



U.S. Fish and Wildlife Service

# **Final Environmental Assessment**

## **For the Issuance of an Eagle Take Permit for Pioneer Wind Park**

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**Wyoming**

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## Abbreviations

ACP	advanced conservation practices
APLIC	Avian Power Line Interaction Committee
Applicant	Pioneer Wind Park I, LLC
BA	Biological Assessment
BBCS	Bird and Bat Conservation Strategy
BCC	Birds of Conservation Concern
BCR	Bird Conservation Region
C.F.R.	<i>Code of Federal Regulations</i>
EA	Environmental Assessment
EACP	experimental advanced conservation practices
Eagle Act	Bald and Golden Eagle Protection Act
ECP	Eagle Conservation Plan
ECP Guidance	Eagle Conservation Plan Guidance
EMU	Eagle Management Unit
ESA	Endangered Species Act of 1973, as amended
ETP	eagle take permit
FR	<i>Federal Register</i>
GE	General Electric
ISC	Industrial Siting Commission
LAP	local area population
MBTA	Migratory Bird Treaty Act
MET	meteorological towers
MW	Megawatt(s)
NEPA	National Environmental Policy Act of 1969
NHPA	National Historic Preservation Act
NRHP	National Register of Historic Places
PEIS	<i>Programmatic Environmental Impact Statement for the Eagle Rule Revision</i>
Project	Pioneer Wind Park
RSZ	rotor swept zone
Service	United States Fish and Wildlife Service
SWCA	SWCA Environmental Consultants
U.S.C.	United States Code
WGFD	Wyoming Game and Fish Department
WTG	wind turbine generator(s)
WWI	Wasatch Wind International, LLC

## 1. Introduction

This Environmental Assessment (EA) analyzes the environmental consequences of issuing a permit authorizing the non-purposeful take of bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*) at an existing and currently operating wind farm in central Wyoming. The project, the Pioneer Wind Park (Project), is located in Converse County, Wyoming near the town of Glenrock. This EA is being prepared pursuant to the National Environmental Policy Act (NEPA) (42 United States Code [U.S.C.] §§ 4321–4370), its implementing regulations (40 Code of Federal Regulations [C.F.R.] Part 1500), Department of the Interior National Environmental Policy Act Procedures (43 C.F.R. Part 46) and United States Fish and Wildlife Service (Service) requirements (516 DM 1-4, 8). Issuance of an eagle take permit (ETP) by the Service for non-purposeful take of eagles, if incidental to otherwise lawful activities, is authorized under the Bald and Golden Eagle Protection Act (Eagle Act) (16 U.S.C. §§ 668–668d) and its implementing regulations (50 C.F.R. § 22.26). Issuance of an ETP 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 would require preparation of an Environmental Impact Statement (EIS). If there are no significant impacts, the agency’s conclusion is documented in a Finding of No Significant Impact (FONSI). This EA evaluates the effects of the proposed action and a no action alternative for our decision whether to issue an ETP. The Eagle Act authorizes the Service to issue an ETP only when the take is compatible with the preservation standard of “maintaining stable or increasing breeding populations of bald and golden eagles” 74 FR 46836 (Sep. 11, 2009).

The applicant, Pioneer Wind Park I, LLC (Applicant), is requesting Eagle Act take coverage for operational activities associated with the 80 megawatt (MW) wind farm located in Converse County, Wyoming. The Project consists of 46 wind turbines and associated infrastructure (roads, transmission lines, etc.) and has been operational since October 27, 2016; the expected life of the project is 30 years. Pioneer Wind Park I, LLC, is a wholly owned subsidiary of Sustainable Power Group (sPower), which acquired the Project from Wasatch Wind Intermountain, LLC (WWI) in August 2015. Prior to this acquisition, WWI submitted a permit application and Eagle Conservation Plan (ECP) to the Service on April 22, 2015, requesting a 30-year permit. The Service reviewed the application and requested the Applicant provide additional information. On April 13, 2015, a district court vacated the Service’s decision authorizing 30-year permit terms. *Shearwater v. Ashe*, No. CV02830-LHK, 2015 WL 4747881 (N. D. Cal. 2015). As a result of the change of ownership and the rescission of the 30-year permit rule, the Applicant submitted a revised application on March 8, 2016, requesting a 5-year permit for the Project. The Applicant has timely elected to continue processing the application under the 2009

regulations instead of under the eagle rule revision that took effect on January 17, 2017. This election is specifically authorized by the Service’s regulations at 50 C.F.R. 22.26(i) (see also 81 Fed. Reg. 91494, 91537 (Dec. 16, 2016)). As such, this EA evaluates whether issuance of an ETP under the 2009 rule will have significant impacts on the existing human environment. “Significance” under NEPA is defined by regulation at 40 C.F.R 1508.27, and requires short- and long-term consideration of both the context of a proposal and its intensity. Pursuant to the “high quality” information standards of the NEPA regulations (40 C.F.R. 1500.1(b), this EA also incorporates by reference the best available science, specifically updated population estimates and other information pertaining to eagles documented in the *Bald and Golden Eagles: Population demographics and estimation of sustainable take in the United States, 2016 update* (USFWS 2016b) and the *Programmatic Environmental Impact Statement for the Eagle Rule Revision* (2016 PEIS, USFWS 2016a). Project-specific information not considered in the 2016 PEIS is considered in this EA as described below. Based on this project-specific analysis and application of the criteria described below, we have determined that an EA is the appropriate level of review.

This EA was made available for a 30-day public comment period beginning on September 28, 2018 and ending on October 29, 2018. Comments comprised general statements of support or opposition to the Project, comments concerning information that was already included in the document, and requests for clarification (see Appendix C for responses to public comments). After evaluating public comments, minor clarifying language was incorporated into this EA. Those clarifications addressed post-construction monitoring, the adaptive management process, and the local area population (LAP) and cumulative effects analysis process. As part of our permit process, designed to ensure that the take of bald eagles and golden eagles is still within established take thresholds in the LAP, the Service updated the LAP analysis and associated cumulative effects analysis to accurately account for any eagle permits that have been issued between the draft EA and this final EA. After public comments were evaluated and the LAP and cumulative effects were updated, the Service has determined that there is no new significant information and the Service has prepared a FONSI in accordance with NEPA regulations (40 C.F.R § 1508.13).

### 1.1 Purpose and Need

The purpose of the federal action is to review the permit application package, including the ECP (incorporated herein as Appendix A), which is the foundation of the permit application for the Project. Upon completion of Service’s review of the application package and the associated NEPA process, the USFWS also is obligated to decide whether or not to issue the ETP [under the Eagle Act and the permit issuance criteria at 50 C.F.R. §22.26(f) (Sep. 11, 2009)] to the Applicant for non-purposeful take of eagles associated with the otherwise lawful operation of the

Project and, if so, under what conditions. Another purpose is to evaluate, consistent with 50 CFR §22.26(c)(1), the reasonableness of the avoidance, minimization, and mitigation measures in the ECP to support timely ETP issuance. To issue an ETP, the USFWS must determine that the take authorized under the Eagle Act is consistent with the preservation standard.

The need for this action is a decision on an ETP application from the Pioneer Wind Park I, LLC. The decision must comply with all applicable regulatory requirements, and be compatible with the preservation of eagles.

### 1.3 Permit Issuance Criteria

As described above, this 5-year permit is being processed and evaluated under the Eagle Act's permitting regulations set forth in the 2009 rule (50 C.F.R § 22.26(f), Sep. 11, 2009). Under the regulations, the Service may not issue a permit unless the following issuance criteria are met:

1. The direct and indirect effects of the take and required mitigation, together with the cumulative effects of other permitted take and additional factors affecting eagle populations, are compatible with the preservation of bald eagles and golden eagles.
2. The taking is necessary to protect a legitimate interest in a particular locality.
3. The taking is associated with, but not the purpose of, the activity.
4. The taking cannot practicably be avoided; or for programmatic authorizations, the take is unavoidable.
5. The applicant has avoided and minimized impacts to eagles to the maximum extent practicable, and for programmatic authorizations, the taking will occur despite application of advanced conservation practices<sup>1</sup>.
6. Issuance of the permit will not preclude issuance of another permit necessary to protect an interest of higher priority according to the following prioritization order:
  - a. safety emergencies,
  - b. Native American religious use for traditional ceremonies that require eagles be taken from the wild,

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<sup>1</sup> We incorporated adaptive management as part of our consideration of the ETP for the Project because of the challenges and uncertainties associated with avoiding, minimizing, and mitigating the take of eagles. Therefore, we have proposed an adaptive management framework by which avoidance and minimization measures and Best Management Practices, including what the 2009 regulations termed "advanced conservation practices" (ACPs) can be applied to this Project to address long-term effects. The 2009 regulations defined ACPs as "scientifically supportable measures that are approved by the USFWS and represent the best available techniques to reduce eagle disturbance and ongoing mortalities to a level where remaining take is unavoidable" (50 C.F.R. 22.3). Because we have not approved any ACPs for wind energy projects, ACPs issued pursuant to the 2009 regulations are implemented at wind energy facilities on an experimental basis and are referred to as experimental ACPs.

- c. renewal of programmatic take permits
- d. non-emergency activities necessary to ensure public health and safety, and
- e. other interests.

The Service addresses these criteria in a decision record (i.e., FONSI) for the permit to be issued to the Applicant.

#### 1.4 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 668–668e) and its regulations (50 C.F.R Part 22). The PEIS (Service 2016) has a full list of authorities that apply to this action (PEIS Section 1.6, pages 7–12), which are incorporated herein by reference.

