U.S. Fish and Wildlife Service

Environmental Assessment

For the Issuance of an Incidental Eagle Take Permit Top of the World Wind Energy Projects

Wyoming

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Contents

1. Introduction....1
1.1 Purpose and Need....2
1.2 Authorities....3
1.3 Background....3
1.4 Scoping, Consultation and Coordination....7
1.4.1 Tribal Coordination....7
2. Proposed Action and Alternatives....8
2.1 Proposed Action....8
2.2 Alternative 1: No Action....9
2.3 Other Alternatives Considered but Not Evaluated in this Environmental Assessment....10
2.3.1 Alternative 2: Deny Permit....10
3. Affected Environment....10
Pre-construction Surveys....11
Post-construction Surveys....12
3.1 Bald Eagle....13
3.2 Golden Eagle....14
3.2.1 Migratory Birds....15
3.2.2 Pre-construction Surveys for Migratory Birds....15
3.2.3 Post-construction Surveys for Migratory Birds....16
3.4 Species listed under the Endangered Species Act....16
3.5 Cultural and Socio-economics Interests....16
3.6 Climate Change....17
4. Environmental Consequences....17
4.1 Proposed Action....17
4.1.1 Estimating Eagle Fatalities....18
4.1.2 Estimating Golden Eagle Take....18
4.1.3 Estimated Bald Eagle Take....19
4.2 Cumulative Effects....19
4.2.1 Bald Eagles....20
4.2.2 Golden Eagles....21
4.2.3 Summary of Cumulative Effects on Bald and Golden Eagles....21
4.2.4 Reasonably Foreseeable Future....22
4.3 Cumulative Effects of Alternative 1 – No Action....22
4.4 Comparison of Effects of Alternatives....22
5. Mitigation and Monitoring....24
6. List of Preparers....25
References....26
Attachment A. Top of the World Wind Energy Facilities Eagle Conservation Plan
Attachment B. Intraservice Section-7 Biological Evaluation Form

This EA was prepared using NEPA regulations that expired on September 14, 2020. Agencies have the option of proceeding under the expired NEPA regulations if a project was begun prior to September 14, 2020, as is the case here. See 40 C.F.R. § 1506.13

1. Introduction

This Environmental Assessment (EA) is prepared to analyze the environmental consequences of the U.S. Fish and Wildlife Service (Service) issuing an incidental eagle take permit (IETP) for the take of bald (*Haliaeetus leucocephalus*) and golden (*Aquila chrysaetos*) eagles associated with the existing and operating Top of the World Wind Energy project ("Project"), pursuant to the National Environmental Policy Act (NEPA) (42 United States Code [U.S.C.] §§ 4321–4347). NEPA's supporting regulations are at 40 C.F.R. Part 1500; see also 46 C.F.R. Part 46. It is a discretionary Federal action for the Service to issue an IETP under the Bald and Golden Eagle Protection Act (Eagle Act), (16 U.S.C. §§ 668–668d; see also 50 C.F.R. § 22.26). This Federal action is therefore 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). This EA evaluates the effects of alternatives for our decision whether to issue an IETP.

The Eagle Act authorizes the Service to issue eagle take permits only when the take is compatible with the preservation of each eagle species, defined (Service 2016) as "consistent with the goals of maintaining stable or increasing breeding populations in all eagle management units and the persistence of local populations throughout the geographic range of each species." The Eagle Act authorizes incidental take of eagles when take is associated with, but not the purpose of, an activity (50 C.F.R. §22.26).

The applicant, Top of the World Wind Energy, LLC (TOTW), a wholly owned subsidiary of Duke Energy Sustainable Solutions (Applicant), is requesting Eagle Act take coverage for operational activities associated with the 200 megawatt (MW) total output wind farm located in Converse County, Wyoming. The Project consists of 110 wind turbines and associated infrastructure (roads, transmission lines, etc.) and has been operational since November 1, 2010. The expected life of the project is at least 30 years. The Applicant submitted an IETP (revised and final) application and Eagle Conservation Plan (ECP) to the Service on June 3, 2020, requesting the maximum 30-year permit.

The Applicant is requesting an IETP for the take of up 1.8 bald and up to 10.3 golden eagles annually, over the 30-year project. This EA evaluates whether issuance of the IETP will have significant impacts on the existing human environment. "Significance" under NEPA is defined at 40 CFR § 1508.27 (of the expired NEPA regulations), and requires consideration of both short and long-term effects. Id. Significance requires consideration of both context and intensity. Id.

This proposal conforms with, and carries out, the management approach analyzed in, and adopted subsequent to, the Service's Programmatic Environmental Impact Statement for the Eagle Rule Revision, December 2016 (PEIS; Service 2016). The PEIS is incorporated herein by reference, as authorized by 50 C.F.R. 1501.12. As authorized by the NEPA regulations, this EA tiers from the 2016 PEIS (50 C.F.R. 1501.11).

Project-specific information not considered in the PEIS (Service 2016) will be considered in this EA as described below.

Since the project became operational in 2010, it has been responsible for the deaths of 51 golden eagles and five bald eagles. On October 10, 2013, the Applicant pleaded guilty in U.S. District Court of Wyoming to two counts of misdemeanor unlawful take of migratory birds. This resulted in fines, restitution, and community service in the form of a probationary period including a list of Mandatory Conditions of Probation. This includes the implementation of a Migratory Bird Compliance Plan (MBCP), which was developed with assistance from the Service. The purpose of the MBCP is to outline a framework for implementation of avoidance and minimization measures to ensure compliance under requirements of the Migratory Bird Treaty Act (MBTA), 16 U.S.C. § 703-712, and the Eagle Act. The MBCP will remain in place until it is replaced by an IETP. Despite the implementation of the avoidance and mitigation measures outlined in the MBCP, some incidental take of migratory birds and eagles may still occur. As part of the plea agreement, as long as the Applicant continues to implement the MBCP and diligently pursues obtaining the IETP, the government would extend its "non-prosecution" agreement under the Eagle Act. The plea agreement remains in place until either ten years after the sentencing, or the Applicant obtains an IETP which replaces the MBCP.

1.1 Purpose and Need

The Service's purpose in considering the proposed action is to fulfill our authority under the Eagle Act and its implementing regulations. Applicants whose otherwise lawful activities may result in take of eagles, can apply for an IETP so that their projects may proceed without potential violations of the Eagle Act. Under the Eagle Act regulations, the Service may issue an IETP for eagle take that is associated with, but not the purpose of, an activity (50 C.F.R. § 22.26). Such permits can be issued by the Service when the take that is authorized is compatible with the Eagle Act preservation standard; is necessary to protect an interest in a particular locality; is associated with, but not the purpose of, the activity; and cannot be practicably avoided. Id.; see also 81 Fed. Reg. 91494 (2016)). The preservation standard under the Eagle Act means to be consistent with the goals of maintaining stable or increasing breeding populations in all eagle management units and the persistence of local populations throughout the geographic range of each species (50 C.F.R § 22.3).

The need for this action is a decision on an IETP application from the Applicant. The decision must comply with the Eagle Act and all applicable regulatory requirements, and must be compatible with the preservation of eagles.

1.2 Authorities

Service authorities are codified under multiple statutes that address management and conservation of natural resources from many perspectives, including, but not limited to the effects of land, water, and energy development on fish, wildlife, plants, and their habitats. This analysis is based on the Eagle Act (16 USC §§ 668–668e) 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.

