Borderlands Wind Project

FINAL ENVIRONMENTAL IMPACT STATEMENT AND PROPOSED RESOURCE MANAGEMENT PLAN AMENDMENT

DOI-BLM-NM-A020-2019-0002-RMP-EIS

Cooperating Agencies:
U.S. Fish and Wildlife Service; U.S. Air Force; Pueblo of Zuni;
New Mexico State Land Office; and Catron County, New Mexico

Estimated Lead Agency Total Costs Associated with Developing and Producing this Environmental Impact Statement and Proposed Resource Management Plan Amendment $493,000.
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Final
Environmental Impact Statement and
Proposed Resource Management Plan
Amendment

DOI-BLM-NM-A020-2019-0002-RMP-EIS

BLM/NM/PL-19-02-1610

Borderlands Wind Project

Prepared by
U.S. Department of the Interior
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Socorro Field Office
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March 2020
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In Reply Refer To:
2800 (LLNMA02000)
NMNM136976

Dear Reader:

Enclosed for your review is the Final Environmental Impact Statement (EIS) and Proposed Resource Management Plan Amendment (RMP) for the Borderlands Wind Project (Project). The Final EIS/RMP Amendment was prepared by the Department of the Interior, Bureau of Land Management (BLM) pursuant to the Federal Land Policy and Management Act of 1976 and the National Environmental Policy Act of 1969. Through a right-of-way (ROW) application, the Project includes: the construction, operation, maintenance, and decommissioning of up to a 100-megawatt wind-powered electrical generation facility and associated generation tie-line and access road facilities on approximately 16,648 acres of Federal lands administered by the BLM. Approval of the ROW application by the BLM would also require approving an amendment to the 2010 Socorro Field Office RMP to make the Visual Resources Management classification in the application area compatible with wind development.

In preparing the Final EIS/RMP Amendment, the BLM has developed a range of options to resolve resource conflicts by considering: (1) issues raised through the public scoping and public comment periods and consultation and coordination with participating and cooperating agencies and American Indian tribes; (2) issues raised by agency resource specialists; and (3) applicable resource management planning criteria. This process has resulted in the development of two alternatives in addition to the Proposed Action. The No Action Alternative is also addressed, which constitutes a continuation of current land management in the application area. These alternatives are described in Chapter 2: Proposed Action and Alternatives of the Final EIS/RMP Amendment. The BLM has identified Alternative 2 as the Preferred Alternative, which would consist of 34 constructed turbines including larger turbines having a maximum overall height of up to 630 feet on approximately 16,648 acres of BLM-administered land. Chapter 4: Consultation and Coordination describes the BLM’s consultation and coordination efforts throughout the process. Responses to public comments and revisions to the Draft EIS/RMP Amendment are detailed in Appendix G: Comments and Responses to Comments on the Draft EIS.
The Final EIS/RMP Amendment includes land use planning actions. A person who meets the conditions outlined in 43 CFR 1610.5-2 and wishes to file a protest to the RMP Amendment specifically, must do so within 30 days of the date that the Environmental Protection Agency publishes its Notice of Availability in the *Federal Register*. Instructions for filing a protest with the Director of the BLM regarding the Final EIS/RMP Amendment may be found online at [https://www.blm.gov/filing-a-plan-protest](https://www.blm.gov/filing-a-plan-protest) and at 43 CFR 1610.5-2.

Protests will be accepted from any person who participated in the planning process and has an interest which is or may be adversely affected by the approval of the RMP Amendment. A protest may raise only those issues which were submitted for the record during the planning process. The protest shall be in writing and shall be filed with the BLM Director. The protest shall contain: (1) the name, mailing address, telephone number, and interest of the person filing the protest; (2) a statement of the issue or issues being protested; (3) a statement of the part or parts of the plan or amendment being protested; (4) a copy of all documents addressing the issue or issues that were submitted during the planning process by the protesting party or an indication of the date the issue or issues were discussed for the record; and (5) a concise statement explaining why the State Director’s decision is believed to be wrong.

You may submit protests electronically through the BLM ePlanning project website at [https://go.usa.gov/xyFmh](https://go.usa.gov/xyFmh).

Protests submitted electronically by any means other than the ePlanning Project website protest section will be invalid unless a protest is also submitted in hard copy. Protests submitted by fax will also be invalid unless also submitted either through the ePlanning Project website protest section or in hard copy. Alternately, written protests can be mailed to one of the following addresses:

- Regular mail: Director (210), Attn: Protest Coordinator, P.O. Box 261117, Lakewood, CO 80226
- Overnight delivery: Director (210), Attn: Protest Coordinator, 2850 Youngfield Street, Lakewood, CO 80215

Before including your address, telephone number, email address, or other personally identifying information in your protest, be advised that your entire protest - including your personal identifying information - may be made publicly available at any time. You may request that the BLM withhold your personal identifying information from public review, but we cannot guarantee we will be able to do so.

The BLM Director will render a written decision on each protest. The decision will be mailed to the protesting party. The decision of the BLM Director shall be the final decision of the Department of the Interior on each protest. Responses to protest issues will be complied and formalized in a Director’s Protest Resolution Report made available following issuance of the decision. Upon resolution of all protests, the BLM will issue the record of decision.
All Project documents will be made available electronically on the BLM’s ePlanning website at: https://go.usa.gov/xyFmh. Hard copies are available for viewing at the BLM Socorro Field Office, 901 South Highway 85, Socorro, NM 87801, and the BLM New Mexico State Office, 301 Dinosaur Trail, Santa Fe, NM 87508.

Thank you for your continued interest in the Borderlands Wind Project EIS/RMP Amendment.

Sincerely,

[Signature]

Timothy R. Spisak
State Director
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CHAPTER 1. INTRODUCTION

Borderlands Wind, LLC, a subsidiary of NextEra Energy Resources, LLC (Proponent), is proposing development of an up to 100-megawatt (MW) wind-powered electrical generation facility in western Catron County, New Mexico (NM). The Borderlands Wind Project (BLWP) would be built near the Arizona (AZ) – NM border south of U.S. Highway 60 (U.S. 60) (Figure 1-1). Wind turbines and ancillary facilities, such as access roads, underground collection lines, and substation/switchyard areas, would be located on lands administered by the Bureau of Land Management (BLM) Socorro Field Office (SFO), New Mexico State Land Office (NMSLO)-owned lands, and privately owned lands. The Proponent has filed an application with the BLM for a Federal Land Policy and Management Act of 1976 (FLPMA) Right-of-Way (ROW) authorization. The BLM must consider existing resource management plans (RMPs) in the decision to issue a ROW grant, in accordance with 43 Code of Federal Regulations (CFR) Part 1610.0-5(b). The proposed wind development alternatives are not in conformance with the SFO RMP (BLM 2010a); therefore, an amendment to the RMP will be analyzed in this Environmental Impact Statement (EIS). An amendment to the SFO RMP would modify the visual resource management (VRM) classes and ROW avoidance area status.

The BLM's obligations for the proposed project are established by regulatory directives and current energy development trends. BLM's decision-making process will incorporate and consider the following Presidential Executive Orders (EOs): Promoting Energy Independence and Economic Growth (EO 13783), Promoting Agriculture and Rural Prosperity in America (EO 13790), and Establishing Discipline and Accountability in the Environmental Review and Permitting Process for Infrastructure Projects (EO 13807). Secretarial Order (SO) 3349 (American Energy Independence) provides guidance for the implementation of the Presidential EOs.

The Proponent considered wind generating sites near existing Tucson Electric Power (TEP) transmission lines and avoided areas with existing congestion in the transmission network (such as sites surrounding Albuquerque, NM). Based on these site characteristics, two project areas were identified and initially evaluated for their feasibility for development as a wind energy facility. In addition to the BLWP area (Figure 1-1), an alternate project area was considered that was located approximately 40 miles northwest of the BLWP area in AZ. The AZ project area was not selected for development because the wind resources are of lower quality than at the BLWP area (SWCA Environmental Consultants 2018a). Additionally, this alternative project area had substantially more environmental constraints. There were numerous eagle nests on and within 10 miles of the site, and it was also located near highly sensitive cultural resources for which the Tribes expressed substantial concerns. The Proponent ultimately selected the proposed BLWP area due to the quality of wind resources, proximity to existing TEP transmission lines, relatively limited potential impacts to cultural resources as compared to the AZ project site, and compatibility with existing land uses in the BLWP area, which is predominately cattle grazing (Borderlands Wind, LLC 2020).
Figure 1-1. BLWP Area
1.1 Purpose and Need

The BLM's purpose and need for the proposed BLWP is established by regulatory obligations and directives and current energy development trends. The BLM's purpose is to respond to a ROW application submitted by the Proponent to construct, operate, maintain, and decommission a wind energy facility and associated infrastructure in compliance with FLPMA, BLM ROW regulations, and other applicable Federal laws and policies. The need for the BLM's proposed action arises from FLPMA as amended October 1976 through December 2014, which established a multiple use mandate for management of Federal lands, including "systems for generation, transmission, and distribution of electric energy, except that the applicant shall also comply with all applicable requirements of the Federal Energy Regulatory Commission under the Federal Power Act, including Part I thereof (41 Stat. 1063, 16 United States Code [U.S.C.] 791a-825r)” outlined in Title V of FLPMA. The BLM's action in considering the Proponent's ROW application is provided under the authority of the Secretary of the Interior to "grant issue or renew rights of way ... for generation, transmission, and distribution of electric energy" (43 CFR 2800). The purpose and need is used to formulate a reasonable range of alternatives to be considered in the EIS.

1.2 Proponent’s Project Objectives

The Proponent’s objective for the BLWP is to respond to a proposal from TEP for a wind project that is directly interconnected to their transmission system and can generate up to 100 MW of power for their customers. TEP, an AZ utility, is responding to market demands generated by the retirements of coal facilities along with transmission lines that deliver power to the Four Corners region (AZ–NM–Colorado–Utah) and to an increased interest in renewable energy to replace this power generation (Borderlands Wind, LLC 2020). Under the Renewable Energy Standard and Tariff that was approved by the AZ Corporation Commission in 2006, regulated utilities, such as TEP, must generate 15 percent of their energy from renewable resources by 2025.

1.3 Decisions to be Made

This EIS provides the information and environmental analysis necessary to inform the BLM’s authorized officer and the public about the potential environmental consequences of the BLWP. It tiers to the BLM’s Final Programmatic Environmental Impact Statement for Wind Energy Development on BLM-Administered Lands in the Western United States and Record of Decision (Final Wind Energy PEIS and ROD [BLM 2005]). The purpose of the BLM’s action is to respond to the Proponent’s application for use of BLM-administered lands for a ROW. Specifically, the BLM will decide whether to grant, grant with conditions, or deny the application for a ROW. Pursuant to 43 CFR § 2805.10, if the BLM issues a grant, the BLM decision maker may include terms, conditions, and stipulations determined to be in the public interest. If the decision is made to grant the ROW, the BLM also will decide which alternative to select; any mitigation requirements; and the terms, conditions, and stipulations of the grant.

The BLWP, as submitted, will require an SFO RMP amendment (BLM 2010a) if the proposed project is approved or approved with modification, and the BLM NM State Director will make the decision as to whether or not to adopt the RMP amendment. In the ROD, the BLM will clearly distinguish the RMP amendment decision from the selected alternative.

1.4 Land Use Planning

Management direction of public land and resources is provided in land use plans or RMPs for each BLM field office or district office. The BLM must review relevant land use plans and RMPs to determine if a proposed project is in conformance with the management decisions and objectives of those plans. If a
proposed project is not in conformance, the BLM can choose to either deny the project, adjust the project to conform to the RMP, or amend the RMP to address the nonconformance. In this Final EIS, the BLM identified a plan amendment needed for VRM allocations for all of the alternatives that are fully analyzed within the EIS. The development of a wind energy facility, such as the BLWP, must be consistent with the SFO RMP and applicable BLM policy (refer to Section 1.5 Authorizing Laws, Regulations, and Policies). The project, as proposed, does not currently conform to the SFO RMP for VRM objectives and ROW avoidance; therefore, this EIS will analyze an RMP amendment.

In addition, the 2007 Catron County Capital Improvement Plan (CIP)/Comprehensive Plan (Catron County 2007) was considered when evaluating potential impacts to land ownership and use patterns in the project vicinity (refer to Section 3.2 Land Use). The land use designations in the 2007 Catron County CIP/Comprehensive Plan for the BLWP area are “Government Controlled” for the BLM-administered lands and NMSLO lands, and “Rural” for the private lands. The general land use goals identified in Catron County’s (County) plan include 1) encouraging local and sustainable growth in the County; 2) protecting existing land uses, natural resources, and related economic activities; and 3) protecting the County’s natural beauty.

1.5 Authorizing Laws, Regulations, and Policies

The FLPMA and its implementing regulations provide the legal framework that the BLM uses to manage public lands and assess the effects of its management actions. The BLWP would be required to obtain the applicable authorizations established in the BLM’s Final Wind Energy PEIS and ROD (BLM 2005), as well as those from the SFO RMP. This EIS is being prepared by the BLM in compliance with the National Environmental Protection Act (NEPA); FLPMA; and U.S. Department of the Interior (DOI) and BLM policies and manuals, including the BLM NEPA Handbook (BLM 2008b). Table A-1 in Appendix A lists the relevant actions and authorities that must be obtained or considered for the BLWP. Table A-2 in Appendix A provides a partial list and summary of other Federal, State, and County authorities and actions that may be applicable to this EIS.

1.6 Lead Agency and Cooperating Agencies

The BLM through its New Mexico State Office, is the lead Federal agency responsible for preparing this EIS and associated analyses. The Council on Environmental Quality (CEQ) regulations addressing cooperating agencies statuses (40 CFR §§ 1501.6 & 1508.5) implement the NEPA requirement that Federal agencies responsible for preparing NEPA analyses and documentation do so in cooperation with State and local governments and other agencies with jurisdiction by law or special expertise.

The BLM invited various Federal, State, and County agencies and Tribal governments to participate as cooperating agencies in May 2018. Five agencies accepted: U.S. Air Force, U.S. Fish and Wildlife Service (USFWS), NMSLO, Catron County, and the Pueblo of Zuni.

1.7 Issues to Address in the EIS

Public scoping for the BLWP was initiated on November 9, 2018, when the BLM published a Notice of Intent (NOI) to prepare an EIS in the Federal Register. The NOI briefly described the purpose of and need for the BLWP, the proposed project location, and infrastructure associated with the BLWP; and initiated the scoping process and 30-day public comment period to solicit public comments and identify issues. It also served to segregate the public lands from appropriation in accordance with 43 CFR 2091.3-1(e)(1) and 43 CFR 2804.25(f).
The BLM also identified issues through internal scoping among the BLM interdisciplinary staff. The scoping process is described in Chapter 4. The Scoping Report, as well as the BLM’s consultation and coordination documentation are available on the project’s BLM website.

Of the 51 (47 public and 4 agency) comment submissions (comment letters and/or emails), five people sent in the same comments twice and one organization sent the same comments from two different individuals, which resulted in 45 unique letters and/or emails. There were two comments in support of the renewable energy project. A summary of issues that were raised most frequently during the public scoping period is provided below:

- **Socioeconomics** – Residents or private property owners in the adjacent Red Hill/Cimarron Ranch Subdivision noted issues related to property values, noise, and human health effects. Comments made noted the lack of local economic benefits, specifically loss of revenue from hunting and tourism; increased fire danger and added burden to local firefighters; and the change from a natural landscape to an industrial setting.

- **Biological Resources** – Numerous issues identified in public comments focused on impacts to biological resources, particularly eagles and other special status species, as well as bat and avian species. Other comments focused generally on the loss of vegetation, wildlife, and habitat; habitat disturbance and fragmentation; loss of elk habitat and migration path disruption; and ability for successful revegetation and restoration after project construction and decommissioning.

- **Visual Resources** – Comments on visual resources focused primarily on effects to views and the visibility of project facilities from nearby residences, places of traditional cultural importance, and recreational resources. Other comments were noted on the degradation of panoramic views, the night sky, and the landscape’s natural character.

- **Cultural Resources** – Most of the comments on cultural resources indicated concern for impacts to archaeological resources and places of traditional cultural importance, such as Zuni Salt Lake.

- **Land Use, Recreation, and Transportation** – Some comments on land use identified effects to livestock grazing during the construction and revegetation process. Other comments questioned the impact to recreation and hunting use, and how the recreation experience would change in terms of the addition of a wind facility to the area. Comments were also received noting the potential degradation of U.S. 60 during construction by heavy equipment and increased volume of project-related vehicles. Additionally, driver distraction concerns were noted from the strobe effects of the wind turbine blade’s movement during operation.

- **Military Training Routes** – Concerns were noted regarding the possible effects to military training flight paths, but with no distinct issue identified or responsive statement made.

Scoping comments raised that were not related to resources or uses included requests for information and to be added to the mailing list. Several comments asked for more advance notification for subsequent public meetings on the project and at a location closer to the Red Hill/Cimarron Ranch Subdivision. Commenters also requested formal presentations and the ability to make verbal comments at future BLWP public meetings.
CHAPTER 2. PROPOSED ACTION AND ALTERNATIVES

This chapter describes the BLWP’s Proposed Action, Alternative 1, Alternative 2, and the No Action Alternative. A detailed description of the construction, operation and maintenance (O&M), and decommissioning of the proposed wind energy facility is provided in Section 2.2 Project Elements Common to All Build Alternatives and the BLWP Plan of Development1 (POD) (Borderlands Wind, LLC 2020; Appendix C).

2.1 Best Management Practices

All phases of the BLWP would be subject to the BLM’s best management practices (BMPs), which are designed to guide project planning, construction activities, development of facilities, O&M, and decommissioning in order to minimize environmental and operational impacts. The BLWP would develop wind energy resources in compliance with the BMPs and other design features that were evaluated in the BLM’s Final Wind Energy PEIS and ROD (BLM 2005). The applicable BMPs and other design features are included in Appendix B of this EIS.

2.2 Project Elements Common to All Build Alternatives

2.2.1. Right-of-Way Application

Under the Proposed Action and Alternatives 1 and 2 (build alternatives2), the Applicant is seeking a ROW for development of the project.

2.2.2. Resource Management Plan Amendment

The build alternatives include amending the VRM Class II objective in the SFO RMP to VRM Class III objective and VRM Class III objective to Class IV objective (refer to Table 3-24 and Table 3-25) for the proposed management activities. A ROW avoidance area was delineated along U.S. 60 to protect the VRM Class II allocation and would no longer be applicable if the VRM Class II allocation was removed.

2.2.3. Project Components

Details regarding the Proposed Action and Alternatives 1 and 2 are drawn from the BLWP POD (see Appendix C), clarification meetings between the BLM and the Proponent, and other agencies, as appropriate. The Proponent has a Power Purchase Agreement with TEP. The Point of Interconnect for all build alternatives would tie into the existing TEP 345-kilovolt (kV) transmission line. The Proponent selected the BLWP area based on the quality of available wind resources, proximity to existing transmission lines and compatibility with the current grazing use. Subject to the BLM’s approval of the ROW application (with or without modification), the wind energy facility would operate year-round for up to 35 years. Analysis and surveys conducted within the BLWP area were applied to all alternatives.

Three models of wind turbine generators are proposed for the BLWP (Table 2-1). For all models, the turbine tower would be a tapered tubular steel structure manufactured in multiple sections depending on

1 The calculations for acreages and mileages provided in this EIS, in some cases, may not match the BLWP POD calculated acreages and mileages due to differences in data projections and coordinate systems. This EIS uses the North American Datum (NAD) 1983 Albers projected coordinate system, as requested by the BLM SFO and the BLWP POD uses the NAD 1983 Universal Transverse Mercator Zone 12 North projected coordinate system.

2 The term “build alternatives” is interchangeable and used synonymously with “Proposed Action and Alternatives 1 and 2” throughout the document to encompass the alternatives that would require construction, O&M, and decommissioning of the BLWP. This is in contrast to the No Action Alternative, which would not involve any development of a wind generation facility.
tower model height. The tower base would be approximately 15 feet in diameter, and the tower would be painted per Federal Aviation Administration (FAA) requirements (FAA 2018).

The nacelle sits on top of the tower and houses the main mechanical components of the wind turbine, drive train, gearbox, and generator. The nacelle would be equipped with an anemometer and a wind vane that signals wind speed and direction information to an electronic controller. The hub attaches the blades to the rotor shaft and is covered by a nose-cone structure to streamline the airflow and protect the equipment. The hub also contains the mechanisms that allow the blades to pitch in response to wind, temperature, and air density conditions. As noted in the descriptions of the alternatives below, the number and size of the turbines to be constructed would depend on the alternative. Based on the turbines considered, the blades would turn at no more than 18 revolutions per minute depending on wind conditions. Turbines would also have a braking system to allow the controller to stop the rotor. Each turbine would be equipped with a computer control system to monitor variables consisting of wind speed and direction, air and machine temperatures, electrical voltages, currents, vibrations, blade pitch, and yaw (side-to-side) movement (BLM 2013a).

<table>
<thead>
<tr>
<th>Turbine Component</th>
<th>GE 2-MW Platform 2.3 MW (feet)</th>
<th>GE 2-MW Platform 2.5 MW (feet)</th>
<th>GE 2-MW Platform 3.03 MW (feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hub height</td>
<td>262</td>
<td>295</td>
<td>322 - 384</td>
</tr>
<tr>
<td>Rotor/blade radius</td>
<td>190</td>
<td>190</td>
<td>230</td>
</tr>
<tr>
<td>Rotor/blade diameter</td>
<td>380</td>
<td>381</td>
<td>459</td>
</tr>
<tr>
<td>Ground clearance</td>
<td>72</td>
<td>84</td>
<td>92 - 154</td>
</tr>
<tr>
<td>Maximum overall height</td>
<td>453</td>
<td>499</td>
<td>up to 630</td>
</tr>
</tbody>
</table>

Table Abbreviations: GE = General Electric; MW = megawatt
Note: Technical data represent the maximum worst-case design characteristics for each model, based on available manufacturer specifications (Borderlands Wind, LLC 2020)

Each turbine would have a pad-mounted transformer box at the base. Each wind turbine, through its associated transformer, would collect electricity and transfer it to a collector substation via the electrical collection system. The transformer at each wind turbine would increase the voltage for efficiency. The collection system would consist of underground cables connecting individual wind turbine generators together and then transporting the electrical power to the BLWP substation. Voltage at the substation would be increased from 34.5 kV to the interconnection voltage of 345 kV. In addition to wind turbines, numerous ancillary project components and activities would be associated with the construction, O&M, and decommissioning of the BLWP (Table 2-2; Appendix C). See Table 2-2 below for a detailed comparison of the components for the Proposed Action and Alternatives 1 and 2.

2.2.4. Project Construction

Site preparation would be the first phase of construction, including clearing and grading of the temporary laydown areas, turbine foundation, trenching for electrical cabling, and access roads. Any limitations of areas to be disturbed would be clearly defined prior to construction of roads, collection systems, and turbine locations. The Flagging, Fencing, and Signage Plan included in the BLWP POD further details site preparation, surveying, and staking. Site grading and clearing would be performed in accordance with BLM policies and the State-approved Stormwater Pollution Prevention Plan (Borderlands Wind, LLC 2020).

Delivery vehicles would be directed to a single point of access at the U.S. 60 and Bill Knight Gap Road intersection. During construction, the peak volume of trips generated along U.S. 60 is estimated at approximately 500 trips per day (based on 160 construction personnel and 50 delivery trucks leaving and
<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
<th>Proposed Action</th>
<th>Alternative 1</th>
<th>Alternative 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wind Turbines and Pad-mounted</td>
<td>Construction and installation of wind turbines to generate up to 100 MW of power. Each turbine would be mounted on a concrete pedestal, supported by a permanent underground concrete foundation with a tubular steel tower.</td>
<td>● 46 turbines permitted</td>
<td>● 44 turbines permitted</td>
<td>● 44 turbines permitted</td>
</tr>
<tr>
<td>Transformers¹</td>
<td></td>
<td>● 40 turbines constructed (36 GE 2.5 MW &amp; 4 GE 2.3 MW)</td>
<td>● 40 turbines constructed (36 GE 2.5 MW &amp; 4 GE 2.3 MW)</td>
<td>● 34 turbines constructed (30 GE 3.0 MW &amp; 4 GE 2.5 MW)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>● 6 alternative locations</td>
<td>● 4 alternative locations</td>
<td>● 10 alternative locations</td>
</tr>
<tr>
<td></td>
<td></td>
<td>● Temporary disturbance:                                                                 ● 1.6 acres/turbine  ● 74.5 acres total  ● Permanent disturbance:                                                                 ● 0.2 acre/turbine  ● 9.2 acres total</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>● 44 turbines permitted</td>
<td>● 44 turbines permitted</td>
<td>● 44 turbines permitted</td>
</tr>
<tr>
<td></td>
<td></td>
<td>● 40 turbines constructed (36 GE 2.5 MW &amp; 4 GE 2.3 MW)</td>
<td>● 40 turbines constructed (36 GE 2.5 MW &amp; 4 GE 2.3 MW)</td>
<td>● 34 turbines constructed (30 GE 3.0 MW &amp; 4 GE 2.5 MW)</td>
</tr>
<tr>
<td></td>
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<td>● 6 alternative locations</td>
<td>● 4 alternative locations</td>
<td>● 10 alternative locations</td>
</tr>
<tr>
<td></td>
<td></td>
<td>● Temporary disturbance:                                                                 ● 6.5 acres/turbine  ● 286.6 acres total  ● Permanent disturbance:                                                                 ● 0.1 acre/turbine  ● 4.8 acres total</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electrical</td>
<td>The BLWP substation would be located where all underground electrical collection lines would terminate. The substation would step up the electricity generated by the BLWP to the voltage necessary to transmit it across the transmission system. The BLWP substation would include a power transformer, breakers, feeder breakers, switches, control house, and a substation superstructure. Exterior lighting at the substation would be down-shielded. The switchyard would be connected to, and in close proximity to, the BLWP substation. The switchyard would integrate the electricity generated by the BLWP onto the existing transmission system and may include circuit breakers, switches and controls, and a control building. Emergency backup power to the substation control house would be provided by connecting into Socorro Electric’s existing distribution line.</td>
<td>Temporary disturbance:                                                                 ● 7 acres total  Permanent disturbance:                                                                 ● 7 acres total</td>
<td>Temporary disturbance:                                                                 ● Same as Proposed Action  Permanent disturbance:                                                                 ● Same as Proposed Action</td>
<td>Temporary disturbance:                                                                 ● Same as Proposed Action  Permanent disturbance:                                                                 ● Same as Proposed Action</td>
</tr>
<tr>
<td>Interconnection</td>
<td>Substation and Switchyard</td>
<td>Temporarily disturbance:                                                                 ● 7 acres total  Permanent disturbance:                                                                 ● 7 acres total</td>
<td>Temporary disturbance:                                                                 ● Same as Proposed Action  Permanent disturbance:                                                                 ● Same as Proposed Action</td>
<td>Temporary disturbance:                                                                 ● Same as Proposed Action  Permanent disturbance:                                                                 ● Same as Proposed Action</td>
</tr>
<tr>
<td>Communication Lines</td>
<td>Each wind turbine would be connected to the substation by underground power and communication cables (i.e., the collection lines). Trenching for the underground collection lines would be approximately 4 feet wide and 3 feet deep. Where underground collection lines and access roads are co-located, trenching would occur adjacent to the roadbed, an average of 2 to 4 feet from the roadbed. It is anticipated that 60 feet of temporary workspace would be needed for trenching.</td>
<td>Temporary disturbance:                                                                 ● 29.7 miles (213.7 acres) total  Permanent disturbance:                                                                 ● 0 acres; all temporary areas of disturbance would be reclaimed</td>
<td>Temporary disturbance:                                                                 ● 30.4 miles (203.5 acres) total  11 junction boxes within the footprint of the O&amp;M building; no additional disturbance Permanent disturbance:</td>
<td>Temporary disturbance:                                                                 ● Same as Alternative 1  Permanent disturbance:                                                                 ● Same as Alternative 1</td>
</tr>
<tr>
<td>Underground</td>
<td>Electric Collection System and Communication Lines</td>
<td>Temporarily disturbance:                                                                 ● 29.7 miles (213.7 acres) total  Permanent disturbance:                                                                 ● 0 acres; all temporary areas of disturbance would be reclaimed</td>
<td>Temporary disturbance:                                                                 ● 30.4 miles (203.5 acres) total  11 junction boxes within the footprint of the O&amp;M building; no additional disturbance Permanent disturbance:</td>
<td>Temporary disturbance:                                                                 ● Same as Alternative 1  Permanent disturbance:                                                                 ● Same as Alternative 1</td>
</tr>
<tr>
<td></td>
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<td></td>
</tr>
<tr>
<td>Component</td>
<td>Description</td>
<td>Proposed Action</td>
<td>Alternative 1</td>
<td>Alternative 2</td>
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<td>-------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
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</tr>
<tr>
<td>Junction Boxes</td>
<td>Additionally, 11 junction boxes would be required throughout the proposed project area for Alternatives 1 and 2. A junction box is where all electrical wires meet, connect, and are protected before being routed to other locations in the proposed project. Each junction box location is estimated to be 6 feet long, 4 feet wide, 4 feet deep below the surface, and would be visible as a 3 by 3-foot square aboveground. Each junction box would have a 1-foot gravel ring around it as there is some grounding copper buried under and around the box.</td>
<td>0.1 acre for junction boxes; all other areas would be reclaimed</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| O&M Facility      | The 2,500-square-foot single-story O&M building would provide a home base for maintenance services and operational on-site monitoring. It would be a pre-manufactured building assembled on a concrete slab foundation. The O&M building would contain offices; restrooms; a kitchen/breakroom; a room to house the control system for the turbines; and a warehouse area that would store spare parts, tools, and maintenance equipment. Outside the O&M building would be a gravel parking area and outdoor storage area. Electricity to the O&M facility would be provided by connecting into Socorro Electric’s existing distribution line. A 1,000-gallon septic tank would also be constructed as part of the O&M facilities, if feasible. If construction of a septic tank would not be possible, either a holding tank would be constructed that would be pumped periodically or porta-potties would be placed near the O&M building. | • Temporary disturbance: 5 acres total  
• Permanent disturbance: 5 acres total | • Temporary disturbance: Same as Proposed Action  
• Permanent disturbance: Same as Proposed Action | • Temporary disturbance: Same as Proposed Action  
• Permanent disturbance: Same as Proposed Action |
| Distribution Line | An approximately 12-kV, single-phase line would be made of 45-foot-tall wooden poles. The poles would span approximately 250 feet. The distribution line would connect to an existing regional transmission line to deliver BLWP power to TEP. | • Temporary disturbance: 1.8 miles long; 100 feet wide (22.7 acres)  
• Permanent disturbance: 1.8 miles long; 100 feet wide (22.7 acres) | • Temporary disturbance: Same as Proposed Action  
• Permanent disturbance: Same as Proposed Action | • Temporary disturbance: Same as Proposed Action  
• Permanent disturbance: Same as Proposed Action |
<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
<th>Proposed Action</th>
<th>Alternative 1</th>
<th>Alternative 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access Roads</td>
<td>Existing roads would be used to the extent feasible and would be improved by regrading and filling the surface to allow for all-weather access. Roads would be graded, include sufficient drainage, and be surfaced with an aggregate surface material. During construction, roads would be contained within the 150-foot-wide temporary disturbance corridor to accommodate construction activities. In the event that the access road would intersect with grazing fences, gates or cattle guards would be constructed and any damaged fencing would be repaired/replaced. Bill Knight Gap Road, from the intersection of U.S. 60, would be the primary access road to the BLWP. Improvements would be needed at the intersection of U.S. 60 and Bill Knight Gap Road. Permanent improvements to this intersection would include the widening of U.S. 60 to the north to construct: 1) an approximate 1,225-foot-long westbound deceleration lane, left-turn lane with storage, and associated taper, 2) an approximate 1,000-foot-long eastbound deceleration lane with storage and associated taper, and 3) apron improvements for turning movement. Hooper Ranch Road, from the intersection of U.S. 60 south to the O&amp;M building, would be a secondary access used only if the primary access is not available. A portion of Hooper Ranch Road (approximately 1.8 miles) would need to be improved between the interconnection and substation to allow for construction of the distribution line.</td>
<td>- Temporary disturbance:  - 48.1 miles total, including 41.3 miles of new roads  - 872.7 acres  - Permanent disturbance:  - 48.1 miles total, including 40.3 miles of new roads and 1 mile of Bill Knight Gap Road reroute  - 16 feet wide for all except Bill Knight Gap Road, which would be 24 feet wide (6.8 miles)  - 101 acres</td>
<td>- Temporary disturbance:  - 47.9 miles total, including 37.9 miles of new roads  - 845.1 acres  - Permanent disturbance:  - 47.9 miles total including 36.9 miles of new roads; and 1 mile of Bill Knight Gap Road reroute  - 16 feet wide for all except Bill Knight Gap Road, which would be 24 feet wide (6.8 miles)  - 97.5 acres</td>
<td>- Temporary disturbance:  - Same as Alternative 1  - Permanent disturbance:  - Same as Alternative 1</td>
</tr>
<tr>
<td>Component</td>
<td>Description</td>
<td>Proposed Action</td>
<td>Alternative 1</td>
<td>Alternative 2</td>
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<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
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</tr>
</tbody>
</table>
| Fencing                 | The substation/switchyard and the O&M facility are the only areas that would be permanently fenced. The substation/switchyard fence would consist of an 8-foot-tall chain-link structure with 1 foot of three-strand barbed wire on top, resulting in a total height of 9 feet. The O&M facility would be fenced with a 6-foot-tall chain-link fence with 1 foot of three-strand barbed wire on top, for a total height of 7 feet. The maximum depth of the fencing would be 4 inches. Facility fence gates would be locked when the facility is unattended. Temporary fencing would be used around areas of vegetation restoration. This fencing would be on previously disturbed lands and no additional ground disturbance is anticipated. | • Temporary disturbance:  
  − Within the footprint of the substation/switchyard and the O&M facility, no additional disturbance  
  − Permanent disturbance:  
    − Within the footprint of the substation/switchyard and the O&M facility, no additional disturbance | • Temporary disturbance:  
  − Same as Proposed Action  
  − Permanent disturbance:  
    − Same as Proposed Action | • Temporary disturbance:  
  − Same as Proposed Action  
  − Permanent disturbance:  
    − Same as Proposed Action |
| Construction Laydown/Staging Areas | Three secure areas for temporary construction offices, construction vehicle parking, equipment and construction materials storage, and stockpiled soil storage would be developed. The laydown areas would be cleared and graded by bulldozers, road graders, or other standard earth moving equipment. At the end of construction, these areas would be reclaimed and revegetated. Electricity to the construction laydown/staging areas would be provided by on-site generators. | • Temporary disturbance:  
  − 60.8 acres total  
  − Permanent disturbance:  
    − 0 acres; all temporary areas would be reclaimed | • Temporary disturbance:  
  − Same as Proposed Action  
  − Permanent disturbance:  
    − Same as Proposed Action | • Temporary disturbance:  
  − Same as Proposed Action  
  − Permanent disturbance:  
    − Same as Proposed Action |
<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
<th>Proposed Action</th>
<th>Alternative 1</th>
<th>Alternative 2</th>
</tr>
</thead>
</table>
| Construction Concrete Batch Plant | The temporary concrete batch plant would be co-located within one of the construction laydown/staging areas. The plant would supply the concrete needed for project components (e.g., turbine foundations). The batch plant and associated facilities would include silos to contain fly ash, lime, and cement; aboveground storage tanks for water storage; and outside storage areas for sand- and gravel-mixing equipment. The heights of these facilities generally range from 30 to 50 feet. A washout area would be located within the laydown/staging area, with the concrete removed and reclaimed when the washout area is no longer needed. Electricity to the batch plant would be provided by on-site generators; one 500-kilowatt generator for the batch plant and two 60-kilowatt generators for the other facilities. | • Temporary disturbance:  
  − 2 acres within the footprint of the laydown/staging area, no additional disturbance  
  − Permanent disturbance:  
  − 0 acres; all temporary areas would be reclaimed | • Temporary disturbance:  
  − Same as Proposed Action  
  − Permanent disturbance:  
  − Same as Proposed Action | • Temporary disturbance:  
  − Same as Proposed Action  
  − Permanent disturbance:  
  − Same as Proposed Action |
| Water                   | Construction activities would require approximately 26 million gallons of water and would be pumped from a permitted private well and conveyed through aboveground piping. Water rights would remain with the private well owner.  
A new 5- to 6-gallon per minute well would be drilled for O&M water use; estimated withdrawal at 140,800 gallons per year. The new well would be located next to the O&M building. Until the new well adjacent to the O&M is fully functional, water may either be pumped from an existing domestic well and conveyed through aboveground piping to storage tanks, or trucked in and held in the storage tanks. O&M water use would be limited to restroom and kitchen use for staff. A domestic water use permit would be acquired for the O&M building well with water rights appropriated to the Proponent for the life of the BLM ROW grant. Water rights would be conveyed to the BLM once the BLWP is decommissioned. | • Temporary disturbance:  
  − 1.5 miles of water line would follow access road disturbance; no new disturbance  
  − 0 acres for new well construction within the footprint of the O&M building; no additional disturbance  
  − Permanent disturbance:  
  − 0 acres; all temporary areas would be reclaimed | • Temporary disturbance:  
  − Same as Proposed Action  
  − Permanent disturbance:  
  − Same as Proposed Action | • Temporary disturbance:  
  − Same as Proposed Action  
  − Permanent disturbance:  
  − Same as Proposed Action |
<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
<th>Proposed Action</th>
<th>Alternative 1</th>
<th>Alternative 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aviation Lighting</td>
<td>The turbines and meteorological (MET) towers would have medium-intensity, red strobe warning lights attached to the nacelles of the turbines. The FAA would make the final determination as to which turbines would require nighttime lights. If approved by FAA, the turbines and MET towers would have the Aircraft Detection Lighting System (ADLS), which would automatically be illuminated when aircraft are detected. Lighting would also be compatible with night vision goggles, as necessary for military training exercises.</td>
<td>No temporary or permanent ground disturbance</td>
<td>No temporary or permanent ground disturbance</td>
<td>No temporary or permanent ground disturbance</td>
</tr>
</tbody>
</table>
| Meteorological (MET) Tower    | Four MET tower locations would be considered, only two MET towers would be needed during operations. The MET tower would be no more than 361 feet tall and lighted with the ADLS, if approved by the FAA. Data collected from the MET tower would be transmitted wirelessly to an off-site location; frequent access to the tower would not be needed. It is anticipated that personnel would visit the MET tower one or two times a year to perform routine maintenance. | • Temporary disturbance:  
  − 14.0 acres total  
  − Permanent disturbance:  
  − 0.1 acre total | • Temporary disturbance:  
  − Same as the Proposed Action  
  − Permanent disturbance:  
  − Same as the Proposed Action | • Temporary disturbance:  
  − Same as the Proposed Action  
  − Permanent disturbance:  
  − Same as the Proposed Action |
| ADLS Radar Units and Associated Server Rack Houses | This system would require two radar units and associated server rack houses. The radar units would be no more than 33 feet tall and the server rack house units would be no more than 6 feet tall. | • Temporary disturbance:  
  − all temporarily disturbed areas for the radar system installation would be within the footprint of the access road temporary disturbance; no additional disturbance  
  − Permanent disturbance:  
  − 0.1 acre total | • Temporary disturbance:  
  − Same as the Proposed Action  
  − Permanent disturbance:  
  − Same as the Proposed Action | • Temporary disturbance:  
  − Same as the Proposed Action  
  − Permanent disturbance:  
  − Same as the Proposed Action |
<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
<th>Proposed Action</th>
<th>Alternative 1</th>
<th>Alternative 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waste/Hazardous Materials</td>
<td>Minimal hazardous materials are expected to be used, stored, transported, or disposed of as a result of the project. The Waste and Hazardous Materials Management and a Spill Prevention, Control, and Countermeasure plans in the BLWP POD address non-hazardous waste-stream composition, lubricant spills and cleanup procedures, and protocols for identifying hazardous waste.</td>
<td>No temporary or permanent ground disturbance</td>
<td>No temporary or permanent ground disturbance</td>
<td>No temporary or permanent ground disturbance</td>
</tr>
<tr>
<td>Fire Protection</td>
<td>The Emergency Preparedness and Response Plan and Fire Protection and Prevention Plan are included in the BLWP POD to prevent and manage fire during construction and operation of the proposed wind facility.</td>
<td>No temporary or permanent disturbance</td>
<td>No temporary or permanent disturbance</td>
<td>No temporary or permanent disturbance</td>
</tr>
</tbody>
</table>

*Table Abbreviations:* ADLS = Aircraft Detection Lighting System; BLWP = Borderlands Wind Project; FAA = Federal Aviation Administration; GE = General Electric; kV = kilovolt; MW = megawatt; NMDOT = New Mexico Department of Transportation; O&M = operation and maintenance; POD = Plan of Development; TEP = Tucson Electric Power

*Source:* Borderlands Wind, LLC 2020

*Note:* The numerical values in this EIS including those provided in tables, are shown to one decimal place. The data used to generate the values was maintained to 10 decimal places in order to capture small values in the analysis. In the EIS tables, the resultant outputs are rounded to one decimal place to make the values readable; therefore, totals and subtotals found in the tables may not appear to sum precisely.