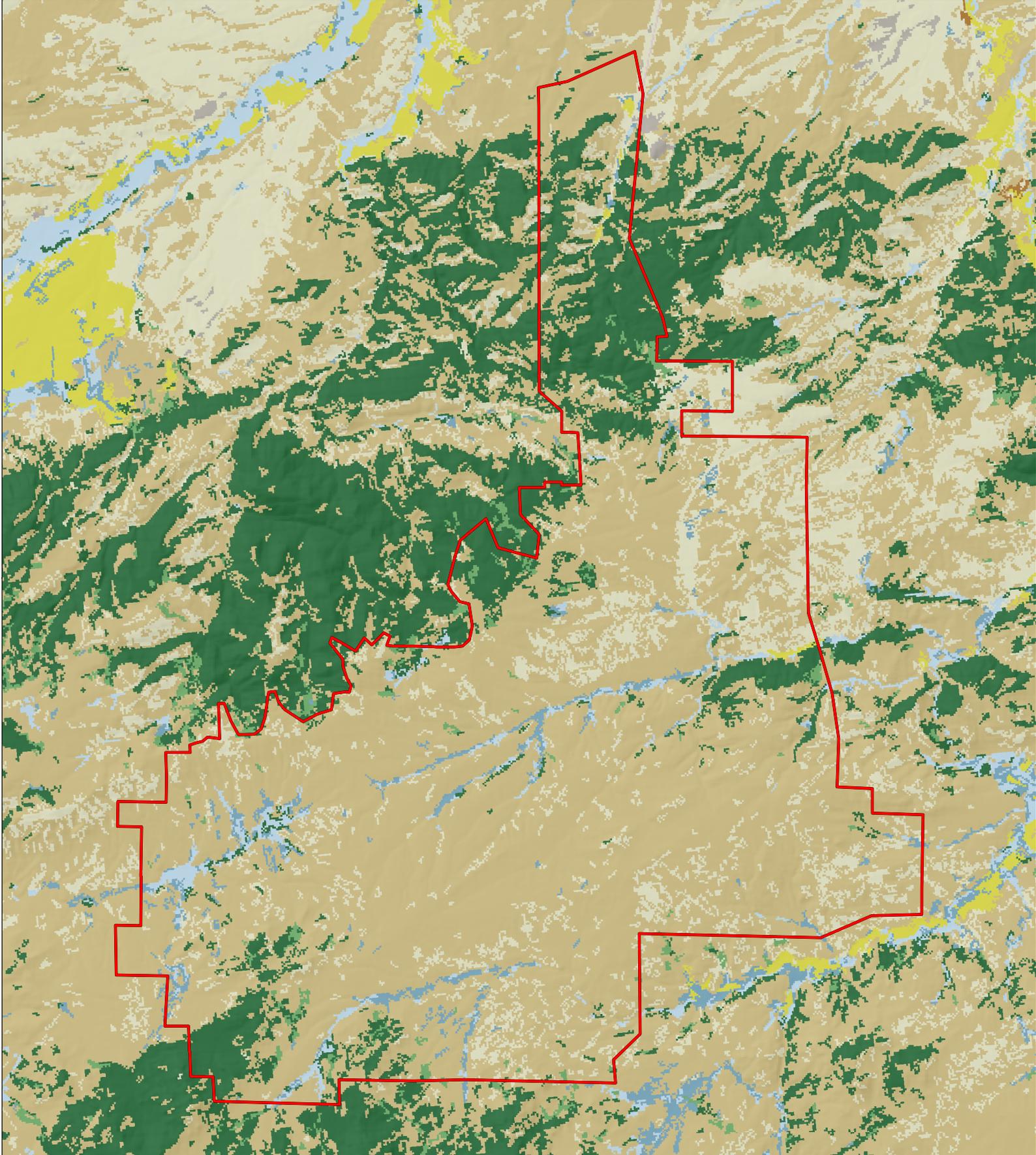
#### 1.5 Background

The Applicant is the developer and operator of the Project located in Converse County, Wyoming. The Final Biological Pre-Construction Survey Report for the Pioneer Wind Park Wildlife Study Area (Appendix C of the ECP, Pages 1-6) provides an overview of the environmental setting for the Project. In summary, the Project is located in the foothills of the Laramie Mountains, with elevations ranging from approximately 5,500 to 7,600 feet. The topography ranges from gently rolling slopes to abrupt canyons and ridges. The Project is typical of Foothill Shrublands and Powder River Basin ecoregions (Chapman et al. 2004), dominated by Foothill Shrubland, sagebrush steppe, and mixed-grass prairies (Figure 1). The Project is located on approximately 25,268 acres and is located on private land and Wyoming State School Trust Lands (of which are approximately 3,107 acres) near the town of Glenrock, Wyoming. There are 46 General Electric (GE) 1.85 megawatt (MW) wind turbine generators (WTGs), all with a tower height of 80 meters and a blade radius of 43.5 meters, with a total output of 80 MW. In addition to the WTGs, other Project facilities include: 10.5 miles of access roads, a project substation, underground power collection lines linking the WTG to the project substation, approximately 5 miles of 230-kilovolt transmission line connecting the Project to the regional electrical grid, operation and maintenance facilities, one permanent meteorological tower (MET), three radar towers, and one communication tower (Figure 2). Construction of the Project commenced in February 2016 and operations began on October 27, 2016. Post-construction monitoring for eagles and other raptors began on November 1, 2016 and consist of avian fatality monitoring, avian point count surveys, long-distance raptor surveys, raptor nest

searches, and winter eagle roost surveys (SWCA 2017); results from these surveys are summarized in the affected environment section below.

As a commitment to the protection and conservation of bald and golden eagles, the Applicant has developed an ECP for the Project (Appendix A, incorporated herein by reference). This Project-specific ECP was developed in communication with the USFWS and follows the *Eagle Conservation Plan Guidance Module 1: Land-based Wind Energy, Version 2* (ECP Guidance, USFWS 2013a) for successful development and compliance with the Eagle Act. The ECP documents how the Project's siting, design, and planned operation will accomplish avoidance and minimization of bald and golden eagle take when the take is associated with, but not the purpose of, an otherwise lawful activity, and cannot practicably be avoided. In the case where bald eagle or golden eagle take is unavoidable, the ECP outlines the Applicant's approach to apply experimental advanced conservation practices to reduce such unavoidable take. The ECP further details the implementation of compensatory mitigation, necessary to mitigate the potential take of golden eagles at this Project site.

The Applicant has prepared a Bird and Bat Conservation Strategy (BBCS) for the Project (see Appendix A of the ECP). The purpose of this voluntary, project-specific BBCS is to document and delineate a program designed to reduce the risk to birds protected under the Migratory Bird Treaty Act (MBTA) and bats as a result of construction and operations of a specific wind energy facility. The overall goal of the BBCS is to reduce bat and avian mortality to the extent practicable. The BBCS is separate and distinct from the ECP and ETP. It should be noted that the Service provides technical advice to those preparing a BBCS, but does not approve the plans. The MBTA does not authorize permits for the incidental take of migratory birds.



Pioneer Wind Park,  
Converse County, WY

Project Boundary

**LULC**

Barren Land

Cultivated Crops

Deciduous Forest

Developed, High Intensity

Developed, Low Intensity

Developed, Medium Intensity

Developed, Open Space

Emergent Wetlands

Evergreen Forest

Hay/Pasture

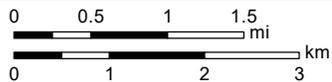
Herbaceous

Mixed Forest

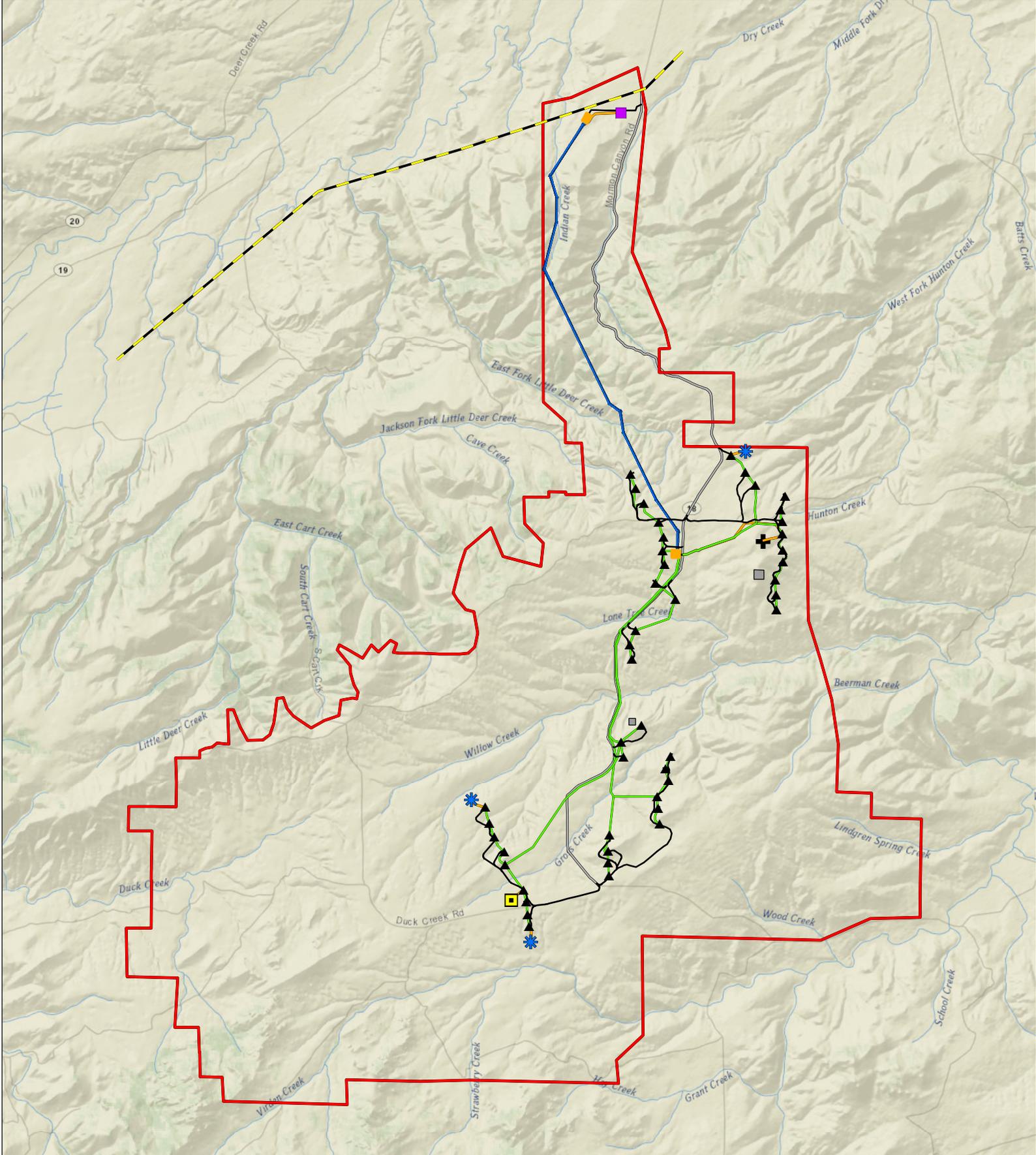
Open Water

Shrub/Scrub

Woody Wetlands



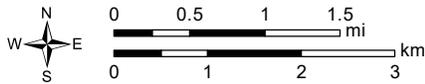
Data Source: NLCD 2014; World Street Map  
Coordinate System: NAD 1983 UTM Zone 13N  
Date: 9/28/2016