1.3 Background

The Applicant is the developer and operator of the Project located in west-central Converse County, Wyoming, approximately 4 miles (6.43 kilometers) northeast of the town of Glenrock (Figure 1). The ECP and Final Biological Pre-Construction Survey Report (Attachment A.) provides an overview of the environmental setting for the Project.

The Project is located near the edge of the Powder River Basin coal field within the Wyoming Basin ecoregion. Topography in the Project area varies from relatively large areas of little topographic relief in the southern portion of the Project area to areas of greater topographical variation in the north, including numerous ridges and hills. Elevations within the Project area range from approximately 5,400 to 5,900 feet above sea level. The Project area consists of 17,504 acres of state and private lands (Figure 1).

The Project consists of a total of 110 wind turbines comprised of 66 General Electric 1.5-megawatt turbines with a rotor diameter of 77 meters, and 44 Siemens 2.3-megawatt turbines with a rotor diameter of 101 meters. Turbine nacelles of both models are situated on 80-meters tall steel tubular towers secured to a concrete foundation. Turbines are situated on turbine pads that are between 15 and 24 meters in diameter, depending on the turbine model. In accordance with Federal Aviation Administration guidelines, 30 of the turbines are lighted with medium-intensity, red, synchronously flashing, and nighttime lights. This lighting arrangement is also consistent with recommendations from the Service for aviation-hazard lighting on wind turbine towers to reduce bird collision risk. In addition, exterior lights at substations are only used when needed when work is being conducted at night or in low light conditions. The operation and maintenance building has dusk to dawn security lighting. Power from each wind turbine is transported to a central substation via collector lines. There are eight collector lines; all are buried except for a portion of one circuit that extends above ground two miles north from State Highway 95 to the site substation. The collector line is installed as a 34.5-kilovolts (kV) Hendrix cable bundled and insulated under-build on the 230-kV overhead transmission line described below. From the on-site substation, the electricity is transported via an 8.6-miles 230-kV overhead transmission line to the existing Rocky Mountain Power Windstar substation, which interconnects with the electric grid. The transmission line and under-build described above were constructed in accordance with the recommendations of the Avian Power Line Interaction Committee. Both were constructed between March 15, 2010 and September 2, 2010. Two meteorological towers were constructed between March 2010 and May 2010 as part of the

Project. However, the meteorological towers at the Project were removed in July 2014 to reduce potential avian impacts.

Additional Project features include approximately 34 miles of access roads. Access roads were either newly constructed or upgraded from existing ranch roads. Road construction commenced on November 2, 2009 and concluded on February 26, 2010. The operations and maintenance building was constructed between March 24, 2010 and August 13, 2010 and an eagle observation tower was constructed beginning August 19, 2014 and completed in September 2014. Activities associated with the Project include vehicle traffic along private ranch roads and access roads to and from the Project and operation and maintenance activities within the project area.

Standardized Post Construction Monitoring (PCM) (eagle mortality) and eagle nest surveys were conducted from 2010 through 2013. Continued fatality monitoring effort started in 2013 and will continue for the life of the Project. This effort consisted of the initially implemented Wildlife Monitoring Reporting System (WMRS) and the supplemental Enhanced Fatality Monitoring and Reporting System that was implemented as part of the plea agreement in 2014.

As a commitment to the protection and conservation of bald and golden eagles, the Applicant has developed an ECP for the Project (Attachment A, incorporated herein by reference). This Project specific ECP was written in communication and coordination with the Service 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 operations 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 practicable best management practices and other measures 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. The purpose of this voluntary, project-specific BBCS is to document and delineate a program designed to reduce the risk to birds, bats and other wildlife 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. It should be noted that the Service provides technical advice to those preparing a BBCS, but does not approve the plans.