1 Acreages of temporary and permanent disturbance and miles/number of components provided in the table represent the construction of the total number of permitted turbines. The actual amount of disturbance and miles/number of components would be less because the number of turbines constructed would be less than the number of turbines permitted. The final turbine array layout would not be determined until final design, which means the associated components such as the alignment of the collection system would also not be decided until final design.
entering the project site). A Road Design, Traffic, and Transportation Plan is included in BLWP POD (Borderlands Wind, LLC 2020). The next phase of construction would include construction of the switchyard, O&M building, and substations; installation of the electrical hardware; and construction of the turbines. A bulldozer or road grader would clear the area for excavation in order to prepare for each concrete foundation. If the subsurface is too hard to excavate, blasting would be conducted. Blasting may also be required for some select areas of the roads and collection line cable trenches. The BLM would require a Blasting Plan, Hazard Communication Plan, and Safety Plan to be in place before any blasting occurs. Blasting is anticipated to occur for about 1.5 seconds, 2 to 4 times per day, over a 40- to 50-day period. The project would require 18,000 cubic yards of concrete for construction, which would be supplied by the on-site concrete batch plant. The processing area and materials stockpiling area would be located at the batch plant. The batch plant and any excess concrete elements would be removed after the concrete placing phase and could be recycled or reused on other projects. Stockpiles for aggregate and sand would be constructed near the batch plant in a manner that would minimize wind exposure.

After project construction is completed, the site would be cleaned up and restored to facilitate O&M activities. Waste, debris, and equipment used during construction would be removed from the site. Assisted revegetation with native plant materials would occur on all major staging and laydown areas. The BLWP’s roadway footprint would be reduced by decreasing the width of the majority of construction roadways, and revegetating any areas disturbed during construction that would not be retained for operations. The BLWP would be commissioned once the construction of the wind energy facility is done. Detailed inspection and testing procedures would be provided after final turbine commissioning.

### 2.2.5. Construction Workforce Numbers, Vehicles, Equipment, and Time Frames

Project construction would require at least 50 to 70 workers at any given time, and a maximum of 250 workers would be required during peak construction. Construction is anticipated to be completed in 11 to 12 months. Depending on the weather, construction crews would work 8- to 12-hour work days, 6 days per week. Construction-phase vehicles and heavy equipment would be required for construction of the project (Table 2-3).

<table>
<thead>
<tr>
<th>Vehicles</th>
<th>Use Areas</th>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bulldozers and excavators</td>
<td>Turbine locations and major earthwork locations</td>
<td>Clearing, grading, excavating, and moving large quantities of soil</td>
</tr>
<tr>
<td>Crane and forklifts</td>
<td>Turbine locations, O&amp;M, and substation/switchyard</td>
<td>Lifting and erecting turbine components and unloading and placement of equipment and materials</td>
</tr>
<tr>
<td>Graders</td>
<td>Access roads, O&amp;M, turbine locations, and substation/switchyard</td>
<td>Clearing, finish grading, and moving small amounts of soil</td>
</tr>
<tr>
<td>Trenchers and backhoes</td>
<td>Turbine locations and collection system</td>
<td>Small area and trench excavation and backfill</td>
</tr>
<tr>
<td>Delivery trucks and semi-trucks</td>
<td>Access roads and all major construction areas and the concrete batch plant</td>
<td>Delivery of finished concrete, aggregate, cement, water, steel, cable, and other bulk construction items</td>
</tr>
<tr>
<td>Pick-up trucks and sport-utility vehicles</td>
<td>Access roads and all construction areas</td>
<td>Worker and small equipment transport</td>
</tr>
</tbody>
</table>

*Table Abbreviations: O&M = operation and maintenance*

*Source: Borderlands Wind, LLC 2020*
The equipment would be delivered to the site by flatbed combination truck, and most equipment would remain on site until construction is finalized. Construction materials that would be transported to the BLWP site include gravel, rock, and sand, all of which should be locally available.

2.2.6. Operation and Maintenance

Once construction is finalized, on-site personnel would operate and maintain the wind energy facility. Personnel from the wind turbine supplier would also be on-site as needed to perform warranty maintenance and operations servicing. System operations, routine performance checks, troubleshooting malfunctions, turbine system checks, shut down and restart of facilities, and security would be the responsibility of O&M staff. Up to five full-time wind turbine technicians, administrative personnel, operations personnel, and managers would be employed to operate and manage the BLWP. Staff would be working at various times and days for the life of the project. Staff might not be present 24 hours per day, but operations would be monitored continually through the Supervisory Control and Data Acquisition (SCADA) system from a Proponent-operated remote location. Staff would be headquartered at the on-site O&M facility and travel around the site when necessary. During site operations, two to three service vehicles may be used, as crews would work and travel in pairs.

Training would be provided to each staff regularly regarding best practices of health, safety, and environmental protection services. Additionally, any equipment used during the BLWP’s operations would be maintained and regularly inspected by authorized and trained personnel. A complete maintenance schedule would be developed prior to starting operations.

When the initial startup period has concluded, the wind turbines would be serviced at regular intervals. Overhaul maintenance service would also need to be performed annually; servicing would be on site. Occasional blade cleaning may be necessary if debris reduces the turbine’s aerodynamic performance. Water would be used to spray wash the blades using a high-pressure sprayer. Access roads for the BLWP would be graded periodically and compacted to maintain integrity, safety, and environmental requirements for the life of the project. New gravel may periodically be needed to maintain the integrity of the access roads. Maintenance of cut-and-fill slopes, culverts, grade separations, and drainage areas would be performed as needed to control and correct erosion issues and manage functionality of drainage structures.

2.2.7. Decommissioning

The BLWP would have a life expectancy of up to 35 years, based on electrical demand, maintenance, and the expected life of the project facilities and major components. At some period in the future, the BLWP may no longer be cost-effective to continue operation. At that time, the BLWP would be decommissioned and all project facilities would be dismantled and removed in accordance with applicable County, State, and Federal laws. BLM would require receipt of a performance bond to ensure the costs of decommissioning are available. However, underground distribution cables, foundations, and structures would remain in place except as noted in the Decommissioning Plan in the BLWP POD (Borderlands Wind, LLC 2020). To minimize impacts during the decommissioning phase of the project, BMPs and other design features would be implemented (Appendix B).

2.3 Proposed Action

The Proposed Action would be built on 43,528 acres in western Catron County, NM. The Proposed Action area (Figure 2-1) consists of approximately 30,338 acres of public lands administered by the BLM SFO, 5,693 acres of lands managed by the NMSLO, and 7,497 acres of privately owned lands (Table 2-4). Forty wind turbine generators and associated facilities would deliver up to 100 MW of electricity to the electrical transmission grid in the southwestern United States.
Figure 2-1. Proposed Action
Table 2-4. Proposed Action Area Location: Township, Range, Section

<table>
<thead>
<tr>
<th>Township/Range</th>
<th>Sections</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1S, R19W</td>
<td>SE1/4 SE1/4 of Sec. 3, Sec. 10, 15, 16, 17, 19, 20, 21, W1/2 of Sec. 22, 28, 29, 30, 31, 32, 33</td>
</tr>
<tr>
<td>T1S, R20W</td>
<td>Sec. 25, 26, S1/2 NW1/4, NE1/4 NW1/4, E1/2, SW1/4 of Sec. 29, S1/2 NE1/4, S1/2 of Sec. 30, 31, 32, 33, 34, 35, 36</td>
</tr>
<tr>
<td>T2S, R19W</td>
<td>Sec. 4, 5, 6, 7, 8, 9, 17, 18, 19, 20, 29, 30</td>
</tr>
<tr>
<td>T2S, R20W</td>
<td>Sec. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 21, 22, 23, 24, 25, 26, 27, 28, 33, 34, 35, 36</td>
</tr>
<tr>
<td>T3S, R20W</td>
<td>Sec. 3, 4</td>
</tr>
</tbody>
</table>

*Table Abbreviations:* NE = northeast; NW = northwest; R = range; S = south; SE = southeast; Sec. = section; SW = southwest; T = township; W = west

*Note:* Cadastral locations are relative to the New Mexico Principal Meridian, NM

The Proposed Action would consist of 40 constructed turbines, including 36 General Electric (GE) 2.5 MW and 4 GE 2.3 MW turbines (Figure 2-1). The GE 2.5 MW turbines have a maximum overall height of 49 feet, and the GE 2.3 MW turbines have a maximum overall height of 453 feet. The Proponent has identified 46 turbine locations in the Proposed Action area in case turbine locations are determined not suitable during construction. This EIS evaluates all 46 turbine locations for the Proposed Action because the final turbine array layout would not be determined until construction. As a result, the potential disturbance and associated impacts on resources/uses within the Proposed Action area are greater than what the total impacts would be as constructed. In addition to the turbines, project components and ancillary facilities for the Proposed Action are discussed in Section 2.2.
2.4 Alternative 1

Under Alternative 1, the wind energy generating facility would encompass 16,648 acres of lands, with 13,859 acres being public lands administered by the BLM SFO (Figure 2-2 and Table 2-5). The remaining lands in the Alternatives 1 and 2 area are managed by NMSLO (1,168 acres) or by private landowners (1,621 acres). This alternative would reduce the total project boundary acreage by 26,880 acres, including 16,479 acres of BLM-administered public lands, 4,525 acres of NMSLO-managed lands, and 5,876 acres of privately owned lands.

Table 2-5. Alternatives 1 and 2 Area Location: Township, Range, Section

<table>
<thead>
<tr>
<th>Township/Range</th>
<th>Sections</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1S, R19W</td>
<td>E1/2 W1/2, NW1/4 NW1/4 of Sec. 10, E1/2 NW1/4, SW1/4 of Sec. 15, E1/2 NE1/4, E1/2 SE1/4, of Sec. 21, W1/2 NW1/4, NE1/4 NW1/4, NW1/4 SW1/4 of Sec. 22, NE1/4, W1/2 SE1/4, E1/2 SW1/4 of Sec. 28, S1/2, S1/2 NW1/4, NE1/4 NW1/4, SW1/4 NE1/4 of Sec. 33</td>
</tr>
<tr>
<td>T1S, R20W</td>
<td>SE1/4 SW1/4, SW1/4 SE1/4 of Sec. 34</td>
</tr>
<tr>
<td>T2S, R19W</td>
<td>SW1/4 NW1/4, SW1/4 of Sec. 3, Sec. 4, E1/2 NE1/4, SE1/4 of Sec. 5, S1/2 NW1/4, SW1/4 of Sec. 6, W1/2, SE1/4, S1/2 NE1/4, NW1/4 NE1/4 of Sec. 7, E1/2, SW1/4, SW1/4 NW1/4 of Sec. 8, Sec. 9, W1/2, NE1/4, NW1/4 of SE1/4 of Sec. 17, Sec. 18, 19, NW1/4, NW1/4 SW1/4 of Sec. 20, NW1/4, NW1/4 SW1/4, E1/2 SW1/4, W1/2 E1/2, NE1/4 NE1/4 of Sec. 30</td>
</tr>
<tr>
<td>T2S, R20W</td>
<td>NW1/4, W1/2 SW1/4 of Sec. 1, Sec. 2, NW1/4 SW1/4, E1/2 W1/2, W1/2 E1/2, SE1/4 SE1/4 of Sec. 3, Sec. 10, 11, 12, 13, 14, E1/2, SW1/4, S1/2 NW1/4, NE1/4 NW1/4 of Sec. 15, E1/2 SE1/4, SW1/4 SE1/4, S1/2 SW1/4 of Sec. 16, SE1/4, S1/2 NW1/4, N1/2 SW1/4, of Sec. 17, SE1/4 NE1/4, NE1/4 SE1/4 of Sec. 18, N1/2 N1/2, NE1/4 SE1/4, SE1/4 NE1/4 of Sec. 21, Sec. 22, 23, 24, 25, 26, NE1/4 NW1/4, N1/2 NE1/4, SE1/4 NE1/4, NE1/4, SE1/4 of Sec. 27, W1/2 NE1/4, E1/2 NW1/4 of Sec. 35</td>
</tr>
</tbody>
</table>

Table Abbreviations:  
E = east; N = north; NE = northeast; NW = northwest; R = range; S = south; SE = southeast; Sec. = section; SW = southwest; T = township; W = west

Note: Cadastral locations are relative to the New Mexico Principal Meridian, NM
Figure 2-2. Alternatives 1 and 2
Alternative 1 would consist of 40 constructed turbines, including 36 GE 2.5 MW and 4 GE 2.3 MW turbines (Figure 2-2). This alternative would consist of the same number and type of turbines as the Proposed Action. The Proponent has identified 44 turbine locations in the Alternative 1 area in case turbine locations are determined not suitable during construction. This EIS evaluates all 44 turbine locations for Alternative 1 because the final turbine array layout would not be determined until construction. As a result, the potential disturbance and associated impacts on resources/uses within the Alternative 1 area are greater than what the total impacts would be as constructed.

This alternative would slightly shift the locations of some of the project infrastructure (turbines, roads, collection lines) as compared to the Proposed Action to minimize impacts to sensitive environmental resources where feasible. In addition to the turbines, project components and ancillary facilities for Alternative 1 are discussed in Section 2.2.

2.5 Alternative 2

Alternative 2 has the same 44 turbine locations, ancillary facilities, and project boundary/legal description as Alternative 1 (Figure 2-2; Table 2-2). Alternative 2 would consist of 34 constructed turbines, including 30 GE 3.03 MW and 4 GE 2.5 MW turbines (Figure 2-2). The GE 3.03 MW turbines have a maximum overall height of up to 630 feet and the GE 2.5 MW turbines have a maximum overall height of 499 feet. This EIS evaluates all 44 turbine locations for Alternative 2 because the final turbine array layout would not be determined until construction. As a result, the potential disturbance and associated impacts on resources/uses within the Alternative 2 area are greater than what the total impacts would be as constructed. In addition to the turbines, project components and ancillary facilities for Alternative 2 are discussed in Section 2.2.

2.6 No Action Alternative

Under the No Action Alternative, the BLM would not grant a ROW for construction and operation of the proposed project, and it would not amend the SFO RMP. The project facilities would not be built and existing land uses and present activities in the BLWP area would continue. The land on which the proposed project is located would be available to other uses that are consistent with the SFO’s land use plan (BLM 2010a). Arizona’s renewable energy goals and the Federal mandates would have to be met using other alternative energy projects at other locations.

2.7 Alternatives Considered but Eliminated from Detailed Analysis

The following alternatives were considered by the Proponent, but not analyzed in detail in this EIS.

2.7.1. Visual Resource Management IV Turbine Array Layout Alternative

Under this alternative, all turbines would be located within the allocated VRM Class IV area in the southern end of the BLWP area near the Gila National Forest. The VRM Class IV area management objectives would allow for a high level of change to the characteristic landscape, which would be in compliance with the SFO RMP. Additionally, this alternative would minimize potential impacts to an eagle nest located in the northeast corner of the BLWP area. The VRM IV Turbine Array Layout Alternative would not provide the standard amount of land and spacing required for commercial energy projects of this size. Fewer wind turbines would be used for the project and the project would not be able to meet the 100 MW required to satisfy the Power Purchase Agreement between TEP and NextEra Energy Resources, LLC. This alternative was eliminated from further analysis in the EIS because it would be economically infeasible.
2.8 Federal Lead Agency Preferred Alternative

Under NEPA, the “preferred alternative” is a preliminary indication of the lead agency’s preference of action among the Proposed Action and alternatives. The lead agency may select a preferred alternative for a variety of reasons, including the agency’s priorities, in addition to the environmental considerations discussed in the EIS. In accordance with NEPA (40 CFR 1502.14[e] and 43 CFR 1610.4-7), the BLM has identified Alternative 2 as the preferred alternative.
CHAPTER 3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 Introduction

The information in this chapter describes the affected (existing) environment in the BLWP area and presents the potential effects of the Proposed Action, Alternatives 1 and 2, and the No Action Alternative. Measures to avoid or minimize impacts have also been identified and are listed at the end of each resource discussion. The terms “impacts” and “effects” are used interchangeably, and the terms “increase” and “decrease” are used for comparison purposes. Direct, indirect, and cumulative impacts are described in this chapter. Potential impacts are described in terms of duration, intensity, and context. Definitions of impact terms are provided below.

- **Direct:** caused by the action, same time and place.
- **Indirect:** caused by the action, but later in time or further in distance, but still reasonably foreseeable.
- **Cumulative:** caused by the incremental impact of the action, decision, or project when added to other past, present, and reasonably foreseeable future actions.

For the purposes of this analysis, duration (temporal scale) of the direct or indirect effects of the analysis is defined as follows. These durations would apply to each of the resources/uses that are analyzed in this EIS but may vary slightly depending on the resource/use. Forty years would include the expected duration of the life of the wind energy facility (35 years) and an additional five years would allow for site restoration after decommissioning.

- **Short-term/Temporary:** impacts that would be less than 5 years in duration.
- **Long-term:** impacts that would be between 5 to 40 years.
- **Permanent:** impacts that would be longer than 40 years.

For the purposes of this analysis, intensity or severity of the impact is defined as follows:

- **Negligible:** changes would not be detectable and/or measurable. The resource/use would be essentially unchanged or unaltered.
- **Minor:** changes would be detectable and/or measurable and would have a slight change or alteration to the resource/use.
- **Moderate:** changes would be clearly detectable, measurable, and/or have an appreciable effect on the resource/use. The resource/use would be notably changed or altered and the effect is apparent. Project activities could change the indicator over a small area or to a lesser degree.
- **Major:** changes would be readily detectable, and/or have a severe effect on the resource. The resource/use would be substantially changed or altered over a large area or to a large degree.

Context is the setting within which an impact is analyzed. For the purposes of this analysis, the contexts are defined as follows:

- **Local:** within and immediately adjacent to the BLWP area.
- **Regional:** remaining area outside of but within 30 miles of the BLWP area.

Appendix 1 of BLM’s NEPA Handbook (H-1790-1) identifies supplemental authorities that contain requirements specified by statute or EO and must be considered in all BLM environmental documents (BLM 2008a). The supplemental authorities and other resources and uses that are not present within the BLWP area or would not be impacted by the Proposed Action and alternatives include farm lands, lands with wilderness characteristics, wild and scenic rivers, wild horses and burros, wilderness, and wilderness study areas (WSAs). These authorities and resources/uses are not further evaluated in the EIS in accordance with the BLM NEPA Handbook Section 6.4.1(BLM 2008a). Table 3-1 identifies the
supplemental authorities and resources or uses in the BLWP area and states the rationale for the exclusion of a detailed analysis in the EIS per Section 6.4.2 of the BLM NEPA Handbook (BLM 2008a). The supplemental authorities and other resources or uses that may be affected by the Proposed Action and/or alternatives are further described in the EIS as noted in Table 3-1.

Several geographic areas are discussed in this chapter, including the BLWP, Proposed Action, and Alternatives 1 and 2 areas. The BLWP area refers to the general location that is proposed for the BLWP (refer to Chapter 1, Figure 1-1). The Proposed Action area refers to the 43,528-acre area that would encompass the BLWP components associated with the Proposed Action (refer to Chapter 2, Figure 2-1). The Alternatives 1 and 2 area refers to the 16,648-acre area that would encompass the BLWP components of both Alternatives 1 and 2 (refer to Chapter 2, Figure 2-2). All three alternative areas are in the same general location (BLWP area) but include varying acreages of land.

**Table 3-1. Determination and Rationale for Detailed Analysis by Resource/Use**

<table>
<thead>
<tr>
<th>Resource/Use</th>
<th>Additional Analysis Determination and Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air Quality</td>
<td>The proposed BLWP area lies within the Southwestern Mountains-Augustine Plains Intrastate Air Quality Control Region 156 (New Mexico Environment Department [NMED] 2018). The Final Wind Energy PEIS (BLM 2005: pp. 5-13 through 5-20) provides a detailed analysis of potential air quality impacts associated with the construction, O&amp;M, and decommissioning of a wind facility. According to this analysis, the potential impacts from a wind facility on local and regional air quality would be minor with the implementation of BMPs and would not require additional measures to avoid and/or minimize impacts (BLM 2005). Since 1992, Catron County has been below (attained) the U.S. Environmental Protection Agency (U.S. EPA) air pollutant standards for criteria pollutants (U.S. EPA 2019). Any additional emissions associated with the alternatives would be associated with construction and decommissioning activities. The main source of fugitive dust (particulates) in the vicinity of the BLWP area would include vehicular traffic on unpaved roads and windblown dust. Fugitive dust on unpaved roads would be reduced through watering the roads or other dust control measures. The operation of the concrete batch plant would require an air quality permit from the NM Air Quality Bureau. During the construction and decommissioning activities of the BLWP, there would be short-term, localized minor increases in vehicle emissions and fugitive dust. Once these activities are completed (construction activities are estimated to take up to 12 months), there would be long-term negligible increases in emissions from a limited amount of vehicle traffic into and out of the BLWP area. The build alternatives would not result in greater impacts than previously disclosed in the Final Wind Energy PEIS (BLM 2005). The Proponent is not proposing activities different from those analyzed in the Final Wind Energy PEIS, and all BMPs are included as part of the Proposed Action and Alternatives 1 and 2 design features (Appendix B). The build alternatives are not expected to contribute to measurable or detectible impacts to air quality. There is no potential for new or modified impacts that have not been disclosed in prior environmental documentation, so this issue is not discussed further in this EIS.</td>
</tr>
<tr>
<td>Areas of Critical Environmental Concern (ACECs)</td>
<td>There are two ACECs in the vicinity of the BLWP area: Cerro Pomo and Zuni Salt Lake; both are located north of U.S. 60 and would not be physically disturbed by the build alternatives. Impacts to existing ACECs are discussed in Section 3.5 Cultural Resources and in Section 3.9 Visual Resources.</td>
</tr>
</tbody>
</table>
Resource/Use | Additional Analysis Determination and Rationale
--- | ---
Climate Change/Greenhouse Emissions | The proposed BLWP area (Southwestern Mountains-Augustine Plains Intrastate Air Quality Control Region 156) where the wind turbines would be located is in attainment for all regulated criteria pollutants. The NMED has prepared an Inventory of Greenhouse Gas Emissions: 2000-2013, updated in 2016 (NMED 2016), for the State of NM. This inventory is a statewide compilation and analysis of greenhouse gas (GHG) emissions data and provides information for decision makers about the relative contribution of each sector as it relates to the State’s GHGs. The evaluation of GHG emissions on a production basis considers the total direct emissions from the activities of all sources in the State. New Mexico production-based analysis does not take into consideration the GHG emissions produced during the manufacture and transportation of products to the State, or adjust for the GHG emissions associated with electricity imported or exported across State lines (NMED 2016).

The BLWP GHG emissions in of itself would not be a major contribution to climate change as a result of using greenhouse gases as a proxy in determining climate change impacts. The life cycle emissions of the material used in this project includes raw mineral extraction, steel production, manufacturing, transportation and use phases and then end of life, which includes potential re-use and/or recycling. At each stage there are regulatory mechanisms and thresholds in place that permit, report and mitigate emissions from the various activities related these upstream and midstream sources.

The BLWP would generate direct GHG emissions during construction, O&M, and decommissioning. Direct GHG emissions during construction would be generated from use of off-road equipment (such as graders, cranes, and excavators) and from on-road construction vehicle trips. Additionally, emissions would be generated from heavy haul trips and other construction materials like water, aggregate and cement for concrete production, and commute driving by construction employees. Direct emissions would be generated onsite during concrete production. The New Mexico Air Quality Bureau typically requires an air quality permit for concrete batch operations. The NMED regulates and issues general construction permits based on certain conditions such as; site setbacks from occupied structures and recreational areas, production limits, operating hours and emissions limits. The Proponent would need to meet any state permitting requirements.

As a wind energy project, the BLWP would have no primary direct carbon dioxide emissions from electricity production during operation; however, there are other minor sources of GHG emissions that would result from site O&M activities, including the use of off-road equipment; on-road vehicles used for inspection, maintenance, and personnel commuting; and minor leakage from electrical equipment (insulation materials, circuit breakers, etc.) to manage high voltages. During operation, BLWP is expected to result in an indirect reduction in GHG emissions due to the displacement of electricity generated by fossil fuel-fired power plants, which contributes to GHG emissions at much higher levels; this would be partially offset by a small indirect increase in GHG emissions due to the loss of carbon uptake from the removal of vegetation for the BLWP.

The BLWP GHG emissions would result in minuscule short-term incremental additions to the existing air quality as well as the future state and is limited to the construction phase. More information on criteria and hazardous pollutants as well as climate change and greenhouse gases can be found in latest version of the BLM’s Air Resources Technical Report document and is herein incorporated by reference (BLM 2018a). No additional analysis in this EIS is warranted.

Cultural Resources | See detailed analysis in Section 3.5 Cultural Resources.
Environmental Justice | In compliance with Executive Order 12898, the BLM used the most current available demographic data to determine if minority or low income populations were present in the area of analysis, and would be disproportionately and adversely impacted by the Proposed Action. Analyses showed no such populations were present within the area of analysis. Consequently, there are no disproportionate impacts to environmental justice populations, and no further analyses are required.
<table>
<thead>
<tr>
<th>Resource/Use</th>
<th>Additional Analysis Determination and Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fire Management</td>
<td>Development of the BLWP would slightly reduce the long-term potential for wildland fires in the area by temporarily removing the fuel source (vegetation) on approximately 140 acres for the Proposed Action and 133 acres for Alternatives 1 and 2. The alternatives would slightly increase the likelihood for ignitions (such as from vehicles parked over dry vegetation) that could increase the frequency of fire. Wildland fire management would not change with implementation of the Proposed Action. The implementation of the Fire Protection and Prevention Plan included in the BLWP POD (Borderlands Wind, LLC 2020 would minimize the potential for the spread of fire. New access roads in the BLWP area could aid suppression efforts of wildland fires. Potential fire ignition from turbine lubricants would be negligible since limited quantities would be stored or maintained on site during the construction, O&amp;M, and decommissioning phases. Fire-resistant hydraulic fluids and lubricant oils would be used to reduce the likelihood of a fire (Jennifer Field, personal communication, 2019). Therefore, the build alternatives would have negligible impacts to wildland fire and fire management. No detailed analysis in this EIS is warranted.</td>
</tr>
<tr>
<td>Floodplains</td>
<td>EO 11988, Floodplain Management, requires an evaluation of impacts to floodplains for all Federal actions and directs Federal entities to reduce impacts to floodplains and minimize flood risks to human safety. The Proposed Action and Alternatives 1 and 2 would not involve any modification of a floodplain that would impede or redirect flood flows that would result in property damage or risk to human safety on- or off-site. The existing flood-carrying capacity of the floodplain, pattern, or magnitude of the flood flow would not be affected. No additional analysis in this EIS is warranted.</td>
</tr>
<tr>
<td>Forest Resources</td>
<td>The BLWP area does contain some woodland areas. Some clearing of pinyon-juniper woodlands may be required for the construction of new roads, turbine foundations, substations, and utility lines. This would result in an approximately 0.2 percent long-term reduction of woodlands within the Proposed Action and Alternatives 1 and 2 areas. This equates to a 0.001 percent reduction of woodlands within a 30-mile radius of the BLWP in NM for all alternatives. The build alternatives would result in negligible impacts to forest resources from the reduction of woodland areas. No additional analysis is warranted in this EIS.</td>
</tr>
</tbody>
</table>
Resource/Use | Additional Analysis Determination and Rationale
--- | ---
General Wildlife | The BLWP area is a relatively undisturbed and unaltered landscape that provides diverse habitat conditions for a wide variety of wildlife, which includes big game, small game, furbearers, and non-game wildlife species. Game species known to occur in the BLWP area include mule deer, elk, pronghorn, wild turkey, black bear, mountain lion, Mearn’s quail, Gambel’s quail, mourning dove, and various waterfowl. Furbearers that occur in this area include gray fox, kit fox, bobcat, badger, coyote, and skunk. A variety of other non-game species that are present include reptiles, amphibians, and rodents.

The Final Wind Energy PEIS (BLM 2005) evaluates potential impacts to wildlife from construction activities (pp. 5-41 through 5-45), O&M (pp. 5-53 through 5-75), and decommissioning (p. 5-77) of a wind facility (e.g., injury or mortality; habitat loss, degradation, and fragmentation; disturbance/displacement; collision with turbines, towers, and transmission lines). The implementation of BMPs and other design features would minimize the direct and indirect impacts that may occur during construction, O&M, and decommissioning; however, some of these impacts (e.g., habitat loss and fragmentation) would be unavoidable even with the application of the project BMPs and design features.

Wildlife species that rely on shrubland and grassland habitats (the most prevalent habitats within the Proposed Action and Alternatives 1 and 2 areas), especially during critical times of the year such as birthing/calving or overwintering, would be impacted the most. The SFO RMP includes a BMP to avoid surface-disturbing activities during these critical time periods, which would minimize impacts of the Proposed Action and Alternatives 1 and 2 on big game. Big game species associated with the Proposed Action and Alternatives 1 and 2 areas are highly mobile and would be expected to move out of the BLWP area during construction when outside of these critical time periods and would be expected to continue use of the available habitat in the BLWP area once construction activities have ceased and the BLWP is operational. In addition to the direct impacts to wildlife from habitat loss, there would be indirect impacts from habitat fragmentation and degradation resulting from the construction of access roads, and disturbance/displacement associated with an increase in human presence. These indirect impacts would extend across an area larger than the actual project footprint, and wildlife species that are more sensitive to fragmentation and disturbance may shift their habitat use to other areas.

The impacts of habitat loss and fragmentation are greatest when the affected habitats are in short supply. The habitat types and general wildlife that are present within the BLWP area are relatively common within the region. The estimated long-term loss of habitat is approximately 140 acres for the Proposed Action and 133 acres for Alternatives 1 and 2, both of which represent less than 0.01 percent of similar habitat within the NM region (within 30 miles from the BLWP area within NM). While some smaller or less mobile species or individuals may be displaced by the BLWP, the majority of the wildlife that would be impacted by construction, O&M, and decommissioning of the BLWP would continue to use the area, and there are no known wildlife movement or migration corridors present in the BLWP area that would be impacted by the proposed project. Therefore, the Proposed Action and Alternatives 1 and 2 would result in short- and long-term, minor impacts to general wildlife. The Proposed Action and Alternatives 1 and 2 would have a negligible contribution to the cumulative effects to general wildlife because the habitat types and general wildlife species are common to the local area as well as to the region. No additional analysis in this EIS is warranted.
<table>
<thead>
<tr>
<th>Resource/Use</th>
<th>Additional Analysis Determination and Rationale</th>
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<tbody>
<tr>
<td>Invasive Plant Species and Noxious Weeds</td>
<td>Surface disturbing activities that would be created by the build alternatives would provide an opportunity to introduce noxious weeds. The SFO RMP (BLM 2010a) outlines the processes and procedures for the management and prevention of noxious and invasive weeds. Any invasive plant and noxious weed populations would be managed in compliance with the SFO RMP. The BLWP POD would include BMPs to reduce the potential spread and/or introduction of noxious and invasive weed populations (Appendix C). Standard operating procedures from the recent BLM Vegetation Management EISs for noxious weed control would be followed to minimize the spread of invasive plant species and noxious weeds (BLM 2007 and 2016; BLM Integrated Vegetation Management Handbook 1740-2). Herbicides would be used where needed after approval from the BLM. Therefore, the build alternatives are anticipated to have negligible impact to the spread or introduction of invasive plant species and noxious weeds from the alternatives. No additional detailed analysis in this EIS is warranted.</td>
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<tr>
<th>Land Use</th>
<th>See detailed analysis in Section 3.2 Land Use.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Livestock Grazing</td>
<td>There are six authorized grazing allotments within the BLWP area. Four of the allotments—including Vevarosa (#10011), Red Hill South (#10038), Red Hill North (#10062), and Florenio Orona (#00099)—would incur temporary or permanent impacts, depending on the alternative. Any existing range improvements would be rehabilitated if disturbed by the BLWP. The existing grazing lease authorizations would remain the same as the current use. There would be temporary access restrictions during the 11- to 12-month construction period. There would be no permanent access limitations or grazing rotation restrictions anticipated with the alternatives. Portions of the BLWP area, including the O&amp;M facility and the substation, would be fenced to keep livestock out. These areas, as well as the direct impact acreage for the turbines, would reduce the amount of available forage. Forage availability and production would be permanently reduced by 0.4 percent and temporarily reduced by 3.1 percent of the total allotted acreage within the Proposed Action area (permanent disturbance of 116.8 acres and temporary disturbance of 892.0 acres of grazing allotments). For Alternatives 1 and 2, forage availability and production would be permanently reduced by 0.8 percent and temporarily reduced by 7.0 percent of the total allotted acreage (permanent disturbance of 110.0 acres and temporary disturbance of 969.6 acres of grazing allotment). Eliminating forage needed to feed grazing livestock (i.e., animal unit months [AUMs]) would be required; however, it is not anticipated to be substantial enough to affect this use of the land. The loss of forage acres can be translated to a decrease in AUMs on the permit. A 116.8- or 110.0-acre loss of foraging within alternatives is potentially 17.5 to 16.5 AUMs total reduction. The build alternatives would result in short- and long-term, negligible impacts to livestock grazing because of the limited reduction in available forage and temporary access restrictions during construction. No further analysis on impacts to grazing resources in this EIS is warranted.</td>
</tr>
<tr>
<td>Military Training Airspace</td>
<td>See detailed analysis in Section 3.2 Land Use.</td>
</tr>
<tr>
<td>Migratory Birds</td>
<td>See detailed analysis in Section 3.7 Special Status Plant and Wildlife Species.</td>
</tr>
<tr>
<td>Minerals</td>
<td>The Proponent would obtain borrow material from a private landowner; no mineral material permit from the BLM would be needed by the Proponent. No detailed analysis of minerals in this EIS is warranted.</td>
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<table>
<thead>
<tr>
<th>Resource/Use</th>
<th>Additional Analysis Determination and Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Native American Religious Concerns</td>
<td>There are known Native American Religious Concerns associated with the Zuni Salt Lake Proprietary ACEC and specifically the Zuni Salt Lake. Identification of other Native American religious concerns associated with the BLWP area is pending results of Tribal consultation. The potential for additional concerns to be present would be identified through consultation. Once consultation is complete, text will be revised to reflect findings.</td>
</tr>
<tr>
<td>Noise</td>
<td>The Final Wind Energy PEIS (BLM 2005:pp. 5-20 through 5-27) provides a detailed analysis of potential noise impacts associated with the construction, O&amp;M, and decommissioning of a wind facility.</td>
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<td></td>
<td>The primary noise source around the BLWP area includes noise caused by vehicle traffic along U.S. 60 and high wind speeds. The Final Wind Energy PEIS (BLM 2005) evaluates the impacts from construction and O&amp;M, including the use of heavy equipment, vehicular traffic, blasting, and substation activities. Noise from the turbines themselves is dependent on the type of turbine, array, site conditions, weather, and temperature. Above wind speeds of 17.7 mph, noise level generated from the turbine itself is difficult to determine because the background wind-generated noise masks the wind turbine noise. As a result, noise issues are more commonly a concern at lower wind speeds. The Proponent would implement applicable BMPs and other design features associated with construction and operational noise to reduce potential noise-related impacts (Appendix B).</td>
</tr>
<tr>
<td>Paleontological</td>
<td>A paleontological assessment of the BLWP area was conducted to meet requirements under NEPA and FLPMA. The BLM statewide paleontological locality database was used to determine if known localities were present in the BLWP area, and none were identified. The BLM's Potential Fossil Yield Classification (PFYC) database was also examined to determine if geologic units present in the BLWP area have a higher potential to contain fossils of scientific interest. The PFYC system is ranked from Class 1 (Very Low Potential) to a Class 5 (Very High Potential). The geologic units exposed in the BLWP area are volcanic and igneous rock units that have a low to very low potential to contain paleontological resources. The northern section of the BLWP area consists of a basalt and andesite flows dating to the Miocene and is ranked as PFYC 1, which does not require mitigation. The southern section of the BLWP area consists of basaltic and andesitic volcanics interbedded with Pleistocene and Pliocene sedimentary units and is ranked as PFYC 2. Based on the lack of known paleontological localities in the area and the low PFYC values assigned to the affected geologic units, no additional analysis in the EIS is warranted for the build alternatives.</td>
</tr>
<tr>
<td>Resource/Use</td>
<td>Additional Analysis Determination and Rationale</td>
</tr>
</tbody>
</table>
Vegetation

Vegetation in the Proposed Action area consists of 26 percent sparse short-grass grassland interspersed with less than one percent of rock outcrops and playas, 65 percent shrubland, and 8 percent dense patches of pinyon-juniper. For the Alternatives 1 and 2 area, vegetation consists of 22 percent sparse short-grass grassland interspersed with less than one percent of rock outcrops and playas, 65 percent shrubland, and 13 percent dense patches of pinyon-juniper woodland. These general vegetation communities occur throughout the region and are well represented in the surrounding area. The cliff/rock outcrop areas are much less common in the region and the playas within the build alternatives do not contain riparian or emergent wetland habitat.