**Pioneer Wind Park,  
Converse County, WY**



- |                  |                      |                         |               |
|------------------|----------------------|-------------------------|---------------|
| Project Boundary | Rock Quarries        | Collection Line         | Communication |
| Turbine          | Project Roads        | Underground Power/Fiber | Met Tower     |
| O&M Building     | Existing T-line      | Morman Canyon Road      | Radar         |
| Substation       | Interconnection Line |                         |               |



Data Source: NatGeo; World Street Map  
Coordinate System: NAD 1983 UTM Zone 13N  
Date: 9/30/2016

## 1.6 Scoping, Consultation and Coordination

This EA incorporates by reference the scoping performed for the PEIS (Chapter 6, page 177). In addition, the applicant worked closely with the Service to avoid, minimize, and mitigate adverse effects on eagles and to develop their ECP in support of its ETP application.

The Applicant has communicated with the Service and the Wyoming Game and Fish Department (WGFD) about the Project since 2010. A chronology of agency communication, which included phone calls, emails, and in-person meetings, is provided in Appendix B of the Applicant's ECP (Appendix A of this document). Baseline data collection methods were developed with input from the Service and WGFD in 2010.

The Wyoming Industrial Siting Council (ISC) issued a permit to the Applicant to construct and operate the Project in July 2011. As originally permitted by the ISC, the Project was part of a larger proposal which included the Pioneer Wind Park I consisting of 31 GE 1.6-MW wind turbine generators (WTGs) for a total nameplate capacity of 49.6 MW and Pioneer Wind Park II consisting of 31 GE 1.6 MW WTGs for a total nameplate capacity of 49.6 MW. Combined, the original proposal included 62 WTGs with a total nameplate capacity of approximately 99 MW.

The original Project layout included turbines within approximately one mile of eagle nests and nearby historic properties. The layout was revised to avoid historic properties and move turbines a minimum of 1.9 miles from eagle nests and higher risk areas for all raptors. The Project's generation-tie line was originally located in an area with multiple observations of raptors and in proximity to raptor nests. In an effort to reduce potential impacts to eagles and other raptors, the generation-tie line was relocated to an area of minimal suitable habitat and the final turbine layout was developed to avoid and minimize impacts to eagles and other raptor species. The Applicant removed the nine proposed turbine locations (those locations considered to pose the highest potential risk to eagles) from the layout in response to Service comments. The remainder of the turbines were removed for commercially-related reasons. Overall, the Project was reduced from 62 WTGs with a nameplate capacity of approximately 99 MW to 46 WTGs with a nameplate capacity of 80 MW. Subsequently, the ISC amended the permit on September 23, 2015, consolidating Pioneer Wind Park I and Pioneer Wind Park II into a single 46 WTG project, the Pioneer Wind Park. The Service is not aware of any other wind facilities proposed at this site or within its general proximity.

### 1.6.1 Tribal Coordination

NEPA requires an analysis of project impacts to cultural resources. The PEIS identified tribal coordination as an important issue for subsequent analysis, given the cultural importance of

eagles to the tribes. In accordance with Executive Order 13175, Consultation and Coordination with Tribal Governments (65 FR 67249, Nov. 9, 2000), the NHPA Section 106 (36 C.F.R. Part 800) and the Service's Native American Policy, we consult with Native American tribal governments whenever we take action under the authority of the Eagle Act that may affect tribal lands, resources, or the ability to self-govern. The purpose of Executive Order 13175 is to establish regular and meaningful consultation and collaboration with tribal officials in the development of federal policies that have tribal implications. It also specifies that it is the responsibility of agencies to strengthen the United States government-to-government relationships with Native American tribes, and to reduce the imposition of unfunded mandates upon Native American tribes. Our tribal consultations serve to notify the Tribes of the requested issuance of an ETP. Consultation provides tribes with the opportunity to express tribal views on the unique, traditional religious and cultural relationship of eagles to Native American communities.

The Service currently manages both bald and golden eagles at the Eagle Management Unit (EMU), which is defined, with some modifications, by the four administrative flyways. This Project occurs in the Central Flyway. At the time the application was received, the Service managed golden eagle populations at the Bird Conservation Region (BCR) level for golden eagles, and multi-state level for bald eagles. We contacted seventy-four (74) sovereign nations through formal letters to offer the opportunity for formal consultation concerning this potential federal action. Sovereign nations located in the Northern Rockies, Southern Rockies/Colorado Plateau, Badlands and Prairies, and Shortgrass Prairie BCRs received these letters. The first letter informed them of the anticipated receipt of the ETP application and preparation of this EA, the second letter announced the public availability of the EA and the 30-day public comment period, and the third letter will announce the final EA and FONSI. To date, three tribes have responded, each requesting additional information and the Service responded accordingly. On April 16, 2015 the Service consulted with the Santa Clara Pueblo about the Project. Discussion with the tribe included an overview of eagle take permitting rules, the project overview, eagle surveys, eagle fatality monitoring, conservation measures, mitigation and adaptive management. On November 15, 2018, the Service responded to a letter received from the Southern Ute Tribe, which was requesting more information about impacts from wind farms to eagles. The Service has not received additional correspondence from the Southern Ute Tribe. The Northern Cheyenne Tribe responded during the public comment period, requesting more information about migratory eagles. On December 10, 2018 the Service responded to this request via a telephone conversation with Jason Whiteman, of the Northern Cheyenne Tribe. Coordination with tribal governments is an ongoing process. If the Service issues a 5-year ETP to the Applicant and the Applicant chooses to apply for a new permit when the ETP expires, tribes will again be notified and offered the opportunity for consultation.

## 2. Proposed Action and Alternatives

### 2.1 Proposed Action

We propose to issue a 5-year permit to take up to one bald eagle and up to five golden eagles with associated conditions, as allowed by regulation. The ETP would require the implementation of best management practices (BMPs), conservation actions, and experimental advanced conservation practices that the Applicant has agreed to in the ECP. These include Avoidance and Minimization, Compensatory Mitigation, Post Construction Monitoring, and Adaptive Management. As specific details are provided in the ECP (Appendix A), this EA summarizes each practice and includes additional specificity, if necessary.

**Avoidance and Minimization Measures** (ECP Section 4) - The Applicant has completed or committed to complete the following:

- Pre-construction siting and project layout – The Project was reduced from 62 to 46 WTGs to avoid and minimize impacts to eagles and other raptor species. The Applicant, working with the Service, considered the following factors when evaluating relative risk of the proposed turbine locations: 1) eagle/raptor use surveys that indicated preferred use areas; 2) the location of nest sites; 3) prey base features; 4) topographic uplift features; and 5) areas where avian use point counts revealed relatively more abundance and diversity of migratory birds.
- Additional Pre-Construction BMPs and Conservation Measures were implemented at the Project site by the Applicant (ECP Section 4.1.2).

**Compensatory Mitigation** (ECP Section 6) – The Applicant has agreed to develop a Compensatory Mitigation Plan in consultation with the Service to offset predicted golden eagle take as determined through eagle fatality modeling for the Project. Compensatory mitigation must be additional or additive. It must improve upon the baseline conditions of the impacted eagle species in a manner that is demonstrably new and would not have occurred without the compensatory mitigation measure. Eagles are vulnerable to electrocution when perching or landing on a power pole when they simultaneously contact two different electrified phase conductors or an electrified conductor and a path to ground. Compensatory mitigation will be completed for the 5-year permit period by retrofitting (e.g., installing eagle-safe perches, installing perching deterrents, insulating electrified phases) approximately 65 high-risk power poles to reduce eagle mortality. The number of retrofits was derived using our Resource Equivalency Analysis (Service 2013a), based on the estimated annual golden eagle mortalities. Retrofitting will be completed by working directly with utility companies to compensate them for retrofitting high-risk poles. The Applicant’s commitment to retrofit power poles to meet the

Avian Power Line Interaction Committee (APLIC) recommendations would minimize the risk of bird electrocution and collision (APLIC 2012) on the retrofitted power poles.

If the observed/estimated take is less than mitigated take at the end of the five-year permit period, the excess take will be credited to the Project if the operators apply for and receive an ETP for future Project operations. If the observed/estimated take is higher, increased mitigation will be required during the existing permit tenure and in any future permit(s). In either case, compensatory mitigation for any potential subsequent permit would be re-evaluated based on actual take levels observed/estimated at the Project as compared with permitted levels of take. The re-evaluation will be subject to current regulations in place at the time of the renewal.

**Post-construction Monitoring** (ECP Section 7) – The Applicant has voluntarily conducted post-construction monitoring activities, which began November 1, 2016. In addition to this monitoring, permit conditions will specify additional post-construction monitoring, which will be required for all years of the permit.