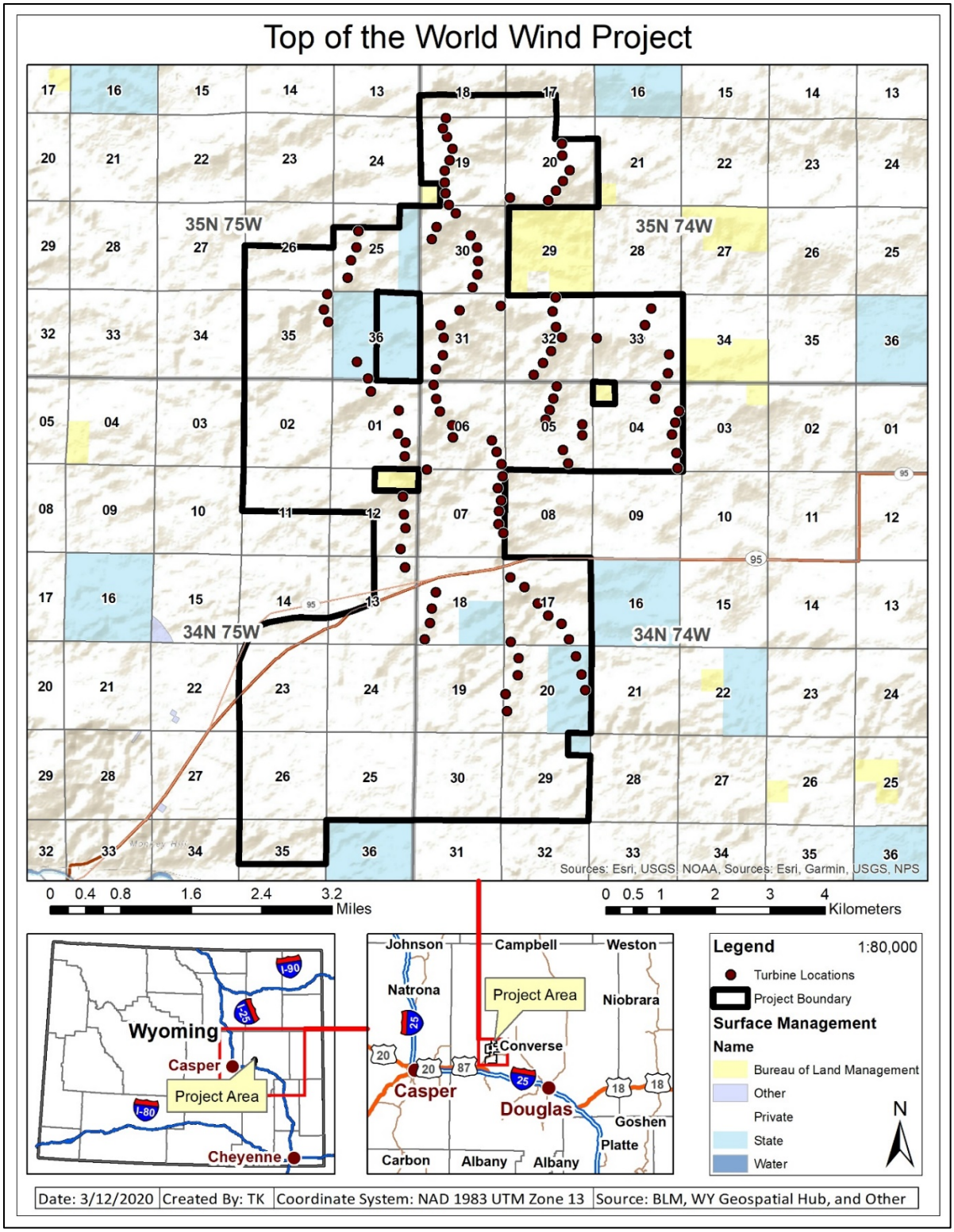

Figure 1. Top of the World Wind Energy Project Area and Turbines

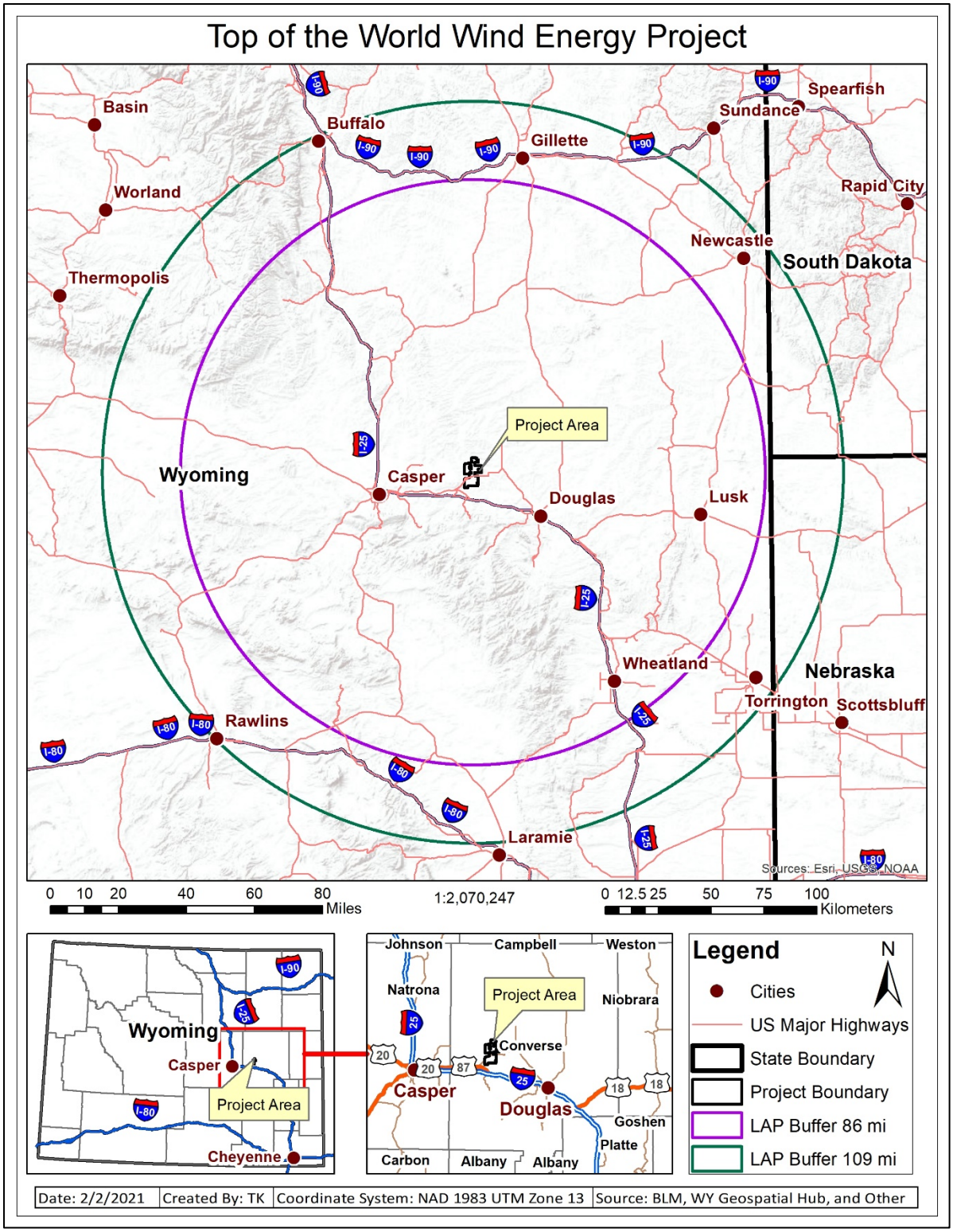

Figure 2. Top of the World Wind Project Boundary and Local Area Population (LAP) Boundary Map

1.4 Scoping, Consultation and Coordination

This EA incorporates by reference the scoping performed for the PEIS (Chapter 6, page 175). Additionally, the Applicant coordinated with the Service and the Wyoming Game and Fish Department (WGFD) to develop the ECP in support of its application to avoid, minimize, and mitigate adverse effects on eagles; however, the Service was not involved in the siting of Project infrastructure. Furthermore, the Project was built and in operation prior to the release of *U.S. Fish and Wildlife Service Land-Based Wind Energy Guidelines* (Service 2012) and *Eagle Conservation Plan Guidance Module 1 – Land-based Wind Energy* (Service 2013a). Guidance and recommendations in these documents that have since been encouraged and enforced, further aid to reduce impacts associated with wind energy development.

Baseline data collection methods were developed with input from the Service and WGFD in 2009. The Wyoming Industrial Development Information and Siting Act (Wyo. Stat. Ann. §§ 35-12-101 through 35-12-119) (Siting Act) governs industrial development in the State of Wyoming. The Wyoming Industrial Siting Council administers the Siting Act and is responsible for evaluating and approving industrial siting permit applications. This Industrial siting permit was received by the Applicant prior to the start of construction on December 31, 2009 (permit number 20 09-03, issued December 31, 2009). As part of the permit application, the Applicant is required to analyze environmental impacts, including impacts to wildlife, and to implement mitigation and monitoring measures. Additionally, the Applicant committed to implementing a variety of specific avoidance measures or Best Management Practices (BMPs) to minimize and/or mitigate impacts to wildlife; those BMPs are described in further detail in the Project's BBCS.

The Project was developed prior to any issuance of guidance documents and before eagle risk data were publicly available. Throughout Project development, Applicant evaluated and adopted conservation measures into the infrastructure layout and design, construction/clean-up, operations, and decommissioning/restoration plans for the Project to avoid and minimize impacts to eagles. The location of a Project-related transmission line was selected to concentrate impacts within an existing roadway, railroad, and power line corridor.

1.4.1 Tribal Coordination

The Service currently manages bald and golden eagles at the Eagle Management Unit (EMU) level, which is defined as the four administrative flyways with some modifications. This Project occurs in the Central Flyway. At the time the draft EA was made available for the 30-day public comments period, we had contacted ten native sovereign nation tribal leaders through formal letters, and other tribes potentially affected by this Project via email, to offer the opportunity for formal consultation concerning this potential federal action. The letters informed tribal leaders and other potentially affected tribes of the receipt of the IETP application and preparation of this EA by the Service. We did not receive any comments or formal requests for consultation in response to tribal letters.

Coordination with tribal governments is an ongoing process. If the Service issues a 30-year IETP to the Applicant and the Applicant chooses to apply for a new permit when the IETP expires, the 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 30-year IETP to take up to 1.8 bald eagles and up to 10.3 golden eagles annually (for a total authorized take of up to 54 bald eagles and up to 309 golden eagles over the life of the 30-year permit) with associated conditions, as allowed by regulation. The Applicant will implement all measures required by other agencies and jurisdictions to conduct the activity at this site including Applicant-committed measures, the conservation commitments described in the Applicant's ECP and Avoidance and Minimization, Compensatory Mitigation, Post Construction Monitoring, and Adaptive Management sections in this EA.