The estimated long-term loss of vegetation is approximately 140 acres for the Proposed Action and 133 acres for Alternatives 1 and 2, each of which represents less than 0.01 percent of similar vegetation communities within the NM region (i.e., 30 miles from the BLWP area within NM). Shrublands would be affected the most, with a permanent loss of approximately 85 acres and 79 acres for the Proposed Action and Alternatives 1 and 2, respectively, each of which represents a 0.02 percent reduction of shrublands within the NM region. The implementation of BMPs and other design features would prevent or minimize impacts that may occur during construction, O&M, and decommissioning, such as the removal of vegetation, introduction of invasive vegetation, and potential for wildland fire (Appendix B). The BMPs and other design features include revegetation, soil stabilization, and erosion reduction measures that would be implemented to ensure that all temporary use areas are restored. Therefore, the Proposed Action and Alternatives 1 and 2 would result in localized and regional negligible impacts to general vegetation. No additional analysis in this EIS is warranted.

Visual Resources

See detailed analysis in Section 3.9 Visual Resources.

Wastes, Hazardous or Solid

The Final Wind Energy PEIS (BLM 2005:pp. 5-30 through 5-32) provides a detailed analysis of potential hazardous materials impacts associated with the construction, O&M, and decommissioning of a wind facility.

Potential impacts would be associated with the release of hazardous materials to the environment from the improper use, storage, or disposal of hazardous materials such as fuels (e.g., gasoline, diesel fuel), lubricants, cleaning solvents, paints, herbicides, and explosives. As outlined in the BLWP POD, applicable BMPs associated with hazardous materials and wastes to reduce or prevent environmental impacts would be implemented. Prior to the installation of a septic/waste water system, all State and County permits would be acquired.

The Proposed Action and Alternatives 1 and 2 would not result in greater impacts than previously disclosed in the Final Wind Energy PEIS. The Proponent is not proposing activities different from those analyzed in the Final Wind Energy PEIS, and all BMPs are included as part of the Proposed Action and Alternatives 1 and 2 design features (Appendix B). There is no potential for new or modified impacts that have not been disclosed in prior environmental documentation. No additional analysis in this EIS is warranted.
There are no perennial surface water features within the BLWP area. During the winter or episodes of monsoonal rains, there may be intermittent or ephemeral flows within streams or standing pools of water. During construction of wind turbines and associated facilities, BMPs and other design features would be followed in order to ensure that any surface water is not affected (Appendix B). Well water would be used during construction and O&M. Construction activities would require approximately 26 million gallons of water and would be pumped from a permitted private well and conveyed through aboveground piping. Based on 2015 Catron County water use data, the amount of water anticipated for use during construction represents 0.09 percent of the water the County uses in a year (USGS 2015). According to analyses conducted by the BLM NMSO (BLM 2020), if, during construction, the BLWP were to use 26 million gallons of water during construction over a five-month period (the maximum impact scenario), the estimated maximum drawdown at the well location would be approximately 45.7 feet. However, the impact of pumping would be quickly reduced with increased distance from the well, as the results of the analysis estimated that at a distance of one mile from the well location, the drawdown would be less than 0.001 foot for the maximum impact scenario. With the estimated 11-12 month construction schedule, the estimated drawdown would be less (Appendix H). There are two populated places adjacent to the permitted well, Manuelito Place (2.6 miles away), and Red Hill (5.9 miles away). The results of these calculations indicate that there would be a negligible impact on the aquifer in the vicinity of these populated places, or any other location over one-mile from the well.

A new 5- to 6-gallon per minute well would be drilled for the O&M water use; estimated withdrawal at 140,800 gallons per year, which would be less than a four-person household annual water use. The Proponent would apply for a domestic water use permit for use during O&M in compliance with the NM State Engineer requirements. Once the BLWP is decommissioned, BLM would assume authority over the well, including the water rights for the well. Documentation that a permit to drill has been issued would be provided to the BLM.

The amount of groundwater used would be negligible to minor, specifically over the long term. Therefore, the Proposed Action and Alternatives 1 and 2 would have both short- and long-term, direct, negligible impacts to surface water quality. No additional analysis for surface water or groundwater is warranted in this EIS.

There is a small area of emergent herbaceous wetlands mapped in the western portion of the Proposed Action area along Cow Springs Draw that would not be impacted during construction, O&M, or decommissioning.

There are a number of playas present within the Proposed Action area and the surrounding area; these seasonally inundated depressions are considered riparian habitats by the BLM, though they are generally vegetated with the same species as the surrounding areas. There are no components of the project infrastructure that would be placed within the mapped boundaries of these playas; however, some of the turbines, collector lines, and access roads would be constructed within 0.25 miles of four of the mapped playas. The Proposed Action would have both short- and long-term, direct and indirect, negligible impacts to these playas and their associated riparian vegetation due to the potential for alterations to the natural hydrology of the ephemeral drainages that feed into the playas, which could result in erosion or sedimentation. No additional analysis is warranted in this EIS.

Table Abbreviations: ACEC = Area of Critical Environmental Concern; AUM = animal unit month; BLWP = Borderlands Wind Project; BLM = Bureau of Land Management; BMP = best management practice; CFR = Code of Federal Regulations; CT = Census Tract; dB(A) A-weighted decibel; EIS = Environmental Impact Statement; EO = Executive Order; FLPMA = Federal Land Policy and Management Act; GHG = greenhouse gas; Ldn = Day-Night Average Sound Level; mph = miles per hour; NEPA = National Environmental Policy Act; NMED = New Mexico Environment Department; OHV = off-highway vehicle; O&M = operation and maintenance; PEIS = Programmatic Environmental Impact Statement; PFYC = Potential Fossil Yield Classification; POD = Plan of Development; RMP = Resource Management Plan; SFO = Socorro Field Office; TCP = Traditional Cultural Property; USACE = U.S. Army Corps of Engineers; U.S. EPA = U.S. Environmental Protection Agency.
3.2 Land Use

This section describes existing land use conditions in the BLWP area and surrounding region (30-mile radius from the BLWP area), and the effects that may occur with the implementation of the Proposed Action, Alternatives 1 and 2, and the No Action Alternative. Land use is assessed here by analyzing current land activities, land ownership, and land use designations in adopted plans and policies. An assessment of land use must also consider legal guarantees or limitations, such as those provided by easements, deeds, ROWs, claims, leases, licenses, and permits. Lands administered by BLM are not zoned, but they may be encumbered by easements, ROWs, mining claims, and permits.

3.2.1 Affected Environment

3.2.1.1 Regional Land Use Conditions

Located in western NM, Catron County is the largest county in the State. Land within the County is owned, managed, and/or administered by the BLM, U.S. Forest Service (USFS), National Park Service (NPS), State of NM, Native American Tribes, and private landowners. Catron County encompasses 6,898 square miles with approximately 25.6 percent under private ownership. Federal agencies administer 61.6 percent of the land within the County, Indian Tribes 0.3 percent, and the State of NM 11.5 percent (Catron County 2006 and 2007). Approximately 3,725 people make up the County population (U.S. Census Bureau 2018). In the 2007 Catron County CIP/Comprehensive Plan (Catron County 2007), the County identified three land uses, categorized as government controlled (lands managed by State or Federal agencies), rural areas (private lands), and community nodes. A community node is a concentration of commercial, governmental services, and/or residential uses. Reserve, the Catron County seat, is the largest town and only incorporated community in the County; the town has a population of about 289. The adjacent Apache County in eastern AZ is 11,174 square miles; the County seat is St. Johns with a population of 71,518. Only 13 percent of Apache County is privately owned, more than 65 percent is covered by American Indian Reservations, and 21 percent is in public ownership (i.e., USFS, BLM, and AZ State Land Department) (USFS 2017). Major communities within the vicinity of the BLWP area are described in Table 3-2.

The NMSLO has not established a specific land use management plan for State Trust land in the vicinity of the BLWP area, but they do have goals, policies, and programs in place to manage and provide support for resource conservation programs for the well-being of the public and the State’s natural environment, including recreation and livestock grazing.

Table 3-2. Communities within the BLWP Region

<table>
<thead>
<tr>
<th>Communities</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red Hill/Cimarron Ranch Subdivision, NM</td>
<td>The 2,431-acre Cimarron Ranch Subdivision is located in Red Hill, a dispersed, unincorporated community that consists entirely of private owners, just north of the BLWP area on the north side of U.S. 60 and includes the Quemado Volunteer Fire Station No. 2. The subdivision was platted in 1992 and contains 228 parcels ranging in size from approximately 5 to 26 acres. The population of the subdivision is estimated at approximately 50 individuals, based on verbal information from Catron County (Keith Riddle, personal communication, 2019).</td>
</tr>
<tr>
<td>Quemado, NM</td>
<td>Located approximately 18.8 miles east of BLWP area, Quemado had a population of 228 with a total of 135 housing units in 2010. Quemado supports the surrounding area with both an elementary and a high school.</td>
</tr>
<tr>
<td>Escudilla Bonita, NM</td>
<td>Between the BLWP area and the AZ–NM state line, and south of U.S. 60, is the community of Escudilla Bonita. The community has a population of 119 with a total of 152 housing units in 2010. No commercial services are provided in Escudilla Bonita.</td>
</tr>
</tbody>
</table>
### Communities

<table>
<thead>
<tr>
<th>Communities</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Springerville, AZ</td>
<td>Located approximately 17.5 miles west, the Town of Springerville is in Apache County, AZ, and had a population of 1,961 with a total of 954 housing units in 2010. The town provides community services, K-12 school, and a community college.</td>
</tr>
<tr>
<td>Eagar, AZ</td>
<td>Located directly adjacent to the south of Springerville in Apache County, AZ, Eagar had a population of 4,885 with a total of 2,045 housing units in 2010. The town provides a library, fire and police departments, and a full service hospital.</td>
</tr>
<tr>
<td>Coyote Creek Development, AZ</td>
<td>This planned development is adjacent to the AZ–NM state line, approximately six miles west of the BLWP area. It contains 316 acres and has not yet been platted. There are no residences within the Coyote Creek Development as of this time.</td>
</tr>
</tbody>
</table>

**Table Abbreviations:** AZ = Arizona; BLWP = Borderlands Wind Project; NM = New Mexico  
**Source:** Census Viewer 2018; Arizona Commerce Authority 2017; Riddle 2019

Two national forests are located with the region: Gila National Forest in NM and the Apache-Sitgreaves National Forests in AZ. The Gila National Forest consists of 3.3 million acres in western NM and is known for the Gila Wilderness, which was the first wilderness designated in the United States. It is considered one of the more remote and least developed national forests. Recreation facilities in the Gila National Forest include the Quemado Lake Recreation Area, Armijo Springs Campground, and the Head of the Ditch Campground (USFS 2018a). The Apache-Sitgreaves National Forests in east-central AZ cover over two million acres. These national forests have over 200,000 acres of wilderness and primitive areas, including the Escudilla Wilderness that encompasses the notable landmark Escudilla Mountain and the Escudilla National Recreation Trail. Other recreation facilities in the region include the Nelson Reservoir Campground, Alpine Divide Campground, and the Coronado Trail National Scenic Byway (USFS 2018b).

### 3.2.1.2 Regional Aviation Uses

There are five regional airport facilities within approximately 30 miles of the BLWP area: Quemado Airport, Springerville Municipal Airport, St. Johns Industrial Airpark, Jewett Mesa, and Reserve Airport. Quemado Airport is an unattended airport located one mile west of Quemado, NM approximately 18 miles from the BLWP area (Catron County 2007). It has one dirt runway and is available for private use only (AirNav 2019a). Springerville Municipal Airport is a town-owned public-use airport located 1.15 miles west of Springerville, AZ, and 19 miles west of the BLWP area. The airport has two paved runways and provides services including aircraft parking and hangar leasing. In addition to its use by the public for general purposes, the Springerville Municipal Airport also serves as an emergency transportation hub for the local area residents, providing air ambulance service, and as a seasonal base for fire services for the Apache-Sitgreaves National Forests (Springerville Municipal Airport 2018). St. Johns Industrial Airpark is a city-owned, public-use airport located 1 mile north of St. Johns, AZ and 32 miles northwest of the BLWP area. The airport has two paved runways and provides services including aircraft parking and fuel (AirNav 2019b).

There are two airports in the area owned by USFS. Jewett Mesa is a USFS-owned, public-use airport located 26 miles southwest of Quemado, NM and 8 miles southeast of the BLWP area. The airport has one unpaved (dirt) runway and is only open May through September. The Jewett Mesa Airport has no additional services (AirNav 2019c). The Reserve Airport is also a USFS-owned, public-use airport; it is located 5 miles southwest of Reserve, NM and 25 miles south of the BLWP area. This airport has one paved runway in fair condition and offers tie downs for parking (AirNav 2019d).

Three military installations have military training routes (MTRs) over the BLWP area: Holloman, Kirtland, and Cannon Air Force Bases (AFBs). Holloman AFB, located in Otero County, NM, southeast of Catron County, is an Air Combat Command base that supports national security objectives with its rapid
The 49th Wing (host wing at Holloman Air Force Base) supports national security objectives by deploying worldwide to support peacetime and wartime contingencies. The 49th Wing is the Air Force’s premier MQ-9 Reaper and F-16 Fighting Falcon training wing for pilots and sensor operators. Additionally, the wing delivers Air Transportable Clinics and Basic Expeditionary Airfield Resources while providing support to more than 10,000 military and civilian personnel (Jay Nash, personal communication, 2019). Kirtland AFB, located near Albuquerque, NM, hosts the 58th Special Operations Wing that trains warfighters, and Cannon AFB in eastern NM, is an Air Force Special Operations Command base. According to information provided by Holloman AFB, MTRs are flight corridors used to practice high-speed, low-altitude training that generally occurs below 10,000 feet above mean sea level at speeds in excess of 250 nautical miles per hour. The MTRs are described by a centerline, with defined horizontal limits on either side of the centerline and vertical limits expressed as minimum and maximum altitudes along the flight track. Visual Routes (VR) are MTRs flown under FAA visual flight rules, where the military conducts operational and training flights.

Helisports and helicopter traffic in this region provide emergency medical transportation for Catron County due to the travel distance to local hospitals. In addition, helisports can be used as necessary during fire and police emergencies.

### 3.2.1.3 Regional Special Management Designations

Special management designations provide additional protection for areas with unique natural, historic, scenic, or recreational resources. Special designations include Areas of Critical Environmental Concern (ACECs), National Historic or Scenic Trails (NHTs/NSTs), National Recreation Trails, Scenic Byways, WSAs, and wilderness areas. The special management designations within 30 miles of the BLWP area are described in Table 3-3 and illustrated in Figure 3-1.

<table>
<thead>
<tr>
<th>Special Management Designations</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cerro Pomo ACEC</td>
<td>This ACEC is located north of the BLWP, entirely within the Eagle Peak WSA and includes 28,248 acres. It contains scenic and significant cultural values, as well as diverse wildlife, vegetation, and landforms; it encompasses the former Mogollon Pueblo Special Management Area (BLM 2010a).</td>
</tr>
<tr>
<td>Continental Divide NST</td>
<td>This NST climbs and descends the peaks of the Rocky Mountains from Canada to Mexico. Two segments of this trail are located within Catron County, but only one is located on BLM-administered land. The Continental Divide NST is managed for recreational use and to protect scenic values on the 34 miles of its length within the BLM’s SFO planning area (BLM 2010a).</td>
</tr>
<tr>
<td>Coronado Trail National Scenic Byway</td>
<td>Designated in 2005, the Coronado Trail stretches from Morenci, AZ to Springerville, AZ in Greenlee and Apache counties and lies almost entirely within the Apache-Sitgreaves National Forests in AZ. Routed along U.S. 191 and U.S. 180, the 123-mile-long byway travels through a region characterized by rolling foothills, high rugged mountain peaks, and steep narrow canyons (Federal Highway Administration 2018).</td>
</tr>
<tr>
<td>Eagle Peak WSA</td>
<td>This 43,960-acre WSA has diverse landforms ranging from sandstone mesas and volcanic cinder cones to gently rolling hills and lava flows. It has numerous topographic features and contains significant archaeological values (from circa 6000 BC) (BLM 1985).</td>
</tr>
<tr>
<td>Escudilla National Recreation Trail</td>
<td>Located in Apache County, AZ within the Apache-Sitgreaves National Forests and Escudilla Wilderness Area, the trail is 5.9 miles in length with a total elevation gain of 1,499 feet (BLM 2010a).</td>
</tr>
<tr>
<td>Special Management Designations</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>-------------</td>
</tr>
<tr>
<td><strong>Escudilla Wilderness Area</strong></td>
<td>Located within the Apache-Sitgreaves National Forests in AZ, the Escudilla Wilderness was designated in 1984 and has a total of 5,158 acres. The wilderness area encompasses the upper reaches of Escudilla Mountain, which is visible from just about anywhere in eastern AZ and western NM (Wilderness Connect 2018). Three wilderness study areas (referred to as the northeast, southeast, and west additions) are currently under evaluation by the Apache Sitgreaves National Forest Alpine Ranger District that would be added to the Escudilla Wilderness Area for a total of 7,684 acres (Apache-Sitgreaves National Forest 2009a, b, and c).</td>
</tr>
<tr>
<td><strong>Mesita Blanca WSA</strong></td>
<td>Located north of the BLWP area, Mesita Blanca WSA contains 19,414 acres. This WSA includes a high density of archaeological sites and the notable natural landmark of the 500-foot-high Red Hill Cinder Cone. This classic volcanic cinder cone and lava flow covers approximately 2,000 acres within the WSA (BLM 1985).</td>
</tr>
<tr>
<td><strong>Mile Creek WSA</strong></td>
<td>Approximately 6 miles north northeast of Alpine, AZ in the Apache-Sitgreaves National Forests, the area is characterized by steep, dissected, conifer-covered terrain. Elevations range from 7,600 feet to over 8,800 feet. The potential wilderness includes Watts, Hulsey, and Milk Creeks (Apache-Sitgreaves National Forest 2009d).</td>
</tr>
<tr>
<td><strong>White Mountain Scenic Road</strong></td>
<td>Designated in 1993, the scenic road follows State Routes 260, 262, and 273 between Alpine and Hon Dah on the White Mountain Apache Indian Reservation in AZ. It winds through AZ’s largest mountain range, the White Mountains, for a distance of 55 miles in Greenlee and Apache counties (Arizona Department of Transportation 1993).</td>
</tr>
<tr>
<td><strong>Zuni Salt Lake Proprietary ACEC</strong></td>
<td>This ACEC is located northwest of the BLWP area and includes 46,746 acres. It holds traditional religious significance to the Zuni Tribe and to other Native American groups in the Southwest. The lake itself lies in a volcanic crater and contains highly saline water (BLM 2010a).</td>
</tr>
</tbody>
</table>

*Table Abbreviations: ACEC = Area of Critical Environmental Concern; AZ = Arizona; BLM = Bureau of Land Management; BLWP = Borderlands Wind Project; NM = New Mexico; NST = National Scenic Trail; SFO = Socorro Field Office; WSA = Wilderness Study Area*
Figure 3-1. Special Management Designations in the Region
3.2.1.4 Regional Recreation

The SFO RMP provides opportunities for dispersed recreation including motorized and non-motorized activities for people from nearby communities. Recreation opportunities in the region include photography, backpacking, wildlife viewing, picnicking, hunting, camping, hiking, scenic driving, and off-highway vehicle (OHV) use. According to the 2010 BLM SFO RMP, all motorized vehicle use is limited to designated routes. Special Recreation Permits (SRPs) are BLM-granted land use authorizations that allow specified recreational uses of public lands. The SFO BLM currently has 49 SRPs issued to hunters and hunting guide outfitters (BLM 2010a). Recreation facilities in the region include 10 campgrounds, such as the Quemado Lake Campground in NM and the Nelson Reservoir Campground in AZ. Lyman Lake State Park is located just north of Springerville in AZ. There are numerous designated trails located within the Gila and Apache-Sitgreaves National Forests in addition to the Continental Divide NST and the Escudilla National Recreation Trail. Scenic driving occurs on the designated Coronado Trail National Scenic Byway and White Mountain Scenic Road.

The NM Department of Game and Fish and the AZ Game and Fish Department manage hunting and trapping throughout their respective States including areas in and around the BLWP area. The NM Game Management Units 12 and 15, and AZ Game Management Units 1, 27, 2CD, and 2E are located in the BLWP region. Wildlife species hunted within these units include pronghorn antelope, elk, mountain lion, mule deer, javelina, and upland game bird species such as dove and quail. In Catron County in 2013, there were 12,406 hunting licenses issued with elk, deer, and turkey as the most targeted species (Southwick Associates 2014).

3.2.1.5 Regional Livestock Grazing

Grazing permits are required for livestock use on public lands. Grazing allotments on public lands in the region are classified according to the type of forage available for livestock. Rangeland improvements such as springs, wells, storage tanks, and dirt tanks have been developed in the region to provide water for livestock and wildlife. Within the SFO, there are 263 grazing permits on BLM-administered lands encompassing 1,492,301 acres (BLM 2018b).

3.2.1.6 BLWP Area Land Use Conditions

The proposed BLWP would be located on BLM-, State-, and County-administered lands in western Catron County. Figure 3-2 and Figure 3-3 show the current land ownership within the boundaries of the Proposed Action and Alternatives 1 and 2 areas, respectively; Table 3-4 provides the acres in both areas. Land uses in the BLWP area consist of ranching, livestock grazing, and utility corridors. The BLWP area is not in a mining district and there are no active or pending mining claims within the BLWP area. Hunting, OHV use, and hiking recreation uses are known to occur on BLM-administered lands; however, there are no designated recreation facilities such as trails within the BLWP area.

Table 3-4. Proposed Action and Alternatives Land Ownership

<table>
<thead>
<tr>
<th>Land Ownership</th>
<th>Proposed Action Area (acres)</th>
<th>Alternatives 1 and 2 Area (acres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BLM</td>
<td>30,338</td>
<td>13,859</td>
</tr>
<tr>
<td>State</td>
<td>5,693</td>
<td>1,168</td>
</tr>
<tr>
<td>Private</td>
<td>7,497</td>
<td>1,621</td>
</tr>
<tr>
<td>Total</td>
<td>43,528</td>
<td>16,648</td>
</tr>
</tbody>
</table>

Source: BLM 2018b
Figure 3-2. Avoidance Area and Authorized ROWs within the Proposed Action Area
Figure 3-3. Avoidance Area and Authorized ROWs within the Alternatives 1 and 2 Area
Socorro Field Office Resource Management Plan. The SFO RMP, approved by the ROD dated August 20, 2010, provides management guidance for the public land and resources under the BLM’s jurisdiction in Socorro and Catron Counties, NM. The SFO oversees approximately 1.5 million surface acres of public land, and the RMP guides the management of diverse multiple uses over these lands for a 20-year time period. The RMP does not include any specific management plans or special land use designations such as an ACEC or WSA in the BLWP area. A ROW avoidance area has been designated along the south side of U.S. 60 from just west of Quemado, NM to the AZ–NM border because of the VRM Class II allocation (Figure 3-2 and Figure 3-3).

New Mexico State Land Office. The NMSLO’s mission is to optimize revenues generated from State Trust lands to support the beneficiaries of the State Land Trust while ensuring proper land management and restoration to continue the legacy for future generations (NMSLO 2016). The NMSLO has not established a specific land use management plan for State Trust land in the vicinity of the BLWP. The NMSLO has about nine million acres of land available for lease to renewable energy companies. Renewable energy leasing is expected to be the largest growth area for commercial leasing (NMSLO 2018).

Catron County Comprehensive Land Use Plan. Private lands in the vicinity of the BLWP area are under the jurisdiction of Catron County and are subject to the policies set forth in the Catron County CIP/Comprehensive Plan (Catron County 2007). The County’s Plan includes existing and anticipated conditions affecting the County; establishes goals, policies, and implementation measures that guide the County’s future actions; and describes actions to take to achieve the County’s desired future. Lands within the BLWP area are designated as government-controlled for the Federal- and State-managed lands and as rural for the private lands according to the County’s Plan. Catron County has no zoning ordinances in place.

3.2.1.7 BLWP Area Grazing Allotments

Portions of six grazing allotments are located on BLM lands within the BLWP area (Table 3-5; Figure 3-4 and Figure 3-5). The majority of the BLM lands in the BLWP area are within the Red Hill North grazing allotment (BLM 2018b).

<table>
<thead>
<tr>
<th>Allotment Name</th>
<th>Total Allotment Acreage</th>
<th>Allotment Acreage within Proposed Action Area</th>
<th>Allotment Percentage (%) within Proposed Action Area</th>
<th>Allotment Acreage within Alternatives 1 and 2 Area</th>
<th>Allotment Percentage (%) within Alternatives 1 and 2 Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vevarosa</td>
<td>16,463.39</td>
<td>6,060.45</td>
<td>36.82</td>
<td>2,978.67</td>
<td>18.09</td>
</tr>
<tr>
<td>Red Hill South</td>
<td>17,085.95</td>
<td>4,632.80</td>
<td>26.21</td>
<td>291.70</td>
<td>1.71</td>
</tr>
<tr>
<td>Florenio Orona</td>
<td>4,013.99</td>
<td>2,805.60</td>
<td>69.91</td>
<td>2,482.38</td>
<td>61.84</td>
</tr>
<tr>
<td>Red Hill North</td>
<td>21,300.07</td>
<td>12,917.47</td>
<td>57.79</td>
<td>8,104.07</td>
<td>38.05</td>
</tr>
<tr>
<td>Cow Springs</td>
<td>10,219.93</td>
<td>3,639.71</td>
<td>32.42</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Heavenly Acres</td>
<td>2,412.54</td>
<td>264.03</td>
<td>10.95</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>71,495.87</strong></td>
<td><strong>30,320.06</strong></td>
<td><strong>42.41</strong></td>
<td><strong>13,856.82</strong></td>
<td><strong>19.38</strong></td>
</tr>
</tbody>
</table>

Source: BLM 2018b

1 Percent references the portion of the total allotment that is located on BLM lands within the Proposed Action Area.

2 Percent references the portion of the total allotment that is located on BLM lands within the Alternatives 1 and 2 Area.
Figure 3-4. Grazing Allotments within the Proposed Action Area
Figure 3-5. Grazing Allotments within the Alternatives 1 and 2 Area
3.2.1.8 **BLWP Area Authorized ROWs**

Existing ROW authorizations within the BLWP area include overhead electrical transmission and distribution lines, a sand and gravel pit, fiber optic and telephone facilities, and roads (Figure 3-2 and Figure 3-3; Table 3-6). There are two parallel TEP 345-kV transmission lines, the Springerville-Luna lines, on metal frame structures within the BLWP area. The El Paso Electric Company’s Harlosa-Springerville 345-kV overhead lines are on wooden “H-frame” poles. The Socorro Electrical Cooperative has a single wood pole 14.4/24.9-kV distribution line, where the main distribution line is 24.9 kV and the lines to the residences are 14.4 kV. Qwest Corporation and Western New Mexico Telephone Company also have authorized ROW within the BLWP area. In the northeast portion of the BLWP area, a small sand and gravel pit is operated by the NMDOT. There is also a Federal-Aid Highway Program authorization for the portion of U.S. 60 that passes over BLM-administered lands.

3.2.1.9 **BLWP Area Aviation Use**

Two military low-level MTRs (slow route [SR]-201 and VR-176) currently cross the BLWP area (Figure 3-6). The width of the two MTRs vary from 10 to 45 miles and penetrate the military airspace with the planned turbines encumbering approximately 20 percent of the military training route width. Holloman AFB MTR VR-176 encompasses all alternatives. Kirtland AFB MTR SR-201 covers the northern portion including roughly 17,120 acres or 39 percent of the Proposed Action area and 3,991 acres or 24 percent of the Alternatives 1 and 2 areas. SRs flown by C130s airplanes directly go over the BLWP area and airplanes can fly below 500 feet, but no lower than 250 feet above ground level. Additionally, both TEP and El Paso Electric Company conduct routine flights for inspection and maintenance of their overhead power lines.

3.2.2. **Environmental Consequences**

This section discusses the lands and realty impacts that would occur with implementation of the Proposed Action, Alternatives 1 and 2, and the No Action Alternative. The Proposed Action and Alternatives 1 and 2 would affect land use within the BLWP area and vicinity if they: 1) conflict with existing Federal, State, or local land use plans or policies; 2) conflict with existing BLM land use authorizations; or 3) change public land disposition. Surface or mineral ownership would not be impacted under any alternatives because surface jurisdiction and mineral ownership would not change.

3.2.2.1 **Direct and Indirect Impacts of the Proposed Action**

The Proposed Action would be constructed on public lands administered by the BLM or NMSLO. No privately owned land would be acquired for the construction, O&M, or decommissioning of the Proposed Action.

Electrical generation facilities are an allowable land use under FLPMA, and with issuance of the ROW grant, the Proposed Action would be in compliance with FLPMA and would not conflict with the 2007 Catron County CIP/Comprehensive Plan. The construction and O&M of the wind turbines and ancillary facilities would require a plan amendment for the Proposed Action to be in conformance with the existing SFO RMP (BLM 2010a). The Proposed Action is located in an area segregated from mining claim entries. Development of a wind farm would not prohibit other permitted uses such as grazing, use of existing ROWs, and dispersed recreation. Indirect land use impacts would not be expected because it is anticipated that a wind energy development project would not substantially induce or reduce regional growth to the extent that it would change off-site land uses (BLM 2005).
### Table 3-6. Authorized ROW within the Proposed Action Area and Alternatives 1 and 2 Area¹

<table>
<thead>
<tr>
<th>Serial Number</th>
<th>Holder Name</th>
<th>ROW Width (feet)</th>
<th>Acres within Proposed Action Area</th>
<th>Length within Proposed Action Area (miles)</th>
<th>Acres within Alternatives 1 and 2 Area</th>
<th>Length within Alternatives 1 and 2 Area (miles)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NMNM 082730</td>
<td>Catron County</td>
<td>60</td>
<td>0.09</td>
<td>0.01</td>
<td>0.01</td>
<td>0</td>
</tr>
<tr>
<td>NMNM 082727</td>
<td>Catron County</td>
<td>60</td>
<td>28.51</td>
<td>3.92</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>NMNM 077514</td>
<td>El Paso Electric Company</td>
<td>135–150</td>
<td>132.03</td>
<td>7.21</td>
<td>94.71</td>
<td>5.21</td>
</tr>
<tr>
<td>NMNM 097797</td>
<td>NMDOT (access road to the Red Hills Community Pit)</td>
<td>14</td>
<td>0.29</td>
<td>0.17</td>
<td>0.29</td>
<td>0.17</td>
</tr>
<tr>
<td>NMNM 011994</td>
<td>Qwest Corporation</td>
<td>40</td>
<td>12.13</td>
<td>2.51</td>
<td>0</td>
<td>0</td>
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<tr>
<td>NMNM 0014159</td>
<td>Socorro Electric Cooperative</td>
<td>30</td>
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<td>0</td>
<td>0</td>
</tr>
<tr>
<td>NMNM 018691</td>
<td>TEP</td>
<td>220</td>
<td>127.27</td>
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<td>7.17</td>
<td>0.25</td>
</tr>
<tr>
<td>NMNM 015985</td>
<td>TEP</td>
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<td>112.35</td>
<td>4.15</td>
<td>7.17</td>
<td>0.25</td>
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<tr>
<td>NMNM 083892</td>
<td>TEP</td>
<td>330</td>
<td>190.27</td>
<td>4.86</td>
<td>11.08</td>
<td>0.25</td>
</tr>
<tr>
<td>NMNM 103679</td>
<td>Western New Mexico Telephone Company</td>
<td>30</td>
<td>0.03</td>
<td>0.01</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>NMNM 096492</td>
<td>Western New Mexico Telephone Company</td>
<td>30</td>
<td>17.85</td>
<td>4.90</td>
<td>17.81</td>
<td>4.89</td>
</tr>
<tr>
<td>NMNM 052190</td>
<td>Western New Mexico Telephone Company</td>
<td>30</td>
<td>18.65</td>
<td>5.11</td>
<td>17.29</td>
<td>4.75</td>
</tr>
<tr>
<td>NMNM 002666</td>
<td>NMDOT</td>
<td>Varies</td>
<td>0 (adjacent)</td>
<td>0 (adjacent)</td>
<td>0 (not adjacent)</td>
<td>0 (not adjacent)</td>
</tr>
<tr>
<td>NMNM 0558313</td>
<td>NMDOT</td>
<td>Varies</td>
<td>0 (adjacent)</td>
<td>0 (adjacent)</td>
<td>0 (not adjacent)</td>
<td>0 (not adjacent)</td>
</tr>
<tr>
<td>NMNM 0057985</td>
<td>NMDOT</td>
<td>Varies</td>
<td>0 (adjacent)</td>
<td>0 (adjacent)</td>
<td>0 (adjacent)</td>
<td>0 (adjacent)</td>
</tr>
<tr>
<td>NMNM 109246</td>
<td>Western New Mexico Telephone Company</td>
<td>Varies</td>
<td>0 (adjacent)</td>
<td>0 (adjacent)</td>
<td>0 (adjacent)</td>
<td>0 (adjacent)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>-</strong></td>
<td><strong>-</strong></td>
<td><strong>641.42</strong></td>
<td><strong>38.05</strong></td>
<td><strong>155.53</strong></td>
<td><strong>15.77</strong></td>
</tr>
</tbody>
</table>

Source: BLM 2018b and 2018c

¹ Analysis area includes the U.S. 60 ROW where construction-related activities would be necessary.
Figure 3-6. Military Low-Level Military Training Routes
Construction
In the Proposed Action, the approximately 1.8-mile distribution line would be run from the electrical interconnection switchyard and substation to the Socorro Electrical Cooperative 14.4/24.9-kV distribution line near Cow Springs and west of the Proposed Action area. Using the existing designated utility corridor and transmission lines in the vicinity of the Proposed Action area would not result in a change in land use. Construction of turbines and other related facilities (including switchyards, MET towers, staging areas, O&M facilities, and access roads) would not impact existing transmission lines or utility corridors.

There are six authorized grazing allotments within the BLWP area. Four of the allotments—including Veverosa (#10011), Red Hill South (#10038), Red Hill North (#10062), and Florenio Orona (#00099)—would have temporary impacts. The remaining two grazing allotments would not be impacted. Any existing range improvements would be rehabilitated if disturbed by the BLWP during construction. The existing grazing lease authorizations would remain the same as the current use. There would be temporary access restrictions during the 11- to 12-month construction period. Livestock may get out of the pasture or allotment and produce additional workload and/or cost of retrieving and sorting animals. Construction activities could also create stress on the livestock. Depending on the options available to the grazing permittee, they may be able to shift livestock to pastures outside of the construction area.

The BLWP design features (Appendix B) would include notifying the permit holders of all major construction milestones so that they are informed as to the time and location of potential disturbances. Construction activities would result in the loss of or damage to vegetation, which could impact livestock forage availability in localized areas in the Proposed Action area. Construction vehicle traffic could result in minor short-term livestock displacement in localized areas. Construction activities and equipment could also increase the potential for the establishment of invasive and noxious weeds that could indirectly affect forage quantity. Dust created by vehicle traffic and construction activities could indirectly result in a temporary reduction of forage quantity in localized areas. BMPs would be implemented to control dust and reduce the establishment of invasive species and noxious weeds.

Access to the ranching areas could be temporarily restricted during construction in site-specific areas. The oversized loads and slow-moving equipment on public roads and highways could result in temporary delays for local users. Dust and additional vehicle traffic could impact traffic movement adjacent to the Proposed Action area over the short-term; these impacts would be minimized through design features such as the application of water or other dust suppressants. Any residual impacts would be temporary, occurring for a few months during construction, in specific areas such as the proposed access road corridors.