- **Fatality Monitoring** -The Project will be subject to a minimum of two years of intensive post-construction monitoring for eagles, other birds, and bats. The Applicant will continue monitoring 100% of the turbines every other week throughout the year. Search plots (160m x 160m) were established at each turbine and transects were spaced either 10-, 15-, or 200m apart depending on the vegetation conditions present in the search plot. This monitoring also includes searcher efficiency trials (to estimate rates of observer bias) and carcass persistence trials (to better understand carcass persistence on the landscape). These trials are designed to address uncertainty and to develop robust estimates of mortality at the Project site. Post-construction monitoring will be required for all years of the permit.
- **Avian and Bat Surveys** – The Applicant has prepared and has agreed to implement the BBCS for the Project (Appendix A of the ECP).
- **Golden and Bald Eagle Nest Surveys** – Eagle nest surveys will be conducted by qualified biologists with appropriate experience. Eagle nest monitoring follows recommendations found in the ECP Guidelines (USFWS 2013).
- **Reporting** – Annual monitoring reports will be prepared within three months of completing each year of post-construction monitoring required by the permit, with each report including all raw monitoring data upon which the reports are based and cumulative results of post-construction monitoring performed to date. All monitoring reports shall document annual fatalities for eagles, other birds, and bats on a per-turbine basis. Additionally, any bald or golden eagle found dead or injured must be reported to the Migratory Bird Permit Office within 24 hours of

discovery. Eagle remains will be handled and processed according to current Service procedures.

- **Wildlife Incident Report and Handling System** - In addition to the post-construction fatality monitoring, the Applicant is implementing a Wildlife Incident Reporting System (WIRS), and it will remain active for the life of the Project. The purpose of the WIRS is to standardize the actions taken by site personnel in response to wildlife incidents encountered at the Project and to fulfill the obligations for reporting wildlife incidents. The WIRS is utilized by site operations and maintenance personnel who encounter dead or injured birds or bats, incidentally, while conducting general wind facility or transmission line maintenance activities.

**Adaptive Management** (ECP Section 8) – In consultation with the Service, the Applicant will discuss the need for, and the implementation of, mitigation or conservation measures if it is determined that the rate of eagle take is approaching a higher than anticipated level of take based on the eagle model predictions and post-construction monitoring data and reports. The stepwise process identified in the ECP will be used to guide the implementation of additional conservation measures as needed, and applies before actual take exceeds the permitted take levels (ECP Table 13).

## 2.2 No Action Alternative

Under the no-action alternative, we would take no further action on Pioneer Wind Park I, LLC'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 regulations require 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 an eagle take permit being issued. Thus, for purposes of analyzing the no action alternative, we assume that the applicant will implement all measures required by other agencies and jurisdictions to operate the Project, but the conservation measures proposed in the ETP application package (that have not already been implemented by the Applicant) would not be required. The project proponent may choose to implement some, none, or all of those conservation and adaptive management measures. Under this alternative, we assume that the

applicant will take some reasonable steps to avoid taking eagles, but the Applicant would be liable for violating the Eagle Act should take of an eagle occur<sup>2</sup>.

## 2.3 Other Alternatives Considered but Not Evaluated in this Environmental Assessment

### 2.3.1 Alternative 2: 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 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. 22.26.

Our 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 (e.g., a conviction, or entry of a plea of guilty or nolo contendere, for a felony violation of the Lacey Act, the Migratory Bird Treaty Act, or the Bald and Golden Eagle Protection Act disqualifies any such person from receiving or exercising the privileges of a permit). Pioneer Wind Park I, LLC does not meet any of the disqualifying factors or circumstances denoted in 50 C.F.R. 13.21. We next considered whether the applicant meets all issuance criteria for the type of permit being issued. For ETPs, those issuance criteria are found in § 22.26(f) in the 2009 regulations (74 FR 46878, Sept. 11, 2009). Pioneer Wind Park I's application meets all the regulatory issuance criteria and required determinations (50 C.F.R. 22.26) for eagle take permits.

When an applicant for an ETP is not disqualified under 50 C.F.R. 13.21 and meets all the issuance criteria of 50 C.F.R. 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. The Applicant conducted pre-construction surveys while working with the Service to develop the ECP. The Applicant also conducted post-construction surveys for a variety of biological resources, as required by WGFD (SWCA 2017), documenting the first year of surveys performed after the Project became

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<sup>2</sup> On August 15, 2018, a dead golden eagle was found near a wind turbine during a scheduled survey, described in more detail in Chapter 3. This has no bearing on the alternatives analysis required under NEPA.

operational. While post-construction fatality monitoring surveys, use surveys, and nest surveys for bald and golden eagles is considered voluntary until required by a permit condition, the Applicant coordinated with the Service to develop survey methodologies as described in the ECP. The SWCA 2017 report was not prepared expressly for the Service, however, we have incorporated relevant survey results in the appropriate sections below.

### 3.1 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 (Service 2016, pages 44-60) and is incorporated herein by reference. The rest of this section focuses on bald eagle occurrences in the EMU in which the Project occurs (Central Flyway), the LAP for bald eagles (within 86 miles of the Project), and the Project Area (the actual footprint of the Project and an associated 3-mile buffer for pre-construction surveys and an associated 10-mile buffer for post-construction surveys). The estimated median population size of bald eagles in the Central Flyway EMU is 3,209 (Service 2016b). Based on the Service's process to calculate the LAP, the estimated population size in the LAP is 54 bald eagles.

#### 3.1.1 Pre-construction Surveys for Bald Eagles

During the two years of baseline surveys conducted in the Project Area in 2010 and 2011, a total of 1,787 observation hours were logged during eagle and other raptor surveys. These surveys resulted in 55 bald eagle observations (62 individuals) plus another eight observations (nine individuals) of unidentified eagles. There were 10 bald eagles recorded within 800 meters of eagle and other raptor survey stations and one unidentified eagle observed within 800 meters of eagle and other raptor survey stations. Flight paths were mapped and digitized for all eagle observations recorded during raptor point count surveys (Appendix C of the ECP). Bald eagles accounted for 2% of all raptor detections during these surveys. Of the 62 bald eagle sightings, 37 were classified as adults, 13 as immature, 10 were unknown, and two were sub-adults (ECP Appendix C). In addition to these eagle observations there were another nine unidentified eagles recorded over the two years of baseline surveys (ECP Appendix C). In the Project Area, bald eagle observations peaked in mid to late October of both 2010 and 2011 (ECP Appendix C).

In April and May of 2010 and 2011, ground-based and aerial raptor nest surveys were conducted following survey methods detailed in the ECP (Appendix A). During these surveys the Project and an associated 1-mile buffer around it were surveyed for nests of all raptor species, and the Project and an associated 3-mile buffer around it were surveyed for eagle nests. At the time of the survey, no eagle nests were located within the Project footprint. However, one active bald eagle nest was identified in March of 2011 (Figure 5) within the 3-mile buffer surrounding the

Project during 2011 eagle roost surveys; the productivity of the nest was undetermined (ECP Appendix C). The nest is located approximately 5.98 miles from the nearest turbine location. The 2010 and 2011 eagle nest surveys were performed under methods coordinated with the USFWS, although they preceded the USFWS recommendations in the ECPG (USFWS 2013). As discussed in the ECP, the methods used for conducting raptor nest searches in 2010 and 2011 in the vicinity of the Project were limited in their ability to identify nests and determine nest occupancy status for the reasons discussed in Section 3.1.1 of the ECP. However, collectively, the various raptor nest survey efforts and other observational surveys conducted during the baseline studies provide information on raptors (and eagles) nesting in the vicinity of the Project (ECP Appendix C).

No bald eagle roosts were identified during the eagle roost surveys conducted by SWCA (ECP Appendix C). One aerial fixed-wing survey was conducted on March 3, 2011, using a double-observer method to search for undocumented eagle roosts in all areas identified as potential roost habitat within the Project Area and an associated 3-mile buffer of the Project boundary (ECP Appendix C). The aerial roost survey was conducted along suitable habitat (primarily along riparian corridors, canyons, and other topographic depressions protected from wind and adverse weather conditions, with stands of mature trees suitable for roosting eagles). Roost surveys were also conducted from the ground along selected riparian corridors and canyons in the search area on February 28 and March 1, 2, and 4, 2011. Areas selected for ground surveys were based on the suitability of habitat for eagle roosting as well as public driving access. Areas surveyed included the Deer Creek basin, the mouth of Mormon Canyon, Boxelder Creek basin, and the mouth of Boxelder Canyon. The entire segment of Deer Creek west of the study area was surveyed, despite being outside of the 3-mile buffer, due to the presence of potential roosting habitat.

### 3.1.2 Post-construction Surveys for Bald Eagles

As described above, post-construction monitoring for eagles and other raptors began on November 1, 2016 (SWCA 2017); results specific to bald eagles are summarized here. Two bald eagle nests, each with two nestlings, were recorded on the exterior edge of a 10-mile survey radius of the Project. No bald eagle nests were recorded within the Project footprint. Twelve bald eagles were detected during long-distance count surveys. Of these, four were observed flying below the rotor swept area (0-30 meters), one was observed flying in the rotor swept area (30-200 meters), and seven were observed flying above the rotor swept area (above 200 meters). Three of these bald eagles were observed in the spring, nine were observed in the fall, and no bald eagle observations were recorded within the Project footprint during summer or winter. No individual eagles or roost sites were observed during winter roost surveys. . There are no known

bald eagle fatalities as a result of operations of the Project; no dead or injured bald eagles were detected during post-construction fatality monitoring nor incidentally.

### 3.2 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 (Service 2016, pages 71-81) and is incorporated herein by reference. The rest of this section focuses on golden eagle occurrences in the EMU in which the Project occurs (Central Flyway), the LAP for golden eagles (within 109 miles of the Project), and the Project Area (the actual footprint of the Project and an associated 3-mile buffer for pre-construction surveys and an associated 10-mile buffer for post-construction surveys). The estimated median population size of golden eagles in the Central Flyway EMU is 15,327 (Service 2016b). Based on the Service's process to calculate the LAP, the estimated population size in the LAP is 1,411 golden eagles.

As part of a large-scale research project investigating movements and mortality factors of golden eagles in USFWS's Region 6 (USFWS, Region 6 Migratory Bird Management Office, unpublished data), a total of four golden eagles were tagged with GPS-enabled satellite transmitters within 20 miles of the Project from 2013-2016. A male nestling was tagged in June 2013 near Rolling Hills, WY. When he dispersed from his natal territory in mid-October 2013, he wandered to within 5 miles of the Project. This individual currently moves between Douglas, WY and Thunder Basin National Grasslands. Another male nestling was tagged in June 2014 on Thunder Basin National Grasslands and passed within 5 miles of the Project in early May 2016 while exploring, but returned to where he normally resides shortly thereafter (i.e., >60 miles to the northeast). An adult female was tagged in December 2014 near Rolling Hills, WY. Telemetry data reveal that this individual spent the summer in Alaska and wintered near Rolling Hills, but occasionally flew south across I-25, typically approximately 5 miles northeast of the Project. In 2018, this individual shed the telemetry unit and was last detected in Alaska. In March 2016, a sub-adult male was tagged north of Glenrock, WY. This individual spent most of its time north of Glenrock, but wandered to the east and south, occasionally moving through the Project Area and the 3-mile buffer; the battery on this telemetry unit failed and the individual was last detected more than 60 miles northwest of the Project. Individual golden eagle movement information derived from this telemetry data indicated that these individuals spent varying amounts of time in the vicinity of the Project Area, although they typically occurred outside the Project footprint to the northeast of the Project area.

