b), compensatory mitigation is necessary to offset any authorized take of golden eagles. The compensatory mitigation of power pole retrofits is described above in Sections 2.1 and 4.1.2.

If a permit is issued, Goodnight I Wind will conduct eagle-focused mortality monitoring using a study design consistent with the ECPG (USFWS 2013) and current Service guidelines. The study design will be approved by the Service. Goodnight I Wind will monitor eagle mortalities using independent, third-party monitors that report directly to the Service. After the first two years, and every subsequent five years, the Service will review the eagle mortality data and other pertinent information, as well as information provided by Goodnight I Wind and independent third-party monitors, to assess whether Goodnight I 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 to ensure eagle take has not exceeded the amount authorized within that time frame.

The Service will update fatality estimates, authorized take levels, and compensatory mitigation, as needed, for future years of the permit.

If authorized take levels for the period of review are exceeded beyond take levels addressed in the adaptive management conditions of the permit, based on approved protocols for monitoring and estimating total take, the Service may require additional actions. These actions may include, but are 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.

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Appendices

All appendices for this Project are available online at:
https://www.fws.gov/library/collections/nepa-documents-eagle-permits-requested-southwest

Appendix A Eagle Conservation Plan for the Goodnight I Wind Project
Appendix B Tribal Coordination