Existing roads would be upgraded and new roads would be constructed, which could temporarily affect local transportation and public access. The main access point for the Proposed Action would be at the intersection of U.S. 60 and Bill Knight Gap Road. Improvements at the intersection would include permanent deceleration and acceleration lanes for both directions at the intersection to accommodate turning radius needs for turbine delivery. The SFO RMP would need to be amended in order to construct the intersection improvements in the designated ROW avoidance area along the south side of U.S. 60.

Operations and Maintenance
Facility O&M, including the repair of wind turbines, ancillary facilities, and transmission line facilities, would not result in impacts to utility corridors or ROWs, although the transmission line interconnection would reduce the capacity to add more power to the selected transmission line from other energy generation projects. Currently, there are no planned future residential developments in the BLWP area, but the presence of turbines and O&M activities could indirectly result in a shift in the location or siting of future residential developments on private land. ROWs are non-exclusive and any new applications
for ROWs in the project area would be analyzed on a case-by-case basis for compatibility with the existing wind facilities.

The Proposed Action would require a Determination of No Hazard to Air Navigation (NOHA) from the FAA for each turbine. The presence of turbines, permanent MET towers, and overhead transmission lines associated with the Proposed Action, as well as the use of drones during O&M activities, could add constraints to military testing and training operations that may occur at low altitudes. Aircraft would no longer be able to operate at the current levels within the airspace over the BLWP area because of the wind turbine obstructions. However, according to Holloman AFB, the pilots would be able to fly around the turbines that create vertical obstructions for aircrafts between segments B and C (Figure 3-6) and still accomplish their training requirements. The turbines’ height would require markings or lights per FAA Guidelines (FAA 2007) to provide visible warning to pilots. The planned turbines would encumber approximately 20 percent of the route width. Impacts to military flying operations are mitigatable by flying in the remaining 80 percent of the route width. Turbines along this route would use lighting compatible with night vision goggle (NVG) for safe operations and identification of the turbines when aircrews are conducting NVG training.

The addition of approximately 40 miles of new access roads would provide access for dispersed recreation, hunting, and grazing and livestock management because motorized (and non-motorized) vehicle access would be allowed on new roads established in the Proposed Action area, except those within restricted facility areas.

There would be no grazing rotation restrictions anticipated with the Proposed Action. Portions of the BLWP area, including the O&M facility and the substation, would be fenced to keep livestock out. These areas, as well as the direct impact acreage for the turbines, would reduce the amount of available forage. Forage availability and production would be permanently reduced by 0.4 percent and temporarily reduced by 3.1 percent of the total allotted acreage within the Proposed Action area (permanent disturbance of 116.8 acres and temporary disturbance of 892.0 acres of grazing allotments).

Revegetation with native species in areas disturbed by construction could restore and improve forage resources for livestock grazing. Eliminating forage needed to feed grazing livestock would be required; however, it is not anticipated to be substantial enough to affect this use of the land. The loss of forage acres can be translated to a decrease in animal unit months (AUMs) on the permit. A minor reduction of 17.5 AUMs from the total of 4,336 AUMs would occur from the loss of 116.8 acres of permanent foraging; this represents less than 0.4 percent of the total allotment acreage within the Proposed Action area. The volume of vehicle traffic associated with O&M activities on new access roads would be substantially less than traffic associated with construction but could result in localized impacts to livestock and livestock management.

**Decommissioning**

Decommissioning activities would cause temporary, localized disturbances to land use similar to those described under the Construction section above. Decommissioning would require coordination similar to that performed during construction where the activities under the Proposed Action would overlap existing uses (including roads and transmission lines). Land use plans, policies, or regulations may have changed by the time the Proposed Action would be decommissioned. As such, the decommissioning plan would ensure that decommissioning is conducted in accordance with then-current land use plans, policies, laws, or regulations. Project features such as turbines, substations, the switchyard, O&M building, and related facilities would be removed at the end of the operational life of the Proposed Action. If access roads are left in place, they would continue to provide access to some recreational users (e.g., hunters). Decommissioning the Proposed Action would have similar impacts to livestock grazing as described for construction. Additionally, previously restored areas could be re-disturbed.
resulting in short-term loss of available forage and a decrease in forage quality. Decommissioning and
restoring disturbed areas with native soils and plants would improve forage availability.

**Additional Measures to Avoid and/or Minimize Impacts**
Along with the implementation of the BMPs and other design features in Appendix B, the BLM
recommends the additional measures below to avoid and/or minimize impacts to land use from the
Proposed Action:

- Turbines along this route would use lighting compatible with night vision goggles (NVGs) for
  safe operations and identification of the turbines when aircrews are conducting NVG training.
- The Proponent would be required to coordinate with the U.S. Air Force if drones would be used.
- No existing authorized BLM range improvement should be removed, altered, or left inoperable
  without prior consultation and written agreement with the grazing allottee and the BLM SFO.

### 3.2.2.2 Direct and Indirect Impacts of Alternatives 1 and 2

Like the Proposed Action, Alternatives 1 and 2 would be constructed on public lands administered by
the BLM or NMSLO. No privately owned land would be acquired for the construction, O&M, or
decommissioning of either of these two alternatives. With the issuance of the ROW grant, these
alternatives would also be in compliance with FLPMA and would not conflict with the 2007 Catron
County CIP/Comprehensive Plan. A plan amendment would be required for the alternatives to be in
conformance with the 2010 SFO RMP. Alternatives 1 and 2 would reduce the total project
boundary acreage by 26,880 acres (61.8 percent) as compared to the Proposed Action, with 16,479 acres
(54.3 percent) being reduced from public lands administered by the BLM, 4,525 acres (79.5 percent)
being reduced from the NMSLO-managed lands, and 5,876 acres (78.4 percent) being reduced from
private landowners.

#### Construction
The construction effects associated with Alternative 1 would be essentially the same as for the
Proposed Action because the same number of turbines would be built under the Proposed Action and
Alternative 1. Under Alternative 2, there would be six less turbines (34 instead of 40 turbines) built with
similar but slightly less impacts from the fewer number of turbines, access roads, and underground
electric collection system and communication lines built. Because of the smaller construction footprint
associated with Alternative 2, livestock grazing allotments within and adjacent to the BLWP area would
be less affected by the construction activities as compared to the Proposed Action and Alternative 1.

The temporary traffic delays from oversized loads and slow-moving equipment on public roads and
highways from the construction of Alternatives 1 or 2 would be equal or similar to the Proposed Action.
The main access point for either of the alternatives would be the same as the Proposed Action: at the
intersection of U.S. 60 and Bill Knight Gap Road. The SFO RMP would also need to be amended for
Alternatives 1 and 2 in order to construct the intersection improvements in the designated avoidance
area.

#### Operations and Maintenance
Potential direct and indirect impacts from O&M activities under Alternatives 1 and 2 would result in
the same or similar impacts to the utility corridors and ROWs as the Proposed Action. Both Alternatives 1
and 2 would have the same FAA requirements as the Proposed Action. The presence of either
alternative could add constraints similar to the Proposed Action to military testing and training
operations that may occur at low altitudes.

New access roads would provide access for dispersed recreation, hunting, and grazing and livestock
management because motorized (and non-motorized) vehicle access would be allowed on new roads
established in either alternative, except those within restricted facility areas. The amount of new roads
associated with Alternatives 1 and 2 would be approximately eight percent less than the Proposed Action.

For Alternatives 1 and 2, forage availability and production would be permanently reduced by 0.8 percent and temporarily reduced by 7.0 percent of the total allotted acreage (permanent disturbance of 110.0 acres and temporary disturbance of 969.6 acres of grazing allotment). The volume of vehicle traffic associated with O&M activities under Alternatives 1 and 2 could result in less localized impacts to livestock and livestock management than the Proposed Action.

**Decommissioning**
Decommissioning activities from Alternatives 1 and 2 would cause temporary, localized disturbances to land use and livestock grazing similar to those described under the Proposed Action. If access roads are left in place, they would continue to provide access for some recreational users (e.g., hunters). Additionally like the Proposed Action, previously restored areas could be re-disturbed resulting in short-term loss of available forage and a decrease in forage quality in Alternatives 1 and 2. Decommissioning and restoring disturbed areas with native soils and plants would improve forage availability.

**Additional Measures to Avoid and/or Minimize Impacts**
With the implementation of the BMPs and other design features in Appendix B, the BLM recommends the additional measures below to avoid and/or minimize impacts to land use from Alternatives 1 and 2.
- Turbines along this route would use lighting compatible with night vision goggles (NVGs) for safe operations and identification of the turbines when aircrews are conducting NVG training.
- The Proponent would be required to coordinate with the U.S. Air Force if drones would be used.
- No existing authorized BLM range improvement should be removed, altered, or left inoperable without prior consultation and written agreement with the grazing allottee and the BLM SFO.

**3.2.2.3 Direct and Indirect Impacts of the No Action Alternative**
Under the No Action Alternative, the BLWP would not be constructed and there would be no impacts to land use within the BLWP area.

**3.3 Social and Economic Conditions**

**3.3.1 Affected Environment and Socioeconomic Study Area**
The nearest named communities to the BLWP area include Red Hill, NM located immediately north of the BLWP area; Quemado, NM approximately 19 miles east and slightly north of the BLWP area; Escudilla Bonita, NM approximately 2.5 miles west of the BLWP area; and the towns of Springerville and Eagar, AZ approximately 17.5 miles west of the BLWP area (for additional information refer to Table 3-2). Catron County is the largest county in NM in geographic area (6,929 square miles), but is one of the least populated in the State (Southwest New Mexico Council of Governments 2015) with a total County population under 4,000 individuals. Given the low population density of Catron County, the socioeconomic study area (SESA) for the BLWP encompasses the entire County, and also includes Springerville and Eagar in Apache County, AZ as these towns are the nearest population centers able to provide additional housing and services.

This section addresses population, housing, income, employment, and relevant industry in the BLWP SESA. In addition to traditional market values for goods, housing, and services, this section will also analyze nonmarket values and ecosystem services that may be impacted by the BLWP. Natural resource development, ranching, and recreational uses are the primary economic activities that have shaped the social and economic landscape of the BLWP’s SESA.
3.3.1.1 Demographics, Income, Industry, and Employment

The total population of the County was 3,725 as of the 2010 decennial census, but recently declined to 3,547 as of 2017 based on the annual American Community Survey (ACS) estimated data (U.S. Census Bureau 2010 and 2017). The U.S. Census Bureau designated one census tract (9674) that encompasses the entire County and identified Quemado and Escudilla Bonita as Census Designated Places (CDPs) (Figure 3-7). Quemado CDP is the second largest populated area in the County (after Reserve, NM) with a population of 228 people. Escudilla Bonita CDP had a population of 118 in 2010. The Red Hill/ Cimarron Ranch Subdivision population is estimated to be around 50 based on verbal information from Catron County (Keith Riddle, personal communication, 2019). In Catron County in 2010, 92.7 percent of the population identified as white and similarly, the majority of the population in Quemado and Escudilla Bonita CDPs were also white (76.3 percent and 95.8 percent, respectively; Table 3-7). The 2010 Native American population consisted of 5.0 percent of the population in Catron County, 21.1 percent in Quemado CDP, and 7.6 percent in Escudilla Bonita CDP. Hispanics/Latinos made up 19.0 percent of the total population in Catron County, 23.7 percent in Quemado CDP, and 7.6 percent in Escudilla Bonita in 2010.

In AZ, the towns of Springville and Eagar consist of three census tracts (9703, 9705.1, and 9705.2) and five block groups. Eagar has a higher population (4,885), but the towns account for a combined population of 6,132 individuals as of the 2010 census. As of 2017, ACS estimates the population slightly increased in Eagar (4,894) and decreased in Springerville (1,751). In both Eagar and Springerville, the majority of the population identified as white (90.5 percent and 87.3 percent, respectively). The 2010 Native American population consisted of 7.3 percent of the population of Springerville and 4.9 percent of the population in Eagar. Hispanics/Latinos made up 24.6 percent of Springerville’s population and 18.8 percent of Eagar’s population in 2010.

Major employment sectors in Catron County include 39.2 percent in management, business, science, and arts; 29.6 percent in sales and office jobs; and 17.4 percent in natural resources, construction, and maintenance. The per capita income for Catron County in 2017 was $22,487, with a median household income of $42,047 (Table 3-8). Approximately 21.5 percent of the people in Catron County were below the poverty level in 2017 (U.S. Census Bureau 2017). According to the New Mexico Department of Workforce Solutions, Catron County had an unemployment rate of 7.4 percent in February of 2019.

In Quemado CDP, major employment sectors include 43.6 percent in natural resources, construction, and maintenance; 36.6 percent in sales and office jobs, and 19.8 percent in service jobs (U.S. Census Bureau 2017). Recent unemployment estimates are not available for this community. Sales and office jobs accounted for the entire workforce of Escudilla Bonita CDP, by 2015 ACS estimates. No industry or employment data is available for the Red Hill/Cimarron Ranch subdivisions.

Major employment sectors in Springerville include 24.3 percent in management, business, science, and arts; 24.8 percent in sales and office jobs; 17.6 percent in production, transportation, and material moving jobs; 24.5 percent in service jobs; and 8.7 percent in natural resources, construction, and maintenance. The per capita income for Springerville in 2017 was $18,996 with a median household income of $38,333. Approximately 36.6 percent of the people in Springerville were below the poverty level in 2017 (U.S. Census Bureau 2017). The unemployment rate reported through ACS 5-year estimates was 10.3 percent. Major employment sectors in Eagar included 34.5 percent in management, business, science, and arts; 14.8 percent in sales and office jobs; 14.1 percent in production, transportation, and material moving jobs; 27.4 percent in service jobs; and 9.2 percent in natural resources, construction, and maintenance. The per capita income for Eagar in 2017 was $20,982 with a median household income of $57,931. Approximately 11.9 percent of the people in Eagar were below the poverty level in 2017 (U.S. Census Bureau 2017). The unemployment rate reported through ACS 5-year estimates was 8.8 percent.
Figure 3-7. Census Block Groups and CDPs for the BLWP SESA
Table 3-7. BLWP SESA’s Population by Age, Ethnic, and Racial Groups

<table>
<thead>
<tr>
<th>Location</th>
<th>Population (number of individuals)</th>
<th>Elderly Population (age 65 and over)</th>
<th>White</th>
<th>Black/ African American</th>
<th>American Indian and Alaska Native</th>
<th>Asian</th>
<th>Native Hawaiian and Other Pacific Islander</th>
<th>Other</th>
<th>Hispanic/ Latino Ethnicity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quemado CDP, NM</td>
<td>228</td>
<td>44 (19.3%)</td>
<td>174</td>
<td>5 (2.2%)</td>
<td>48 (21.1%)</td>
<td>0</td>
<td>0</td>
<td>9</td>
<td>54 (23.7%)</td>
</tr>
<tr>
<td>Escudilla Bonita CDP, NM</td>
<td>119</td>
<td>27 (22.7%)</td>
<td>114</td>
<td>0 (0.0%)</td>
<td>9 (7.6%)</td>
<td>1</td>
<td>0</td>
<td>3</td>
<td>9 (7.6%)</td>
</tr>
<tr>
<td>Springerville, AZ</td>
<td>1,961</td>
<td>311 (15.9%)</td>
<td>1,712</td>
<td>13 (0.7%)</td>
<td>143 (7.3%)</td>
<td>24</td>
<td>1</td>
<td>143</td>
<td>482 (24.6%)</td>
</tr>
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<td>Eager, AZ</td>
<td>4,885</td>
<td>639 (13.1%)</td>
<td>4,420</td>
<td>63 (1.3%)</td>
<td>241 (4.9%)</td>
<td>26</td>
<td>7</td>
<td>284</td>
<td>916 (18.8%)</td>
</tr>
<tr>
<td>Catron County, NM</td>
<td>3,725</td>
<td>1,041 (27.9%)</td>
<td>3,454</td>
<td>22 (0.6%)</td>
<td>185 (5.0%)</td>
<td>12</td>
<td>1</td>
<td>172</td>
<td>709 (19.0%)</td>
</tr>
<tr>
<td>Apache County, AZ NM</td>
<td>71,518</td>
<td>8,268 (11.6%)</td>
<td>17,674</td>
<td>476 (0.7%)</td>
<td>53,273 (73.5%)</td>
<td>315</td>
<td>72</td>
<td>1,178</td>
<td>4,113 (5.8%)</td>
</tr>
<tr>
<td>NM</td>
<td>2,059,179</td>
<td>272,255 (13.2%)</td>
<td>1,473,005</td>
<td>57,040 (2.8%)</td>
<td>219,512 (10.7%)</td>
<td>40,456</td>
<td>4,698</td>
<td>346,627</td>
<td>953,403 (46.3%)</td>
</tr>
<tr>
<td>AZ</td>
<td>6,392,017</td>
<td>881,831 (13.8%)</td>
<td>4,852,961</td>
<td>318,665 (5.0%)</td>
<td>353,386 (5.5%)</td>
<td>230,907</td>
<td>25,106</td>
<td>846,031</td>
<td>1,895,149 (29.6%)</td>
</tr>
</tbody>
</table>

Table Abbreviations: AZ = Arizona; BLWP = Borderlands Wind Project; CDP = Census Designated Place; NM = New Mexico; SESA = socioeconomic study area
Source: U.S. Census Bureau 2010
Note: Individuals may identify with multiple racial groups.

Table 3-8. Income and Poverty Rates based on 2013-2017 ACS 5-year Estimates within the BLWP SESA

<table>
<thead>
<tr>
<th>Location</th>
<th>Per Capita Income</th>
<th>Median Household Income</th>
<th>Poverty Rate1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quemado CDP, NM</td>
<td>$21,275</td>
<td>NA</td>
<td>31.4%</td>
</tr>
<tr>
<td>Escudilla Bonita CDP, NM</td>
<td>$23,232</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Springerville, AZ</td>
<td>$18,996</td>
<td>$38,333</td>
<td>36.6%</td>
</tr>
<tr>
<td>Eager, AZ</td>
<td>$20,982</td>
<td>$57,931</td>
<td>11.9%</td>
</tr>
<tr>
<td>Catron County, NM</td>
<td>$22,487</td>
<td>$42,047</td>
<td>21.5%</td>
</tr>
<tr>
<td>Apache County, AZ NM</td>
<td>$13,865</td>
<td>$32,360</td>
<td>35.9%</td>
</tr>
<tr>
<td>NM</td>
<td>$25,257</td>
<td>$46,718</td>
<td>20.6%</td>
</tr>
<tr>
<td>AZ</td>
<td>$27,964</td>
<td>$53,510</td>
<td>17.0%</td>
</tr>
</tbody>
</table>

Table Abbreviations: ACS = American Community Survey; AZ = Arizona; BLWP = Borderlands Wind Project; CDP = Census Designated Place; NA = not applicable; NM = New Mexico; SESA = socioeconomic study area
Source: U.S. Census Bureau 2017
Note: Data are based on a sample and are subject to sampling variability. The degree of uncertainty for an estimate arising from sampling variability is represented through the use of a margin of error. In addition to sampling variability, the ACS estimates are subject to nonsampling error.
1 Poverty Rate reflects *All people whose income in the past 12 months is below the poverty level.*
3.3.1.2 Housing Characteristics and Property Values

Housing characteristics were obtained using the 2010 census data and median property value using the 2017 ACS 5-year estimates. In NM, an estimated 901,390 housing units existed as of 2010, including a reported 87.8 percent occupied units and 12.2 percent vacant units (Table 3-9). The median value of owner-occupied homes in NM was not reported in the 2010 census, but in the 2017 ACS, the median value was estimated to be $163,900. An estimated 3,289 housing units existed in Catron County as of 2010, including a reported 54.3 percent occupied units and 45.7 percent vacant units. More than a third of vacant units were described as vacant due to seasonal, recreational, or other use (34.1 percent). The median value of owner-occupied homes in Catron County was not reported in the 2010 census, but in the 2017 ACS, the median value was estimated to be $164,600. The number of housing units reported for Quemado CDP in 2010 was 135 units, with 63.7 percent of units occupied and 36.3 percent vacant. A smaller portion of housing units (13.3 percent) were described as vacant due to seasonal, recreational, or other use. The number of housing units reported for Escudilla Bonita CDP in 2010 was 125 units, including 44.0 percent occupied units and 56.0 percent vacant units. Similar to Catron County, more than a third (40.8 percent) of units were described as vacant due to seasonal, recreational, or other use. No housing units, occupancy data, or median house values are available for the Red Hill/Cimarron Ranch subdivision.

In Springerville, AZ a reported 954 units housing units existed in 2010, including 81.2 percent occupied units and 18.8 percent vacant units. Only 4.2 percent of housing units were reported to be vacant due to seasonal, recreational, or other use. The median value of owner-occupied homes in Springerville was not reported in the 2010 census, but in the 2017 ACS, the median value was estimated to be $105,600. The number of housing units reported in Eagar, AZ in 2010 was 2,045, with 84.8 percent of units occupied and 15.2 percent vacant. The median value of homes in Eagar was not reported in the 2010 census, but in the 2017 ACS, the median value was $165,400.

Table 3-9. BLWP SESA’s Housing Characteristics

<table>
<thead>
<tr>
<th>Location</th>
<th>Total Housing Units (number)</th>
<th>Occupied Housing Units (number/percent)</th>
<th>Unoccupied Housing Units (number/percent)</th>
<th>Median Home Value¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quemado CDP, NM</td>
<td>135</td>
<td>86/63.7%</td>
<td>49/36.3%</td>
<td>NA</td>
</tr>
<tr>
<td>Escudilla Bonita CDP, NM</td>
<td>125</td>
<td>55/44%</td>
<td>70/56%</td>
<td>NA</td>
</tr>
<tr>
<td>Springerville, AZ</td>
<td>954</td>
<td>775/81.2%</td>
<td>179/18.8%</td>
<td>$105,600</td>
</tr>
<tr>
<td>Eagar, AZ</td>
<td>2,045</td>
<td>1,734/84.8%</td>
<td>311/15.2%</td>
<td>$165,400</td>
</tr>
<tr>
<td>Catron County, NM</td>
<td>3,289</td>
<td>1,787/54.3%</td>
<td>1,502/45.7%</td>
<td>$164,600</td>
</tr>
<tr>
<td>Apache County, AZ</td>
<td>32,514</td>
<td>22,771/70%</td>
<td>9,743/30%</td>
<td>$72,800</td>
</tr>
<tr>
<td>NM</td>
<td>901,388</td>
<td>791,395/87.8%</td>
<td>109,993/12.2%</td>
<td>$163,900</td>
</tr>
<tr>
<td>AZ</td>
<td>2,884,526</td>
<td>2,380,990/83.7%</td>
<td>463,536/16.3%</td>
<td>$193,200</td>
</tr>
</tbody>
</table>

Table Abbreviations: AZ = Arizona, CDP = Census Designated Place, NA= data not available, NM = New Mexico
Source: 2010 Census
Note: Data are based on a sample and are subject to sampling variability. The degree of uncertainty for an estimate arising from sampling variability is represented through the use of a margin of error. In addition to sampling variability, the ACS estimates are subject to nonsampling error.

¹ Data only available in 2013-2017 ACS 5-Year Estimates.

3.3.1.3 Agriculture, Ranching, and Recreation

The industries that are the largest contributors to income in Catron County include agriculture, ranching, and recreation (e.g., fishing and hunting). Agriculture and ranching activities account for a market value
of $12.74 million for products sold. The majority (99.0 percent) of products sold are attributed to livestock sales (U.S. Department of Agriculture 2012). Cattle and calves are the primary commodity, accounting for $11.6 million. The 2012 Census of Agriculture reported 351 farms/ranches in Catron County with an average size of 3,070 acres. Overall, 1,077,534 acres of land are attributed to farms/ranches within the County. For a related discussion of land use for livestock grazing on public lands, see Section 3.2 Land Use.

Recreation activities in the County make a substantial economic contribution and include common outdoor activities, such as hiking, fishing, trapping, and hunting. Among NM residents, walking/hiking, and running; hunting, fishing, shooting, and wildlife watching; and camping are the most common outdoor activities (New Mexico State Parks Division 2015). Catron County is ranked among the top three hunting destination counties in NM with a reported 9,648 residents and 2,758 non-residents participating annually. Table 3-10 shows the annual economic contributions of fishing, hunting, and trapping for the County as reported for 2013. The majority of economic contributions from hunting are associated with hunting for elk, deer, and small game (i.e., quail, duck, and squirrel).

Table 3-10. Economic Contributions of Fishing, Hunting and Trapping in Catron County and NM

<table>
<thead>
<tr>
<th>Activity</th>
<th>Jobs (Catron County)</th>
<th>Labor Income</th>
<th>Contribution to NM Gross Domestic Product</th>
<th>State and County Tax Revenues</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fishing</td>
<td>21</td>
<td>$368,329</td>
<td>$1,000,258</td>
<td>$165,450</td>
</tr>
<tr>
<td>Hunting</td>
<td>237</td>
<td>$3,318,008</td>
<td>$9,468,383</td>
<td>$1,405,967</td>
</tr>
<tr>
<td>Trapping</td>
<td>1</td>
<td>$17,469</td>
<td>$41,759</td>
<td>$8,116</td>
</tr>
</tbody>
</table>

Table Abbreviations: NM = New Mexico
Source: Southwick Associates 2014.

Catron County contains 12 Game Management Units (GMUs), which are geographic subdivisions used by the NM Department of Game and Fish for the management of big game species. The Proposed Action and Alternatives 1 and 2 areas are located within GMU 15, but also include a small portion of GMU 12 (approximately 10.6 acres). Of the deer licenses sold in Catron County, 381 licenses (5.2 percent) were sold for GMU 15 in 2017–2018. There were 2,464 elk licenses (25.6 percent) sold for GMU 15 in 2017-2018 (NM Department of Game and Fish 2018). The Proposed Action area would include 43,517.0 acres of GMU 15 (4.2 percent of the total unit area). The Alternatives 1 and 2 area would account for 16,647.9 acres of GMU 15 (1.6 percent of the total unit area).

3.3.1.4 Rural Prosperity and Nonmarket Values

Based on its land use planning authority provided in Section 202 of FLPMA, the BLM manages public lands for both the preservation and use of natural resources to serve both local communities and the broader public. Executive Order 13790, Promoting Agriculture and Rural Prosperity in America (April 25, 2017), directs agencies of the Federal government to (among other things):

- Further the Nation’s energy security by advancing traditional and renewable energy production in the rural landscape; and
- Address hurdles associated with access to resources on public lands for the rural communities that rely on cattle grazing, timber harvests, mining, recreation, and other multiple uses.

The BLM must consider these directives during planning. The BLWP advances the development of renewable energy production on the rural landscape, and does not substantially impede public access to economically important natural resources, such as grazing lands, and recreational opportunities. To reach this conclusion, BLM analyzed impacts to both market and non-market values.
One of the ways that people evaluate the importance of natural resources is through perceived non-market values. Nonmarket values are assigned to natural resources by people. These non-market values may not be quantifiable, such as certain communities placing a high value on perceptions of landscapes and rural lifestyles. Different communities and individuals may assign different values to a natural resource, dependent on their specific circumstances. For example, the ranching community in the area of the Proposed Action would place a different value on open, grassy rangelands, than would people who value the views and wildlife associated with woodlands.

Many residents in the SESA place a high value on rural landscapes and rural lifestyles. As noted during the public scoping period, local residents value open space and rural viewscapes, as well as the lifestyles associated with ranch operations, livestock grazing, and recreational (hunting) opportunities. They tend to prefer land uses that conserve or enhance these values. Ranchland in NM is part of a broader cultural landscape that encompasses many of the nonmarket values that ranchers hold in high regard, such as sense of place and purpose. As a result, ranchers in NM can develop a sense of attachment to the landscapes that visitors, recreationists, and others may not. The value of these rangelands, as perceived by the ranching community, are generally not reflected in market prices.

Recreation is an important resource use in the SESA by both local residents and nonlocal visitors. The benefits people obtain from recreating are personal, with different people obtaining different benefits from the same piece of land. Scenery is an important component of non-market valuation associated with landscapes. Sometimes referred to as scenic quality or landscape character, visual appreciation of the environment is a well-recognized and accepted dimension of aesthetic appreciation. The scenery associated with a landscape contributes to community identity and sense of place. Additionally, wildlife provides a variety of benefits to the public. When consumed as food, certain species may be considered important for reasons of traditional use and recreation, and when hunted for sport or viewed by recreationists, the same species are considered important contributors to local economies. Some wildlife also hold non-use values; for example, when people do not use wildlife but recognize that future generations may value specific wildlife species or the fact that wildlife exists (USFS 2014). Within the BLWP area, deer, elk, and other game species would be considered to be important for both economic and non-market reasons, while eagles, prairie dogs, wolves, and other sensitive species also contribute to the non-market perceptions of the area by both local and non-local users.

3.3.2. Environmental Consequences

3.3.2.1 Direct and Indirect Impacts of the Proposed Action and Alternatives 1 and 2 – Market Values

Construction
The project construction phase is estimated to take 11 to 12 months, with approximately 200 to 250 workers onsite during peak construction and an average of 50 to 70 workers onsite daily. Total income for all construction workers is estimated to range from $1.5 to $3.0 million (R. Stephens, personal communication, 2019).

Construction of the BLWP would result in hiring local and non-local construction workers, as well as expenditures for local goods and services. Some of the labor to construct the BLWP would be specialized and would be sourced from outside the SESA. These workers are anticipated to be temporary residents that would only reside in Catron County during construction of the BLWP. The projected local workforce used during construction would be approximately 10 to 25 workers. The Proponent would hire as many local workers as possible; however, due to the remote project location, qualified workers may come from areas within a two-hour driving distance from the BLWP area.
While housing choice by construction workers depends on the type and quality, as well as the quantity of available housing, it is expected that project-related housing demand would be met by the existing housing and hotel supply based on the diversity of choices available between Quemado and Springerville/Eagar, AZ and the BLWP area. Therefore, no new housing is expected to be built for workers during the construction of the BLWP. The increased demand for short-term housing from BLWP construction workers would have no effect on housing market prices because of the availability of nearby hotels and short construction timeframe (12 months or less).

Indirect effects would result from additional local jobs that would be supported by BLWP-related expenditures on goods and materials, such as construction materials and supplies. During construction, these related expenditures would come from non-local workers staying in local motels/hotels/campgrounds, buying gas and food locally, and frequenting local restaurants. Meals, food, and lodging could contribute an estimated $750,000 to the local economy during construction (Jennifer Field, personal communication, 2019).

Short-term employment opportunities may be generated in other sectors of the Catron County economy through spending by workers that are supported directly or indirectly by the BLWP construction. Increased spending by local construction worker households may also generate additional employment in the County. The majority of this employment and income is anticipated to be in service sectors and would be a negligible to minor contribution to the County economy during the 11- to 12-month period of construction.

Major economic drivers in the BLWP area are primarily related to recreation/hunting and ranching and the livestock industry. These activities may be displaced during construction of the BLWP. The Proposed Action area and Alternatives 1 and 2 area would include approximately 4.2 percent and 1.6 percent of GMU 15, respectively. Based on the number of elk and deer licenses issued for the BLWP area during the 2017–2018 season, the number of affected hunters is expected to be limited to less than 200, primarily during the project construction phase (NM Department of Game and Fish 2018). Because of the relatively short construction schedule, any loss of hunting opportunities would also depend on what time of year the proposed BLWP is actually under construction. Since approximately two-thirds of the hunters in NM are local residents rather than non-residents, there would be negligible, if any, reduction in related expenditures, such as for lodging from non-resident hunters in the BLWP area, under any of the alternatives. Construction of the BLWP would result in the temporary reduction of forage availability in six grazing allotments under the Proposed Action and four grazing allotments under Alternatives 1 and 2.

In 2017, the total revenue for Catron County was $5.4 million. The Proponent estimates that they would pay approximately $1.1 million of sales tax to the State and $115,000 to Catron County during the construction phase of the project. If the County’s revenue remained the same as it was in 2017, this would be an increase of approximately 2.0 percent of revenue for the County (Stone, McGee and Co. 2017).

The BLWP may impact adjacent property values. Numerous conflicting economic studies have analyzed the effect of wind farm development on private property values. One recent review of research findings on the impact of wind power projects on residential property values in the United States stated that there is no consistent, statistically significant effect on home sale prices with a view of wind facilities or those in close proximity to wind facilities (Thayer 2017). Other research done in 2014 by the London School of Economics cites that properties located within approximately 9 miles of a wind farm can have a 12 percent reduced value. The various studies suggest there are several qualitative and quantitative factors that influence property values adjacent to announced or operating wind generating facilities other than the presence of the facility. These factors include the sale price of nearby comparable
properties; the property’s square footage, age, and number of bedrooms/bathrooms; and the quality metrics of the property such as the condition of the home and location specific variables.

The BLWP may impact private property values of residences and/or vacant parcels within the Red Hills/Cimarron Ranch Subdivision and on other adjacent private properties. However, the magnitude and duration of such impacts on property values solely attributed to the presence of the BLWP would be specific to the individual property at the time of the sale and would not be consistent across the entire Red Hills/Cimarron Ranch Subdivision or across other adjacent private residential and non-residential properties. This lack of consistency makes it difficult to provide an accurate estimate of impacts to property values.

**Operations and Maintenance**
Operation of the BLWP would result in the long-term reduction of approximately 116.8 acres of forage production under the Proposed Action and approximately 110.0 acres of forage production under Alternatives 1 and 2 through the life of the project. Table 3-11 identifies the percent reduction within each of the allotment carrying capacity within the Proposed Action area and Alternatives 1 and 2 area, and the reduction in each permittee’s entire allotment.

<table>
<thead>
<tr>
<th>Allotment Name</th>
<th>Proposed Action Allotment Acreage Reduction</th>
<th>Proposed Action Allotment % Reduction</th>
<th>Alternatives 1 &amp; 2 Allotment Acreage Reduction</th>
<th>Alternatives 1 &amp; 2 Allotment % Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vevarosa</td>
<td>16.69</td>
<td>0.10</td>
<td>14.40</td>
<td>0.09</td>
</tr>
<tr>
<td>Red Hill South</td>
<td>4.31</td>
<td>0.03</td>
<td>4.34</td>
<td>0.03</td>
</tr>
<tr>
<td>Florenio Orona</td>
<td>9.36</td>
<td>0.23</td>
<td>8.58</td>
<td>0.21</td>
</tr>
<tr>
<td>Red Hill North</td>
<td>86.42</td>
<td>0.41</td>
<td>82.67</td>
<td>0.39</td>
</tr>
<tr>
<td>Cow Springs</td>
<td>0.0</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Heavenly Acres</td>
<td>0.0</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>116.79</td>
<td>0.39</td>
<td>109.99</td>
<td>0.79</td>
</tr>
</tbody>
</table>

*Table Abbreviations: BLM = Bureau of Land Management; BLWP = Borderlands Wind Project*

Source: BLM 2018b

1 Percent references the reduction in the portion of the total allotment acreage that is located on BLM lands within the Proposed Action area (30,320.06 total acres; see Table 3-5).

2 Percent references the reduction in the portion of the total allotment acreage that is located on BLM lands within the Alternatives 1 and 2 area (13,856.82 total acres; see Table 3-5).

The BLM indicated that there is an average of 0.15 AUMs\(^3\) per acre of SFO grazing land (Matt Atencio, personal communication, 2019). If the total grazing area is reduced by 116.8 acres in the Proposed Action and 110.0 acres in Alternatives 1 and 2, the rancher would potentially lose income from the reduction in the number of cattle that could be raised, resulting in an economic impact, if other grazing lands cannot be secured. There would be a reduction of approximately 17.5 AUMs (116.8 acres x 0.15 AUMs) every year for the life of the Proposed Action, and 16.5 AUMs (110.0 acres x 0.15 AUMs) with Alternatives 1 and 2, which would be a 0.4 percent and 0.8 percent decrease in the AUMs for the grazing allotments within the BLWP area, respectively. The economic impacts on livestock grazing during the life of the BLWP for any of the alternatives would result in a less than one percent reduction in AUMs, and is therefore anticipated to be a negligible impact.

\(^3\) There are 1,492,301 BLM acres of public lands open to grazing with 226,818 active AUMs or 0.15 AUM per grazing acre in the SFO (Matt Atencio, personal communication, 2019).
During the 35-year operational period, approximately 5 jobs would support an additional $7.9 to $8.8 million in household income. It is assumed that O&M would be conducted by employees hired locally, or employees that would relocate and settle locally in Catron County. Expenditures of wages by BLWP employees and supporting industry employees in the local economy would also support local employment.

Long-term population impacts on Catron County would be less than 5 people, for which there are adequate available, vacant housing units and/or property for sale. Therefore, no new housing is expected to be constructed as a result of the BLWP and no effect on housing prices is expected because of the small number of permanent jobs associated with the BLWP's O&M.

Other economic benefits to the local government would be annual payments as part of the Industrial Revenue Bond structure. The Proponent would make annual payments in lieu of tax to Catron County in the amount $397,800 per year for 30 years. Over 30 years, those payments would total $11,934,000. If the County's revenue remained the same as it was in 2017, this would be an increase of approximately 7.0 percent of revenue to the County annually over the 30-year payment structure.

Decommissioning
Decommissioning would require labor to remove the wind turbines, electrical system, structural foundations, and roads. In addition, labor would be required to regrade, recontour, and revegetate areas to be restored. It is not known how many employees the BLWP would directly or indirectly support during decommissioning. It is anticipated that the local labor and income effects would be relatively minor as the decommissioning period is temporary. No new housing is expected to be constructed as a result of BLWP decommissioning, and no effect on housing prices is expected.

3.3.2.2 Direct and Indirect Impacts of the Proposed Action and Alternatives 1 and 2 – Nonmarket Values

Construction
During the construction of the BLWP, some short-term impacts on quality of life for local residents may result due to increased BLWP-related traffic, potential impacts on air quality and habitat, and potential increased prevalence of invasive species. Increased traffic on existing roads, including U.S. 60 and Bill Knight Gap Road, may result in increases to travel time and travel hazards for local residents.