### 3.2.1 Pre-construction Surveys for Golden Eagles

#### 3.2.1.1 Eagle Use Surveys

During the two years of baseline surveys conducted in the Project Area in 2010 and 2011, a total of 1,787 observation hours were logged during eagle and other raptor surveys, resulting in 623 observations of golden eagles (713 individuals) plus another eight observations of unidentified eagles (nine individuals) that were recorded. There were 68 golden eagles recorded within 800 meters of eagle and other raptor survey stations, and one unidentified eagle within 800 meters of eagle and other raptor survey stations. Flight paths were mapped and digitized for all eagle observations recorded during raptor point count surveys (Appendix C of the ECP).

Golden eagle was the most commonly recorded raptor species over the two years of baseline surveys (26% of all raptors detected) (ECP Appendix C). Of the 713 golden eagles observed, 363 were classified as adults, 237 as an unknown age class, 97 as immature, and 16 as sub-adults (ECP Appendix C). In addition to the above, nine unidentified eagles were recorded over the two years of baseline surveys (ECP Appendix C). In the Project Area, golden eagle observations started to increase in mid-August/early September and continued through November suggesting that there was an influx of migratory eagles into the area, or an increase in survey effort during the fall (ECP Appendix C).

#### 3.2.1.2 Nest Surveys

In April and May of 2010 and 2011, ground-based and aerial raptor nest surveys were conducted following survey methods detailed in the ECP (Appendix A). The Project and an associated 1-mile buffer were surveyed for nests of all raptor species. For eagles, the Project and an associated 3-mile buffer were surveyed for eagle nests (ECP Appendix C).

No eagle nests were located within the Project Area, however, within the 3-mile buffer surrounding the Project (i.e., the Project Area), three golden eagle nests were detected (Figure 5) during the aerial helicopter survey on May 13, 2011 (ECP Appendix C). No golden eagles were observed in proximity to the nests during the survey and all three nests were determined to be inactive. It was determined that two of the golden eagle nests may represent one eagle territory; they are located approximately 1.97 and 1.99 miles from the nearest turbine (ECP Appendix C). The remaining golden eagle nest is located approximately 3.42 miles from the nearest turbine (ECP Appendix C). Although the golden eagle nests were identified as inactive during the aerial helicopter survey conducted on May 13, 2011, an adult golden eagle was observed via spotting scope perched on a cliff near nests 3 and 4 (Figure 5) on August 26, 2011 suggesting that the territory may have been occupied (ECP Appendix C). The 2010 and 2011 eagle nest surveys

were performed under methods coordinated with the USFWS, although they preceded the USFWS recommendations in the ECPG (USFWS 2013). As discussed in the ECP, the methods used for conducting raptor nest searches in 2010 and 2011 in the vicinity of the Project were limited in their ability to identify nests and determine nest occupancy status for the reasons discussed in Section 3.1.1 of the ECP. However, collectively, the various raptor nest survey efforts and other observational surveys conducted during the baseline studies provide information on raptors (and eagles) nesting in the vicinity of the Project (ECP Appendix C). No golden eagle roosts were identified during the eagle roost surveys conducted by SWCA (Appendix C in the ECP). One aerial fixed-wing survey was conducted on March 3, 2011, using a double-observer method to search for undocumented eagle roosts in all areas identified as potential roost habitat within the Project Area and an associated 3-mile buffer of the Project (ECP Appendix C). The aerial roost survey was conducted along suitable habitat (primarily along riparian corridors, canyons, and other topographic depressions protected from wind and adverse weather conditions), with stands of mature trees suitable for roosting eagles. Roost surveys were also conducted from the ground along selected riparian corridors and canyons in the search area on February 28 and March 1, 2, and 4, 2011 (ECP Appendix C). Areas selected for ground surveys were based on the suitability of habitat for eagle roosting as well as public driving access (ECP Appendix C). Areas surveyed included the Deer Creek basin, the mouth of Mormon Canyon, Boxelder Creek basin, and the mouth of Boxelder Canyon (ECP Appendix C). The entire segment of Deer Creek west of the study area was surveyed, despite being outside of the 3-mile buffer, due to the presence of potential roosting habitat.

### 3.2.1.3 Other Pre-construction Surveys

Prey resources available to golden eagles in the Project Area include: greater sage-grouse, black-tailed prairie dogs (*Cynomys ludovicianus*) (five prairie dog colonies were identified and mapped during baseline studies), cottontail (*Sylvilagus* sp.), white-tailed jackrabbit (*Lepus townsendii*), Wyoming ground squirrel (*Spermophilus elegans*), thirteen-lined ground squirrel (*Spermophilus tridecemlineatus*), big game species including elk (*Cervus Canadensis*), mule deer (*Odocoileus hemionus*), and pronghorn (recorded incidentally) (ECP Appendix C). SWCA mapped prairie dog colonies within the Project by walking the perimeter of identified colonies and collecting UTM locations at outlying burrow locations (ECP Appendix C). A 100m buffer was applied to these UTM locations and turbines were sited outside of these areas (Appendix A of the ECP).

Crucial mule deer winter range exists within the northern portion of the Project and mule deer were observed within the Project Area and in the vicinity of the crucial winter range during the baseline studies; however, 75 hours of raptor count surveys were conducted during winter and only five individual golden eagle observations and one individual bald eagle observation were

recorded, suggesting that mule deer carcasses (resulting from natural winter mortality) were not attracting a large number of eagles into the Project Area during baseline studies (ECP Appendix C). WGFD indicated that they foresee no Project-related management issue with wintering mule deer because the project elements in crucial winter habitat consist primarily of a transmission line corridor (WGFD letter dated April 27, 2010).

Livestock grazing within the Project is primarily domestic cattle grazing (although domestic horses may also occur in the area), with the majority of cattle grazing occurring in late spring through the fall season. Very little, if any, calving occurs in areas where wind turbines are located. Dead livestock and several of the species mentioned above, in the Project Area could be used by either eagle species.

### 3.2.2 Post-construction Surveys

As described above, post-construction fatality monitoring surveys, use surveys, and nest surveys for eagles and other raptors began on November 1, 2016 (SWCA 2017); results specific to golden eagles are summarized here. Two golden eagle nests, each with one to two nestlings, were recorded within the 10-mile survey radius of the Project. No golden eagle nests were recorded within the Project footprint. Sixty golden eagles were detected during long-distance count surveys. Of these, three were observed flying below the rotor swept area (0-30 meters), 23 were observed flying in the rotor swept area (30-200 meters), and 34 were observed flying above the rotor swept area (above 200 meters). Golden eagles were detected during all seasons, with the majority (88%) occurring during the spring and fall. No individual eagles or roost sites were observed during winter roost surveys. As of the date of this EA, one golden eagle fatality has been documented on the Project site. On August 15, 2018, the Service's Region 6, Migratory Bird Management Office received notification from the Applicant that a dead golden eagle had been found near a wind turbine during a scheduled survey. The golden eagle had an apparent injury to the left wing. The Applicant reported this golden eagle upon discovery and is working with the Service's Office of Law Enforcement accordingly. This fatality occurred well after the Applicant submitted their ECP and ETP application and approximately 22 months after the Project became operational. Our Collision Risk Model (CRM) predicts that there could be one golden eagle fatality per year at the Project (see Section 4.1.1.2, below); therefore, one golden eagle fatality detected in over two years of project operations and rigorous monitoring suggests that the predicted level of anticipated take was likely conservative, as our CRM is designed to be. The Applicant continues to demonstrate a good-faith effort to comply with the Eagle Act while we developed this EA and process the ETP application.

### 3.3 Migratory Birds

General information on migratory birds protected under the MBTA is discussed in Section 3.5.1 of the PEIS (Service 2016, 97-98) and is incorporated by reference here. Species most likely affected by our permit decision evaluated for this Project are those that might benefit from the mitigation options developed in the ECP, primarily power pole retrofits that protect birds from electrocution.

#### 3.3.1 Pre-construction Surveys

The USFWS maintains a list of Birds of Conservation Concern (BCC), which identifies species within specific regions that have additional reasons for conservation concern (USFWS 2008). The Project is located within the Southern Rockies/Colorado Plateau BCR (BCR16) and the Badlands and Prairies BCR (BCR 17), and is adjacent to the Northern Rockies BCR (BCR 10) and the Shortgrass Prairie BCR (BCR 18). Including bald and golden eagles, fifteen BCC species were observed during pre-construction surveys (SWCA 2012).

The Applicant's BBBS (Appendix A of the ECP) describes pre-construction methods and results; here we provide a summary of passerine and raptor survey results. A total of 22 fixed-point avian use survey stations were established and 945 avian use surveys were conducted resulting in a total of 281.67 hours of survey effort during baseline wildlife studies (Appendix C of the ECP). The major purpose of these surveys was to record other avian use (i.e., non-eagle and non-raptor use) for the Project Area, but some eagle and other raptor observations were recorded during these avian use surveys as well. Four species comprised the majority of all birds observed during avian use surveys: horned lark (*Eremophila alpestris*), vesper sparrow (*Pooecetes gramineus*), Brewer's blackbird (*Euphagus cyanocephalus*), and western meadowlark (*Sturnella neglecta*). Horned lark, vesper sparrow, Brewer's blackbird, and western meadowlark consistently had the highest use in spring and summer, and horned lark had the highest use in fall and winter.