Compensatory Mitigation - The Applicant has committed, and will be required, to fully offset the authorized take of golden eagles by implementing compensatory mitigation as part of the condition of the IETP. Estimated golden eagle take related to the operation of the Project will be fully offset. Compensatory mitigation for this Project will consist of retrofitting high-risk power poles proportional to the predicted and adjusted golden eagle take estimate calculated by the Service, and will be located in the Central Flyway EMU. Together, these conservation and mitigation measures aim to ensure there will be no significant impacts to golden eagle populations. Compensatory mitigation must be additional or additive and is calculated using the Service's Resource Equivalency Analysis (REA) model for eagles, as outlined in the Eagle Conservation Plan Guidance Module 1-Land-based Wind Energy Version 2 (USFWS 2013).

Compensatory mitigation will be completed for the 30-year permit period by retrofitting or reframing high-risk power poles to reduce eagle mortality or by implementing other Service approved compensatory mitigation methods. Retrofitting or reframing refers to installing eagle-safe perches, installing perching deterrents, and insulating electrified phases or reframing the power poles to achieve adequate spacing between energized conductors and/or grounded equipment. The number of retrofits will be derived using our REA based on the estimated annual golden eagle take. The Applicant's commitment to retrofit power poles to meet or exceed the Avian Power Line Interaction Committee's (APLIC) recommendations would minimize the risk of bird electrocution and collision (APLIC 2012) on the retrofitted power poles.

If the estimated take is less than mitigated take at the end of the initial two year review period and each subsequent five-year review periods, the excess mitigated take will be credited to the Project for the next review period. If take is higher, increased mitigation will be required. In either case, compensatory mitigation for any potential subsequent IETP 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 - The Applicant will conduct Post Construction Mortality Monitoring (PCMM) for all years of the permit including an intensive monitoring effort for the first two full years after the IETP is issued, as part of the condition(s) of approval. This data will be used to verify that take limits are not being exceeded, to update take estimates, and to evaluate the overall eagle mortality as related to meeting the objectives of Adaptive Management. 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. Fatality estimates would be updated to reflect project-specific conditions and compensatory mitigation would be adjusted accordingly. Annual monitoring reports will be prepared within three months of completing each year of post-construction monitoring required by the IETP, 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 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. All post construction monitoring will be conducted on existing disturbance, using existing roads, and conducted on foot.

Adaptive Management–The Applicant has developed an Adaptive Management Plan to monitor for impacts and avoid, minimize, and mitigate impacts to eagles and other avian species based on the Project specifics and data available (Attachment A.). 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.

2.2 Alternative 1: No Action

Under the no-action alternative, we would take no further action on the IETP application. In reality, the Service must take action on the IETP 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 an IETP. Under the no action alternative, the Project would likely continue to operate without an IETP being issued. Thus, for purposes of analyzing the no action alternative, we assume that the Applicant will continue to implement all measures required by other agencies and jurisdictions to operate the Project, but the conservation measures proposed in the IETP application package (that have not already been implemented by the Applicant) would not be required.

As outlined by the MBCP per plea agreement, the Applicant would continue to provide a compensatory mitigation payment to the National Fish and Wildlife Foundation (NFWF) to offset any observed golden eagle fatalities resulting the Project infrastructure until the non-prosecution period ends in 2023. No post-construction eagle mortality monitoring would occur, and no additional data would be available to the Service to contribute to the overall refining efforts of the Collision Risk Model (CRM).

The Applicant 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 if the probationary period, as outlined in the plea agreement, is not extended.

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, and not issue an IETP because the Applicant falls under one of the disqualifying factors and circumstances denoted in 50 C.F.R. § 13.21; the application fails to meet all regulatory permit issuance criteria and required determinations listed in 50 C.F.R § 22.26; or because the Service determines that the risk to eagles is so low that a take permit is unnecessary for the Project.

Our permit issuance regulations at 50 C.F.R. § 13.21(b) & (c) 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 Eagle Act disqualifies any such person from receiving or exercising the privileges of a permit). The Applicant 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 eagle take permits, those issuance criteria are found in 50 C.F.R § 22.26(f) in the 2009 regulations (74 FR 46878, Sept. 11, 2009). The Project application meets all the regulatory issuance criteria and required determinations (50 C.F.R. § 22.26) for permits.

When an Applicant for a permit 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. It is important to note that the Project was built and operational prior to the release of the Service's *Land-Based Wind Energy Guidelines* (Service 2012) and *Eagle Conservation Plan Guidance Module 1 – Land-based Wind*

Energy (Service 2013). These documents provide recommendations and guidelines for preconstruction surveys and methodologies not followed at the Project. The ECP was prepared, and consultation with the Service was completed with general consideration of the recommendations and guidance provided in these documents.

Ongoing Adaptive Management

The Applicant has evaluated a variety of measures to reduce eagle take at the Project. These include the testing of audible and visual deterrents; a human based informed eagle curtailment program controlled from a centrally located eagle observation tower that is referenced above; and the testing and installation of the IdentiFlight® technology.

IdentiFlight® is a camera-based system that uses machine vision to detect and classify large birds. Once a large bird is detected, classified as an eagle and meets certain criteria, individual wind turbines or groups of wind turbines are immediately curtailed to reduce or eliminate the risk of collision with moving turbine blades. The IdentiFlight® technology was installed in phases from May 2018 to March 2019 with a total of 47 IdentiFlight® units installed. Following commissioning of the IdentiFlight® technology, all 110 wind turbines were and are currently covered by the IdentiFlight® technology.

The project has implemented various curtailment strategies over the past several years. In February 2020, the Applicant provided to the Service an accounting of adjusted operational daylight hours (i.e. curtailment hours subtracted from available daylight operational hours) for the purposes of further refining the CRM for both bald and golden eagles. The results presented in this document are collision risk estimates for the project assuming the average operational daylight hours over the previous four years (4,180 hours per turbine) would not be reduced in future operational years.

<u>Pre-construction Surveys</u>

Fixed-point avian use surveys were conducted across the Project area in two separate efforts and during the spring, summer, and fall seasons based on different spatial extents, from March 21 − February 19, 2009 and from March 17, 2009 − March 2, 2010. Surveys were conducted weekly and bi-weekly, and consisted of five survey point during the first survey effort and an additional six during the second effort. During the 160, 20-minute surveys conducted between March 21, 2008 and February 19, 2009, there were 82 detections of golden eagles (1.54 observations/hour) and no detections of bald eagles. During the 324, 20-minute surveys conducted between 2009 and 2010, there were 64 detections of golden eagles (0.59 observations per hour) and six detections of bald eagles. Detailed surveys methods and results are outlined in the ECP (Attachment A).

Additionally, comprehensive ground surveys were completed by visually inspecting areas of suitable habitat (e.g., trees in proximity to large waterbodies). During those surveys, no bald eagle nests were located. Bald eagle nesting habitat is not present in the Project and foraging

habitat is minimal. A new (previously not recorded) bald eagle roost was identified within the Project in the fall of 2014 during routine operations. This roost is located in a stand of cottonwoods near Sand Creek, 1.7 miles west-northwest of Turbine 82. The number of bald eagles incidentally observed at the roost site has ranged from 2-16 at a given time; formal surveys have not been conducted of the roost. Incidental observations of activity at the roost indicate it is occupied in the late fall through early spring and continued to be an active roost in 2019.