Construction-related emissions and dust may reduce air quality in the Proposed Action and Alternatives 1 and 2 areas due to increases in PM10 (particulate matter that is 10 micrometers or less in size). PM10 can reduce visibility and negatively affect health. The potential consequences of these impacts vary by location and would be relatively low in the area due to the existing good air quality and low population density. Total groundwater pumping withdrawals for dust control and concrete production represent a small percentage of depletion and is unlikely to affect the overall groundwater supply. Habitat areas disturbed by the BLWP construction may be more susceptible to invasive species, the treatment of which may have potential costs to landowners or public agencies. The seasonal recreation use (closest sensitive noise receptor) in proximity to the Proposed Action and Alternatives 1 and 2 areas would not be expected to experience construction or operation noise impacts based on the distance from the nearest turbine.

Local residents and visitors that recreate in the Proposed Action and Alternatives 1 and 2 areas may be affected by construction activities. Construction of the BLWP may potentially impact the value of the recreation experience for visitors and residents; hunters would be deterred from the Proposed Action and Alternatives 1 and 2 areas during the 11- to 12-month construction period. Short-term impacts would include the loss of access to wildlife for hunting and/or viewing opportunities, as well potential dispersal of wildlife (including sensitive species) from the area during construction of the BLWP. The
effect on recreationists, specifically hunters, is expected to be limited, as recreation use in the BLWP area is estimated to be relatively low (NM Department of Game and Fish 2018).

As described in the visual resources section (refer to Section 3.9 Visual Resources), some of the residents in the Red Hill/Cimarron Ranch Subdivision would have unobstructed views of all of the BLWP turbines.

**Operations and Maintenance**
The type of expected impacts on quality of life for local residents during O&M would be similar to impacts in the construction period, but effects to some nonmarket values would be smaller in magnitude due to reduced activity in the Proposed Action and Alternatives 1 and 2 areas (and associated lower emissions and traffic). Impacts on habitat and recreation would likewise be less, as less area would be disturbed by BLWP-related O&M activities compared to construction activities. The potential increase in the number and quality of public routes constructed by the BLWP could be perceived as a positive impact for recreationists and hunters. Sensitive wildlife species that were dispersed during construction may return to the area as the restoration of disturbed areas is completed. However, the presence of the wind turbines and associated increase in sustained human activity over the life of the project would negatively impact the public's opportunity for watching wildlife and harvesting game species.

The visibility of wind turbines to residents and recreationists in and near the BLWP area would impact the scenic values and recreation experience as compared to existing conditions. As noted in the visual resource analysis (refer to Section 3.9 Visual Resources), the presence of the wind turbines would alter the existing character of the landscape, lower the scenic quality, and create strong visual contrast in the setting. For these reasons, the impact to nonmarket values associated with scenic values from the O&M of the BLWP would be a long-term major negative impact.

**Decommissioning**
Decommissioning activities would cause temporary, localized disturbances similar to those described under the Construction section above. It is anticipated that impacts to nonmarket values would be relatively minor as the decommissioning period is temporary.

**Additional Measures to Avoid and/or Minimize Impacts**
With the implementation of the BMPs and other design features in Appendix B, the BLM recommends one additional measure to avoid and/or minimize negative impacts to social and economic conditions from the Proposed Action or Alternatives 1 and 2:

- Thirty days prior to commencing construction, the contractor would post a construction schedule along Bill Knight Gap Road and where dictated by the BLM SFO to alert hunters of upcoming construction vehicle traffic and activities.

**3.4 Transportation and Travel Management**

This section discusses effects to transportation and travel management that may occur with the implementation of the Proposed Action, Alternatives 1 and 2, and the No Action Alternative.

**3.4.1. Affected Environment**

Access to the BLWP area is from U.S. 60, a two-lane paved highway. U.S. 60 is classified as a principal arterial; it serves statewide travel, links urban areas, and provides mobility through rural areas (Federal Highway Administration 2017, NMDOT 2015). Approximately 187.7 miles of unimproved and improved unpaved routes within the BLWP area provide access for the public and private landowner vehicles.
(BLM 2018b). Bill Knight Gap Road is an improved, unpaved route that runs along the eastern portion of the BLWP area and provides access to the Gila National Forest and to the community of Luna, NM from U.S. 60. In addition, there are several utility lines in the BLWP area that have unimproved access roads to provide access for periodic routine inspections, maintenance, and repairs. Other known users of these unimproved routes are hunters and local landowners. Overall, vehicle volume is relatively low due to the rural nature of the area.

The BLM designates the public lands it administers as open, limited, or closed to OHVs. Additionally, the SFO RMP identifies that land classified as ‘limited’ can either be limited to existing or designated routes. The BLM objectives for OHV management are to protect the resources of public lands, promote the safety of all users of those lands, and minimize conflicts among the various uses of those lands (BLM 2010a). All BLM land in the BLWP area is classified for OHV use as limited to designated routes. During the planning process for the SFO RMP, a definitive route inventory and route designation could not be completed except for in the WSA. Until the final travel management network is established, motorized travel is limited to designated routes within the BLM’s Planning Area, unless specifically identified otherwise.

3.4.2. Environmental Consequences


3.4.2.1 Direct and Indirect Impacts of the Proposed Action

Construction

The Proposed Action is estimated to generate a peak of approximately 500 trips per day on U.S. 60 (based on 160 construction personnel and 50 delivery trucks leaving and entering the BLWP site). During construction, 48.1 miles of roadway would be necessary, including 6.8 miles of existing road and 41.3 miles of new road. A Road Design, Traffic, And Transportation Plan would be prepared by the Proponent and included in the BLWP POD. Temporary traffic delays would occur during the construction of improvements to U.S. 60. An increase in travel time for U.S. 60 motorists would also occur because of the presence of slower moving construction vehicles and an increase in the number of delivery trucks and workers’ vehicles. Construction of the Proposed Action is estimated to take up to 12 months with construction crews working 8- to 12-hour work days, 6 days per week (Borderlands Wind, LLC 2020). These traffic delays would result in minor impacts to local traffic during construction activities.

The Proposed Action area currently contains approximately 25.6 miles of BLM-designated open routes that would be closed intermittently during construction. Any of the new access roads constructed for the Proposed Action would be open to public use after construction. It is not known if there would be an increase in vehicle traffic from the public interested in viewing the wind farm construction, but all vehicle traffic would be limited in the same manner during construction (Borderlands Wind, LLC 2020).

Operation and Maintenance

The total length of access roads for O&M of the 40 proposed turbines would be less than 48.1 miles (6.8 miles of existing road and 41.3 miles of new road), which would be the total mileage needed to support all 46 permitted turbine locations. Following construction, the addition of new access roads would provide access for dispersed recreation, hunting, and livestock management because motorized (and non-motorized) vehicle access would be allowed on new roads established in the BLWP area, except within the fenced areas for the switchyard, substations, and O&M building. Improved access within the Proposed Action area could create opportunities for unauthorized OHV use on previously inaccessible areas of BLM lands. While new access roads could provide a local impact from the
increase in available travel routes, additional unauthorized OHV use could indirectly affect travel and transportation in these areas.

**Decommissioning**
Decommissioning activities would cause temporary disturbances similar to those described under the Construction section above. These activities would require coordination similar to that performed during construction where the activities under the Proposed Action would overlap existing road uses. Decommissioning the facility would require removing all new access roads built to serve the facility and removing the aggregates, re-contouring the surface, and seeding until native species become re-established. Oversized loads and slow-moving equipment on roads within the Proposed Action area and along U.S. 60 could result in temporary delays for local motorists. If access roads are left in place at the direction of the BLM, they would continue to provide access for recreational users (e.g., hunters), as well as for livestock management.

**Additional Measures to Avoid and/or Minimize Impacts**
With the implementation of the BMPs and other design features in Appendix B, no additional measures to minimize impacts to transportation and travel management from the Proposed Action are recommended.

### 3.4.2.2 Direct and Indirect Impacts of the Alternatives 1 and 2

**Construction**
During the construction of Alternatives 1 and 2, 47.9 miles of roadway would be necessary including 10.0 miles of existing road and 37.9 miles of new road. The Alternative 1 and 2 area currently contains approximately 21.7 miles of BLM-designated open routes that would be closed intermittently during construction. Alternative 1 is expected to generate the same peak number of construction vehicle trips per day on U.S. 60 and create the same level of impact from construction traffic delays for motorists as the Proposed Action since the same number of turbines would be constructed in both alternatives and the construction period would be the same as well. With six less turbines being constructed for Alternative 2 as compared to the Proposed Action and Alternative 1, Alternative 2 would generate a slightly lower number of construction vehicle trips per day on U.S. 60 and a shorter construction timeframe by up to two weeks. Alternative 2 would also slightly decrease the temporary traffic delays as compared to the Proposed Action and Alternative 1 because there would be fewer construction vehicles, delivery trucks, and workers’ vehicles. Potential traffic delays along U.S. 60 from the construction of the acceleration and deceleration lanes on the highway would be the same for all alternatives. These traffic delays along U.S. 60 for all alternatives would result in minor impacts to local traffic during construction activities.

As stated in the Proposed Action, it is not known if there would be an increase in vehicle traffic from the public interested in viewing the wind farm construction, but all vehicle traffic would be limited in the same manner during construction for all alternatives (Borderlands Wind, LLC 2020).

**Operation and Maintenance**
The exact number of miles of access roads (new or existing that would be used for O&M of the facility) for each of the alternatives is not known since the selection of the final turbine locations would be made during construction to account for specific site conditions. In general, Alternative 1 would provide the same amount of access for dispersed recreation, hunting, and livestock management as the Proposed Action because motorized (and non-motorized) vehicle access would be allowed on new roads established in the BLWP area, except within the fenced areas for the switchyard, substations, and O&M building. Comparatively, the level of access for recreation, hunting, and livestock management would be less in Alternative 2. For all alternatives, the new access roads would provide a local impact from the increase in available travel routes.
Decommissioning
The impacts from decommissioning activities as described for the Proposed Action would be the same or similar for Alternatives 1 and 2. Alternative 2 would have six fewer turbines, so the timeframe to complete the decommissioning would be slightly less compared to the Proposed Action and Alternative 1.

Additional Measures to Avoid and/or Minimize Impacts
With the implementation of the BMPs and other design features in Appendix B, no additional measures to minimize impacts to transportation and travel management from Alternatives 1 and 2 are recommended.

3.4.2.3 Direct and Indirect Impacts of the No Action Alternative
The No Action Alternative would result in no change to the existing transportation and travel network; therefore, no impacts would occur to those resources.

3.5 Cultural Resources
The classification of a “cultural resource” for purposes of the BLWP EIS includes all districts, sites, buildings, structures, objects, and landscapes that have been created by or are associated with humans and are considered to have historical or cultural value. This section of the EIS discusses the presence of cultural resources within the BLWP area and the impacts that the Proposed Action, Alternatives 1 and 2, and the No Action Alternative would have on those resources. The analysis area consists of the area of potential effects (APE), which is a geographic area or areas in which cultural resources may be affected by the BLWP. The APE for the BLWP was defined by the BLM in consultation with the NM State Historic Preservation Office (SHPO) and other consulting parties, including Native American Tribes.

3.5.1 Affected Environment
3.5.1.1 Cultural Setting
Paleoindian Tradition (ca. 10,000–5500 BC)
The Paleoindian tradition dates from roughly 12,200 BC to approximately 5500 BC. In the Southwest, Paleoindian sites are identified by distinctive projectile points that have been recovered in association with the remains of large Pleistocene mammals. Paleoindians were highly mobile and low population densities prevailed. As a result, Paleoindian sites are rare and have low archaeological visibility.
Evidence for Paleoindian use in west-central NM near the BLWP area is also rare, although a small number of Paleoindian points have been documented at sites in the Quemado area (Gerow 1994) and a number of Paleoindian sites have been found on the Plains of San Augustin east of the BLWP area (Jenks and Leckman 2009).

Archaic Tradition (ca. 5500 BC–AD 200)
Spanning roughly 6,000 years, the Archaic tradition is generally divided into three distinct periods: the Early (5500–3200 BC), Middle (3200–1800 BC), and Late Archaic (1800 BC–AD 200). Overall, the Archaic period is characterized by three broad demographic and settlement trends: population growth, decreases in residential mobility, and economic intensification. Archaeologically, these trends are evidenced by an increase in the frequency and density of sites, the appearance of structures and storage pits, the increasing regionalization of artifact styles, and the appearance and spread of ground-stone implements and domesticated maize. Artifacts and features associated with subsistence intensification also appear and include pit ovens, knives, scrapers, drills, perforators, and stemmed and notched projectile points.
Archaic populations exhibited a fair amount of diversity across western NM, as local populations adapted to a wide variety of terrain, climates, and resources. A number of Archaic sites have been recorded in the general area between and around Reserve and Quemado, including more than 50 from the Salt River Project (Hogan 1985) north of Quemado, a number from the Largo and Agua Fria drainages (Kayser 1972, 1973), almost a dozen from the Chihuahua Lake and Tularosa Canyon areas (Fowler 1990), and 21 sites in the White Snake Burn Project immediately to the south of the BLWP area (Jenks and Leckman 2009). Many of the known Archaic-period sites in the vicinity of the BLWP area are located on low ridges and date to the Early and Middle Archaic periods.

**Formative Period (ca. AD 200–1600)**

The Formative period in the Southwest is characterized by an increased reliance on agricultural subsistence, increasing populations, decreasing mobility, and the introduction and adoption of ceramic technology. The BLWP area lies along the intersection of two major Formative-period Southwestern cultural traditions: the Ancestral Puebloan to the north and the Mogollon to the south. In the area near Quemado and surrounding the BLWP area, both Mogollon and Ancestral Puebloan sites have been identified. Mogollon and Ancestral Puebloan sites in this region are typically distinguished primarily by their differences in pottery technology (brown ware ceramics and white or grey ware ceramics, respectively) and architectural features, although other attributes such as site layout, burial practices, and cradleboard technology have also been used to differentiate the two traditions (Jenks and Leckman 2009). Within west-central NM, the Formative period is divided into several periods: Basketmaker II (AD 1–500), Basketmaker III–Pueblo I (AD 500–900), Pueblo II (AD 900–1100), Pueblo III (AD 1100–1300), and Pueblo IV (AD 1300–1600).

Generally speaking, the Basketmaker II period is characterized by pre-ceramic communities of atlatl-using, basket-making horticulturalists (Kidder 1927; Matson 1991). Few sites in the west-central NM have been dated to the Basketmaker II period. A handful of pre-ceramic agricultural sites have been excavated in the region (ZCRE 2000), as well as a few Archaic sites that may include early Basketmaker components (Jenks and Leckman 2009).

The Basketmaker III and Pueblo I periods are distinguished from the Late Archaic and Basketmaker II periods by the rapid proliferation of ceramics and the appearance of black-on-white painted pottery. A small number of Basketmaker III period sites have been investigated in the area around the BLWP and near Quemado (Danson 1957), which lies approximately 25 miles northeast of the BLWP area. Some of these sites contain attributes of both Mogollon and Ancestral Puebloan traditions (Bullard 1962). Pueblo I-period Ancestral Puebloan sites were recorded on Mariana Mesa north of Quemado and Mogollon sites were recorded just to the south of Quemado.

The Pueblo II period saw a shift from pit structures to aboveground habitations and an increased quantity of decorated pottery and corrugated vessels (Jenks and Leckman 2009). Over one hundred Pueblo II-period Ancestral Puebloan/Mogollon sites have been recorded on Mariana Mesa (Danson 1957). Ancestral Puebloan sites have been recorded in large numbers around Quemado (Gerow 1994; Hogan 1985). Several large sites have been identified to the north of the BLWP area, including Cox Ranch Pueblo and Cerro Pomo (Duff 2003; Duff and Robinson 2004). Pueblo II-period Mogollon sites have also been identified east of the BLWP area near Largo Creek (Kayser 1973) and Tularosa Canyon (Fowler 1990), as well as further south near Reserve (Bluhm 1957; Martin and Rinaldo 1950; Martin et al. 1949).

The Pueblo III period is characterized by distinctive, regional ceramic types, increased site size (most having at least 20 masonry rooms), and larger and more elaborate public architecture (Danson 1957; Hogan 1985; Jenks and Leckman 2009). To the north of the BLWP area, large sites such as Goesling Ranch Pueblo are known (Duff 2002). Although several large villages were occupied at the end of Pueblo
III in the Quemado area, all were abandoned by about AD 1350 (Lekson 1996). In the Reserve area to the south, prehistoric populations had entirely abandoned the area by AD 1300. It is likely that the inhabitants of the lands around the BLWP area relocated north to the Zuni and El Morro areas (Gerow 1994).

**Historic Tradition**

After AD 1350, west-central NM was not used for permanent habitation until AD 1850. Archaeological remains from this 500-year-long period are rare, although oral traditions and a few artifacts tell of the use of the region for resource procurement by several Native American groups (Van West and Greenwald 2005). Historical-period use of the BLWP area and its surrounding vicinity was by Western Pueblo, Navajo, and Apache groups, as well as Hispanic and Anglo ranchers (Jenks and Leckman 2009). Sites associated with Pueblo, Navajo, and Apache groups have been identified in the Quemado area. Such sites often consist of historical-period pottery, petroglyphs, temporary camp sites, hogans, and historic trails associated with travel to the Salt Lake (Van West and Greenwald 2005). Euro-American settlement in the Quemado area did not occur until the late 1800s and the initial settlement was largely by Hispanic sheepherders, which was soon followed by Anglo ranchers (Gerow 2003). By the late 19th century, Hispanic sheepherders and Anglo cattle ranchers began to file for homesteads in the Quemado area (Merlan 2010). Homesteading increased after the passage of the Stock-Raising and Homestead Entry Act of 1916 (Gerow 2003) and more settlers came in the later 1920s and 1930s, many of them farmers escaping the “Dust Bowl” (Vogt 1955). Detailed discussions pertaining to the Hispanic settlement of west-central NM can be found in Wozniak (1985), Kelley (1988), and Gerow (2003).

### 3.5.1.2 Area of Potential Effects

The APE for physical effects applies to all land ownership types within the BLWP area. The APE for visual effects is defined as areas visible within 5 miles of any project component or to the visual horizon, whichever is closer. The APE for visual effects is based upon the BLM’s method of subdividing landscapes for visual resource inventories into three distance zones based upon relative visibility of project components: foreground-middleground, background, and seldom seen. The foreground-middleground extends between 3 and 5 miles from the project area and is where project components might be seen in detail. Outside of 5 miles, the details, texture, and form are no longer as apparent and in some cases, atmospheric conditions can reduce visibility (BLM 1984).

The APE for physical effects consists of the following areas.

- **Turbines**: a minimum 500-foot radius from the center of the turbine footprint, plus areas of disturbance or surface modification (such as erosion control features or fill slopes) extending beyond 500 feet of the turbine footprint.
- **Access roads (new or improved)**: a minimum of 300 feet from either side of the centerline of the roadway, plus areas of disturbance or surface modification (such as erosion control features or fill slopes) extending beyond 300 feet of the centerline of the roadway.
- **Access roads (existing with no modification)**: a minimum of 100 feet from either side of the centerline of the roadway, plus areas of ground disturbance or surface modification (such as erosion control features or fill slopes) extending beyond 100 feet of the centerline of the roadway.
- **Electrical collection lines**: 200 feet from each side of the centerline of the collector trench unless placed within an area previously surveyed for access roads. Collector trenches placed on the perimeter of the area surveyed for the access road have an additional 100-foot APE extending beyond the perimeter.
- **Associated facilities (including facilities such as laydown yards, substations, and the O&M facility)**: 200 feet beyond the perimeter of the footprint of all proposed ground disturbance or surface modifications.
The incorporated buffers account for areas where potential impacts due to increased erosion and unauthorized artifact collection and vandalism might occur.

Within the APE for visual effects, archaeological sites that are significant only for their potential to yield important information generally would not be affected by changes to their visual setting, but setting might be an important element of the historical values of other types of resources, such as historic trails and roads, historic buildings and structures, and traditional cultural properties (TCPs).

**3.5.1.3 Identification of Cultural Resources**

A Class III systematic pedestrian survey was completed in the BLWP area and covered approximately 9 square miles (5,889.8 acres). Shovel tests were conducted on a site-only basis, as needed to determine the presence or absence of buried cultural deposits or to support or negate recommendations of its eligibility to be listed in the National Register of Historic Places (NRHP). As part of the cultural resources analysis, the Pueblo of Zuni conducted an ethnographic and ethnohistoric study to further investigate traditional Tribal cultural use of the APE, to inventory and evaluate TCPs, and to establish any cultural concerns. The BLM will identify TCPs in the BLWP area through consultation with the Pueblo of Zuni and other tribes.

**Archaeological and Historical Resources**

The Class III cultural-resources inventory and a pre-field records search resulted in the identification of numerous archaeological and historical sites within the physical-effects APE and within the immediate vicinity of the physical-effects APE. Cultural resources date to the Archaic, Formative, and Historic periods. Resource types include mainly prehistoric artifact scatters, artifact scatters with associated features, and historic roads. Lithic scatters are the most abundant resources and are believed to be associated with lithic procurement, tool production, and subsistence-processing activities of mobile hunter-gatherers during the Archaic period and of agricultural groups in the Formative period. Formative-period resources include sites affiliated with both the Ancestral Puebloan and Mogollon archaeological cultures. Historic sites are rare and reflect sheep-herding and cattle-ranching activities, and roads (including a segment of U.S. 60). Out of the 128 sites in the Class III survey area, the BLM has determined that there are 40 sites eligible for inclusion in the NRHP, 52 have been determined not eligible for inclusion in the NRHP, and the NRHP-eligibility statuses of 36 sites have not been evaluated.

Cultural resources that might be subject to visual impacts to the visual setting were also identified by reviewing records available on the New Mexico Cultural Resources Information System (NMCRIS). These efforts identified 265 cultural resources within the visual-effects APE, and the majority (87 percent) are archaeological prehistoric sites such as artifact scatters and artifact scatters with features that are not sensitive to visual impacts. A review of NMCRIS data indicated that there are 28 sites with historic-age components or of unknown age with structural components; however, in all cases, these structural features consist of remains of log cabins, barns, etc. As such, their NRHP-eligibility or potential NRHP-eligibility lies in their information potential, and they are not sensitive to visual impacts to setting. Six historic-age linear structures were also identified within the visual-effects APE, including segments of historical roads. With the exception of U.S. 60, these resources are dirt roads depicted on historical maps; some are currently abandoned while others remain in-use. The dirt roads are not sensitive to visual impacts to setting, and they have been determined to be not eligible for inclusion in the NRHP. The segment of U.S. 60 identified within the visual-effects APE has been determined to be non-contributing to the road’s NRHP-eligibility, and as such, is not sensitive to visual impacts to setting.

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4 Ethnography is a branch of anthropology that investigates specific human cultures, and ethnohistory combines ethnography and history.
impacts. In addition to these sites, one TCP is known in the vicinity of the BLWP area, but outside of the visual-effects APE (see discussion below).

An NHPA Section 106 Programmatic Agreement (PA) is being developed by the BLM in consultation with NM SHPO, Tribes, the Proponent, and other consulting parties. The PA will provide guidance on how adverse impacts to NRHP-eligible cultural resources resulting from project construction activities would be avoided, minimized, or mitigated. In order to avoid any direct or indirect impacts on NRHP-eligible cultural resources from project construction, monitoring is recommended if construction activities occur within 100 feet of these sites. The PA stipulates that a Historic Properties Treatment Plan (HPTP) that would include procedures for data recovery, site-avoidance marking, and monitoring would be prepared and implemented prior to construction. The HPTP may also include measures to minimize or mitigate visual impacts, if feasible. Additional supplemental surveys may be required as more detailed construction plans are developed and would be conducted in accordance with the PA.

**Traditional Cultural Properties**

The BLM is consulting with nine Tribes regarding the identification of cultural resources including TCPs. The Pueblo of Zuni conducted ethnographic research to identify cultural resources that could be impacted by the Proposed Action and Alternatives 1 and 2. The Hopi Tribe has deferred to the Pueblo of Zuni, but requested that the BLM continue to consult and provide them copies of cultural resources reports. The BLM received no other responses from the other Tribes. The BLM will continue to consult with Tribes pursuant to the PA in order to identify TCPs.

3.5.2. **Environmental Consequences**

This section assesses the impacts on cultural resources that would result from the construction, O&M, and decommissioning of the Proposed Action and Alternatives 1 and 2. Impacts on cultural resources are considered for those resources that are listed in the NRHP, NRHP-eligible, or potentially NRHP-eligible (i.e., those sites for which NRHP-eligibility recommendations or determinations have not been made). For the purpose of this analysis, cultural resources of indeterminate NRHP-eligibility were treated as if they were eligible for inclusion in the NRHP.

The analysis of potential impacts to cultural resources utilized the criteria defined by the regulations for Protection of Historic Properties (36 CFR Part 800), which implement Section 106 of the NHPA. An effect is defined as a direct or indirect alteration to the characteristic(s) of a cultural resource that qualify it for inclusion in the NRHP. Effects are adverse when the alterations diminish the integrity of a cultural resource’s location, design, setting, materials, workmanship, feeling, or association. For cultural resources, effects could be the result of ground disturbances; visual or audible disturbances; increased erosion; or changes in public access, traffic patterns, or land use. For this EIS, there would be effects on cultural resources when a site 1) falls within the temporary disturbance footprint\(^5\) of the Proposed Action and Alternatives 1 and 2 and/or 2) lies outside but within a 100-foot buffer of the temporary disturbance footprint of the Proposed Action and Alternatives 1 and 2. There will be effects to cultural resources that are sensitive to visual impacts when the turbines can be seen from a site and the turbines dominate the landscape.

3.5.2.1 **Direct and Indirect Impacts of the Proposed Action**

**Construction**

Construction activities that disturb or excavate soils may impact cultural resources by destroying intact archaeological features of deposits. Construction activities that modify the slope of the natural terrain

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\(^5\) The temporary disturbance footprint would include the permanent disturbance footprint in the Proposed Action and Alternatives 1 and 2 (Table 2-2).
or compact soils have potential to increase erosion, which might affect the integrity of cultural resources. Because construction activities would comply with regulations regarding the control of stormwater discharges, there is only minor potential for increased soil erosion to damage cultural resources. Such secondary impacts would likely be confined to the immediate vicinity of construction zones.

The Proposed Action would involve the construction of new roads and improvements to existing roads. Studies have demonstrated that, in rural settings, the integrity of archaeological and historical sites near roads is much more likely to have been diminished by unauthorized artifact collection and vandalism than sites in more remote settings (Ahlstrom et al. 1992; Nickens et al. 1981; Simms 1986; Spangler 2006; Spangler et al. 2006). The impacts of unauthorized collection and vandalism vary with distances from roads, but the types and visibility of sites also are important factors. For example, historic structures are more vulnerable than artifact scatters.

The cultural resource sites that would fall within the temporary disturbance footprint (see Table 2-4) and/or the 100-foot-wide buffer of the temporary disturbance footprint of the Proposed Action are listed in Table 3-12. Assuming that all construction activities would be confined to the surveyed portion of the temporary disturbance footprint, construction of the Proposed Action would have impacts on a total of 29 cultural resource sites based upon available information. Some of the sites listed in Table 3-12 may be avoided through the implementation of the PA and HPTP; furthermore, additional sites may be identified that could be impacted by construction resulting from any supplemental cultural resources inventories stipulated by the PA.

**Table 3-12. Cultural Resource Sites within Proposed Action Permanent and Temporary Disturbance Areas and 100-foot Temporary Disturbance Buffer**

<table>
<thead>
<tr>
<th>Site</th>
<th>Period</th>
<th>Site Type</th>
<th>NRHP-Eligibility Status</th>
<th>Permanent Disturbance Footprint</th>
<th>Temporary Disturbance Footprint</th>
<th>100-Foot-Wide Buffer of Temporary Disturbance Footprint</th>
</tr>
</thead>
<tbody>
<tr>
<td>LA 130639</td>
<td>Prehistoric</td>
<td>Artifact Scatter</td>
<td>Eligible</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
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<td>LA 179855</td>
<td>Historic</td>
<td>Road</td>
<td>Eligible</td>
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<td>-</td>
<td>Yes</td>
</tr>
<tr>
<td>LA 192148</td>
<td>Prehistoric</td>
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<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
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<td>Yes</td>
<td>Yes</td>
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</tr>
<tr>
<td>LA 192161</td>
<td>Unknown</td>
<td>Artifact Scatter</td>
<td>UnEvaluated</td>
<td>Yes</td>
<td>Yes</td>
<td>-</td>
</tr>
<tr>
<td>LA 192164</td>
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<td>Yes</td>
<td>Yes</td>
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<tr>
<td>LA 192167</td>
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<td>Artifact Scatter</td>
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<tr>
<td>LA 192168</td>
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<td>Artifact Scatter</td>
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<td>-</td>
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<tr>
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<td>Yes</td>
<td>Yes</td>
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<tr>
<td>LA 192176</td>
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<td>-</td>
<td>-</td>
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<tr>
<td>LA 192187</td>
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<tr>
<td>Site</td>
<td>Period</td>
<td>Site Type</td>
<td>NRHP-Eligibility Status</td>
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<td>Temporary Disturbance Footprint</td>
<td>100-Foot-Wide Buffer of Temporary Disturbance Footprint</td>
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<tr>
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<td>LA 192200</td>
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<td>Artifact Scatter</td>
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<td>LA 192206</td>
<td>Prehistoric</td>
<td>Artifact Scatter</td>
<td>Eligible</td>
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<tr>
<td>LA 192209</td>
<td>Prehistoric and Historic</td>
<td>Artifact Scatter and Feature</td>
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<td>Yes</td>
<td>Yes</td>
</tr>
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<td>LA 192211</td>
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<td>Artifact Scatter</td>
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<td>LA 192218</td>
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<tr>
<td>LA 192222</td>
<td>Unknown</td>
<td>Artifact Scatter</td>
<td>Unevaluated</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>LA 192223</td>
<td>Prehistoric</td>
<td>Artifact Scatter</td>
<td>Eligible</td>
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<td>Yes</td>
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<tr>
<td>LA 192226</td>
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<td>Artifact Scatter</td>
<td>Eligible</td>
<td>Yes</td>
<td>Yes</td>
<td>-</td>
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<tr>
<td>LA 192228</td>
<td>Prehistoric</td>
<td>Artifact Scatter and Features</td>
<td>Eligible</td>
<td>-</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>LA 192234</td>
<td>Prehistoric</td>
<td>Artifact Scatter</td>
<td>Unevaluated</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>LA 192235</td>
<td>Prehistoric and Historic</td>
<td>Artifact Scatter</td>
<td>Eligible</td>
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<td>Yes</td>
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<tr>
<td>LA 192236</td>
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<td>LA 192238</td>
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<tr>
<td>LA 192244</td>
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<td>LA 192246</td>
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<td>Yes</td>
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<tr>
<td>LA 192314</td>
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<td>Artifact Scatter</td>
<td>Unevaluated</td>
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<tr>
<td>LA 192315</td>
<td>Prehistoric</td>
<td>Artifact Scatter</td>
<td>Unevaluated</td>
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<td>LA 55990</td>
<td>Prehistoric</td>
<td>Artifact Scatter</td>
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<td>LA 66745</td>
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<tr>
<td>LA 66750</td>
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<td>Artifact Scatter</td>
<td>Eligible</td>
<td>Yes</td>
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<td>Yes</td>
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<tr>
<td>LA 66751</td>
<td>Prehistoric</td>
<td>Artifact Scatter</td>
<td>Eligible</td>
<td>-</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>LA 66752</td>
<td>Prehistoric</td>
<td>Artifact Scatter</td>
<td>Eligible</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>
In addition to the 29 cultural resource sites that lie within the temporary disturbance footprint, 17 cultural resource sites are located outside but within 100 feet of the temporary disturbance footprint of the Proposed Action, and these sites could potentially be subject to indirect impacts (Table 3-12). Indirect impacts from project construction could include increased alluvial erosion at NRHP-eligible sites. These effects would be minor and short-term. Once collector-line areas have been reseeded and vegetation re-established, alluvial erosion would be considerably less; therefore, no further management is recommended. In addition, increased unauthorized visitation could indirectly affect NRHP-eligible sites as a result of the increased access to the area. Most of the NRHP-eligible sites known in the area are artifact scatters, which are less visible and less likely to attract the attention of unauthorized collectors or vandals.

The Zuni Salt Lake is not within the APE for visual effects; however, given its status as a TCP, and based upon concerns raised by the Pueblo of Zuni, potential visual effects to this important cultural resource were evaluated (see Section 3.9 Visual Resources). It was determined that the Proposed Action would not be visible from the Zuni Salt Lake. However, a portion of the blades from approximately 26 turbines would be visible from the top of the landform surrounding the Zuni Salt Lake. Due to distance (approximately 21 miles) and atmospheric conditions, the portion of the turbines visible would be visually subordinate in the landscape and would create low contrast with elements and features in the landscape. The Pueblo of Zuni has also provided two locations along a pilgrimage trail to the Zuni Salt Lake that are significant to the overall eligibility of the TCP. The first location along the pilgrimage trail is 30.3 miles from the nearest proposed turbine location in the Proposed Action. A portion of the blades of the turbines would be visible. A casual observer at this location would not likely notice the turbines because of the expansive views, variable atmospheric conditions, time of day, and variety of the landforms in the landscape. The second location along the pilgrimage trail is 20.6 miles from the nearest turbine location in the Proposed Action. No turbines would be visible from this location, because existing landforms would block any view of the turbines. No other NRHP-eligible cultural resources that are sensitive to potential visual impacts were identified within the APE for visual effects.

**Operation and Maintenance and Decommissioning**

Ground disturbing activities associated with O&M and decommissioning of the Proposed Action would be confined to areas in the temporary disturbance footprint created during construction of the BLWP. No additional impacts on cultural resources are expected from O&M or decommissioning activities.

**Additional Measures to Avoid and/or Minimize Impacts**

Adverse impacts to NRHP-eligible cultural resources resulting from construction of the Proposed Action would be mitigated in accordance with the project NHPA Section 106 PA. To avoid any direct or indirect impacts on these sites from project construction, monitoring is recommended if construction activities occur within 100 feet of these sites. The PA stipulates that an HPTP, which would include procedures for data recovery, site avoidance marking, and monitoring, would be prepared and implemented prior to construction. The HPTP may also include measures to minimize or mitigate visual impacts, if feasible. Additional supplemental surveys may be required as more detailed construction plans are developed and would be conducted in accordance with the PA.
3.5.2.2 Direct and Indirect Impacts of Alternatives 1 and 2

Construction
Alternatives 1 and 2 were developed, in part, to minimize impacts to cultural resources. The types of direct and indirect impacts on cultural resource sites associated with Alternatives 1 and 2 would be similar to the impacts from the Proposed Action although the number of potential sites affected would be different for each alternative. The cultural resource sites listed in Table 3-13 are those that may be impacted by Alternatives 1 and 2 based upon current information. Some of the sites listed in Table 3-13 may be avoided through the implementation of the PA and HPTP; furthermore, additional sites may be identified that could be impacted by construction resulting from any supplemental cultural resources inventories stipulated by the PA. Based upon current information, a total of six cultural resource sites lie within the temporary disturbance footprint of Alternatives 1 and 2. In addition, 22 cultural resource sites are located outside but within 100 feet of the temporary disturbance footprints of Alternatives 1 and 2 (Table 3-13). Indirect effects from construction of Alternatives 1 and 2 would be the same as those indirect effects resulting from the Proposed Action. Visual impacts to the Zuni Salt Lake and the two locations on the pilgrimage trail would be the same as the impacts associated with the Proposed Action.

Table 3-13. Cultural Resource Sites within Alternatives 1 and 2 Permanent and Temporary Disturbance Areas and 100-foot Temporary Disturbance Buffer

<table>
<thead>
<tr>
<th>Site</th>
<th>Period</th>
<th>Site Type</th>
<th>NRHP-Eligibility Status</th>
<th>Permanent Disturbance Footprint</th>
<th>Temporary Disturbance Footprint</th>
<th>100-Foot-Wide Buffer of Temporary Disturbance Footprint</th>
</tr>
</thead>
<tbody>
<tr>
<td>LA 130639</td>
<td>Prehistoric</td>
<td>Artifact Scatter</td>
<td>Eligible</td>
<td>-</td>
<td>-</td>
<td>Yes</td>
</tr>
<tr>
<td>LA 179855</td>
<td>Historic</td>
<td>Road</td>
<td>Eligible</td>
<td>-</td>
<td>-</td>
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<tr>
<td>LA 192151</td>
<td>Prehistoric</td>
<td>Artifact Scatter</td>
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<tr>
<td>LA 192161</td>
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<td>Yes</td>
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<tr>
<td>LA 192167</td>
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<td>Artifact Scatter</td>
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<tr>
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<td>Artifact Scatter</td>
<td>Unevaluated</td>
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<tr>
<td>LA 192203</td>
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<td>Artifact Scatter</td>
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<tr>
<td>LA 192206</td>
<td>Prehistoric</td>
<td>Artifact Scatter</td>
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<td>Yes</td>
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<td>LA 192209</td>
<td>Prehistoric and Historic</td>
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<td>LA 192218</td>
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<td>-</td>
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<td>Yes</td>
<td>Yes</td>
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<tr>
<td>LA 192223</td>
<td>Prehistoric</td>
<td>Artifact Scatter</td>
<td>Eligible</td>
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<td>-</td>
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<tr>
<td>LA 192228</td>
<td>Prehistoric</td>
<td>Artifact Scatter and Features</td>
<td>Eligible</td>
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<tr>
<td>LA 192234</td>
<td>Prehistoric</td>
<td>Artifact Scatter</td>
<td>Unevaluated</td>
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<tr>
<td>LA 192235</td>
<td>Prehistoric and Historic</td>
<td>Artifact Scatter</td>
<td>Eligible</td>
<td>-</td>
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<td>Yes</td>
</tr>
</tbody>
</table>
### Table Abbreviations:

NRHP = National Register of Historic Places

### Operation and Maintenance and Decommissioning

Ground disturbing activities associated with O&M and decommissioning activities associated with Alternatives 1 or 2 would be confined to areas in the temporary disturbance footprint created during construction. No additional impacts on NRHP-eligible cultural resources are expected from O&M or decommissioning activities.