Raptor use surveys also included long-watch surveys for bald and golden eagles and other raptors. Protocols for the baseline surveys were developed prior to the release of the USFWS Land-Based Wind Energy Guidelines (USFWS 2013); however, they were developed in communication with USFWS and WGFD and are based on WGFD's then-recommended guidelines for wind development (dated 26 October 2009). In general, the WGFD recommendations included weekly surveys during two 12-week periods to assess species composition and magnitude of early, mid-, and late season migrants passing through the Project Area. American kestrel (*Falco sparverius*) and golden eagle had the highest raptor use during both years of pre-construction surveys, followed by red-tailed hawk (*Buteo jamaicensis*), and a

group called “unknown buteo”, which refers to unidentified hawk in the genus *Buteo* (i.e., ferruginous hawks, red-tailed hawks, rough-legged hawks, etc.). The highest raptor use in the study area is concentrated in two separate areas north and south of Willow Creek canyon. The southwestern portion of the study area had the least relative use; it has less topographic relief than other areas.

Raptor nest surveys consisting of aerial surveys, broadcast call surveys, and area search surveys were conducted. A 1-mile buffer around the study area was used for all raptor species. A total of eight nest structures were detected. Three nests were attributed to golden eagles, but all three were considered inactive at the time of the survey and no eagles were observed in the vicinity of the nests. Of the eight structures found, one was determined to be active—a red-tailed hawk nest with attending adult (Appendix A). Area search surveys for nest sites in mixed conifer and deciduous woodland were conducted by hiking meandering transects through patches of woodland that appeared to be suitable for nesting raptors. In 2010, four black-billed magpie (*Pica hudsonia*) nests (non-raptors) and one medium-sized stick nest of unknown origin were found. Two potential nest cavities were also located in an area of American kestrel territorial activity. No activity was observed at any of these nests and no other potential raptor nest structures were located in 2010. In 2011, three American kestrel nests and a possible northern harrier nest were discovered. The stick nest detected in 2010 was determined to be that of a red-tailed hawk and was active in 2011. A nest discovered by aerial surveys, but not found during ground surveys, was presumed to be a Swainson’s hawk (*Buteo swainsoni*) based on an incidental encounter of a pair of adults and one fully fledged hatch-year bird in the vicinity of the nest (Appendix A).

Passive surveys for burrowing owl (*Athene cunicularia*) were conducted at two black-tailed prairie dog (*Cynomys ludovicianus*) colonies in 2010 and at five prairie dog colonies in 2011 using established protocols (Appendix A). No evidence of burrowing owl use (e.g., feathers, droppings, pellets) were detected in 2010 or 2011. The only burrowing owl occurrence known for the study area is of a road-killed owl discovered in mid-September 2011 on Duck Creek Road, approximately 0.1 mile west of the Mormon Canyon Road junction, which is close to a prairie dog colony associated with the Virden Creek sage-grouse lek. The mid-September date and the absence of burrowing owls in the study area during 2010 and 2011 suggest that this individual was a migrant.

### 3.3.2 Post-construction Surveys

Avian point counts were conducted at 18 survey locations across the Project Area within 100m radius plots (SWCA 2017). Surveys at each avian point count location were conducted for 10

minutes and performed weekly from April 1-November 15, 2017. Similar to pre-construction avian point count surveys, the most common species were vesper sparrow (28.22% of observations) and western meadowlark (27.06%) in the spring; western meadowlark (26.59%) in the summer; and horned lark (27.88%) and Canada goose (*Branta canadensis*) (29.43%) in the fall. Of the individuals recorded during avian point count surveys, 72% were detected below the rotor swept area (0-30m), 26% were detected in the rotor swept area (30-200m) and were primarily Canada goose, horned lark, and Brewer's blackbird (*Euphagus cyanocephalus*), and 2% were detected above the rotor swept area (above 200m).

During post-construction fatality monitoring (November 1, 2016 to October 31, 2017), 24 birds were found while conducting avian carcass searches, and their deaths are likely attributed to collisions with turbines. Additionally, six birds were found incidentally. Bird fatalities were found at 18 of the 46 turbines; the maximum number found at any one turbine was three (turbine PW28), followed by two at turbines PW05, PW06, PW11, and PW15. More birds were killed in the fall (16 individuals), followed by summer (6), and spring (2). The maximum number of fatalities recorded for any one week was three, found the weeks of November 1, 2016; August 22, 2017; and October 14, 2017.

### 3.4 Species listed under the Endangered Species Act

The Endangered Species Act (ESA) directs the Service to identify and protect endangered and threatened species and their critical habitat, and to provide a means to conserve their ecosystems. The ESA requires specifically that [the], "... Federal agency shall... insure that any action authorized, funded, or carried out by such agency ... is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of designated critical habitat of such species..." (16 U.S.C. 1536 (a)(2)). Because issuance of an ETP is a Federal Agency action, the ESA is applicable and addressed in this EA.

On September 16, 2014 the Service initiated an intra-service Section 7 consultation for the issuance of an ETP for the Project (Appendix B). A Biological Assessment (BA) addressing seven federally listed species and two species that, at the time, were candidates for listing in Converse County, Wyoming. It was determined that the Project "may affect, but is not likely to jeopardize" two candidate species: the Sprague's pipit (*Anthus spragueii*) and the greater sage-grouse (*Centrocercus urophasianus*). Currently, these two species are no longer candidates for federal listing; as such they are not subject to further evaluation in this EA. It was also determined that the Project will have "no effect" on seven federally listed species: Preble's meadow jumping mouse (*Zapus hudsonius preblei*), interior least tern (*Sternula antillarum*), pallid sturgeon (*Scaphirynchus albus*), piping plover (*Charadrius melodus*), whooping crane (*Grus Americana*) and designated critical habitat for the species, western fringed orchid

(*Platanthera praeclara*), and the Ute ladies'-tresses (*Sprianthes diluvialis*). The Service's Wyoming Field Office reviewed the BA in accordance with section 7(a)(2) of the ESA of 1973, as amended, 16 U.S.C. 1531 *et seq.* and a letter of concurrence was transmitted to the Regional Migratory Birds Office on October 1, 2014. Our decision regarding an ETP will not alter the physical footprint of the Project and therefore will not alter its impacts to federally threatened and endangered species; therefore, no further evaluation of impacts to species listed under the ESA is warranted for the Service's decision of whether or not to issue an ETP.

### 3.5 Cultural and Historical Properties / Tribal Traditional Uses

Class III Cultural Resource Inventories were completed for the Project by SWCA Environmental Consultants (SWCA) in 2010, 2011, 2012, 2013, and 2016. A Class III inventory is an intensive, systematic field inspection done by, or under the direction of professional architectural historians or other appropriate specialists, in an effort to identify all resources within an area that might qualify for the NRHP. The Applicant committed to avoid all cultural and historic sites by maintaining a no ground disturbance buffer of 100 feet from identified resources. Summaries of these surveys are presented below:

- 2010 (Witt et al. 2010) - In 2010 a cultural resource survey was conducted in the anticipated Area of Potential Effect (APE). All of the land in the anticipated APE is characterized by private or state ownership. The survey of the anticipated APE included 2,831 acres of land and resulted in the documentation of 17 cultural/historic sites and 32 isolated resources. Of these 17 sites, one is recommended as eligible for the National Register of Historic Places (NRHP), six are considered not eligible for the NRHP, and ten are unevaluated. The report states that all cultural/historic sites will be avoided, and no ground disturbance will occur within 100-feet of the cultural/historic sites.
- 2011 (Witt et al. 2011) - A 2011 addendum to the 2010 report (Witt et al. 2010) documents the survey of an additional 742 acres and the recording of eight newly reported cultural/historic sites, three isolated resources, and the expansion of one of the sites (48CO3284) recorded during the 2010 survey. As with the lands surveyed in 2010, all of the 2011 survey area is either characterized by state or private ownership. Two of the sites are recommended as either needing additional research (48CO3336) or for avoidance (48CO3338). The seven remaining sites are considered not eligible for the NRHP. No Project construction occurred within one hundred feet of the sites recommended for avoidance, and no additional work is recommended.
- 2012 (Zietz 2012) – An additional survey was conducted in 2012 for 932 feet of anticipated road improvements along Mormon Canyon Road (County Road 18). This segment of road is located on lands owned by the United States of America and managed by the Bureau of Land Management-Casper Field Office. No additional cultural

resources were identified in the 9.1 acre survey completed for the anticipated 932 feet of road improvement.

- 2013 (Boyer et al. 2013) - A second addendum to the 2010 report (Witt et al. 2010) was completed in 2013 and surveyed an additional 217 acres on state and privately owned lands. Two sites were located during the survey; one of which was initially recorded in 2010 and expanded in 2011 (48CO3284) and one that is unevaluated for the NRHP and recommended for avoidance (48CO3517) of ground disturbance within 100-feet of the cultural/historic site. Four isolated resources were also recorded during this survey. No Project construction occurred within one hundred feet of the sites recommended for avoidance, and no additional work is recommended.
- 2016 (Retter et al. 2016) – A third addendum to the 2010 report (Witt et al. 2010) was completed in 2016 and surveyed an additional 453.01 acres on state and privately owned lands. No cultural resource sites were identified. However, two isolated resources and nine resources generally considered in Wyoming to be “non-sites” were identified. These resources are considered not eligible for the NRHP. No Project construction will occur within one hundred feet of the sites recommended for avoidance, and no additional work is recommended.

Eagles can be considered a feature or element of a Traditional Cultural Property pursuant to Service regulations (74 FR 46836-46874). Resources or issues of interest to the Tribes that could have a bearing on their traditional use and/or religious freedom include eagles (e.g., ceremonial use of eagle feathers). The Religious Freedom Restoration Act of 1993 ensures that interests in religious freedom are protected. In addition, some Tribes and tribal members may consider eagle nests sacred sites (or traditional cultural properties) or potential historic properties of religious and cultural importance, as provided for in the American Indian Religious Freedom Act. Section 1.6.1 describes our effort to coordinate with tribal governments to ensure tribes are given the opportunity to consult with us on matters related to potential issuance of an eagle take permit for this Project.

### 3.5 Climate Change

Climate change was considered in the PEIS (Service 2016; Section 3.9, page 144) and is incorporated herein by reference.