Ground-based raptor nest surveys were conducted in conjunction with avian point-count surveys in March and April of 2008 and then again from April through June of 2009. The objective of the ground-based raptor nest surveys was to locate and record nests used by diurnal raptors that may be subject to disturbance and/or displacement effects by construction and/or operation of the Project. The 2008 surveys were conducted within the original Project area and a one-mile buffer. The 2009 surveys were conducted within the revised Project area and a one-mile buffer. The one-mile buffer distance was chosen for feasibility for ground-based nest surveys and was consistent with methods used for the wind industry at the time. Surveys were focused on large stick nest structures and did not include searches for cavity nests or burrows. The first survey within a season was conducted prior to leaf-out to improve the chances of finding nests.

No raptor nests were detected within the original Project area and one-mile buffer in 2008; however, the limited survey effort might have affected the results. In 2009, one occupied golden eagle nest was detected in addition to eight unoccupied nests of unknown raptor species. Comprehensive raptor nest surveys were not conducted in 2010; however, during construction in spring of 2010, one of the unoccupied nests detected in 2009 was found being used for breeding by a pair of golden eagles. In total, there were two occupied golden eagle nests identified between 2008 and 2010 within one mile of the Project. Four of the unoccupied raptor nests detected were later determined to be golden eagle nests during subsequent surveys. It should be noted that due to limits in the survey methods the number of eagle nests reported in 2008 – 2010 does not represent an inventory of nests within one-mile of the Project.

Post-construction Surveys

Multiple post-construction monitoring studies have been conducted since the Project became operational including: 1) a standard three-year Post-Construction Monitoring (PCM) study (November 2010 – November 2013) 2) Wildlife Monitoring and Reporting System (WMRS) (December 2013 – present); 3) Enhanced Fatality Monitoring and Reporting System (February 2014 – July 2014); and 4) Eagle Fatality Monitoring Plan (EFMP) (July 2014 – 2020). Below is a brief description of selected survey efforts and protocols. Detailed descriptions and related information are available in the ECP (Attachment A.).

Searcher-efficiency and carcass-persistence trials were conducted to determine the probability of a searcher detecting a carcass and to estimate the average length of time carcasses remain in the search area. Trials were performed to estimate bias due to searcher efficiency and carcass persistence for small birds, bats, and large birds. Overall searcher efficiency was 85.7 percent for

large birds (range: 60 – 100 percent). Sixty percent of large bird carcasses remained after day 10 and 60 percent were still present on day 30 of carcass-persistence trials.

During the February 2014 – July 2014 period the Applicant implemented the enhanced eagle fatality monitoring and reporting system, after the finalization of the aforementioned court plea agreement. The enhanced monitoring and reporting system was initiated on February 17, 2014 and operated for approximately five months. The objectives of the enhanced fatality monitoring effort were to: (1) quantify all eagle fatalities/injuries at the Project to ensure appropriate interim compensatory mitigation; (2) help inform eagle take predictions under Stage 3 of ECP development; (3) inform the development of the monitoring plan of the ECP; (4) help demonstrate the efficacy of Eagle Advanced Conservation Practices and adaptive management implemented at the Project; and helicopter raptor nest surveys.

Raptor nest surveys were conducted by helicopter within the Project and a one-mile buffer from the Project boundary during the first three breeding seasons after Project operations commenced. The objectives of these post-construction aerial raptor nest surveys were to locate previously known nests and any additional nests used by diurnal tree- and cliff-nesting raptors, and to determine the number of occupied nests and nesting pairs in the area. Two survey flights were conducted during the spring of each year with the survey covering all suitable diurnal raptor nesting habitat and potential nesting substrate. Surveys were focused on large stick nest structures and did not include searches for cavity nests or burrows.

In total, there were eight individual golden eagle nests and one bald eagle nest detected between 2011 and 2013. Of these nine nests, the bald eagle nest and three of the golden eagle nests had not been previously detected (even as an unoccupied nest) during the pre-construction surveys or during construction. It is possible these nests either were missed during previous surveys or were built between survey years.

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 2016a, 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 local area population (LAP, within 86 miles of the Project), and the Project area (the actual footprint of the Project and an associated 1-mile buffer for pre-construction surveys and an associated two to 2.5-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 population size in the LAP is estimated to be 56 bald eagles.

In addition to the summary below, PCM and survey efforts for bald eagles and their nests are discussed in detail in the ECP (Attachment A.). Standardized Fatality Monitoring (i.e., PCM) was conducted for the first three years after the Project became operational from November 2010 through November 2013. Square search plots of 160- meters on each side were established at 36

turbines and were centered on the turbine. Standardized fatality searches were conducted weekly during the spring (March 16 to May 31) and fall (August 1 to October 31), and bi-weekly during the summer (June 1 to July 31) and winter (November 1 to March 15) at each of the search plots. No bald eagle fatalities were detected using this survey protocol and during this time frame.

Protocols for WMRS were implemented in 2013, after the conclusion of the PCM three-year effort. WMRS was designed by the Applicant and consisted of incidental wildlife observations during work within the Project area; monthly searches for dead or injured wildlife at the turbine pad, transformer, and along access roads as part of routine turbine maintenance visits; and Environmental Services inspections and audits as needed.

In addition to the WMRS, the Applicant implemented the Eagle Fatality Monitoring Plan (EFMP) was developed by Applicant in coordination with the Service and initiated on July 21, after the finalization of the court plea agreement. The 2014 EFMP was developed based on the understanding of the most effective way to achieve the plan objectives to: (1) find eagle fatalities attributable to collisions with Project facilities; (2) quantify the number of fatalities occurring at the Project; and (3) develop a better understanding of the risk of eagle fatality or injury at the Project. The 2014 EFMP protocol is currently being implemented at the Project.

The 2014 EFMP uses the methods described under the enhanced fatality monitoring and reporting system but specifies that bias-correction trials (both searcher efficiency and carcass persistence) would be conducted, and it includes: the details on trial methods; the mapping and use of visibility classes; a description of analysis procedures; and potential adaptive management approaches to the protocol.

Five bald eagle fatalities were found during the implementation of this protocol between May, 2016 and October, 2020. Of these five eagle fatalities, two were detected incidentally and three were detected during scheduled searches.

A total of five bald eagle fatalities and injuries have been detected as of March, 2021 at the Project. Eagle fatalities appear to occur throughout the year, with fatalities of immature eagles relatively more common in spring (i.e., breeding season), whereas fatalities of adults are relatively more common during the fall and fatalities of all ages were low over the summer (i.e., fledging and post-fledging dispersal).

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 2016a, 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 (within 109 miles of the Project), and the Project area (the actual footprint of the Project and an associated 1-mile buffer for pre-construction surveys and an associated two to 2.5-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 population size in the LAP is estimated to be 1,570 golden eagles.

Description of the PCM survey effort and protocol can be found above in section 3.1 Bald Eagles and in Attachment A. A total of eleven golden eagle fatalities, including one injured golden eagle that was ultimately euthanized, were found from November 9, 2010, through November 20, 2013, at the Project. Of these eleven golden eagle fatalities, three were discovered during scheduled searches of search plots at the Project and eight were located incidental to routine work activities.