### Additional Measures to Avoid and/or Minimize Impacts

Adverse impacts to NRHP-eligible cultural resources resulting from construction of Alternatives 1 and 2 would be mitigated in accordance with the project NHPA Section 106 PA. To avoid any direct or indirect impacts on these sites from project construction, monitoring is recommended if construction activities occur within 100 feet of these sites. The PA stipulates that an HPTP, which would include procedures for data recovery, site avoidance marking, and monitoring, be prepared and implemented prior to construction. The HPTP may also include measures to minimize or mitigate visual impacts, if feasible. Additional supplemental surveys may be required as more detailed construction plans are developed and would be conducted in accordance with the PA.

### 3.5.2.3 Direct and Indirect Impacts of the No Action Alternative

Under the No Action Alternative, the BLWP would not be constructed, and no impacts on cultural resources within the BLWP APE would occur.

### 3.6 Federally Listed Species

This section identifies federally listed species that have the potential to occur within the BLWP area and assesses the potential impacts on them from the Proposed Action, Alternatives 1 and 2, and the No Action Alternative. The Endangered Species Act of 1973 (ESA), as amended, protects listed species and their habitat by prohibiting "take." Section 7 of the ESA requires Federal agencies to ensure that actions authorized, funded, or carried out by them are not likely to jeopardize the continued existence of threatened or endangered species, or result in the destruction or adverse modification of their critical habitats.

### 3.6.1 Affected Environment

An official list of threatened, endangered, and proposed species and critical habitats that may occur within the Proposed Action area was obtained from the USFWS on January 21, 2020. A total of 13 species were included on the list. Table D-1 in Appendix D provides information on the 13 species'
habitat associations and their potential to occur within the BLWP area. There is no critical habitat that has been designated or proposed for any federally listed species within the Proposed Action or Alternatives 1 and 2 areas.

The potential occurrence of federally listed species in the BLWP area was discussed during a meeting with the USFWS on March 7, 2018, and it was determined that the Mexican spotted owl and Mexican wolf could potentially occur within the BLWP area and be affected by the BLWP. There is no suitable habitat present in the BLWP area for the remaining 11 species that were included on the USFWS list, so these species were not carried forward for further analysis. A detailed description of both species and their habitat requirements is provided in the Biological Assessment for this project (BLM 2020).

3.6.1.1   **Mexican Spotted Owl (Strix occidentalis lucida)**

The Mexican spotted owl was listed as endangered in 1995 and critical habitat was designated in 2004; a revised recovery plan was finalized in 2012 (USFWS 2012). In total, 2,089,523 acres of critical habitat were designated in 20 critical habitat units throughout NM (USFWS 2004). The nearest critical habitat unit is approximately 3.5 miles southwest of the Proposed Action area and 5.9 miles southwest of the Alternatives 1 and 2 area.

Mexican spotted owls are characterized by patchy distribution in isolated mountain ranges and canyon systems across southern Utah, Colorado, AZ, NM, western Texas, and northern Mexico. The forested mountains and canyons they inhabit throughout their range are broken into ten Ecological Management Units (EMUs) in the United States and Mexico (USFWS 2012). The BLWP area is located within the Upper Gila Mountains EMU. The Mexican spotted owl is highly selective in its nesting and roosting habitats, which are comprised primarily of mixed conifer forests. Migrating/wintering and dispersing Mexican spotted owls have been documented in other habitats, including sparse ponderosa pine and pinyon-juniper woodlands (USFWS 1995); topography may be an important additional component of the habitats that are used by Mexican spotted owls during dispersal.

The Proposed Action and Alternatives 1 and 2 areas do not contain closed-canopy forests with a high percentage of ground litter and woody debris, which are characteristic of preferred Mexican spotted owl foraging, roosting, and nesting habitat (USFWS 1995). Data provided by Natural Heritage New Mexico (NHNM) indicates that there are documented occurrences of Mexican spotted owl on Gila National Forest lands to the south of the BLWP area (NHNM 2017), which corresponds with the nearest suitable habitat for the species. There are Mexican spotted owl Protected Activity Centers (PACs) and designated critical habitat on the Gila National Forest; however, there are no PACs or areas of designated critical habitat within the Proposed Action or Alternatives 1 and 2 areas.

The Proposed Action and Alternatives 1 and 2 areas do not overlap with any known Mexican spotted owl home ranges or any hypothetical home range centered on the nearest sight records. Mexican spotted owls are not expected to occur within the Proposed Action or Alternatives 1 and 2 areas due to the lack of their preferred foraging, roosting, and nesting habitat. While migrating/wintering or dispersing, Mexican spotted owls are occasionally found in pinyon-juniper habitats and could occur infrequently and for short periods of time within the Proposed Action or Alternatives 1 and 2 areas, the abundant and widespread pinyon-juniper woodlands in the region are not limiting habitats for migrating/wintering or dispersing Mexican spotted owls. Any Mexican spotted owl occurrence in the Proposed Action or Alternatives 1 and 2 areas would be sporadic at most.

3.6.1.2   **Mexican Wolf (Canis lupus baileyi)**

The Mexican wolf was listed as endangered in 1976 and the USFWS has recently revised the recovery plan for the species (USFWS 2017); no critical habitat has been proposed or designated. The Mexican
wolf is the rarest, smallest, southernmost, and most genetically distinct of the five subspecies of gray wolves that once inhabited most of North America. The subspecies was reintroduced into AZ and NM under a special designation that established a “nonessential experimental population” in this area. The special designation gives agencies more flexibility in managing wolf populations and allows them to take action when there are conflicts with human activities such as ranching.

Under the reintroduction program, captive-bred Mexican wolves have been released within the Mexican Wolf Experimental Population Area (MWEPA). The BLWP area is located within the MWEPA. As of February 2019, the current documented wild population of Mexican wolves in the United States includes 64 individuals in eastern AZ and 67 in western NM based on ground and aerial surveys (USFWS 2019a). The Proposed Action area would comprise 0.39 percent of the current occupied range of the Mexican wolf; the Alternatives 1 and 2 area would comprise 0.17 percent of the species’ current occupied range (USFWS 2019b).

Suitable habitat for the Mexican wolf has few roads and minimal human development or sources of anthropogenic disturbance given the species’ tendency to avoid these elements. Mexican wolves are associated with montane woodlands characterized by sparsely to densely forested mountainous terrain consisting of evergreen oak and juniper woodlands to higher elevation pine forests, mixed conifer forests, and adjacent grasslands at mid- to high elevations where ungulate prey are abundant. The species reportedly avoids desert scrub and semi-desert grasslands that provide little cover, food, or water. The primary large prey within the BLWP area are elk and deer. Cattle, which occur throughout the BLWP area, are also targeted as prey on occasion.

The USFWS, working jointly with other State and Federal agencies, as well as the White Mountain Apache Tribe, has been collecting data, monitoring, and managing the free-ranging Mexican wolf population in AZ and NM. The Mangas wolf pack is known to occupy Gila National Forest lands south of the Proposed Action and Alternatives 1 and 2 areas based on telemetry data. Consistent with the wide-ranging movements of this species, there are a number of other packs that have been recently documented within 30 miles of the Proposed Action and Alternatives 1 and 2 areas (e.g., San Mateo, Leon, Iron Creek, Elkhorn, Hoodoo, Saffel, Single, Sierra Blanca, Frieborn, Prime Canyon, Squirrel Springs, and Copper Creek). Mexican wolves typically prefer to locate their home ranges in forested areas, near water, and far away from sources of human disturbance such as roads and farms. Passoni (2015) also found that most wolf denning and rendezvous sites were very close to or inside forested areas. Several observations of wolves in the Proposed Action and Alternatives 1 and 2 areas have been reported by a biologist conducting wildlife surveys, hunters, and a local rancher (SWCA Environmental Consultants 2018a). The USFWS considers the Proposed Action and Alternatives 1 and 2 areas to be within occupied habitat for the Mexican wolf, though wolves are not known to concentrate their activities in this area and there are no known den sites in the area (Susan Pruitt, personal communication, 2018). Currently, there are high levels of wolf use and livestock depredation in the neighboring grazing allotments to the south of the Proposed Action and Alternatives 1 and 2 areas (Carlos Madril, personal communication, 2019).

3.6.2. Environmental Consequences

3.6.2.1 Direct and Indirect Impacts of the Proposed Action

Mexican Spotted Owl (Strix occidentalis lucida)

Construction
The Proposed Action would not impact Mexican spotted owl PACs or areas of designated critical habitat, directly or indirectly, during construction or any other phase of the project. The incidental occurrence of Mexican spotted owls in the Proposed Action area cannot be ruled out; however, the
overall risk of direct impacts on the Mexican spotted owl from wind energy developments is low (USFWS 2005). Noise and visual disturbance from heavy equipment use and surface disturbance during construction of the BLWP would have a negligible impact on Mexican spotted owls due to the availability of extensive pinyon-juniper habitats in the surrounding area.

Operation and Maintenance
As noted in the USFWS’s Biological Opinion for Likely Effects of BLM’s Proposed Wind Energy Development Program (USFWS 2005), the risk of Mexican spotted owls colliding with wind turbines is extremely low because turbines are typically located outside of suitable nesting and roosting habitat. Direct effects on Mexican spotted owls from the Proposed Action are not anticipated during O&M of the proposed wind facility due to the lack of suitable Mexican spotted owl habitat in the Proposed Action area. Indirect effects on Mexican spotted owls from noise, human activity, and traffic are also not expected due to the distance to areas of suitable habitat. Although wildland fire has been identified as one of the primary threats to the species, the BLWP is not anticipated to contribute to the threat of large-scale wildfires because implementation of the Emergency Preparedness and Response Plan and Fire Protection and Prevention Plan in the BLWP POD provides fire prevention and control measures during construction, O&M, and decommissioning of the BLWP (Borderlands Wind, LLC 2020).

Decommissioning
Potential impacts during decommissioning would be similar to those described for the construction phase, though to a lesser extent. After reclamation of disturbed areas, vegetation would be restored to pre-construction conditions over the long-term. Human activity in the Proposed Action area would decrease after decommissioning and the removal of wind energy generating facilities, although activities such as hunting and ranching would continue.

Effects Determination for the Mexican Spotted Owl
The Proposed Action would not impact any Mexican spotted owl PACs or result in any loss of suitable nesting or foraging habitat. Additionally, the Proposed Action would not affect the ability of Mexican spotted owls to move through the Proposed Action area (unlikely as it may be to occur), or result in reduced prey availability. The Proposed Action could result in localized negligible impacts on Mexican spotted owls and would not have regional impacts on the Mexican spotted owl. The more detailed analysis presented in the Biological Assessment has led to the determination that the Proposed Action “may affect, but is not likely to adversely affect” the Mexican spotted owl.

Additional Measures to Avoid and/or Minimize Impacts
With the implementation of the BMPs and other design features in Appendix B, no additional measures to avoid and/or minimize impacts on Mexican spotted owls from the Proposed Action are recommended.

Mexican Wolf (Canis lupus baileyi)

Construction
Construction of the Proposed Action would result in minor habitat loss, degradation, and fragmentation for the Mexican wolf because wolves are not known to concentrate their activities in this area and there are no known den sites in the area. Construction activities would result in increased noise, human disturbance, and vehicle traffic, which could discourage adult or dispersing juvenile wolves from traveling through or foraging within the Proposed Action area. There would be localized short-term, minor impacts on Mexican wolves during the construction of the Proposed Action and no regional impacts because of the absence of breeding habitat, the relatively short construction time frame (less than one year), and the infrequent presence of the species.
**Operation and Maintenance**
Similar to construction impacts, noise and disturbance associated with human activities and vehicle traffic would occur during O&M of the proposed wind facility, but to a lesser extent. The approximately 41.3 miles of new access roads within the Proposed Action area would give the public more access to the area, which would increase the potential for disturbance to Mexican wolves that may travel in the vicinity of the Proposed Action area. The Proposed Action would have minor localized impacts and no regional impacts on the Mexican wolf during the O&M phase due to the minimal use of the area by this species.

**Decommissioning**
Short-term localized impacts during decommissioning would be similar to those from construction because of the increase in human presence, elevated noise levels, and additional vehicles. Human activity in the Proposed Action area would decrease after decommissioning with the removal of wind energy generating facilities, although activities such as hunting and ranching would continue. Reclamation of access roads would decrease the potential for disturbance to the Mexican wolf after decommissioning of the wind facility.

**Effects Determination for the Mexican Wolf**
The Proposed Action would result in localized minor impacts on the Mexican wolf and would not have regional impacts on this federally listed species. The more detailed analysis presented in the Biological Assessment has led to the determination that the Proposed Action “may affect, but is not likely to adversely affect” the Mexican wolf. Mexican wolves that may occur in the Proposed Action area are part of a nonessential experimental population as characterized under Section 10(j) of the ESA, and in this context the Mexican wolf is considered a proposed threatened species for the purposes of ESA consultation. Therefore, the determination with regard to the 10(j) population is that the Proposed Action is not likely to jeopardize the continued existence of the Mexican wolf.

**Additional Measures to Avoid and/or Minimize Impacts**
With the implementation of the BMPs and other design features in Appendix B, no additional measures to avoid and/or minimize impacts on Mexican wolves from the Proposed Action are recommended.

### 3.6.2.2 Direct and Indirect Impacts of Alternatives 1 and 2

**Mexican Spotted Owl (Strix occidentalis lucida)**
The potential impacts of Alternatives 1 and 2 on Mexican spotted owls would be similar to the Proposed Action. Shifting the number/locations of wind turbines or other project infrastructure within the Alternatives 1 and 2 area, as proposed under Alternatives 1 and 2, would not substantiably add to or reduce the potential impacts on Mexican spotted owls from construction, O&M, or decommissioning of the BLWP as compared to the Proposed Action.

**Additional Measures to Avoid and/or Minimize Impacts**
With the implementation of the BMPs and other design features in Appendix B, no additional measures to avoid and/or minimize impacts on Mexican spotted owls are recommended for Alternatives 1 or 2.

**Mexican Wolf (Canis lupus baileyi)**
The potential impacts of Alternatives 1 and 2 on the Mexican wolf would be similar to the Proposed Action. Shifting the number/locations of wind turbines or other project infrastructure within the Alternatives 1 and 2 area would not substantiably add to or reduce the potential impacts on the Mexican wolf from construction, O&M, or decommissioning of the BLWP as compared to the Proposed Action.
Additional Measures to Avoid and/or Minimize Impacts

With the implementation of the BMPs and other design features in Appendix B, no additional measures to avoid and/or minimize impacts on Mexican wolves are recommended for Alternatives 1 or 2.

3.6.2.3 Direct and Indirect Impacts of the No Action Alternative

Under the No Action Alternative, no new impacts on the Mexican spotted owl or Mexican wolf would occur within the BLWP area. Existing impacts on federally listed species within the BLWP area are primarily associated with relatively low levels of human disturbance (e.g., ranching, hunting, and vehicle/OHV use) that could result in localized negligible impacts related to the noise and visual disturbance to Mexican spotted owls and Mexican wolves that may move through the area on occasion. The No Action Alternative would not result in regional impacts on either federally listed species because of the relatively low levels of human disturbance in the BLWP area.

3.7 Special Status Plant and Wildlife Species

This section discusses effects on special status species (excluding federally listed threatened and endangered species, which are addressed in Section 3.6 Federally Listed Species) that may occur with the implementation of the Proposed Action, Alternatives 1 and 2, and the No Action Alternative. The term special status species as used in this EIS includes BLM sensitive species along with other species of concern such as State-listed species and USFWS’s Birds of Conservation Concern. Special status species that are known to occur or could potentially occur in the BLWP area include:

- BLM sensitive species
- USFS sensitive species
- Birds of Conservation Concern (BCCs)
- NM State-listed threatened and endangered species
- NM rare plants
- Species of Greatest Conservation Need (SGCN) in NM
- Species of Economic and Recreational Importance (SERI) in NM

Potential impacts on migratory birds also are discussed in detail in this section; however, impacts specifically on bald and golden eagles are discussed in Section 3.8 Bald and Golden Eagles. In addition to the consideration of impacts on migratory birds in general, the USFWS recommends that agencies evaluate the effects of their actions on BCCs (USFWS 2008). The USFWS’s designation of BCCs is specific to each Bird Conservation Region (BCR); the BLWP area is located in two BCRs (BCR 16: Southern Rockies and Colorado Plateau, and BCR 34: Sierra Madre Occidental). The information presented in this section was compiled from a literature review, agency coordination, and resource reports provided by the Proponent.

3.7.1. Affected Environment

There are 57 special status species (8 plant, 11 terrestrial wildlife, and 38 bat and bird species) that are known to occur or could potentially occur within the BLWP area (Table 3-14 through Table 3-16). For additional information on each of the species listed below, as well as other special status species that were initially considered but determined unlikely to occur in the BLWP area, see Table E-1 in Appendix E.

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<thead>
<tr>
<th>Table 3-14. BLM Sensitive Species and Other Species of Concern—Plants</th>
</tr>
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<tbody>
<tr>
<td>Common Name</td>
</tr>
<tr>
<td>---------------------</td>
</tr>
<tr>
<td>Apache milkvetch</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Common Name</td>
</tr>
<tr>
<td>---------------------------------</td>
</tr>
<tr>
<td>Bog alkaligrass</td>
</tr>
<tr>
<td>Goodding’s bladderpod</td>
</tr>
<tr>
<td>Groundcover milkvetch</td>
</tr>
<tr>
<td>Mogollon Mountain draba</td>
</tr>
<tr>
<td>White Mountain clover</td>
</tr>
<tr>
<td>Wright’s catchfly</td>
</tr>
<tr>
<td>Zuni milkvetch</td>
</tr>
</tbody>
</table>

Table Abbreviations: BLM S = BLM sensitive species; E= Endangered; NM-E = New Mexico Endangered - Endangered species are those in jeopardy of extinction or extirpation from the state; NMRP E = New Mexico Rare Plant Endangered; NMRP SS = New Mexico Rare Plant Strategy Species; USFS SS = USFS sensitive species.

Table 3-15. BLM Sensitive Species and Other Species of Concern—Terrestrial Wildlife Species

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Species Type</th>
<th>Habitat Association</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arizona montane vole</td>
<td>Mammal</td>
<td>Wet meadows, playas, seeps, springs, and drainages with tall grass, sedges, or cattails</td>
<td>USFS SS, NM-E, SGCN</td>
</tr>
<tr>
<td>Black bear</td>
<td>Mammal</td>
<td>Forests and woodlands</td>
<td>SERI</td>
</tr>
<tr>
<td>Cougar</td>
<td>Mammal</td>
<td>Mountainous areas with broken terrain and steep slopes in deserts, woodlands, and forests</td>
<td>SERI</td>
</tr>
<tr>
<td>Elk</td>
<td>Mammal</td>
<td>Forests, woodlands, and grasslands</td>
<td>SERI</td>
</tr>
<tr>
<td>Gunnison’s prairie dog</td>
<td>Mammal</td>
<td>Grasslands and shrublands</td>
<td>BLM S, USFS SS, SGCN</td>
</tr>
<tr>
<td>Mule deer</td>
<td>Mammal</td>
<td>Wide range of habitats from desert scrub up to montane forests</td>
<td>SERI</td>
</tr>
<tr>
<td>Arizona tree frog</td>
<td>Amphibian</td>
<td>Near pools and streams in ponderosa pine and mixed conifer forests</td>
<td>SGCN</td>
</tr>
<tr>
<td>Arizona black rattlesnake</td>
<td>Reptile</td>
<td>Open, rocky slopes and rocky drainages with water in a wide range of habitats including pinyon-juniper woodlands and ponderosa pine forests</td>
<td>SGCN</td>
</tr>
<tr>
<td>Sonora mud turtle</td>
<td>Reptile</td>
<td>Aquatic habitats including streams, rivers, ponds, stock tanks, and ditches in a range of habitats including desert scrub, grasslands, and pinyon-juniper woodlands</td>
<td>SGCN</td>
</tr>
<tr>
<td>Common Name</td>
<td>Scientific Name</td>
<td>Species Type</td>
<td>Habitat Association</td>
</tr>
<tr>
<td>--------------------------</td>
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<td>---------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Monarch butterfly</td>
<td>Danaus plexippus plexippus</td>
<td>Insect</td>
<td>Wide range of habitats; presence of suitable host plants (milkweeds) required for breeding.</td>
</tr>
<tr>
<td>Clam shrimp</td>
<td><em>Elumnadia follisimilis</em></td>
<td>Crustacean</td>
<td>Potentially in a wide range of aquatic habitats, has been documented in stock tanks and ponds in NM.</td>
</tr>
</tbody>
</table>

Table Abbreviations: NM-E = New Mexico Endangered - Endangered species are those in jeopardy of extinction or extirpation from the state; SERI=Species of Economic and Recreational Importance; SGCN = Species of Greatest Conservation Need - species that are indicative of the diversity and health of the state’s wildlife; USFS SS = USFS sensitive species.

Table 3-16. BLM Sensitive Species and Other Species of Concern—Bird and Bat Species

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
<th>Species Type</th>
<th>Habitat Association</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spotted bat</td>
<td><em>Euderma maculatum</em></td>
<td>Bat</td>
<td>Desert scrub up to ponderosa pine and mixed conifer forests; roosts in rock crevices, cliff faces, caves, and buildings</td>
<td>BLM S, NM-T, SGCN</td>
</tr>
<tr>
<td>Townsend’s big-eared bat</td>
<td><em>Corynorhinus townsendii</em></td>
<td>Bat</td>
<td>Desert scrub up to ponderosa pine and mixed conifer forests; roosts in caves, mines, buildings, and tree cavities</td>
<td>BLM S, USFS SS, SGCN</td>
</tr>
<tr>
<td>Bendire’s thrasher</td>
<td><em>Toxostoma bendirei</em></td>
<td>Bird</td>
<td>Desert scrub, shrubland, grassland, and pinyon-juniper woodland</td>
<td>BLM S, BCC (BCR 16, 34), SGCN</td>
</tr>
<tr>
<td>Black-chinned sparrow</td>
<td><em>Spizella atrorugularis</em></td>
<td>Bird</td>
<td>Shrublands and chaparral</td>
<td>BCC (BCR 34), SGCN</td>
</tr>
<tr>
<td>Black-throated gray warbler</td>
<td><em>Setophaga nigrescens</em></td>
<td>Bird</td>
<td>Pine-oak woodlands, pinyon-juniper woodlands, and ponderosa pine forests</td>
<td>BCC (BCR 34), SGCN</td>
</tr>
<tr>
<td>Brewer’s sparrow</td>
<td><em>Spizella breweri</em></td>
<td>Bird</td>
<td>Desert scrub, shrublands, pinyon-juniper woodlands, and ponderosa pine forest</td>
<td>BCC (BCR 16)</td>
</tr>
<tr>
<td>Burrowing owl</td>
<td><em>Athene cunicularia</em></td>
<td>Bird</td>
<td>Sparsely vegetated grassland, steppe, and desert biomes</td>
<td>BLM S, BCC (BCR 16), USFS SS, SGCN</td>
</tr>
<tr>
<td>Canyon towhee</td>
<td><em>Melozone fusca</em></td>
<td>Bird</td>
<td>Desert grasslands, pinyon-juniper woodlands, and pine-oak forests</td>
<td>BCC (BCR 34)</td>
</tr>
<tr>
<td>Cassin’s finch</td>
<td><em>Haemorhous cassinii</em></td>
<td>Bird</td>
<td>Pinyon-juniper woodlands, ponderosa pine forests, and mixed conifer forests</td>
<td>BCC (BCR 16), SGCN</td>
</tr>
<tr>
<td>Cassin’s sparrow</td>
<td><em>Peucaea cassinii</em></td>
<td>Bird</td>
<td>Grasslands</td>
<td>SGCN</td>
</tr>
<tr>
<td>Chestnut-collared longspur</td>
<td><em>Calcarius ornatus</em></td>
<td>Bird</td>
<td>Grasslands</td>
<td>BLM S, BCC (BCR 16, 34), SGCN</td>
</tr>
<tr>
<td>Clark’s nutcracker</td>
<td><em>Nucifraga columbiana</em></td>
<td>Bird</td>
<td>Pinyon-juniper woodlands, ponderosa pine forests, and mixed conifer forests</td>
<td>SGCN</td>
</tr>
<tr>
<td>Common nighthawk</td>
<td><em>Chordeiles minor</em></td>
<td>Bird</td>
<td>Grasslands, shrublands, and open woodlands</td>
<td>SGCN</td>
</tr>
<tr>
<td>Eared grebe</td>
<td><em>Podiceps nigricollis</em></td>
<td>Bird</td>
<td>Shallow lakes and ponds</td>
<td>SGCN</td>
</tr>
<tr>
<td>Elf owl</td>
<td><em>Micathene whitney</em></td>
<td>Bird</td>
<td>Desert woodlands, oak woodlands, pinyon-juniper woodlands, and riparian forest</td>
<td>BCC (BCR 34), SGCN</td>
</tr>
<tr>
<td>Evening grosbeak</td>
<td><em>Coccothraustes vespertinus</em></td>
<td>Bird</td>
<td>Pine-oak woodlands, pinyon-juniper woodlands, ponderosa pine forests, and mixed conifer forests</td>
<td>SGCN</td>
</tr>
<tr>
<td>Common Name</td>
<td>Scientific Name</td>
<td>Species Type</td>
<td>Habitat Association</td>
<td>Status</td>
</tr>
<tr>
<td>------------------------------</td>
<td>--------------------------</td>
<td>--------------</td>
<td>-------------------------------------------------------------------------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>Ferruginous hawk</td>
<td><em>Buteo regalis</em></td>
<td>Bird</td>
<td>Grasslands, shrublands, pinyon-juniper woodlands, and sparse riparian forests</td>
<td>BCC (BCR 16)</td>
</tr>
<tr>
<td>Flammulated owl</td>
<td><em>Psiloscops flammeolus</em></td>
<td>Bird</td>
<td>Ponderosa pine forests</td>
<td>BCC (BCR 16, 34), SGCN</td>
</tr>
<tr>
<td>Grace’s warbler</td>
<td><em>Setophaga gracie</em></td>
<td>Bird</td>
<td>Pine-oak, ponderosa pine, and mixed conifer forests</td>
<td>BCC (BCR 16, 34), SGCN</td>
</tr>
<tr>
<td>Gray vireo</td>
<td><em>Vireo vicinio</em></td>
<td>Bird</td>
<td>Chaparral and pinyon-juniper woodlands</td>
<td>BCC (BCR 16, 34), USFS SS, NM-T, SGCN</td>
</tr>
<tr>
<td>Juniper titmouse</td>
<td><em>Baeolophus ridgwayi</em></td>
<td>Bird</td>
<td>Pinyon-juniper woodlands</td>
<td>BCC (BCR 16), SGCN</td>
</tr>
<tr>
<td>Lark bunting</td>
<td><em>Calamospiza melanocorys</em></td>
<td>Bird</td>
<td>Grasslands and shrublands</td>
<td>BCC (BCR 34)</td>
</tr>
<tr>
<td>Lewis’s woodpecker</td>
<td><em>Melanerpes lewis</em></td>
<td>Bird</td>
<td>Pinyon-juniper woodlands, ponderosa pine forests, and riparian forests</td>
<td>BCC (BCR 16, 34), SGCN</td>
</tr>
<tr>
<td>Loggerhead shrike</td>
<td><em>Lanius ludovicianus</em></td>
<td>Bird</td>
<td>Desert scrub, shrubland, woodlands and riparian areas</td>
<td>SGCN</td>
</tr>
<tr>
<td>Long-billed curlew</td>
<td><em>Numenius americanus</em></td>
<td>Bird</td>
<td>Short-grass prairie and wetlands</td>
<td>BCC (BCR 16), SGCN</td>
</tr>
<tr>
<td>McCown’s longspur</td>
<td><em>Calcarius maccownii</em></td>
<td>Bird</td>
<td>Short-grass plains and prairies, agricultural fields, and desert scrub</td>
<td>BLM S, SGCN</td>
</tr>
<tr>
<td>Mexican whip-poor-will</td>
<td><em>Antrostomus arizoneae</em></td>
<td>Bird</td>
<td>Pine-oak, pine-juniper-oak, and ponderosa pine woodlands</td>
<td>BLM S, SGCN</td>
</tr>
<tr>
<td>Mountain bluebird</td>
<td><em>Sialia currucoides</em></td>
<td>Bird</td>
<td>Grasslands, shrublands, and pinyon-juniper woodlands</td>
<td>SGCN</td>
</tr>
<tr>
<td>Mountain plover</td>
<td><em>Charadrius montanus</em></td>
<td>Bird</td>
<td>Shortgrass prairie and fallow or recently tilled agricultural fields</td>
<td>BCC (BCR 16, 34), SGCN</td>
</tr>
<tr>
<td>Olive-sided flycatcher</td>
<td><em>Contopus cooperi</em></td>
<td>Bird</td>
<td>Open conifer forests</td>
<td>SGCN</td>
</tr>
<tr>
<td>Peregrine falcon</td>
<td><em>Falco peregrinus</em></td>
<td>Bird</td>
<td>Cliffs and open landscapes</td>
<td>BCC (BCR 16, 34), USFS SS, NM-T, SGCN</td>
</tr>
<tr>
<td>Pinyon jay</td>
<td><em>Gymnorhinus cyanocephalus</em></td>
<td>Bird</td>
<td>Pinyon-juniper woodlands</td>
<td>BLM S, BCC (BCR 16, 34), SGCN</td>
</tr>
<tr>
<td>Pygmy nuthatch</td>
<td><em>Sitta pygmaea</em></td>
<td>Bird</td>
<td>Ponderosa pine and mixed conifer forests</td>
<td>SGCN</td>
</tr>
<tr>
<td>Red-faced warbler</td>
<td><em>Cardella rubrifrons</em></td>
<td>Bird</td>
<td>Pine-oak, ponderosa pine, and mixed conifer forests</td>
<td>BCC (BCR 34), SGCN</td>
</tr>
<tr>
<td>Vesper sparrow</td>
<td><em>Poecetes gramineus</em></td>
<td>Bird</td>
<td>Grasslands, shrublands, and woodlands</td>
<td>SGCN</td>
</tr>
<tr>
<td>Virginia’s warbler</td>
<td><em>Oreothlypis virginiae</em></td>
<td>Bird</td>
<td>Pinyon-juniper and oak woodlands</td>
<td>BLM S, SGCN</td>
</tr>
<tr>
<td>Common Name</td>
<td>Scientific Name</td>
<td>Species Type</td>
<td>Habitat Association</td>
<td>Status</td>
</tr>
<tr>
<td>---------------------------</td>
<td>-----------------</td>
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<td>-------------------------------------------------------------------------------------</td>
<td>----------</td>
</tr>
<tr>
<td>Western bluebird</td>
<td>Sialia mexicana</td>
<td>Bird</td>
<td>Grasslands, pinyon-juniper woodlands, ponderosa pine forests, and mixed conifer forests</td>
<td>SGCN</td>
</tr>
<tr>
<td>Williamson’s sapsucker</td>
<td>Sphyrapicus thyroideus</td>
<td>Bird</td>
<td>Pine-oak woodlands, pinyon-juniper woodlands, ponderosa pine forests, mixed conifer forests, and riparian forests</td>
<td>SGCN</td>
</tr>
</tbody>
</table>

Table Abbreviations: BCC = Birds of Conservation Concern; BCR 16 = Bird Conservation Region 16 Southern Rockies/Colorado Plateau; BCR 34 = Bird Conservation Region 34 Sierra Madre Occidental; BLM S = BLM sensitive species; NM-T = New Mexico Threatened - Threatened species are those likely to become endangered within the foreseeable future throughout all or a significant portion of their range in the state; SERI = Species of Economic and Recreational Importance; SGCN = Species of Greatest Conservation Need - species that are indicative of the diversity and health of the state's wildlife; USFS SS = USFS sensitive species.

### 3.7.1.1 Ecological setting

The BLWP area is located within the AZ–NM Mountains Ecoregion, which is a rugged landscape that is dominated by forested mountains and plateaus, but also includes grasslands, shrublands, and riparian forests (Bell et al. 1999). The topography in the BLWP area is primarily characterized by hills and rolling plains; however, a narrow, linear escarpment, rocky outcrops, and a depression/crater are located in the northeastern portion of the site.

Vegetation in the BLWP area consists of sparsely vegetated short-grass grassland interspersed with rock outcrops in the northeastern portion, which transitions to semi-desert grassland/shrub steppe/juniper savanna with scattered and locally dense patches of pinyon-juniper woodland in the central and southern portions. Ponderosa pine trees are intermixed with the pinyon-juniper and grassland habitat in the southern portion of the BLWP area. Ponderosa pine forest occurs on the mountainous terrain to the south of the BLWP area within the Gila National Forest. Dominant plant species within the BLWP area include blue grama, broom snakeweed, rubber rabbitbrush, one-seed juniper, and two-needle pinyon pine.

General land cover types that have been identified in the Proposed Action and Alternatives 1 and 2 areas for the purpose of evaluating potential impacts on special status wildlife habitat include shrubland, grassland, pinyon-juniper woodland, cliff/rock outcrop, playa, and emergent herbaceous wetland (Table 3-17; Figure 3-8 and Figure 3-9). The shrubland, grassland, and pinyon-juniper woodland in the Proposed Action and Alternatives 1 and 2 areas occur throughout the region and are well represented in the surrounding area. The cliff/rock outcrop areas are much less common in the region; these areas are used as nesting substrates for raptors and also provide roosting habitat for many bat species. There are many Gunnison's prairie dog colonies that provide an abundant food source for raptors in the Proposed Action and Alternatives 1 and 2 areas.
Table 3-17. Land Cover Types within the Proposed Action and Alternatives 1 and 2 Areas

<table>
<thead>
<tr>
<th>Land Cover Type</th>
<th>Proposed Action Area (acres/percent)</th>
<th>Alternatives 1 and 2 Area (acres/percent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shrubland</td>
<td>28,448/65%</td>
<td>10,763/65%</td>
</tr>
<tr>
<td>Grassland</td>
<td>11,255/26%</td>
<td>3,665/22%</td>
</tr>
<tr>
<td>Pinyon-Juniper Woodland</td>
<td>3,577/8%</td>
<td>2,190/13%</td>
</tr>
<tr>
<td>Playa</td>
<td>125/&lt;1%</td>
<td>20/&lt;1%</td>
</tr>
<tr>
<td>Bare Ground/Cliff/Rock Outcrop</td>
<td>119/&lt;1%</td>
<td>9/&lt;1%</td>
</tr>
<tr>
<td>Emergent Herbaceous Wetland</td>
<td>4/&lt;1%</td>
<td>0/0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>43,528</strong></td>
<td><strong>16,648</strong></td>
</tr>
</tbody>
</table>

Note: Based on the National Land Cover Database (Homer et al. 2011)
Figure 3-8. Land Cover Types within the Proposed Action Area
Figure 3-9. Land Cover Types within the Alternatives 1 and 2 Area
There are 20 "playas of wildlife value" within the Proposed Action area, along with a number of stock tanks; there are two "playas of wildlife value" within the Alternatives 1 and 2 area along with six or more stock tanks in each of the alternative areas. Most of these playas are seasonally wet areas and less than 3 acres in size when full. Four playas are larger—up to 220 acres in size when full—and provide water sources for wildlife, as well as temporary habitats for waterfowl and shorebirds. The playas are considered riparian habitats by the BLM, though they are generally vegetated with the same species as the surrounding areas.

3.7.1.2 Results of Site Investigations

Various site investigations have been conducted to characterize plant and animal populations and patterns of use in the Proposed Action and Alternatives 1 and 2 areas. The results of these site investigations have been used to help inform siting decisions and various plans, including a project-specific Bird and Bat Conservation Strategy that would be implemented as part of the selected alternative (Borderlands Wind, LLC 2020).

Special Status Plants

A 100 percent survey for special status plant species was conducted within the disturbance footprint for the Proposed Action and Alternatives 1 and 2 in July and August 2018. Although there are previously documented occurrences of Apache milkvetch within the Proposed Action and Alternatives 1 and 2 areas, and in the surrounding area, none of the eight special status plants that could potentially occur within the Proposed Action area were observed within the project footprint during the 2018 survey. It is possible that one or more special status plant species could be found within the project footprint at a later date given that environmental conditions such as drought can affect germination and growth in any particular year, and there was little precipitation in the region leading up to the 2018 survey.

Gunnison’s Prairie Dog Colonies

Gunnison’s prairie dogs form loosely organized colonies and restrict most of their interactions to family groups, with minimal spatial overlap or interaction with members of different family groups. A Gunnison’s prairie dog colony may contain several hundred individuals comprised of many family groups, though colonies with as few as 1-3 individuals were documented within the BLWP area during onsite surveys. The Gunnison’s prairie dog colonies within the Proposed Action area, along with other prairie dog colonies that may exist in the surrounding area, comprise the local population for the purposes of analysis in this EIS.

In July 2018, targeted surveys were conducted to locate and delineate Gunnison’s prairie dog colonies 1) in the vicinity of incidental observations collected over two years of site resource investigations and 2) within 0.5 mile of project facilities (i.e., wind turbines, access roads, collection lines, and substation). Thirty-one distinct, occupied prairie dog colonies containing up to 192 individuals in each colony were documented within the Proposed Action area (Figure 3-10). The total acreage of mapped prairie dog colonies at the time of the survey was 2,284 acres (SWCA Environmental Consultants 2018b); however, a 100 percent survey of the BLWP area was not conducted, so this total does not account for the total number of colonies that may be present within the Proposed Action or Alternatives 1 and 2 areas. The largest colonies, by size and number of detected individuals, are situated in the northeastern, southwestern, and western portions of the Proposed Action and Alternatives 1 and 2 areas. Seventeen of the 31 prairie dog colonies are located (entirely or partially) within the Alternatives 1 and 2 area (Figure 3-11).
Figure 3-10. Gunnison’s Prairie Dog Colonies within the Proposed Action Area
Figure 3-11. Gunnison's Prairie Dog Colonies within the Alternatives 1 and 2 Area
**Special Status Bats**

Bat activity at the BLWP area was monitored at two monitoring stations from September 2017 through November 2018 (SWCA Environmental Consultants 2018a). Special status bat species that are known to occur in the BLWP area or could potentially occur based on the species’ known ranges and habitat requirements are noted in Table E-1 in Appendix E.