## **4. Environmental Consequences**

This section summarizes the effects on the environment of implementing the proposed action and the no action alternative. The discussion of overall effects of the ETP program is provided in the

PEIS (Service 2016) and is incorporated by reference here. This section of this EA analyzes only the effects that may result from the issuance of an ETP for this specific project.

#### 4.1 Environmental Consequences of Proposed Action

In determining the significance of effects of the Project on eagles, we screened the proposed action against the analysis provided in the PEIS (Service 2016) and the Service's 2016 report, "Bald and Golden Eagles: Status, trends, and estimation of sustainable take rates in the United States." We also used our eagle-risk analysis (Service 2013, Appendix D), and Cumulative Effects Analysis (Service 2013, Appendix F) to quantify eagle fatality risk and cumulative local area population level effects.

##### 4.1.1 Estimating Eagle Fatalities

The Service typically uses the upper 80<sup>th</sup> credible interval around the estimated number of annual eagle fatalities for permit decisions in an effort to avoid underestimating fatality rates at wind projects. For this Project, the Service is selecting the 99<sup>th</sup> credible interval (a more conservative estimate of eagle fatalities) because the preconstruction data that was used in the model was collected prior to the development of ECP guidance and survey methods were based on WGFD recommendations, therefore, only a subset of the survey data was useful for the model. The surveys consisted of long watch surveys (average of 10.8 hours) with unlimited view sheds. To be useful in the eagle fatality model, we truncated the dataset to only those observations occurring in the 800 meter point counts and only used eagle observations collected within the three point count stations that were most representative of the Project Area (i.e., within 1 km of proposed turbine locations). This resulted in using 1,628 survey hours of survey data across three count stations in our CRM, instead of 1,787 survey hours of survey data across five count locations. Because the survey periods were long and continuous, eagle use was likely overestimated because each observation was recorded regardless if the same individual was observed repeatedly throughout the day (e.g., an eagle dropping below a hill and reappearing five times would result in five observations and five unique flight paths instead of a single observation with a single flight path). Also the data collected for eagle use was in the form of eagle flight paths that were mapped instead of minutes of eagle use. We converted the eagle flight path data into eagle minutes and used those results in the CRM. The nine percent reduction of the survey hours, and reduction of count station data used in the model runs, from data for five stations to data from three, did not appreciably affect the fatality predictions.

#### 4.1.1.1 Estimated Bald Eagle Take

Under the proposed action, we estimate that 0.163 bald eagles may be taken annually. This number is multiplied by the number of years in the permit term (five) and rounded up to the next whole number (for a total authorized take of one bald eagle over the life of the 5-year permit). This prediction is based on a conservative approach that is expected to overestimate annual and cumulative take at the outset of permit. Eagle-specific post-construction monitoring is required for ETPs and is included as a permit condition. The required post-construction fatality monitoring also includes searcher efficiency trials and carcass persistence trials designed for the purpose of addressing uncertainty and for developing robust estimates of mortality at the project site. This project-specific robust estimate of mortality is then used for the purpose of updating our eagle-risk analysis, to yield a refined estimate of mortality for the Project. Monitoring is a critical component of adaptive management. The proposed conservation measures include adaptive management that could result in additional monitoring and operational adjustments. Adaptive management measures will be implemented based on the stepwise process identified in the ECP and will be used to guide the implementation of additional conservation measures as needed, and applies before actual take exceeds the permitted take levels (ECP Table 13). Together, these conservation measures ensure there will be no significant impacts to bald eagle populations. The take of bald eagles that would be authorized by this permit does not exceed the EMU take limit, therefore compensatory mitigation for bald eagles is not required.

#### 4.1.1.2 Estimated Golden Eagle Take

Under the proposed action, we estimate that 0.851 golden eagles may be taken annually. This number is multiplied by the number of years in the permit term (five) and rounded up to the next whole number (for a total authorized take of five golden eagles over the life of the 5-year permit). This prediction is based on a conservative approach that is expected to overestimate annual and cumulative take at the outset of permit. Eagle-specific post-construction monitoring is required for ETPs and is included as a permit condition. The required post-construction fatality monitoring also includes searcher efficiency trials and carcass persistence trials designed for the purpose of addressing uncertainty and for developing robust estimates of mortality at the project site. This project-specific robust estimate of mortality is then used for the purpose of updating our eagle-risk analysis, to yield a refined estimate of mortality for the Project. Monitoring is a critical component of adaptive management. The proposed conservation measures include adaptive management that could result in additional monitoring and operational adjustments. Adaptive management measures will be implemented based on the stepwise process identified in the ECP and will be used to guide the implementation of additional conservation measures as needed, and applies before actual take exceeds the permitted take

levels (ECP Table 13). To fully offset the authorized take, Pioneer Park I, LLC will commit to retrofitting approximately 65 high-risk power poles, mitigating for the loss of five golden eagles. Together, these conservation measures ensure there will be no significant impacts to golden eagle populations.

## 4.2 Cumulative Effects of Proposed Action

### 4.2.1 Cumulative Effects at the EMU and LAP Scales

Take of eagles has the potential to affect the larger eagle population. Accordingly, the 2016 PEIS, which is incorporated herein by reference, analyzed the cumulative effects of permitting take of bald and golden eagles in combination with ongoing unauthorized sources of human-caused eagle mortality and other present or foreseeable future actions affecting bald and golden eagle populations. As part of the analysis, the Service determined sustainable limits for permitted take of bald eagles within each EMU. The bald eagle take that would be authorized by this permit does not exceed the EMU take limit for bald eagles, so will not significantly impact the EMU bald eagle population. 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 employed. Golden eagle take being considered under this application would require mitigation, described in further detail below. The avoidance and minimization measures and mitigation for golden eagles 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 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 2016 PEIS 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% nor can cumulative unauthorized take exceed 10% of a LAP, unless the Service can demonstrate why allowing take to exceed that limit is still compatible with the preservation of eagles. The ETP 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 Pioneer Wind Park 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 (i.e., known eagle take at nearby wind farms, electrocution, and documented

mortalities due to anthropogenic and natural causes) to estimate cumulative impacts to the LAP. The scale of our LAP analysis is an 89-mile radius around the project site for bald eagles and a 109-mile radius for golden eagles. We conducted our cumulative effects analysis as described in the Service's ECP Guidance (Service 2013; Appendix F).

One permitted project (Chokecherry Sierra Madre Phase I, CCSM) overlaps this LAP; however, it is not currently built and authorized permitted take does not go into effect until 2022, when it is anticipated to become operational. The CCSM permit is a 5-year permit for take of bald and golden eagles; it expires at the end of 2023. Because permitted take of bald eagles is not currently occurring at this unbuilt project site, but we anticipate that take could occur in approximately three years, we discuss the effects of CCSM, combined with this Project, on bald and golden eagles in Section 4.2.4 (*Reasonably Foreseeable Future*).

#### 4.2.1.2 Bald Eagles

The LAP of bald eagles for the Pioneer Wind Park Project is approximately 54 eagles and the annual 1% and 5% benchmarks for this local area population are about one and three bald eagles, respectively. Currently, there are no operational projects within this LAP for which lethal take of bald eagles is authorized; therefore, this project alone is estimated to take 0.30% of the LAP, which is below the 1% benchmark and well below the 5% benchmark. Based on the Service's eagle mortality database (which tracks sources of unpermitted take), there were 29 reported bald eagle mortalities within the LAP between 2009 and 2018, for an average of 2.9 per year. These mortalities are all considered to be unpermitted take. Of these reported mortalities, all but four were due to anthropogenic causes (e.g., electrocution, shooting, poisoning, collision with wind turbines, etc.). The cause of death of the remaining four eagles are undetermined. On an annual basis, 2.9 unpermitted bald eagle takes equals about 5.42% of the total estimated bald eagle population in the LAP associated with the Project. This amount of unpermitted take is well below the 10% threshold level for unpermitted take within the LAP.

#### 4.2.1.3 Golden Eagles

The LAP of golden eagles for the Pioneer Wind Park Project is approximately 1,411 eagles and the 1% and 5% benchmarks for this local area population are 15 and 71, respectively. Currently, there are no operational projects within this LAP for which lethal take of golden eagles is authorized; therefore, this project alone is estimated to take 0.06% of the LAP, which is below the 1% benchmark and well below the 5% benchmark. Based on the Service's eagle mortality database, there were 157 reported golden eagle mortalities within the LAP between 2009 and 2018, for an average of 15.7 per year. These mortalities are all considered to be unpermitted take. Of these reported mortalities, 88.6% were due to anthropogenic causes (e.g., electrocution,

shooting, poisoning, collision with wind turbines, etc.) and 11.4% of mortalities were from natural causes or undetermined. On an annual basis, 15.7 unpermitted golden eagle takes equals about 1.11% of the total golden eagle population in the LAP associated with the Project. This amount of unpermitted take is well below the 10% threshold level for unpermitted take within the LAP.

#### 4.2.1.4 Summary of Cumulative Effects on Bald and Golden Eagles

The take that would be authorized by this permit does not exceed 5% of the LAP for either bald or golden eagles and the take does not exceed the EMU level for bald eagles. As described above, the EMU take level for golden eagles is zero, therefore issuance of this permit would exceed the EMU take level. Accordingly, compensatory mitigation is required for the anticipated take of golden eagles by the Project. This take would be offset by commitments from the Applicant to retrofit approximately 65 high-risk power poles; therefore, the proposed action will not significantly impact golden eagle populations. See the “Mitigation and Monitoring” section below for more discussion.

#### 4.2.2 Migratory Birds

The Project is expected to take birds that are protected under the MBTA. Impacts on migratory birds (including raptors) that encounter turbines may occur during the operational phase of the Project. Raptors with large wingspans also face the threat of electrocution, similar to bald and golden eagles. Resident and migratory birds may be killed by colliding with wind turbines in operation, with stationary blades, or with the support structure (Arnett et al. 2007). The timing of fatalities at eight mid-western wind farms indicate that fatalities can occur in all months of the year but that fatalities peak during spring and fall migration (Arnett et al. 2007). In the long-term, resident and migratory birds could habituate to the higher noise and activity levels, but the degree to which these animals would adapt is uncertain (Barber et al. 2010; Romin and Muck 2002). These impacts would not impact all species equally due to differences in habitat use in the Project Area. As described above, during post-construction fatality monitoring (November 1, 2016 to October 31, 2017), 24 birds were found while conducting avian carcass searches, and their deaths are likely attributed to collisions with turbines. Additionally, six birds were found incidentally. Bird fatalities were found at 18 of the 46 turbines (SWCA 2017). Continued post-construction monitoring will further inform fatality rates at the Project.