Brief description of the WMRS and EFMP protocols can be found above in section 3.1 Bald Eagles and in detail in the ECP (Attachment A.). Thirty-eight golden eagle fatalities were found during the implementation of the EFMP protocol between July 21, 2014 and July 31, 2019. Golden eagle fatalities were detected both incidentally and during scheduled searches.

A total of 51 golden eagle fatalities have been detected as of June 03, 2020 at the Project. Over half of all golden eagle fatalities were detected incidentally. Eagle fatalities appear to occur throughout the year, with fatalities of immature eagles relatively more common in spring (i.e., breeding season), whereas fatalities of adults are relatively more common during the fall and fatalities for all ages were low over the summer (i.e., fledging and post-fledging dispersal).

3.2.1 Migratory Birds

General information on migratory birds protected under the Migratory Bird Treaty Act (MBTA) is discussed in Section 3.5.1 of the PEIS (Service 2016a, 97-98) and is incorporated by reference herein. 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. The Applicant entered into a plea agreement with the Department of Justice and the Service in October 2013. As part of the plea agreement, a MBCP was developed to provide a framework for the Applicant to implement measures that will ensure compliance with the requirements of the MBTA and Eagle Act during the term of the MBCP. A brief summary of the actions required under the MBCP can be found in section 2.1 of the ECP (Attachment A.).

3.2.2 Pre-construction Surveys for Migratory Birds

The Applicant's ECP describes pre-construction avian survey methods and results (Appendix A-E of ECP in Attachment A). Fixed-point avian use surveys were conducted across the Project area in two separate efforts and during the spring, summer, and fall seasons based on different spatial extents, from March 21 − February 19, 2009 and March 17, 2009 − March 2, 2010. Surveys were conducted weekly and bi-weekly, and consisted of five survey point during the first survey effort and additional six during the second effort. Detailed surveys methods and results are outlined in the ECP (Attachment A).

3.2.3 Post-construction Surveys for Migratory Birds

Applicant conducted PCM for the first three years after the Project became operational from November 2010 through November 2013. The primary objective of the fatality monitoring studies was to estimate the annual number of bird and bat fatalities attributable to collisions with Project facilities. The study protocol was the same for all three years. Square search plots of 160 meters on each side were established at 36 turbines and were centered on the turbine. Standardized fatality searches were conducted weekly during the spring (March 16 to May 31) and fall (August 1 to October 31), and bi-weekly during the summer (June 1 to July 31) and winter (November 1 to March 15) at each of the search plots. Survey results and detailed description is available in ECP Section 5.4.1 in Attachment A.

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 IETP is a Federal Agency action, the ESA is applicable and addressed in this EA.

Five species listed as federally endangered or threatened under the ESA may occur in the Project area. These species include Ute ladies'-tresses (*Spiranthes diluvialis*), and four Platte river species: piping plover (*Charadrius melodus*), whooping crane (*Grus americana*), pallid sturgeon (*Scaphirhynchus albus*), and western prairie fringed orchid (*Platanthera praeclara*).

On March 18, 2020, the Service initiated an intra-service Section-7 consultation for the issuance of an IETP for the Project (Attachment B). It was determined that the Project will have "no effect" on five federally listed species: Ute ladies'-tresses, and five Platte river species: piping plover, whooping crane, pallid sturgeon, and western prairie fringed orchid. The Service's Wyoming Field Office reviewed the Intra-Service Section-7 Biological Evaluation Form. Our decision regarding the IETP will not alter the physical footprint of the Project and 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 IETP.

3.5 Cultural and Socio-economics Interests

No new ground-disturbing activities will occur as part of or related to issuing an IETP. The National Historic Preservation Act (NHPA) is the principal federal law guiding federal actions with respect to the treatment of cultural, archaeological, and historic resources. Section 106 (54 U.S.C. § 306108) of the NHPA requires federal agencies, prior to taking action to implement an undertaking, to take into account the effects of their undertaking on historic properties and to

give the Advisory Council on Historic Preservation (ACHP) and the State Historic Preservation Office (SHPO) a reasonable opportunity to comment regarding the undertaking. Historic properties are "any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion on, the National Register…" of Historic Places [NRHP] (54 U.S.C. § 300308). The criteria used to evaluate the NRHP eligibility of properties affected by federal agency undertakings are contained in 36 CFR § 60.4.

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 IETP for this Project.

3.6 Climate Change

Climate change was considered in the PEIS (Service 2016; Section 3.9, page 144) and is incorporated herein by reference. The proposed action, of issuing a permit, will have no direct impact on climate change. The project is existing and currently operational. It will likely continue to operate regardless of the decision whether or not to issue an IETP.

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 IETP 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 IETP for this specific Project.

4.1 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.

The proposed action is consistent with 50 C.F.R. § 22.26(a) purpose and scope, where the "permit authorizes take of bald and golden eagles where the take is compatible with preservation

of the bald and golden eagle; is necessary to protect an interest in a particular locality; is associated with, but not the purpose of, the activity; and cannot practicably be avoided.*"* Additionally, under the court plea agreement, the Applicant is required to actively pursue an IETP.

4.1.1 Estimating Eagle Fatalities

We used Evidence of Absence (EOA; Dalthorp et al. 2017) to analyze the post-construction mortality monitoring data collected on the project site from 1 Aug 2014 – 31 July 2018 and used the resulting expected value to update the Service's CRM. Typically, for projects with multiple, consecutive years of post-construction monitoring data, we would utilize the "Multiple Years" module in EOA to yield a single expected value for use in the CRM. However, because this project implemented a curtailment strategy that varied yearly, we used the "Single Class" module to yield an expected value for each model year and then updated the CRM iteratively, accounting for adjusted operational daylight hours for each year, and then derived an annual fatality estimate that could be expected during future years of project operations under the assumption that the project would not exceed 4,180 operational daylight hours per turbine per year (i.e., the average number of operational hours per turbine from 1 Aug 2014 – 31 July 2018). Under current Service policy, projects that conduct robust post-construction mortality monitoring are eligible to be permitted at the mean annual estimate for both bald eagles and golden eagles, therefore all fatality estimates presented in this document represent the mean annual fatality estimates for each species.

4.1.2 Estimating Golden Eagle Take

Under the proposed action, we estimate that 10.3 golden eagles could be taken annually. This number is multiplied by the number of years in the permit term (30) and rounded up to the next whole number (for a total authorized take of 309 golden eagles over the life of the 30-year permit). Post-construction fatality monitoring is required as part of the permit conditions and 5-year check-ins are required under the 2016 Eagle Rule. The Service will analyze the post-construction monitoring data at the established check-in period, which will be used to yield a refined estimate of mortality and amend the permit, if warranted. 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 adaptive management framework and will be used to guide the implementation of additional conservation measures as needed, and applies before actual take exceeds the permitted take levels. Assuming there is no change to the estimated take during the review periods and to fully offset the authorized take, the Applicant will commit to retrofitting or reframing high-risk power poles, or will implement other Service approved mitigation methods, to mitigate for the loss of up to 309 golden eagles. Together, these conservation measures aim to ensure there will be no significant impacts to golden eagle populations.