**Special Status Birds**

Avian surveys were conducted to characterize species composition and patterns of use in the BLWP area in accordance with the USFWS’s *Land-Based Wind Energy Guidelines* (USFWS 2012). The resulting information, along with findings from other surveys and studies including the locations of a possible golden eagle nest, a ferruginous hawk nest, prairie dog colonies, and playas, have been used to inform siting decisions such as the ultimate placement of wind turbines and other infrastructure. Avian use surveys were conducted on-site, twice per month, starting in March 2017 and continued through March 2019. Eagle-focused nest surveys were conducted within 10 miles and a raptor nest survey was conducted within 1 mile of the Proposed Action and Alternatives 1 and 2 areas. Special status bird species that are known to occur in the BLWP area based on the avian surveys and incidental observations are noted in Table E-1 in Appendix E.

A total of 108 nests associated with non-eagle species (e.g., common raven, great horned owl, red-tailed hawk) were recorded within 10 miles of the BLWP area during aerial nest surveys and ground-based surveys (point counts) in 2017 and 2018; 16 of those nests were located within 1 mile of the BLWP area. One ferruginous hawk nest was recorded within the Proposed Action area, just outside the Alternatives 1 and 2 area; the ferruginous hawk is a BCC that receives special protection in the SFO RMP.

### 3.7.2. Environmental Consequences

#### 3.7.2.1 Direct and Indirect Impacts of the Proposed Action

The Final Wind Energy PEIS (BLM 2005) identifies and discusses potential impacts on vegetation and wildlife during construction activities (pp. 5-38 through 5-45), O&M (pp. 5-50 through 5-75), and decommissioning (p. 5-77) of a wind facility (e.g., habitat loss, degradation, and fragmentation; disturbance/displacement; collision with turbines, towers, and transmission lines). These impacts would generally also apply for special status plant, terrestrial wildlife, and bird and bat species that occur within the Proposed Action area and, with regard to some indirect impacts, species that may be present in the adjacent lands surrounding the Proposed Action area. Construction, O&M, and decommissioning of the BLWP would result in short-term ground disturbance of approximately 2.6 percent (1,131 acres) and long-term vegetation loss (until decommissioning) of approximately 0.3 percent (140 acres) of the 43,528-acre Proposed Action area based on the total number of proposed turbine locations. The various plans that would be implemented to address impacts on resources such as vegetation (e.g., Weed Management Plan) and wildlife (e.g., Bird and Bat Conservation Strategy) would help to reduce the potential localized impacts on special status species.

**Special Status Plant Species**

**Construction**

No special status plant species were observed during the 2018 survey of the disturbance footprint of the Proposed Action; however, pre-construction surveys would be conducted to identify the presence of any special status plants and verify the results of the 2018 survey. Prior to the start of construction, the boundaries of any special status plant populations that are found would be delineated with flagging or fencing. Flagged and fenced areas would be avoided to the extent practicable during construction activities. There would be negligible direct impacts from construction of the BLWP because...
construction activities would only disturb a relatively small portion of the Proposed Action area and special status plant species that may be found within the limits of the Proposed Action disturbance footprint during the pre-construction survey would be protected in place to the extent practicable.

Potential indirect impacts on individual sensitive plant species such as the Apache milkvetch may occur from the introduction or spread of noxious or invasive weeds in the newly disturbed areas, as well as potentially outside of the BLWP’s disturbance footprint. No noxious weed species were documented within the disturbance footprint during the July and August 2018 survey by the Proponent. BMPs that are implemented during the construction phase and implementation of a Weed Management Plan would minimize the potential for introduction or spread of noxious or invasive weeds within the BLWP disturbance footprint and adjacent areas. Restoration in accordance with the BLWP’s Integrated Reclamation Plan would reduce the amount of disturbed habitat at any one time, which would reduce the potential for the introduction of noxious or invasive weeds. As a result, there would be negligible indirect effects on special status plant species during construction.

**Operation and Maintenance**

Direct impacts on special status plant species are not likely to occur during the O&M phase of the Proposed Action due of the lack of any observed species within the project disturbance footprint. Activities such as the maintenance or repair of project infrastructure (e.g., wind turbines, access roads) would result in limited ground disturbance that could impact special status plants, if present (i.e., if they establish or are later found to occur). Ground-disturbing activities during the O&M phase would generally occur in areas that were previously disturbed during construction.

During the O&M phase, the potential for introducing or spreading noxious or invasive weeds within the Proposed Action area would decrease since fewer vehicles and people would be present onsite as compared to the amount during construction. Previous areas of temporary disturbance would be revegetated. Continued implementation of BLWP’s Weed Management Plan during O&M would minimize the potential for noxious or invasive species to establish within the Proposed Action area.

**Decommissioning**

Decommissioning would result in potential impacts on sensitive plant species similar to those described for the construction phase in that there would be some re-disturbance (e.g., vegetation removal, soil compaction, fugitive dust) of previously reclaimed and revegetated areas during the process of removing the turbines and other aboveground project components. Ground disturbance during decommissioning would again increase the potential for introduction and spread of noxious and invasive weeds that could degrade special status plant habitats. Weed management activities would continue throughout the decommissioning phase, which would minimize the potential for noxious or invasive species to establish within the Proposed Action area.

**Special Status Terrestrial Wildlife Species**

**Construction**

The Gunnison’s prairie dog is known to occur throughout the Proposed Action area and surrounding lands. The SFO RMP includes a BMP that calls for restricting land use activities within active/occupied prairie dog colonies, as well as a 0.25-mile buffer zone surrounding occupied prairie dog colonies. The locations of the various Proposed Action facilities have been sited to mostly avoid occupied prairie dog colonies; however, the primary access road (Bill Knight Gap Road) passes through four prairie dog colonies, and various project components (e.g., access roads, collector lines, turbines, laydown yard, substation, O&M yard, MET towers) would be constructed within prairie dog colonies or within the 0.25-mile buffer zone (Table 3-18). The direct impacts to individual prairie dog colonies are noted in Table 3-19.
Table 3-18. Proposed Action and Alternatives 1 and 2 Project Components within Gunnison’s Prairie Dog Colonies and Buffer Zones

<table>
<thead>
<tr>
<th>Project Component</th>
<th>Proposed Action</th>
<th>Alternative 1</th>
<th>Alternative 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Turbines within occupied prairie dog colonies</td>
<td>0 turbines</td>
<td>Same as Proposed Action</td>
<td>Same as Proposed Action</td>
</tr>
<tr>
<td>Turbines within 0.25-mile buffer zone</td>
<td>7 turbines</td>
<td>5 turbines</td>
<td>Same as Alternative 1</td>
</tr>
<tr>
<td>Length of road within occupied prairie dog colonies</td>
<td>1.60 miles</td>
<td>0.74 mile</td>
<td>Same as Alternative 1</td>
</tr>
<tr>
<td>Length of road within 0.25-mile buffer zone</td>
<td>11.25 miles</td>
<td>11.59 miles</td>
<td>Same as Alternative 1</td>
</tr>
<tr>
<td>Length of collection lines within occupied prairie dog colonies</td>
<td>0.97 mile</td>
<td>0.14 miles</td>
<td>Same as Alternative 1</td>
</tr>
<tr>
<td>Length of collection lines within 0.25-mile buffer zone</td>
<td>7.85 miles</td>
<td>8.54 miles</td>
<td>Same as Alternative 1</td>
</tr>
<tr>
<td>Temporary disturbance within occupied prairie dog colonies</td>
<td>34.77 acres</td>
<td>13.85 acres</td>
<td>Same as Alternative 1</td>
</tr>
<tr>
<td>Temporary disturbance within 0.25-mile buffer zone</td>
<td>268.03 acres</td>
<td>279.75 acres</td>
<td>Same as Alternative 1</td>
</tr>
<tr>
<td>Permanent disturbance within occupied prairie dog colonies</td>
<td>3.75 acres</td>
<td>2.02 acres</td>
<td>Same as Alternative 1</td>
</tr>
<tr>
<td>Permanent disturbance within 0.25-mile buffer zone</td>
<td>40.44 acres</td>
<td>40.53 acres</td>
<td>Same as Alternative 1</td>
</tr>
</tbody>
</table>

Note: Assumes all turbine locations would be constructed. Actual impacts would be less due to fewer turbines actually being constructed.

Table 3-19. Proposed Action and Alternatives 1 and 2 Impacts to Individual Gunnison’s Prairie Dog Colonies

<table>
<thead>
<tr>
<th>Prairie Dog Colony ID</th>
<th>Total Colony Area (acres)</th>
<th>Temporary Disturbance Proposed Action (acres/percent)</th>
<th>Permanent Disturbance Proposed Action (acres/percent)</th>
<th>Temporary Disturbance Alternatives 1 and 2 (acres/percent)</th>
<th>Permanent Disturbance Alternatives 1 and 2 (acres/percent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>278.58</td>
<td>5.04/1.81</td>
<td>0.13/0.05</td>
<td>0/0.00</td>
<td>0/0.00</td>
</tr>
<tr>
<td>9</td>
<td>72.85</td>
<td>9.58/13.15</td>
<td>0.9/1.24</td>
<td>0.04/0.06</td>
<td>0/0.00</td>
</tr>
<tr>
<td>12</td>
<td>7.07</td>
<td>1.9/26.83</td>
<td>0.21/2.91</td>
<td>0.08/1.09</td>
<td>0/0.00</td>
</tr>
<tr>
<td>15</td>
<td>23.64</td>
<td>0.86/3.66</td>
<td>0/0.00</td>
<td>0.03/0.14</td>
<td>0/0.00</td>
</tr>
<tr>
<td>16</td>
<td>65.3</td>
<td>4.57/6.99</td>
<td>0.49/0.75</td>
<td>2.59/3.97</td>
<td>0.26/0.40</td>
</tr>
<tr>
<td>19</td>
<td>166.52</td>
<td>2.14/1.29</td>
<td>0.34/0.21</td>
<td>2.21/1.33</td>
<td>0.35/0.21</td>
</tr>
<tr>
<td>24</td>
<td>14.23</td>
<td>2.07/14.57</td>
<td>0.3/2.10</td>
<td>1.28/8.97</td>
<td>0.17/1.20</td>
</tr>
<tr>
<td>27</td>
<td>24.25</td>
<td>4.34/17.91</td>
<td>0.72/8.78</td>
<td>4.32/17.79</td>
<td>0.69/2.85</td>
</tr>
<tr>
<td>29</td>
<td>94.39</td>
<td>4.27/4.52</td>
<td>0.68/0.72</td>
<td>3.31/3.50</td>
<td>0.54/0.58</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>746.83</strong></td>
<td><strong>34.77/1.52</strong></td>
<td><strong>3.75/0.16</strong></td>
<td><strong>13.85/0.61</strong></td>
<td><strong>2.02/0.09</strong></td>
</tr>
</tbody>
</table>

Note: Assumes all turbine locations would be constructed. Actual impacts would be less due to fewer turbines actually being constructed.

1 Refer to Figure 3-10 and Figure 3-11.
2 Total for all of the affected prairie dog colonies.
Construction activities that occur within prairie dog colonies or in their vicinity could result in direct impacts (such as injury or mortality) or indirect impacts (such as habitat loss and fragmentation), although these effects would be minimized through the implementation of species-specific BMPs for the Gunnison’s prairie dog (Appendix B). Fragmentation of prairie dog populations is listed as a primary threat to the species in the Draft Conservation Plan for Gunnison’s Prairie Dog in New Mexico (NM Department of Game and Fish 2008). Disturbance from human activities and construction noise could alter the patterns of Gunnison’s prairie dog use across the site, though other factors such as soil conditions and vegetation would also influence habitat selection and use by this species. Construction of the overhead distribution line may also alter patterns of prairie dog use in the immediate area as raptors are likely to utilize the new infrastructure for perching and hunting.

The project infrastructure has been sited to avoid the seasonally wet playa areas where the Arizona montane vole and Arizona tree frog could occur, which reduces the potential for direct or indirect impacts. The stock tanks within the Proposed Action area that provide potential habitat for Sonora mud turtles would be avoided during construction where feasible. The Arizona black rattlesnake prefers rocky habitats but could be encountered anywhere within the Proposed Action area, resulting in potential direct impacts during construction. Short-term impacts on special status terrestrial wildlife species would include potential injury or death from interactions with the increased number of vehicles traveling on access roads and/or ground disturbance and underground burrow destruction by heavy equipment during construction activities. There would be no direct or indirect regional impacts on special status terrestrial wildlife species because of the presence of similar habitat within the region of the Proposed Action and the limited area within the Proposed Action area that would be affected (1,131 acres or approximately 2.6 percent of the 43,528-acre Proposed Action area) during construction.

There is suitable habitat for the four SERI identified in the New Mexico Crucial Habitat Assessment Tool for this area (i.e., black bear, cougar, elk, and mule deer). Elk have been observed at various times during site resource investigations, and a cougar was also suspected to be denning in the BLWP area. Mule deer and black bears may also incidentally occur in the BLWP area. Habitat use in the BLWP area may be variable for each of these species depending on their life history and seasonal habitat needs. There are no known wildlife movement or migration corridors present in the BLWP area that would be impacted by the Proposed Action. Increased noise and visual disturbance from human activity during construction would likely cause these species to avoid foraging within the Proposed Action area and the area immediately surrounding the BLWP. None of these species are likely to be injured or killed as a result of the Proposed Action and no population-level effects would occur.

Provisions of the Integrated Reclamation Plan would minimize the potential for introduction or spread of noxious or invasive weeds within the Proposed Action area and adjacent lands, which would minimize habitat degradation. The Proposed Action would have minor short-term direct impacts on local special status terrestrial wildlife species with the exception of the Gunnison’s prairie dog. Even with the implementation of BMPs and species-specific mitigation measures/design features, the Proposed Action would result in localized short- and long-term, moderate impacts on prairie dogs.

Operation and Maintenance
Potential impacts on special status terrestrial wildlife species during the O&M phase of the Proposed Action would include various types of disturbance associated with human activities (e.g., vehicle use, maintenance activities) and wind turbine operation (e.g., noise, vibration, flicker/shadows cause by moving blades). Over time, individual animals may become acclimated to the disturbance or shift their habitat use to avoid areas with undesirable levels of disturbance. The reclamation and revegetation of disturbed areas during the O&M phase would allow for previously displaced individuals to potentially reestablish use of the habitat.
Potential impacts would be reduced compared to the construction phase because of the lower volume of vehicles traveling on access roads and fewer people needed to operate and maintain the BLWP. Special status terrestrial wildlife species would still be able to move through the Proposed Action area following construction of the wind facility, and the open landscape in the surrounding area allows for relatively unrestricted wildlife movement, so there would be negligible localized impacts on wildlife movement. Construction of new project access roads would fragment prairie dog habitats and could also lead to an increase in recreational shooting, which may impact the local Gunnison’s prairie dog population. The Proposed Action could result in a downward trend and/or contribute to the loss of viability of the local Gunnison’s prairie dog population. There would be no regional impacts on special status terrestrial wildlife species during the O&M phase of the Proposed Action due to the general availability of similar habitats within the region and the limited area within the Proposed Action area that would be affected in the long term (140 acres or approximately 0.3 percent of the 43,528-acre Proposed Action area).

Decommissioning
Potential impacts during the decommissioning phase would be similar to those described for the construction phase, though to a lesser extent. Direct impacts on special status terrestrial wildlife species, including injury or mortality of individual animals, may occur during decommissioning. Much of the potential habitat for special status reptiles and amphibians (i.e., playas and stock tanks) would be avoided. Ground-disturbing activities associated with the removal of turbines and other infrastructure would create areas of degraded habitat, which may be of marginal value until these areas are reclaimed and vegetation communities restored. An Integrated Reclamation Plan would be implemented as part of the decommissioning effort to direct and aid in the revegetation efforts. Although revegetation may take several decades for the structure and composition to resemble current conditions, a limited area of the Proposed Action area (140 acres or approximately 0.3 percent of the 43,528-acre Proposed Action area) would be disturbed. The Proposed Action’s decommissioning activities would result in localized long-term, direct, minor impacts on special status terrestrial wildlife species.

Special Status Bird and Bat Species

Construction
Potential impacts associated with the construction of project infrastructure (e.g., turbines, collection lines, access roads) would include habitat loss, degradation, and fragmentation, as well as noise and visual disturbances. Vegetation clearing would remove foraging habitat for special status birds and bats and could result in direct impacts on nesting birds and tree-roosting bats. Impacts on bird species that are less tolerant of the disturbance associated with noise and human activity would extend further than the actual disturbance footprint and may extend to lands outside of the Proposed Action area. The one ferruginous hawk nest that was documented within the Proposed Action area would be avoided and any construction activities would occur outside of a 0.5-mile buffer of the nest to minimize disturbance at the nest site.

There are no known features, such as caves or mines that would provide communal roost or maternity sites for large numbers of bats within the Proposed Action area. Bat use of this area would consist of opportunistic foraging (including drinking at available water sources) and roosting by individual bats or small groups of bats in cliffs/rock outcrops, buildings, and trees. The foraging and roosting habitats for bats within the Proposed Action area are fairly widespread in the region. Construction-related activities would have negligible impacts on bats that may fly through or forage within the Proposed Action area or surrounding area at night.

Operation and Maintenance

Birds and bats are vulnerable to injury and mortality from collisions with wind turbine blades. Wind turbines mainly pose a threat to these species when the rotor is spinning; the area where the individuals
can be struck by the rotor/blades is termed the rotor-swept area. The wind turbines that are proposed for the BLWP have rotor diameters from 380 to 381 feet. At this size, the revolutions-per-minute are lower than with smaller turbines, but the speed of the rotor tips is still very high. The numerous Gunnison’s prairie dog colonies and seasonally-inundated playas in the Proposed Action area are hunting grounds for various predators, and the availability of prey in this area is associated with increased use of the area by raptors. Passerines (small birds) are most commonly reported as collision fatalities, followed by diurnal raptors; although fatality rates for raptors may be lower compared to passerines, raptors are especially vulnerable to collisions due to their flight behaviors (USFWS 2020). For birds, adjusted fatality rates from most studies range from three to six birds per turbine-generated MW per year for all species combined, and no publicly available study has reported more than 15 bird fatalities per turbine-generated MW per year (American Wind Wildlife Institute [AWWI] 2018).

Bat fatalities associated with wind turbines can be higher than the bird fatalities on the same wind farm, and it is difficult to predict the level of impact on bats even with acoustic monitoring data from preconstruction surveys. Bats fly around to forage at night and mainly during low wind speeds; raising cut-in speeds (i.e., the lowest wind speeds at which turbine rotors begin rotating) at night can be an effective way of minimizing bat mortality. Reductions in local bat populations can be magnified at the regional scale because bats are wide-ranging and have a low reproductive rate. On average, reported bat fatality rates are substantially lower at facilities in the western United States compared to those in the eastern part of the country (AWWI 2018). The potential threat to special status birds and bats from wind turbines at the BLWP would exist during the anticipated 35-year life of the project and the Proposed Action could have a long-term, minor to moderate effect on these species.

Distribution lines and other project facilities would be designed to discourage their use as perching or nesting substrates by birds, and to minimize collisions and electrocutions (e.g., by constructing power lines to Avian Power Line Interaction Committee standards). Two permanent MET towers would be needed during operations. The MET towers would be no more than 361 feet high with side guy wires extending from each tower on two sides. Bird flight diverters or high visibility marking devices would be used to reduce the potential for collision with the guy wires, though they would not entirely eliminate the potential impacts on birds. Impacts on special status bird and bat species, including fatalities resulting from the operation of wind turbines, would not be avoidable under the Proposed Action.

\textit{Decommissioning}

Potential impacts on special status birds during decommissioning would be similar to construction, though to a lesser extent assuming some degree of acclimation to disturbance by resident birds during the O&M phase. Impacts on special status bird and bat species from collisions with wind turbines would cease when operation of the BLWP is discontinued and the turbines, overhead distribution lines, and MET towers are removed. Long-term, localized effects on foraging and nesting habitat for some special status species would occur because it may take years or decades for the vegetative structure and composition of disturbed areas to be restored to current conditions. However, the areas requiring revegetation would only be 0.3 percent of the Proposed Action area (140 acres) and an Integrated Reclamation Plan would be implemented during decommissioning to guide the revegetation efforts.

\textit{Migratory Birds}

Potential impacts on migratory birds during construction, O&M, and decommissioning activities would be the same as noted above for other special status birds. There are no Important Bird Areas designated within the BLWP area and, with the exception of seasonal playas, the BLWP area does not contain habitats that would concentrate migrating birds, such as large bodies of water, wetlands or riparian areas, or mountain ridges that would provide updrafts for migrating raptors. However, there are many Gunnison’s prairie dog colonies that provide an abundant food source for raptors in the Proposed Action area.
The nearest major waterways likely to be used by migratory birds include the Little Colorado River (approximately 15 miles to the west), the San Francisco River (approximately 20 miles to the south), and the Rio Grande (approximately 110 miles to the east). Migrating birds may pass over or stop to forage or rest in the BLWP area as they travel between these major corridors. While there would be short- and long-term, minor impacts on the existing habitats within the Proposed Action area, the grassland, shrubland, and pinyon-juniper cover types that would be affected by the project are abundant habitats in the lands surrounding the Proposed Action area and within BCRs 16 and 34. The Proposed Action would result in short- and long-term, direct and indirect, moderate, local and regional impacts to migratory birds. A Bird and Bat Conservation Strategy would be implemented along with BMPs and other design features as part of the Proposed Action to minimize potential impacts on migratory birds and provide for adaptive management during the O&M phase.

**Additional Measures to Avoid and/or Minimize Impacts**
With the implementation of the BMPs and other design features in Appendix B, no additional measures to avoid and/or minimize impacts on special status plant and wildlife species are recommended for the Proposed Action.

### 3.7.2.2 Direct and Indirect Impacts of Alternatives 1 and 2
The potential impacts of Alternatives 1 and 2 on special status plant, terrestrial wildlife, and bird and bat species would be similar to the Proposed Action, with minor differences in the overall acreages that would be disturbed during construction and decommissioning of the BLWP. Construction, O&M, and decommissioning of the BLWP under Alternatives 1 and 2 would result in short-term ground disturbance of approximately 7.2 percent (1,202 acres) and long-term vegetation loss (until decommissioning) of approximately 0.8 percent (133 acres) of the 16,648-acre Alternatives 1 and 2 area.

**Special Status Plant Species**
The impacts of Alternatives 1 and 2 on special status plant species would be similar to those under the Proposed Action. The effects associated with Alternative 1 would be essentially the same as for the Proposed Action because the same number of turbines would be built under both alternatives. Under Alternative 2, there would be six fewer turbines (34 instead of 40 turbines) built with similar but slightly less impacts since there would be fewer turbines, access roads, and underground electric collection system and communication lines built. Because of the smaller construction footprint associated with Alternative 2, impacts to special status plant species would be slightly reduced compared to the Proposed Action and Alternative 1. Shifting the number/locations of wind turbines or other project infrastructure within the Alternatives 1 and 2 area would not substantially add to or reduce the potential impacts on special status plant species from construction, O&M, or decommissioning of the BLWP as compared to the Proposed Action.

**Special Status Terrestrial Wildlife Species**
The impacts of Alternatives 1 and 2 on special status terrestrial wildlife species would be similar to the Proposed Action Alternative. The locations of various project components that are within occupied prairie dog colonies or within the 0.25-mile buffer zone surrounding occupied prairie dog colonies under Alternatives 1 and 2 are noted in Table 3-18. Shifting the number/locations of wind turbines or other project infrastructure as proposed under Alternative 1 or Alternative 2 would not substantially add to or reduce the potential impacts on special status terrestrial wildlife species from construction, O&M, or decommissioning of the BLWP as compared to the Proposed Action.

**Special Status Bird and Bat Species**
The impacts of Alternatives 1 and 2 on special status bird and bat species would be similar to those under the Proposed Action. The wind turbines that are proposed for the BLWP under Alternative 2 would have larger rotor diameters (381 to 459 feet) compared to the Proposed Action and Alternative 1 (380 to
381 feet), resulting in a larger rotor swept area for each turbine; however, there would be fewer turbines constructed under Alternative 2 (34 turbines) compared to the Proposed Action and Alternative 1 (40 turbines). Shifting the number/locations of wind turbines or other project infrastructure as proposed under Alternative 1 or Alternative 2 would not substantially add to or reduce the potential impacts on special status bird and bat species from construction, O&M, or decommissioning of the BLWP as compared to the Proposed Action.

**Migratory Birds**
The impacts of Alternatives 1 and 2 on migratory birds would be similar to those under the Proposed Action. Shifting the number/locations of wind turbines or other project infrastructure as proposed under Alternatives 1 and 2 would not substantially add to or reduce the potential impacts on migratory birds from construction, O&M, or decommissioning of the BLWP as compared to the Proposed Action.

**Additional Measures to Avoid and/or Minimize Impacts**
With the implementation of the BMPs and other design features in Appendix B, no additional measures to avoid and/or minimize impacts on special status plant and wildlife species are recommended for Alternatives 1 and 2.

### 3.7.2.3 Direct and Indirect Impacts of the No Action Alternative

Under the No Action Alternative, the BLWP would not be constructed, and no additional impacts on special status species within the BLWP area would occur. Existing impacts on special status species within the BLWP area are primarily associated with recreational shooting of prairie dogs, vehicle (including OHV) use that results in minor noise and visual disturbance, and occasional injury or mortality to wildlife from collisions with vehicles or, for special status birds and bats, the existing transmission lines and structures that cross the area.

### 3.8 Bald and Golden Eagles

The Bald and Golden Eagle Protection Act (Eagle Act) is the overarching law that protects bald and golden eagles; it prohibits anyone without a permit from “taking” eagles, their parts, eggs, or nests. The Eagle Act’s definition of “take” does not include habitat destruction or alteration, unless such damage disturbs an eagle. Disturb is defined as “to agitate or bother to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior.”

In 2009, the USFWS promulgated regulations (i.e., the Eagle Rule) that established two new permit types authorizing: 1) purposeful take (removal, relocation, or destruction) of eagle nests under limited circumstances, and 2) incidental take that results from, but is not the purpose of, an otherwise lawful activity. In 2016, the USFWS revised the regulations for eagle incidental take permits, allowing developers to obtain a 30-year permit subject to mitigation and monitoring, among other requirements. The 2016 Eagle Rule Revision also removed the distinction between standard permits (that address one-time effects from a project) and programmatic permits (that authorize recurring take from a project), and modified their definition of the “preservation standard” so that any authorized take must be

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6 The Bald and Golden Eagle Protection Act, originally passed in 1940, provides for the protection of the bald eagle and the golden eagle (as amended in 1962) by prohibiting the take, possession, sale, purchase, barter, offer to sell, purchase or barter, transport, export or import, of any bald or golden eagle, alive or dead, including any part, nest, or egg, unless allowed by permit (16 U.S.C. 668a; 50 CFR 22). “Take” includes pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb (16 U.S.C. 668c; 50 CFR 22.3).
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.

In 2017, the BLM issued IM 2017-040 Bald and Golden Eagle Protection Act–Eagle Incidental Take Permit Guidance for Renewable Energy Development on the processing of ROW applications for wind and solar development projects on BLM-managed lands that have the potential to result in take of eagles. The BLM’s IM 2017-040 identifies the coordination and surveys that are required in order to determine whether take of eagles is likely, as well as stipulations that would be included with ROW grants.

This section assesses the potential impacts on bald and golden eagles from the Proposed Action, Alternatives 1 and 2, and the No Action Alternative.

### 3.8.1. Affected Environment

The USFWS’s *Eagle Conservation Plan Guidance* (USFWS 2013a) and *Programmatic EIS for the Eagle Rule Revision* (USFWS 2016a) recommend that siting decisions for project infrastructure, such as wind turbines, be informed first by eagle exposure (related to eagle sightings during avian surveys) and then by the presence of important eagle use areas such as occupied nests or foraging areas. Avian use surveys have been conducted twice per month within the Proposed Action area (which encompasses the Alternatives 1 and 2 area) from March 2017 through March 2019. Eagle-focused nest surveys were also conducted within 10 miles of the area and a raptor species nest survey was also conducted within 1 mile of the Proposed Action area. The USFWS has determined that there are important eagle-use areas within the Proposed Action area based on food resources such as the prairie dog colonies and golden eagle telemetry data. Information on bald and golden eagles and their occurrence in the Proposed Action area is provided below.

#### 3.8.1.1 Golden eagle

Golden eagles occur across most of the northern hemisphere and throughout the Southwest where there are suitable nest sites and available prey. Year-round residents occur throughout NM and migrants from northern latitudes are also present during the winter months. Golden eagles typically select nest sites on tall cliffs or large trees near the open areas where they hunt for small to mid-sized mammals such as ground squirrels, jackrabbits, and prairie dogs. They can also prey upon some larger waterfowl species and opportunistically feed upon carrion, including ungulate carcasses. Additional information on the life history and status of the golden eagle, as well as known threats to the species, is included in the USFWS’s *Programmatic EIS for the Eagle Rule Revision* (USFWS 2016a) and *Bald and Golden Eagles: Population demographics and estimation of sustainable take in the United States, 2016 update* (USFWS 2016b).

There is telemetry data supporting the occurrence of golden eagles in the project vicinity; an immature golden eagle that was tagged in the northeastern portion of the Proposed Action area in 2015 has continued to occupy the BLWP area year-round, though a single eagle’s use patterns should not be extrapolated to describe overall eagle use of an area. Eagle use surveys conducted for the BLWP have documented golden eagles flying through the Proposed Action area (which encompasses the Alternatives 1 and 2 area) on five occasions during the period from March 2017 through March 2019. A total of 16 “eagle minutes” were documented at survey points during that period. Eagle minutes are only recorded during the eagle use surveys and are specifically used to assess potential impacts to eagles; there were also incidental observations of golden eagles on 19 occasions from March 2017 through March 2019.
Multiple golden eagle breeding attempts were documented during nest surveys conducted within a 10-mile buffer of the Proposed Action area in 2017 and 2018. Golden eagle nesting substrate in the Proposed Action area is limited to a narrow, linear escarpment and small rock outcrops located in the northeastern portion, and transmission towers along a north-south utility corridor located on the western edge of the Proposed Action area. Golden eagles use an average of two to three alternate nests, with some territories containing only one nest. The 47 nest structures identified as golden eagle nests (28 nests) or possible golden eagle nests (19 nests) during surveys were assigned to nine golden eagle and seven potential golden eagle territories/breeding areas. In 2017, four of the breeding areas had nests where eggs, nestlings, or an adult in an incubation posture were observed, and five contained nests where eagles were present but were not observed engaging in breeding activities. In 2018, two of the territories had active breeding attempts and six contained occupied nests only (e.g., adults perched on or near the nest, recent greenery, sticks, whitewash, or feathers). One potential golden eagle breeding area (i.e., Luna Tank) and its associated nest are located within the northeastern portion of the Proposed Action area; all of the other territories/breeding areas are located within a 10-mile buffer surrounding the Proposed Action area. The Luna Tank nest has not been observed to be active or confirmed as being used by golden eagles during project surveys (i.e., no eggs or young were observed in the nest); however, a golden eagle was observed in the vicinity of the nest in March 2017.

Surveys were also conducted to locate and delineate Gunnison’s prairie dog colonies within 0.5 miles of proposed project facilities (e.g., turbines, access roads, collection lines, the substation), as golden eagles are attracted to these colonies for prey. Thirty-one distinct, occupied prairie dog colonies containing up to 192 individuals in each colony were documented within the Proposed Action area. The total acreage of mapped prairie dog colonies at the time of the survey was 2,284 acres; however, surveys were only conducted in proximity to areas that would be disturbed by project infrastructure, so this total does not account for the total number of colonies present within the Proposed Action or Alternatives 1 and 2 areas. The largest colonies, by size and number of detected individuals, were situated in the northeastern, southwestern, and western portions of the Proposed Action and Alternatives 1 and 2 areas (refer to Figure 3-10 and Figure 3-11 in Section 3.7 Special Status Plant and Wildlife Species). In addition to open habitats throughout the BLWP area and Gunnison’s prairie dog colonies that provide foraging opportunities for golden eagles, eagles may also feed upon animal carcasses that they find within the Proposed Action and Alternatives 1 and 2 areas.

3.8.1.2  Bald eagle

Bald eagles occur throughout North America and typically build stick nests in large trees or on cliffs near open water (lakes and rivers) to be close to their preferred food sources (fish and waterfowl). With the exception of the desert nesting population occurring in AZ, bald eagles are migratory and many individuals in northern latitudes fly south to overwinter. Juvenile bald eagles may also range widely during dispersal, though both wintering and juvenile bald eagles are still typically associated with breeding habitats (i.e., lakes and rivers). Additional information on the life history and status of the bald eagle, as well as known threats to the species, is included in the USFWS’s Programmatic EIS for the Eagle Rule Revision (USFWS 2016a) and Bald and Golden Eagles: Population demographics and estimation of sustainable take in the United States, 2016 update (USFWS 2016b).

Bald eagles have been observed in the Proposed Action area on three separate occasions during avian point count surveys: in January 2018, December 2018, and February 2019. Bald eagle use of the Proposed Action area is expected to be infrequent and sporadic, and more likely to occur outside of the breeding season (i.e., late August–February) when wintering birds from colder northern climates and dispersing juveniles are present in the region.
There is a general lack of bald eagle nesting habitat and limited foraging habitat for bald eagles in the area. Animal carcasses provide an intermittent source of carrion that could be utilized by bald eagles. The seasonally inundated playas that are present may, particularly in wet years, also provide temporary habitats where waterfowl or shorebirds could congregate and provide hunting opportunities for bald eagles. The nearest preferred foraging areas for bald eagles are Becker Lake (21 miles to the west), Quemado Lake (21 miles to the east), and Lyman Lake (28 miles to the northwest). There is marginal roosting habitat for bald eagles within the Proposed Action area due to the general lack of tall trees; there are young ponderosa pine trees interspersed with the pinyon-juniper and grassland habitat in the southern portions of the area, with larger trees found further to the south on the Gila National Forest.

### 3.8.2. Environmental Consequences

#### 3.8.2.1 Direct and Indirect Impacts of the Proposed Action

The Final Wind Energy PEIS (BLM 2005) identifies and discusses potential impacts on wildlife including eagles during construction activities (pp. 5-41 through 5-45), O&M (pp. 5-53 through 5-75), and decommissioning (p. 5-77) of a wind facility (e.g., habitat loss, degradation, and fragmentation; disturbance/displacement; collision with turbines, towers, and transmission lines). Potential impacts on bald and golden eagles from the Proposed Action including “take” are likely to occur from the construction, O&M, and decommissioning of the BLWP. Measures that have been developed to avoid and/or minimize adverse impacts on eagles are identified in Appendix B; additional measures would be identified in an Eagle Management Plan (which is not the same as an Eagle Conservation Plan that would be required by the USFWS as part of an application for a take permit) that will be included in the Final POD prior to publication of the Final EIS. These measures would include the ongoing removal of large mammal carcasses (e.g., dead cattle) and roadkills within the Proposed Action area to avoid attracting eagles. The BLWP-specific design features and BMPs would be incorporated into each phase of the project to minimize these potential impacts to the extent practicable. The various plans that would be implemented to address impacts on resources such as vegetation (e.g., Weed Management Plan, Integrated Reclamation Plan) and wildlife (e.g., Bird and Bat Conservation Strategy) would also help to reduce the potential impacts on eagles.

**Construction**

Construction of the BLWP would result in the loss, degradation, and fragmentation of golden eagle foraging habitat. Approximately 2.6 percent (1,131 acres) of the 43,528-acre Proposed Action area would be impacted by construction activities, which represents a localized, minor impact on golden eagle habitat. The disturbance footprint and location of various infrastructure (e.g., wind turbines, access roads, and collection lines) have been sited to minimize impacts on eagle use areas including the Luna Tank potential breeding area and within a 0.25-mile buffer around active Gunnison’s prairie dog colonies that are hunting grounds for golden eagles. Construction activities that occur in the vicinity of prairie dog colonies may prevent golden eagles from foraging in these areas. Given the number of prairie dog colonies in the Proposed Action area and the surrounding area, there would be a moderate direct impact on golden eagles from construction-related disturbance near foraging habitats.

Bald eagles are expected to occur infrequently and sporadically in the Proposed Action area given the lack of nesting and roosting habitat, and the limited foraging habitat that is present (i.e., seasonally inundated playas and incidental occurrence of carrion). While wintering and dispersing bald eagles can range widely, they generally focus their activities at lakes and along rivers where there is suitable prey. There would be a negligible loss of foraging habitat for bald eagles given that the BLWP area does not contain this species’ preferred foraging habitat.

Disturbance from human activities and noise during construction could alter the patterns of eagle use across the site, including the areas used for foraging, roosting, and nesting. The primary access road
(Bill Knight Gap Road) would be located approximately 3,500 feet from the Luna Tank nest. While this is greater than the 0.5-mile buffer distance that is typically recommended by the USFWS, disturbance to nesting golden eagles during construction activities or vehicle/equipment access along Bill Knight Gap Road could potentially occur. Disturbance from human activities and noise during construction would have a localized, short-term, minor to moderate impact on any bald eagles that may be present in the BLWP area during the construction phase, depending on the timing and season of construction.

Roadwork and vehicle use on the primary access road during construction could result in disturbance to nesting golden eagles and a decrease in productivity (i.e., the number of eagles that are fledged from the nest) or nest abandonment. Any reduction in golden eagle nest success resulting from the Proposed Action would be a localized and regional, short- and long-term, major impact on golden eagle populations.

**Operations and Maintenance**

There would be less on-site activity during the O&M phase of the BLWP than during construction. As a result, there would be less noise and visual disturbance to eagles from human activities (e.g., road maintenance), though potential impacts such as those identified for the construction phase could similarly occur during the O&M phase. Wind turbines have been sited outside of a 3.9-mile buffer around the Luna Tank nest to minimize impacts on nesting golden eagles.