Many of the avoidance, minimization and mitigation measures the Project has committed to as part of the ECP to benefit bald and golden eagles would also benefit other migratory birds and raptors (e.g., not using guy wires on permanent MET towers, maintaining low level speed limits (<25 mph) to minimize bird-vehicle strikes, following APLIC guidelines for power lines, and

minimizing habitat loss, degradation, and fragmentation). Some of these minimization measures were implemented during Project construction. Post-construction monitoring will be used to quantify the actual turbine-related impacts on birds from the Project. To address post-construction impacts to migratory birds, the Applicant has developed an ECP (Appendix A), a Wildlife Conservation Plan in coordination with the WGFD and local landowners, and has, in coordination with the Service, completed a BBCS for the Project based on the Service's Land-based Wind Energy Guidelines (USFWS 2013). The ECP also includes a framework for Adaptive Management. The Applicant has committed to retrofitting an estimated 65 high-risk power poles to mitigate for golden eagle take; this will also benefit raptors by reducing electrocution risk on the landscape. A detailed list of BMPs, conservation measures, and the adaptive management process are presented in Appendix A of the ECP. Through voluntary implementation of these measures, none of the significance criteria listed in Section 3.5.2.1 (pages 98-100) of the PEIS for evaluating effects on migratory birds would be anticipated to occur.

#### 4.2.3 Cultural and Historic Properties / Tribal Traditional Uses

The Applicant revised the Project layout to avoid historic properties and moved turbines farther away from eagle nests and higher risk areas for all raptors. The Project's generation-tie (gen-tie) line was originally located in an area with multiple observations of raptors and in proximity to raptor nests. In an effort to reduce potential impacts to raptors, the gen-tie was relocated to an area of minimal suitable habitat and the final turbine layout was developed with the intent of avoiding and minimizing impacts to eagles and other raptor species. The Applicant removed nine proposed turbine locations (those locations considered to pose the highest potential risk to eagles) from the layout in response to USFWS comments, and the remainder were removed for commercially-related reasons. Overall, the Project was reduced from 62 WTGs with a nameplate capacity of approximately 99 MW to 46 WTGs with a nameplate capacity of 80 MW. Construction of the project is complete. No acquisition, construction, or improvements are proposed or authorized as a result of the proposed action; therefore, the proposed action will not impact NRHP properties.

To address the effects of eagle take on cultural practices, the Service assessed whether the Proposed Action or No Action Alternative would impact the religious and cultural significance of eagles to Native American communities. Cumulative effects of the Proposed Action for the non-purposeful take of bald and golden eagles will not result in regional population declines as the take of bald and golden eagles at the Project is expected to be below the sustainable take threshold for the EMU. In addition, the Service will review take thresholds in the EMUs on a regular basis relative to bald and golden eagle population and demographic parameters, and will

modify or adjust the permitting regulations accordingly. If there is evidence that demand for permitted eagle take will exceed take thresholds for the EMUs, the regional structured-allocation process will ensure that authorized take necessary to meet the religious use for traditional ceremonies of a Native American Tribe will not be precluded due to other take being authorized for another purpose (USFWS 2009a). If an ETP is issued, it will include permit conditions to ensure all recoverable eagle remains, parts, and feathers are sent to the National Eagle Repository and could then be used for Native American cultural and religious purposes. As described in Section 1.6.1 above, we invited tribes to engage in consultation and have determined that the avoidance and minimization measures implemented at the project will also minimize effects to Tribal Cultural Properties.

#### 4.2.4 Reasonably Foreseeable Future

As described briefly above, the Service has issued one 5-year permit for the take of bald and golden eagles, at the currently unbuilt CCSM project that overlaps this LAP. CCSM is expected to become operational (in part) in approximately three years (in 2022) and the initial permit expires at the end of 2023. Take of eagles at CCSM is not authorized prior to 2022 due to operations of the project. Because this project is not yet built nor operational, but we anticipate that take could occur in the reasonably foreseeable future (beginning in 2022), here we describe the anticipated cumulative effects of CCSM and this Project on bald and golden eagles in the LAP. For bald eagles, the CCSM LAP and the Project's LAP overlap by 31.19%, representing an estimated overlapping take of 0.47 bald eagles per year beginning in 2022. This Project's estimated take, combined with the overlapping estimated take represents 1.18% of the Project's LAP, which is slightly above the 1% LAP benchmark, but well below the 5% LAP benchmark of allowable take. For golden eagles, the CCSM LAP and the Project's LAP overlap by 42.63%, representing an estimated overlapping take of 3.84 golden eagles per year beginning in 2022. This Project's estimated take, combined with the overlapping estimated take represents 0.33% of the Project's LAP, which is well below the 1% and 5% benchmarks. Similar to this Project, take of golden eagles at CCSM will be offset by compensatory mitigation (power pole retrofits). Therefore, we have determined that this level of estimated bald and golden eagle take will not significantly impact local area eagle populations.

The Service is aware of operational wind projects in the LAP that have contributed to unauthorized take of bald and golden eagles. The majority of these projects are currently operating under court-approved settlement agreements and are working with the Service to pursue and possibly attain eagle take permits. This known unauthorized bald and golden eagle take is included in our unpermitted take analysis and therefore accounted for in our cumulative effects analysis. Even with those impacts, the LAP and EMU take limits are not expected to be

exceeded, as demonstrated by accounting for this unauthorized take in these analyses. While additional future wind developments and other activities may further increase take in the LAP during the 5-year lifespan of this proposed permit, the Service cannot reasonably predict the resulting impacts to eagles of such projects when important aspects of the projects (size, location, configuration, and lifespan) are currently unknown. There is no reasonable basis to consider such speculative impacts in this EA.

#### 4.3 Cumulative Effects of 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 eagles. Should take of eagles occur under the no action alternative, the applicant would be in violation of the Eagle Act (see footnote 2 on page 13). Because no measures likely would be implemented to avoid or minimize risk to eagles under this no action alternative, the risk to eagles is expected to be higher under this alternative as compared to the Proposed Action. Under this alternative, direct impacts of Pioneer Wind Park on the eagle population are anticipated to be a maximum of one bald eagle and five golden eagles over the 5-year permit term (0.163 bald eagles per year and 0.851 golden eagles per year, rounded to the next whole integer). Also, this take would not be offset by compensatory mitigation under this no action 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 of 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.

#### 4.4 Comparison of Effects of Alternatives

The following table compares the effects of the proposed action and alternative.

Table 1. Comparison of the effects of the No Action and the Proposed Action.

	<b>Proposed Action – Issue Permit</b>	<b>No Action Alternative</b>
<b>Eagle Take Levels</b>	1 bald eagle over 5 years 5 golden eagles over 5 years	1 bald eagle over 5 years 5 golden eagles over 5 years
<b>Avoidance and Minimization</b>	1. Site turbines to avoid eagle use and eagle nest sites. 2. Site turbines to avoid areas of concentrated prey. 3. Reduce number of turbines by 16. 4. Carcasses that may attract eagles will be removed.	None required; however avoidance and minimization measures 1-3 were voluntarily completed by the Applicant.
<b>Compensatory Mitigation</b>	~65 retrofits, mitigating loss of 5 golden eagles. No compensatory mitigation is required for bald eagles.	None provided
<b>Unmitigated Eagle Take</b>	None, golden eagle take will be fully mitigated	Yes, any golden eagle take would be unmitigated
<b>Adaptive Management</b>	1. If any eagle is taken, determine cause or contributing risk factors and consult with Service. 2. Two eagles taken in one year, or an average of greater than one eagle per year after the first two years, perform additional surveys to evaluate risk and inform conservation measures. Consult with Service. 3. If before or by the end of the 4 <sup>th</sup> year, the Project has taken one bald eagle and/or four golden eagles, consult with Service to identify causal factors to avoid further take and implement conservation measures and experimental advanced conservation practices. These may include: a) Employing onsite biological monitor(s) during daylight hours at locations and/or times of suspected risk, to further refine the understanding of risk factors. b) Implementing a limited curtailment program specific to the area(s) and/or period(s) of highest collision risk. c) Developing and evaluating an automated detection and deterrent system for eagles approaching area(s) of risk. d) Other agreed upon measures	None
<b>Data Collected by Service</b>	<ul style="list-style-type: none"> <li>Annual monitoring report of fatalities; reporting of injured eagles; information on the effects of specific, applied, conservation measures</li> </ul>	None
<b>Company Liability for Eagle Take</b>	<ul style="list-style-type: none"> <li>No (if in compliance with permit conditions)</li> </ul>	Yes

## 5. Mitigation and Monitoring

The proposed action incorporates measures to minimize and avoid to the maximum degree practicable, as required by regulation. To ensure that regional eagle populations are maintained

consistent with the preservation standard, our regulations require that any take of bald eagles that cannot practicably be avoided and is above EMU take limits must be offset by compensatory mitigation. In this case, authorized take of bald eagles remains below the EMU take thresholds and no compensatory mitigation for bald eagles is needed to meet the Eagle Act preservation standard. Regulations require that any golden eagle take that cannot be practically avoided and is above EMU take limits must be offset by compensatory mitigation. As golden eagle take limits for all EMUs were determined to be zero (Service 2016), compensatory mitigation is necessary to offset any authorized take of golden eagles. The compensatory mitigation plan will be implemented to offset the take of golden eagles in the EMU, consistent with the eagle preservation standard and additionality standards as stated in Service 2016, "Compensatory mitigation must be additional and improve upon the baseline conditions of the impacted eagle species in a manner that is demonstrably new and would not have occurred without the compensatory mitigation measure". As described above, the Applicant has committed to retrofit approximately 65 high-risk power poles to mitigate for the estimated take of five golden eagles over the 5-year permit term. The post-construction monitoring and adaptive management are also described in detail under the proposed action.

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