4.1.3 Estimated Bald Eagle Take

Under the proposed action, we estimate that 1.8 bald eagles could be taken annually. This number is multiplied by the number of years in the permit term (30) and rounded up to the next whole number (for a total authorized take of 54 bald eagles over the life of the 30-year permit). Post-construction fatality monitoring is required as part of the permit conditions and 5-year check-ins are required under the 2016 Eagle Rule. The Service will analyze the post-construction monitoring data at the established check-in period, which will be used to yield a refined estimate of mortality and amend the permit, if warranted. 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 adaptive management framework and will be used to guide the implementation of additional conservation measures as needed, and applies before actual take exceeds the permitted take levels. Together, these conservation measures ensure there will be no significant impacts to bald eagle populations. The annual take of bald eagles that would be authorized by this permit does not exceed the EMU take limit (as analyzed in section 4.2 below), therefore compensatory mitigation for bald eagles is not required.

4.2 Cumulative Effects

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 should 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 IETP regulations require the Service to conduct an individual LAP analysis for each permit application as part of our application review.

We, therefore, considered cumulative effects to the LAP surrounding the Project to evaluate whether the take to be authorized under this permit, together with other sources of permitted take and unpermitted eagle mortality, may be incompatible with the persistence of the Project LAP. We incorporated data provided by the Applicant, our data on other eagle take authorized and permitted by the Service, and other reliably documented unauthorized eagle mortalities (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).

Three permitted projects with long-term IETPs and four short-term disturbance permits overlaps the LAP area for both eagle species. One of these projects (Choke Cherry Sierra Madre) is not currently built and authorized permitted take does not go into effect until 2022 or later, when it is anticipated to become operational. The Choke Cherry Sierra Madre (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 two 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 Bald Eagles

The LAP of bald eagles for the Project is approximately 56 eagles and the annual 1% and 5% benchmarks for this LAP are about one and three bald eagles, respectively. Currently, there are two long term operating projects with IETPs and one short-term disturbance permit within this LAP for which lethal take of bald eagles is authorized.

Three currently permitted projects overlap this Project's LAP for bald eagles. Taken together, this Project's take and the overlapping take of the other projects could result in a total annual take of 6.07 bald eagles (or 10.86% of the LAP). This is above the 5% benchmark; however, the North American Breeding Bird Survey (BBS) population trend estimate for bald eagles in Wyoming and Project LAP is 9.9% and 18%, respectively (Sauer et al. 2017; USGS-PWRC 2020). Analyses conducted by the Service showed that over most of the United States, bald eagle populations are growing at a rate of approximately 5% per year (USFWS 2016c). Additionally, a recently published report (Service 2020) estimated that bald eagle population have increased by a factor of 4.4 since 2009 across EMUs, excluding the southwestern U.S. and Alaska. Based on these results, the Service (2020) concluded that the bald eagle population has continued to increase rapidly since our previous survey. This indicates that a take rate of approximately 11% (5% due to annual population growth plus 6% sustainable take from a stable population) would be consistent with the preservation standard in most LAPs. This and other data indicate that the bald eagle population in the LAP is likely considerably above the 2009 population level, which is the management objective specified in the 2016 PEIS (Service 2016a). The population growth in excess of the 2009 population provides considerable additional capacity for take above the LAP

benchmark, and our determination that a take rate in this LAP of up to 10.86% is consistent with the management objective of eagle populations.

Thus, despite the fact that take at the LAP level of 10.86% exceeds the 5% benchmark for the LAP associated with the Project, this level of bald eagle take from the local area is consistent with the management objective established in the PEIS and codified in regulations. The impacts to bald eagle populations at both the LAP and EMU scales are therefore not significant. It is reasonable to assume that bald eagles in the project vicinity are increasing and the conservative take estimate at the Project would not contribute to declines in the overall bald eagle population in the EMU.

We also documented, through an assessment of unpermitted take, that bald eagles are not experiencing atypically high levels of unpermitted mortality in this LAP. Based on the Service's eagle mortality database (which tracks sources of unpermitted take), there were 31 reported bald eagle mortalities within the LAP between 2011 and 2020, for an average of 3.44 per year. These mortalities are all considered to be unpermitted take and are largely due anthropogenic causes (e.g., electrocution, shooting, poisoning, collision with wind turbines, etc.) and less due to natural causes or undetermined. On an annual basis, 3.44 unpermitted bald eagle takes equals about 6.16% 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.

4.2.2 Golden Eagles

The LAP of golden eagles for the Project is approximately 1,570 eagles and the 1% and 5% benchmarks for this local area population are 16 and 79, respectively. Two currently permitted long term projects and four short-term permit projects overlaps this Project's LAP boundary for golden eagles. Taken together, this Project's take and the overlapping take of the other projects could result in a total annual take of 16.43 golden eagles (or 1.05% of the LAP). Based on the Service's eagle mortality database, there were 144 reported golden eagle mortalities within the LAP between the discovery period of 2011 and 2020, for an average of 16 per year. These mortalities are all considered to be unpermitted take and are largely due anthropogenic causes (e.g., electrocution, shooting, poisoning, collision with wind turbines, etc.) and less due to natural causes or undetermined. On an annual basis, 16 unpermitted golden eagle takes equals about 1.01% 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.

4.2.3 Summary of Cumulative Effects on Bald and Golden Eagles

The take that would be authorized by this permit does exceed 5% of the LAP for bald eagles (see Cumulative Effects – Bald Eagle section) but does not exceed 5% of the LAP for golden eagles. The authorized take for bald eagles 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 or reframe high-risk power poles or implement other Service approved compensatory mitigation measures proportional to the predicted and adjusted eagle take estimate; therefore, the proposed action will not significantly impact bald eagle and golden eagle populations.

4.2.4 Reasonably Foreseeable Future

As described briefly above, the Service has issued three long-term IETPs and four short-term take permits for the take of bald and golden eagles that overlap the Project's LAP boundaries.

The Choke Cherry Sierra Madre project is expected to become operational (in part) in approximately two or more years (in 2022 or later) 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.

The Service is aware of operational wind projects in the LAP that have contributed to unauthorized take of bald and golden eagles. Some of these projects are currently operating under court-approved settlement agreements and are working with the Service to pursue and possibly obtain an IETP. 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 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 permit tenure, 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 IETP application under the No-Action Alternative, the project would likely continue to operate without authorization for take of eagles. None of the impacts to golden eagles would be offset by compensatory mitigation, beyond what is required in the settlement agreement as outlined in the MBCP. Negative impacts to golden eagle populations such as: population decline, potential loss of eagle breeding territory, and decrease in genetic diversity could occur at a cumulative scale. The eagle take at the Project would be considered un-permitted and would not be accounted for in the permitted take, cumulative effects analysis when considering the impacts related to future projects seeking an IETP. Additionally, there would be no PCM mortality data for future use by the Service to update and strengthen the CRM, related analysis and supporting data. Acquiring such data, to refine and strengthen the currently used process for cumulative effects analysis, ensures that conservation management objectives for eagle populations are being met at a cumulative scale. No permit check-in visits would occur with the Applicant, and the Service would have no way to relate the eagle mortality occurring at

this Project to other wind projects in the area, on a cumulative scale, when updating existing IETPs. Because the Applicant would not be bound by the terms and conditions of the IETP, the Service would not be able make recommendations for adaptive management triggers and implementation of conservation measures that would benefit eagle populations on a cumulative scale.

4.4 Comparison of Effects of Alternatives

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

	Proposed Action – Issue Permit	**Alternative 1 – No Action**
Eagle Take Levels	Up to 54 bald eagles and up to 309 golden eagles over 30 years	Up to 54 bald eagles and 309 golden eagles over 30 years
Avoidance and Minimization	Project is operational and will continue to operate	Project is operational and will continue to operate
Compensatory Mitigation	The Applicant has committed, and will be required, to retrofit or reframe high-risk power poles or implement other Service approved mitigation proportional to the predicted and adjusted take estimate as compensatory mitigating, for the loss of golden eagles as a condition of approval related to the IETP	Mitigation payments to NFWF for the loss of each eagle fatality, for the term of the MBCP based on Resource Equivalence Analysis
Unmitigated Eagle Take	Zero	Up to 54 bald eagles and 309 golden eagles over 30 years
Adaptive Management	The plan is to avoid and minimize impacts to avian resources	The plan is to avoid and minimize impacts to avian resources
Data Collected by Service	Annual monitoring report of fatalities; reporting of injured eagles; information on the effects of specific, applied, conservation measures	None
Company Liability for Eagle Take	No (if in compliance with permit conditions)	No as long as covered by the duration and conditions of MBCP under Settlement

Table 1. Comparison of the Effects of the No Action and the Proposed Action Alternatives.

5. Mitigation and Monitoring

Bald Eagles

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 that cannot practicably be avoided and is above EMU take limits must be offset by compensatory mitigation. In this case, authorized take remains below the EMU take thresholds and no compensatory mitigation is needed to meet the Eagle Act preservation standard. However, compensatory mitigation required per golden eagle take offset will likely benefit bald eagles by retrofitting or reframing high-risk power poles located in the Central Flyway EMU and alleviating the risk of electrocution associated with those structures. The actual location of the compensatory mitigation has not been determined; however, the Service recommends that the Applicant implement it within the bald eagle LAP area related to the Project.

Golden Eagles

The proposed action incorporates measures to minimize and avoid take to the maximum degree practicable, as required by regulation. To ensure that regional eagle populations are maintained consistent with the preservation standard, regulations require that any golden eagle take that cannot practicably be avoided and is above EMU take limits must be offset by compensatory mitigation at a 1.2 to 1 ratio. As golden eagle take limits for all EMUs were determined to be zero (Service 2016), compensatory mitigation is necessary to offset any authorized take of golden eagles. The Applicant will commit to retrofitting or reframing high-risk power poles proportional to the predicted and adjusted eagle take estimate as compensatory mitigation, for the loss of golden eagles as a condition of approval related to the IETP.

The Applicant will be required to monitor eagle fatalities using independent, third party monitors that report directly to the Service, according to protocols consistent with Service's national guidelines as outlined in the terms and conditions of the IETP. After the initial two-year interval, the Service will review the eagle mortality data and other pertinent information, as well as information provided by the Applicant and independent third-party monitors. The Service will assess whether the Applicant is in compliance with the terms and conditions of the permit and has implemented all applicable adaptive management measures specified in the IETP, and ensure eagle take has not exceeded the amount authorized within that time frame. We will update fatality predictions, authorized take levels and compensatory mitigation, as needed, for future years of the IETP. If authorized take levels for the period of review are exceeded in a manner or to a degree not addressed in the adaptive management conditions of the IETP, based on the observed levels of take using approved protocols for monitoring and estimating total take, the Service may require additional actions including but not limited to: adding, removing, or adjusting avoidance, minimization, or compensatory mitigation measures; modifying adaptive management conditions; modifying monitoring requirements; and suspending or revoking the IETP.

List of Abbreviations and Acronyms

EA	Environmental Assessment
ECP	Eagle Conservation Plan
EIS	Environmental Impact Statement
IETP	Incidental Eagle Take Permit
EMU	Eagle Management Unit
ESA	Endangered Species Act
LAP	Local Area Population
MBTA	Migratory Bird Treaty Act
MBCP	Migratory Bird Compliance Plan
NEPA	National Environmental Policy Act
NFWF	National Fish and Wildlife Foundation
PEIS	Programmatic Environmental Assessment

6. List of Preparers

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References

Avian Power Line Interaction Committee (APLIC). 2012. Reducing Avian Collisions with Power Lines: The State of the Art in 2012. October. Edison Electric Institute and APLIC. Washington, D.C. Available at: http://www.aplic.org/uploads/files/11218/Reducing_Avian_Collisions_2012watermarkLR.pdf

Bald and Golden Eagle Protection Act (Eagle Act). 1940. 16 United States Code § 668–668d. June 8, 1940. Available at: https://www.gpo.gov/fdsys/pkg/USCODE-2010-title16/pdf/USCODE-2010-title16-chap5A-subchapII-sec668.pdf

Chapman, S.S., S.A. Bryce, J.M. Omernik, D.G. Despain, J. ZumBerge, and M. Conrad. 2004. Ecoregions of Wyoming (color poster map, descriptive text, summary tables, and photographs). U.S. Geological Survey (map scale 1:1,400,000), Reston, Virginia. Available at: https://uwdigital.uwyo.edu/islandora/object/wyu:130160

Federal Register. Vol 81, 91494, December 16, 2016

Sauer, J. R., D. K. Niven, J. E. Hines, D. J. Ziolkowski, Jr, K. L. Pardieck, J. E. Fallon, and W. A. Link. 2017. The North American Breeding Bird Survey, Results and Analysis 1966 - 2015. Version 2.07.2017 USGS Patuxent Wildlife Research Center, Laurel, MD

United States Fish and Wildlife Service (Service). 2009. 50 C.F.R. 13 and 22. Eagle Permits; Take Necessary to Protect Interests in Particular Localities. 74 FR 46836. September 11, 2009. Available at: https://www.fws.gov/policy/library/2009/E9-21589.pdf

U.S. Fish and Wildlife Service (Service). 2013. Eagle Conservation Plan Guidance. Module 1: Land-based Wind Energy Development. Version 2. April 2013. Available at:https://www.fws.gov/migratorybirds/pdf/management/eagleconservationplanguidance.pdf

U.S. Fish and Wildlife Service (Service). 2016a. Programmatic Environmental Impact Statement for the Eagle Rule Revision. 81 FR 91494. December 16, 2016. Available at: https://www.gpo.gov/fdsys/pkg/FR-2016-12-16/pdf/2016-29908.pdf

United States Fish and Wildlife Service (Service). 2016b. Bald and Golden Eagles: Population demographics and estimation of sustainable take in the United States, 2016 update. Available at: https://www.fws.gov/migratorybirds/pdf/management/EagleRuleRevisions-StatusReport.pdf

U.S. Fish and Wildlife Service. 2016c. U.S. Fish and Wildlife Service. 2016. Bald and Golden Eagles: Population demographics and estimation of sustainable take in the United States, 2016 update. Division of Migratory Bird Management, Washington D.C., USA.

U.S. Fish and Wildlife Service (Service). 2020. Final Report: Bald Eagle Population Size: 2020 Update. U.S. Fish and Wildlife Service, Division of Migratory Bird Management, Washington, D.C. U.S.A

(USGS-PWRC) United States Geologic Survey-Putexent Wildlife Research Center. North American Breeding Bird Survey. 2020. Available at: https://www.pwrc.usgs.gov/bbs/