Distribution lines and other project facilities would be designed to discourage their use as perching or nesting substrates. Overhead power lines would be constructed to Avian Power Line Interaction Committee standards to reduce the risk of electrocution and collisions. Bird flight diverters or high visibility marking devices would be installed on MET tower guy wires to reduce the potential for collisions with guy wires. These measures would reduce the potential risks to eagles, though the proposed project infrastructure would still pose an ongoing threat to eagles from collisions with distribution lines or MET tower guy wires over the life of the project.

The USFWS evaluated the risk of golden eagles colliding with rotors during operation of the BLWP based on two years of pre-construction data collected in the Proposed Action area. The results of the USFWS’s analysis indicate that a golden eagle fatality is predicted to occur at an annual rate of 0.261 eagles per year (with an 80 percent confidence level based on statistical analysis). The USFWS predicted there would be a cumulative take of two golden eagles over a five-year period. The potential threat to eagles from collisions with wind turbines at the BLWP would exist during the anticipated 35-year life of the project. The USFWS typically re-evaluates the potential for take every 5 years based on post-construction monitoring data and documented fatalities, so an assessment of eagle take for the 35-year life of the project is not currently available. Mortality of golden eagles that may result from the Proposed Action would constitute localized and regional, short- and long-term, major impacts on golden eagle populations.

As previously mentioned, bald eagles are expected to occur infrequently and sporadically in the BLWP area, and noise and visual disturbance resulting from human activities and turbine operation during the O&M phase may cause bald eagles to avoid the Proposed Action area. Animal carcasses that could potentially attract bald eagles would be subject to ongoing removal under the Proposed Action, per the Draft Eagle Management Plan (Borderlands Wind, LLC 2020), which would reduce the likelihood of bald eagles foraging in the Proposed Action area. For these reasons, take of bald eagles at the BLWP is considered less likely to occur than take of golden eagles. However, the USFWS does not have sufficient data in the form of onsite bald eagle observations for the Proposed Action area, and as a result, it is currently not possible to generate a fatality estimate for bald eagles. Mortality of bald eagles that may result from the Proposed Action would constitute localized and regional, short- and long-term, major impacts on bald eagle populations.
Decommissioning
The extent of noise and visual disturbance to eagles during decommissioning of the BLWP would be similar to the construction phase and there would likely be impacts on patterns of eagle use established during the O&M phase, such as the areas used for foraging, roosting, or nesting. As the various aboveground infrastructure across the site is removed and disturbed areas are rehabilitated and restored over time, there would likely be an increase in prey species (e.g., prairie dogs) that is commensurate to the loss experienced during construction of the BLWP.

The project BMPs and other design features, and the stipulations that would be included in the BLM ROW authorization would minimize the potential short- and long-term impacts on eagles. However, the Proposed Action is still anticipated to result in both short- and long-term, direct and indirect, major local and regional impacts on bald and golden eagles.

Bald and Golden Eagle Protection Act (Eagle Act)
The USFWS has determined that the take of eagles is likely to occur under the Proposed Action. The annual golden eagle fatality estimate (0.261 eagles per year) is equivalent to 0.78 percent of the estimated local area population of 396 golden eagles. A fatality estimate for bald eagles is not possible at this time due to the lack of sufficient data; however, take of bald eagles under the Proposed Action is considered less likely to occur than take of golden eagles. Based on the USFWS determination, the Proposed Action is considered a Category 2 project under the USFWS’s Eagle Conservation Plan Guidance, indicating that there is a high or moderate risk to eagles with the opportunity to avoid or mitigate impacts. This is due to: 1) the presence of important eagle use areas, and 2) an annual fatality estimate between 0.03 percent and 5 percent of the estimated local area population size.

Based on the Proponent’s decision not to seek an incidental take permit, the BLM would follow “Option 2” as identified in BLM’s IM 2017-040. According to the general ROW stipulations identified in BLM’s IM 2017-040, after the USFWS has determined that take of eagles at a project is likely to occur (according to the methodology outlined in the Eagle Conservation Plan Guidance [USFWS 2013a] and the Final Eagle Rule [USFWS 2016c]), the BLM would include stipulations in the ROW grant requiring the grant holder to monitor its project regularly for eagle fatalities using USFWS-approved standards throughout the life of the grant. The USFWS has recommended post-construction mortality monitoring during the first two years of operation and, depending on the results from the first two years of monitoring, one year of monitoring at least every five years. Operational eagle mortality monitoring (i.e., monitoring that is conducted by project personnel) would be required for the duration of the project. These stipulations would be incorporated in the ROW grant, regardless of whether the ROW applicant elects to apply for a take permit (see Appendix B for more details on monitoring requirements).

According to the ROW stipulation under Option 2, the ROW grant would also specify that, if an eagle is taken without a take permit, the Proponent would be required to immediately notify the BLM and the USFWS. After consultation with the BLM and the USFWS, the Proponent would implement reasonable specific actions to avoid further unpermitted take of eagles. Any take of bald or golden eagles resulting from the Proposed Action may result in enforcement actions by the USFWS.

Additional Measures to Avoid and/or Minimize Impacts
The Proponent included a commitment in their Draft Eagle Management Plan to provide voluntary compensatory mitigation to offset the anticipated impacts on eagles. The voluntary compensatory mitigation that was initially proposed by the Proponent consisted of $165,000 in funding that would be contributed to the National Fish and Wildlife Foundation’s Eagle Mitigation Account or to a mitigation banking or in-lieu fee credit program. However, this funding amount has not been updated following the receipt of additional information on turbine specifications that lowered the anticipated take of golden eagles from 0.44 eagles per year to 0.261 eagles per year, according to the USFWS. As a result of the
decrease in anticipated take of eagles, the funding amount that would be provided by the Proponent if the Proposed Action Alternative were to be selected and approved would likely be reduced from the $165,000 that was initially proposed.

The BLWP would not be permitted for the take of eagles under an incidental take permit, so the process for ongoing re-evaluation of eagle take and adjustment of the compensatory mitigation that is needed to achieve no net loss of eagles would not be available to the BLM. It is therefore uncertain whether the amount of funding that is provided for voluntary compensatory mitigation by the Proponent would be sufficient to result in no net loss of eagles.

3.8.2.2 Direct and Indirect Impacts of Alternatives 1 and 2

The impacts of Alternatives 1 and 2 on bald and golden eagles would be similar to the Proposed Action. The wind turbines that are proposed for the BLWP under Alternative 2 would have larger rotor diameters (381 to 459 feet) compared to the Proposed Action and Alternative 1 (380 to 381 feet), resulting in a larger rotor swept area for each turbine; however, there would be fewer turbines constructed under Alternative 2 (34 turbines) compared to the Proposed Action and Alternative 1 (40 turbines). Shifting the number/locations of wind turbines or other project infrastructure within the Alternatives 1 and 2 area as proposed would not substantially add to or reduce the potential impacts on bald or golden eagles from construction, O&M, or decommissioning of the BLWP as compared to the Proposed Action. For example, the results of the USFWS’s analysis of Alternative 2 indicate that a golden eagle fatality is predicted to occur at an annual rate of 0.313 eagles per year and a predicted cumulative “take” of two golden eagles over a five year period, compared to an annual fatality rate of 0.261 eagles per year and cumulative take of two golden eagles over five years under the Proposed Action and Alternative 1.

Additional Measures to Avoid and/or Minimize Impacts

The measures that would be implemented to avoid and/or minimize impacts on eagles under Alternatives 1 and 2 would be similar to the proposed action; however, under Alternative 2 the funding amount for the voluntary compensatory mitigation that is currently proposed by the Proponent in their Draft Eagle Management Plan would total $120,000.

3.8.2.3 Direct and Indirect Impacts of the No Action Alternative

Under the No Action Alternative, the BLWP would not be constructed, and there would be no additional impacts on bald and golden eagles beyond those associated with the current uses of the BLWP area. Existing impacts on bald and golden eagles within the BLWP area are primarily associated with transmission lines and structures that pose risks to eagles (i.e., potential for collisions or electrocution) and low levels of human activity (e.g., ranching, hunting, vehicle/OHV use) that may result in minor noise and visual disturbance to eagles.

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7 For wind energy projects that are permitted for the take of eagles under an incidental take permit that is issued by the USFWS, the USFWS ensures that authorized activities ultimately result in “no net loss” of eagles by requiring compensatory mitigation that either reduces another form of mortality to a level equal to or greater than the unavoidable mortality, or leads to an increase in carrying capacity and/or productivity that allows the eagle population to grow by an equal or greater amount. For permitted projects with 30-year incidental take permits, the USFWS re-evaluates take at the project every five years over the course of a 30-year permit, and authorization may be amended based on the five-year reviews. Compensatory mitigation is not calculated over 30 years from the initial pre-construction fatality estimate as post-construction monitoring data and documented fatalities are used to inform the fatality estimate. A permit review is conducted every five years and, based on estimated actual take during the preceding five years, the USFWS may adjust predicted take for the next five-year period. Once the five-year review is complete, the USFWS may also adjust compensatory mitigation requirements.
3.9 Visual Resources

The term “visual resources” refers to the composite of basic terrain, geologic, and hydrologic features; vegetative patterns; and built features that influence the visual appeal of a landscape. Visual impacts are defined as the change to the visual environment resulting from the introduction of modifications to the landscape. This section describes the existing context of the visual environment and assesses the potential impacts from the Proposed Action, Alternatives 1 and 2, and the No Action Alternative within the visual resource impact analysis area, which includes the area within 30 miles of the Proposed Action area, including Alternatives 1 and 2 area, but excluding the National Forest system lands.

3.9.1. Affected Environment

The visual resource impact analysis area lies within the southeastern portion of the Colorado Plateau physiographic province (U.S. EPA 2010). The Colorado Plateau consists of an uplifted, eroded, and deeply dissected tableland. Its benches, mesas, buttes, salt valleys, cliffs, and canyons are formed in and underlain by thick layers of sedimentary rock. Precipitous sidewalls mark abrupt changes in local relief, often of 1,000 to 2,000 feet or more. The region is dominated by a mix of pinyon-juniper and grasslands.

The BLM uses the VRM System to classify and manage visual resources on lands under its jurisdiction. The VRM System involves inventorying scenic values, establishing management objectives for those values through the resource management planning process, and then evaluating proposed activities to determine whether they conform to the management objectives (BLM 1984). The BLM’s VRM System incorporates scenic quality, viewer sensitivity, and visual distance zones to identify overall visual resource inventory (VRI) classes. These classes (I, II, III, and IV) represent the relative value of the existing visual landscape, as well as the visual resource baseline from which to measure impacts that a proposed project may have on these values. A VRI is not currently available for the SFO. To effectively evaluate impacts to scenic values within the area, a project-level VRI was conducted in June 2018 within a 30-mile distance of the BLWP within the SFO covering approximately 656,731 acres. The VRI area was defined as the area of visibility up to 30 miles from the location of BLWP wind turbines. This area was determined following research conducted by Argonne National Laboratory and the results found within Wind Turbine Visibility and Visual Impact Threshold Distances in Western Landscapes (Sullivan, R., et al. 2012).

The scenic quality of the VRI area regardless of jurisdiction/ownership was inventoried as part of the VRI. Each scenic quality rating unit received a rating that relates to its inherent aesthetic value based on the key factors of landform, vegetation, water, color, adjacent scenery, scarcity, and cultural modifications, which are used to evaluate the scenic quality of a landscape. Within the VRI area, 212,558 acres were evaluated as Scenic Quality B and 444,172 acres as Scenic Quality C. Mapping related to scenic quality is located in Appendix F.

Visual sensitivity reflects attitudes and perceptions held by people regarding the landscape and, in general, reflect the public’s level of sensitivity for noticeable change to the landscape. Visual sensitivity levels for the VRI area ranged from high to low. High levels of sensitivity, located within approximately

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8Scenic or visual quality is the visual appeal of a landscape. The landscape is measured in terms of its distinctiveness (or memorability), scarcity, and variety of the landform, vegetation, water, color, adjacent scenery, and man-made features and how well these features fit together. The relative scenic quality (A, B, or C) is assigned to a landscape by rating the scenic quality evaluation key factors of landform, vegetation, water, color, adjacent scenery, scarcity, and cultural modifications on a numerical scale. Landscapes considered to have the highest scenic value have a scenic quality rating of A; those with a rating of C are considered to be more common, less distinct landscape (BLM 1986b).
225,027 acres, are located along major roadways such as U.S. 60 and the co-aligned Magdalena Stock Driveway, as well as populated areas such as Quemado where the public views the landscape consistently and has concern for the preservation of the existing scenic quality. Moderate areas of sensitivity to change in scenic quality, located within approximately 361,034 acres, occur north of U.S. 60 in more remote and less populated areas where modifications to the landscape occur and changes in scenic quality are not as high of concern. Low areas of sensitivity, located within approximately 70,670 acres, are located south of U.S. 60 adjacent to Gila National Forest in remote areas where changes in scenic quality are not perceived by the public due to limited access. Mapping related to visual sensitivity is located in Appendix F.

The analysis of distance zones as part of the VRI considers the distance from which areas are commonly viewed (viewing platforms). The VRI area is subdivided into three distance zones: foreground-middleground (FM), background (BG), and seldom seen (SS) per BLM M-8400, based on viewing platform selections and Geographic Information System (GIS) modeling. Within the VRI area, approximately 314,673 acres occur within the FM distance zone, primarily along major roadways and communities, 71,470 acres occur in the BG distance zone, and 270,588 acres occur in the SS zone. Mapping related to visual distance zones is located in Appendix F.

Within the VRI area, 63,377 acres are classified as VRI Class I (10 percent of the VRI area), 34,762 acres (5 percent of the VRI area) as VRI Class II; 189,084 acres (29 percent of the VRI area) as Class III; and 369,508 acres (56 percent of the VRI area) as VRI Class IV. Approximately 21,930 acres (50 percent) occurs on VRI Class III and 21,598 acres (50 percent) occurs on VRI Class IV within the Proposed Action area (43,528 acres). Within the Alternatives 1 and 2 area (16,648 acres), approximately 3,978 acres (24 percent) occurs on VRI Class III and 12,669 acres (76 percent) occurs on VRI Class IV. Mapping related to VRI Classes is located in Appendix F.

In its planning process, the BLM weighs visual and competing resource values to allocate the VRM classes with associated management class objectives for a given area’s visual setting. The SFO RMP identifies approximately 28,533 acres (2 percent of the total SFO acreage) to be managed as VRM Class I and 520,024 acres (36 percent of the total SFO acreage) to be managed as VRM Class II. The remainder of the SFO is to be managed as VRM Class III (448,910 acres/28 percent) and Class IV (509,432 acres/34 percent) (BLM 2010a).

There are 30,338 acres and 13,859 acres of lands administered by the BLM within the Proposed Action and Alternatives 1 and 2 areas, respectively. Within the Proposed Action area, approximately 2,044 acres (7 percent) occur on lands managed as VRM Class II; 15,026 acres (50 percent) occur on VRM Class III; and 13,267 acres (44 percent) occur on VRM Class IV. Within the Alternatives 1 and 2 area, approximately 167 acres (1 percent) occur on lands managed as VRM Class II; 4,752 acres (34 percent) occur on VRM Class III; and 8,939 acres (65 percent) occur on VRM Class IV. Figure 3-12 and Figure 3-13 show the VRM classes allocated by the SFO within the Proposed Action and Alternatives 1 and 2 areas, respectively.

The existing landscape character and condition of the visual resource impact analysis area are identified in terms of general landforms, vegetation, built features, and land use by visual analysis units (VAUs). The VAU delineations, similar to Scenic Quality Rating Units, are based on areas with common landform patterns and features, vegetation communities and patterns, built features, land use patterns, scarcity, and/or surface water resources in relation to the Colorado Plateau Ecoregion. Two VAUs were delineated within the Proposed Action and Alternatives 1 and 2 areas (Figure 3-14 and Figure 3-15, respectively). Detailed description of the VAUs are provided in Appendix F.
Key sensitive viewing platforms or key observation points (KOPs) were selected within and adjacent to the Proposed Action and Alternatives 1 and 2 areas (Figure 3-16 and Figure 3-17, respectively) that represent viewing locations where the public would view the proposed BLWP both from a stationary (e.g., scenic overlook or residential area) or a linear (e.g., highway or trail) location. The KOPs that were selected include the Cimarron Ranch Subdivision, U.S. 60, Bill Knight Gap Road, Coronado Trail National Scenic Byway, and Zuni Salt Lake Proprietary ACEC. Table 3-20 provides the rationale and type of each viewing platform. For linear platforms such as U.S. 60, the entire length of the route within the visual resource impact analysis area was evaluated, not just from a single viewing location. In addition, the Pueblo of Zuni have provided the BLM with two stationary locations that are used on their pilgrimage route to the Zuni Salt Lake. These locations are considered sensitive and are not shown on the figures in this EIS.

Table 3-20. Sensitive Viewing Platform Selection Rationale

<table>
<thead>
<tr>
<th>Sensitive Viewing Platform</th>
<th>Platform Type</th>
<th>Rationale for Platform Selection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cimarron Ranch Subdivision</td>
<td>Stationary</td>
<td>The Cimarron Ranch Subdivision sensitive viewing platform was selected due to the number of residences and potential views from residences. The platform is located approximately 4.5 miles north of the nearest visible turbine.</td>
</tr>
<tr>
<td>Zuni Salt Lake Proprietary ACEC</td>
<td>Stationary</td>
<td>The Zuni Salt Lake Proprietary ACEC sensitive viewing platform was selected due to the cultural importance of this location to Native American Tribes in the area. The stationary platform is located approximately 21 miles north of the nearest visible turbine at the top of the landform surrounding the Zuni Salt Lake; the BLWP would not be visible from the water body itself.</td>
</tr>
<tr>
<td>U.S. 60</td>
<td>Linear</td>
<td>The U.S. 60 sensitive viewing platform was selected due to the large amount of vehicular traffic associated with this highway. This platform also has some historical significance and is identified as the Ocean to Ocean Highway as well as an alignment associated with the Magdalena Stock Driveway(^1). The platform is located approximately 2.5 miles north of the nearest visible turbines and intersects project infrastructure (transmission lines).</td>
</tr>
<tr>
<td>Bill Knight Gap Road</td>
<td>Linear</td>
<td>Bill Knight Gap Road is a north-south connector route between U.S. 60 and Luna, NM. This linear platform parallels and is adjacent to the turbines proposed along the east side of the alternatives.</td>
</tr>
<tr>
<td>Coronado Trail National Scenic Byway/U.S. 191</td>
<td>Linear</td>
<td>The Coronado Trail National Scenic Byway (U.S. 191) is located approximately 16 miles from the nearest visible wind turbines. The angle of observation from this platform would be predominately head-on views and viewer position would be predominately neutral.</td>
</tr>
</tbody>
</table>

Table Abbreviations: ACEC = Area of Critical Environmental Concern; NM = New Mexico

\(^1\) The Magdalena Stock Driveway was a 125-mile long corridor that was used for movement of cattle and sheep to Magdalena, New Mexico for shipping in the late 1800’s until the 1970’s and is of historical importance in the region.
Figure 3-12. VRM Classes within the Proposed Action Area
Figure 3-13. VRM Classes within Alternatives 1 and 2 Area
Figure 3-14. Visual Analysis Units within the Proposed Action Area
Figure 3-15. Visual Analysis Units within Alternatives 1 and 2 Area
Figure 3-16. Key Observation Point Locations for the Proposed Action
Figure 3-17. Key Observation Point Locations for Alternatives 1 and 2
3.9.2. Environmental Consequences

An analysis of visual dominance, scale, and contrast was used to determine the degree that the Proposed Action and Alternatives 1 and 2 would attract attention and to assess the relative change in character as compared to the existing characteristic landscape and its inherent scenic quality. The amount of visual contrast created is directly related to the amount of attention that is drawn to a feature in the landscape. Changes in the viewsheds from sensitive viewing locations were also evaluated and characterized. In addition, the analysis of visual impacts was used in the determination of compliance with the BLM’s VRM objectives where the Proposed Action and Alternatives 1 and 2 would be located within BLM-administered lands. The potential impact to the Coronado Trail National Scenic Byway, Zuni Salt Lake Proprietary ACEC (including the two pilgrimage route locations), and the Cerro Pomo ACEC are also addressed in this section.

3.9.2.1 Direct and Indirect Impacts from the Proposed Action

Construction

Under the Proposed Action, the existing visual character and scenic quality would be affected during construction by the generation of fugitive dust; movement of equipment and vehicles in and out of the Proposed Action area; and the presence of construction cranes, transmission line stringing, and material stockpiles. The construction activities would introduce forms, lines, colors, and textures that would temporarily attract attention and create strong contrast with the existing setting. Removal of vegetation would expose lighter-color soils in the cleared areas for laydown/staging, underground electrical collection system trenches, distribution poles, new access roads, and turbine towers.

The construction-related impacts would range from a minor to moderate degree of change in the characteristic landscape in the foreground area of three of the KOPs (U.S. 60, Bill Knight Gap Road, and Cimarron Ranch Subdivision) depending on the viewing distance, type of construction activity taking place, and time of day. There would be no apparent change in the middleground from these viewing platforms or from the Coronado Trail National Scenic Byway KOP because of the open and irregular vegetation pattern in the landscape and because much of the ground disturbance from the construction of the BLWP would not be readily apparent at that distance. The construction activities would also be less noticeable in the middleground because of the presence of other cultural modifications and areas of disturbance such as the existing network of unpaved roads. Therefore, there would be short-term, moderate impacts on visual resources resulting from construction activities.

Operation and Maintenance

The magnitude of change to the landscape character and scenic quality within the foreground of the Proposed Action area would introduce numerous elements not currently common in the Proposed Action area. The proposed substation, security fencing, and O&M building would appear to substantially alter the landscape and be visually prominent. The large stature of the 499-foot-tall wind turbines, the white color of the towers, and the movement of the blades would attract attention, create a severe

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9 To analyze and mitigate potential visual impacts associated with proposed activities, the BLM uses guidelines described in BLM Handbook H-8431-1, Visual Resource Contrast Rating (BLM 1986). The degrees of contrast determined from selected KOPs or places where users tend to congregate, are categorized in a range including none, weak, moderate, or strong—where strong indicates a proposed activity will create contrast that demands attention, will not be overlooked, and is dominant in the landscape. Factors to be considered when applying the contrast criteria include distance, angle of observation, length of time the proposed project is in view, relative size or scale, season of use, light conditions, recovery time, spatial relationships, atmospheric conditions, and motion.

10 The foreground distance zone is defined as the area up to 10 miles from the BLWP wind turbines or the KOPs, the middleground distance zone is the area from 10 miles to 20 miles away, and the background is considered to be from 20 to 30 miles away.
change in the landscape character, and result in a strong visual contrast within the foreground of the Proposed Action area. The overhead transmission and collection lines and access roads would be similar to existing features already present within the foreground area and would most likely not attract attention. Within the middleground and background of the Proposed Action area, the magnitude of change to the existing landscape character and scenic quality would vary depending on the distance, scale, and distinctiveness of landforms, which would affect the prominence of the Proposed Action components not common within the landscape.

Effects on Existing Scenic Quality and Landscape Character
Within the Proposed Action area, there are no lands that are considered as scenic quality A or B landscapes. There would be approximately 43,528 acres of scenic quality C landscapes within the Proposed Action area that would be impacted by the Proposed Action due to the influence of project components within the landscape that would reduce the overall scenic quality rating associated with cultural modification for the two VAUs located within the Proposed Action area. The magnitude of change in landscape character associated with the Proposed Action would be major due to the dominant scale and form of the wind turbines in comparison to the undulating and sloping landforms, low stature vegetation, and minimal built features found in the existing landscape.

The improvements to existing access roads and the construction of new access roads within the Proposed Action area could create opportunities for people to access previously inaccessible areas of BLM lands. This could result in trampling vegetation and additional resource damage (such as increased erosion), which may indirectly affect scenic quality in these areas. New access roads could also potentially provide scenic viewing opportunities not currently available to the public. Therefore, there would be long-term, major impacts on the existing scenic quality and landscape character resulting from operation and maintenance activities.

Effects on Cimarron Ranch Subdivision KOP
All 46 of the potential wind turbine locations would be visible from the Cimarron Ranch Subdivision KOP, which is approximately 4.5 miles from the nearest turbine location. The potential magnitude of impacts to the views from the KOP would vary depending primarily on the distance from the Proposed Action and the visibility conditions. The wind turbines associated with the Proposed Action would demand attention and dominate the landscape in the foreground of the Cimarron Ranch Subdivision KOP. The landscape from this viewpoint would appear to be severely altered because of the dominance of the wind turbine structures in scale, color, line, texture, and form, as well as the motion of the turbine blades, which would create strong contrast in the setting. Therefore, there would be long-term, major impacts on the views from the Cimarron Ranch Subdivision KOP resulting operation and maintenance activities.

Effects on U.S. 60, Bill Knight Gap Road, and Coronado Trail National Scenic Byway
Of the three linear viewing platforms, only U.S. 60 and Bill Knight Gap Road would have foreground views of the Proposed Action. Views of project components from these platforms would predominately be skylined and occasionally backdropped based on viewer perspective.

Within the foreground and middleground distance zones of U.S. 60, all 46 potential Proposed Action wind turbine locations would be visible from the highway. Eastbound motorists on U.S. 60 would have views of the turbines in the foreground of the Proposed Action area for approximately 15 miles of the 67 miles (22 percent of the time) within the visual resource impact analysis area. Westbound motorists on U.S. 60 would see the wind turbines in the foreground of the highway for approximately 16 miles of the 67 miles (24 percent of the time) within the Proposed Action area. Within the middleground views from U.S. 60, the proposed turbines would be equally skylined and seen with a backdrop against mountainous terrain. From this distance, the components of the Proposed Action would be visible by motorists when traveling in either the eastbound or westbound direction for less than 4 miles of the
67 miles (6 percent of the time) within the visual resource impacts analysis area. Within the background distance zone, 14 of the Proposed Action wind turbine locations would be visible. The Proposed Action would be visible to motorists for 2 miles out of a total of 67.0 miles (3 percent of the time) within the analysis area in the eastbound direction. The components of the Proposed Action would not be visible within the background distance zone traveling in the westbound direction. Therefore, there would be long-term, major impacts on views from U.S. 60 resulting from operation and maintenance activities.

Along Bill Knight Gap Road within the foreground distance zone, 42 of the possible 46 Proposed Action wind turbine locations would be visible in either direction for the entire approximately 10.6 miles (100 percent) within the analysis area. Along one portion of Bill Knight Gap Road, the proposed turbines would be within approximately 850 feet of the road. The Bill Knight Gap Road viewing platform does not occur within the middleground or background area. Therefore, there would be long-term, major impacts on views from Bill Knight Gap Road KOP resulting from operation and maintenance activities.

From the U.S. 191 segment of the Coronado Trail National Scenic Byway, motorists would have middleground views of the Proposed Action; there would be no foreground or background views. Of the possible 46 Proposed Action wind turbine locations, 43 turbine locations would be visible from the scenic byway only in the southbound travel direction. Views of the proposed wind turbines from the scenic byway would be equally skylined and seen with a backdrop against mountainous terrain. The duration of view of the Proposed Action from the middleground of the scenic byway would be approximately 0.4 miles of the 36.6 miles of roadway (less than 1 percent of the time) within the visual resource impact analysis area. The Proposed Action as viewed from the middleground of the Coronado Trail National Scenic Byway would create weak contrast in form, color, line, and texture in the characteristic landscape and may attract attention depending on the time of day and atmospheric conditions. Therefore, there would be long-term, minor impacts on views form the Coronado Trail National Scenic Byway KOP resulting from operation and maintenance activities.

**Effects on Zuni Salt Lake and Cerro Pomo ACECs**

The Proposed Action would be visible in the background (approximately 21 miles away) of the Zuni Salt Lake Proprietary ACEC KOP. Twenty-six of the Proposed Action wind turbine locations would be visible from the Zuni Salt Lake Proprietary ACEC KOP. Views of the Proposed Action from this stationary KOP would be predominantly of the blades of the wind turbines; the remainder of the turbine structure would be obstructed from view by landforms. The proposed wind turbines would be visually subordinate and overall the project components would create low contrast due to the distance and variable atmospheric conditions. The casual observer would not likely notice the turbines on the horizon from this viewing platform because of the expansive views and variety of the landforms in the landscape. The amount of exposure of the Proposed Action from this KOP would be span approximately 15 degrees along the horizon. Visual magnification such as binoculars at this distance may be needed to pick out the turbines against the sky. Therefore, there would be long-term, negligible impacts on views from the Zuni Salt Lake Proprietary ACEC KOP resulting from operation and maintenance activities.

One of the two locations on the pilgrimage route is approximately 9 miles north of the Zuni Salt Lake Proprietary ACEC KOP and 30 miles from the closest wind turbine in the Proposed Action. At this location, the view would be approximately 800 feet higher in elevation than the Zuni Salt Lake Proprietary ACEC KOP and all 46 wind turbine locations would be visible. Only a portion of the blades of the turbines would be visible; the rest of the turbine would be obstructed from view by landforms. The wind turbines would be visually subordinate, and overall, the project components would create low contrast due to distance from the Proposed Action and variable atmospheric conditions. A person at this distance from the Proposed Action would not likely notice the turbines because of the expansive views and variety of the landforms in the landscape. The casual observer may need the aid of binoculars or some other magnification at this distance to pick out the turbines against the sky. The second
location along the pilgrimage route is approximately 1 mile south of the Zuni Salt Lake Proprietary ACEC KOP. The Proposed Action would not be visible from this location because of intervening landforms and an inferior viewer position. Therefore, there would be long-term, negligible impacts on views from the pilgrimage route resulting from operation and maintenance activities.

Visitors at the Cerro Pomo ACEC would have foreground and middleground views of the Proposed Action that would be intermittent and predominately seen with a backdrop against mountainous terrain. Views of the Proposed Action in the foreground would attract attention and create moderate contrast within the viewshed due to the form, line, color, texture, and scale of the turbines that are not characteristic of the landscape. Similar to other middleground views, the Proposed Action would create weak contrast in form, color, line, and texture in the characteristic landscape and may attract attention depending on the time of day and atmospheric conditions. Approximately 16 percent of the ACEC would have views of the Proposed Action in the foreground area and 3 percent would have views in the middleground area. Therefore, there would be long-term, minor impacts on views from within the Cerro Pomo ACEC resulting from operation and maintenance activities.

Effect on Night Skies - Aircraft Detection Lighting Systems
To avoid collisions with aircraft, the proposed turbines must be lighted at night. Night-sky contrasts can be substantial in rural, undeveloped areas such as the BLWP area because there are few other light sources and there is uniform and generally featureless dark background. The lights may be visible for more than 20 miles depending on atmospheric conditions (Sullivan, et.al. 2012, NPS 2014). The synchronized flashing of the Aircraft Detection Lighting Systems (ADLS) as proposed in the BLWP POD (Borderlands Wind, LLC 2020) when activated would result in strong, short-duration contrast on the surrounding landscape until the aircraft leaves the airspace.

Military aircraft conducting training missions within designated flight corridors in the vicinity of the wind turbines may activate the ADLS. Specific Military Training Routes known as VRs are conducted between 100 feet and 1,500 feet above ground level with flight corridors in this area which falls within the 1,000-foot ADLS trigger area. The number of Commercial air traffic passing over the BLWP area (not landing at local airports) would not activate the ADLS because they travel at elevations greater than 1,000 feet. There are four regional airports within approximately 30 miles of the BLWP area. Based on flight statistics obtained from those four regional airports, it is estimated there may be 55 flights that would occur in the BLWP area within a 24-hour period. It is unknown how many of the estimated 55 flights would occur during nighttime hours or fly at altitudes at or below 1,500 feet (height of the turbine and 1,000-foot trigger area). An airplane could trigger the ADLS on for approximately 4.5 minutes based on a speed of 180 miles per hour (single engine, general aviation aircraft) (Davisson 2016). Single engine aircrafts would typically cruise above 1,000 feet and would only enter into the 1,000-foot ADLS trigger area when they are landing or taking off. The closest regional airport is approximately 12 miles away with an average of two flights a month. A single engine, general aviation plane would approach or depart from an airport at a 10:1 glide slope gradient and would fly at an elevation between 1,000 and 1,500 feet approximately 2.5 miles away from the airport (Schiff 2011). At this distance from the BLWP area, it is unlikely that planes using the regional airport would trigger the ADLS.

The short duration synchronized flashing of the ADLS when activated by aircraft entering the airspace and approximately 30 seconds after leaving the airspace would have substantially less visual impacts at night than the standard continuous, medium-intensity red strobe light aircraft warning systems due to the short duration of activation. Therefore, there would be long-term, negligible to minor impacts on night skies resulting from operation and maintenance activities associated with the ADLS.

Effect on Night Skies - Continuous Flashing Red Aviation Obstruction Warning Lights
To avoid collisions with aircraft, the proposed turbines must be lighted at night. Continuously flashing red lights would be necessary if the use of the ADLS is not be approved for use by the FAA. Aerial
hazard navigation lighting that would be placed on top of proposed turbines would directly impact the
natural lightscape and dark night skies in the foreground and middleground. Night-sky contrasts can be
substantial in rural, undeveloped areas such as the BLWP area because there are few other light
sources and there is uniform and generally featureless dark background. While not every turbine would
have lights, the lighted turbines would flash on and off at the same time. The lights can be visible for
more than 20 miles (Sullivan, et.al. 2012, National Park Service 2014). Synchronized flashing of the red
aviation obstruction warning lights and the extent of the red aviation obstruction warning lights at night
would result in strong contrast in the landscape for motorist along U.S. 60 and Bill Knight Gap Road and
for views from the Cimarron Ranch Subdivision.

Decommissioning
The potential impacts associated with the decommissioning process would be similar to the
construction-related effects for the Proposed Action. The Proposed Action area’s scenic quality and
landscape character would be affected by the generation of fugitive dust, movement of equipment and
vehicles in and out of the BLWP area, and presence of construction cranes removing the turbine towers.
The decommissioning activities would introduce forms, lines, colors, and textures that would
temporarily attract attention and strongly contrast with the existing setting. In addition, the
decommissioning activities would create a subtle degree of change in the characteristic landscape in
the foreground area of the U.S. 60, Bill Knight Gap Road, and Cimarron Ranch Subdivision KOPs. There
would be no apparent change in the middleground view of the KOPs because of the partial obstruction
of the proposed project components by landforms, as well as much of the decommissioning activities,
such as removal of the substation and O&M building, would not be readily apparent at that distance.
Therefore, there would be short-term, moderate to strong impacts to scenic quality and landscape
color resulting from decommissioning activities.

3.9.2.2 Proposed Action Conformance with BLM VRM Objectives
The BLM has developed measurable standards for managing the visual resources of its administered
lands. As previously noted, VRM classes with established objectives have been identified for the BLWP
area’s visual resources as part of the RMP process. Based on the contrast rating evaluation
(BLM 1986b) conducted for this analysis, the magnitude of impact determined whether or not the
Proposed Action would be in conformance with the established objectives (Table 3-21). The contrast
rating and environmental factors worksheets for each KOP assessing BLM-administered lands are
included in Appendix F, along with photorealistic simulations.

Table 3-21. BLM Visual Resource Management Class Objectives

<table>
<thead>
<tr>
<th>VRM Class</th>
<th>Management Objective</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>The objective of this class is to preserve the existing character of the landscape. This class provides for natural ecological changes; however, it does not preclude very limited management activity. The level of change to the characteristic landscape should be very low and must not attract attention.</td>
</tr>
<tr>
<td>II</td>
<td>The objective of this class is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.</td>
</tr>
<tr>
<td>III</td>
<td>The objective of this class is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be no more than moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.</td>
</tr>
</tbody>
</table>
The objective of this class is to provide for management activities that require major modifications of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements.

Table Abbreviations: BLM = Bureau of Land Management; VRM = Visual Resource Management

The Proposed Action would create weak contrast in VRM Class II areas when viewed from U.S. 60 and Bill Knight Gap Road KOPs and would meet VRM Class II objectives from those locations. There would be no perceived contrast associated with the Proposed Action from the Cimarron Ranch and Coronado Trail Scenic Byway KOPs.

As noted above, the Proposed Action would attract attention, create a severe change in the landscape character, and result in a strong visual contrast within the foreground area of the U.S. 60, Cimarron Ranch Subdivision, and the Bill Knight Gap Road KOPs. Therefore, the Proposed Action would not be in conformance with the VRM Class III management objectives (Table 3-22). Because the Proposed Action would not meet the VRM Class III objective as allocated in the SFO RMP, a land use plan amendment would be required. The Proposed Action would create weak contrast when viewed from the Coronado Trail Scenic Byway and would meet VRM Class III objectives from this KOP.

The Proposed Action would create strong contrast in VRM Class IV areas when viewed from the Cimarron Ranch, U.S. 60, and Bill Knight Gap Road KOPs and would meet VRM Class IV objectives from those locations. There would be weak contrast associated with the Proposed Action from the Coronado Trail Scenic Byway KOP.

The landscape of the Proposed Action area would not be visible from the Zuni Salt Lake Proprietary ACEC KOP; only a portion of the blade of the turbines would be visible, and as such, conformance with VRM is not applicable for that KOP.

Table 3-22. BLM Conformance by KOP for the Proposed Action

<table>
<thead>
<tr>
<th>KOP</th>
<th>VRM Class</th>
<th>BLM Acres Visible</th>
<th>Contrast Rating</th>
<th>Conformance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cimarron Ranch Subdivision</td>
<td>II</td>
<td>16</td>
<td>None</td>
<td>Meets</td>
</tr>
<tr>
<td></td>
<td>III</td>
<td>2,363</td>
<td>Strong</td>
<td>Does Not Meet</td>
</tr>
<tr>
<td></td>
<td>IV</td>
<td>23</td>
<td>Strong</td>
<td>Meets</td>
</tr>
<tr>
<td>U.S. 60</td>
<td>II</td>
<td>2,908</td>
<td>Weak</td>
<td>Meets</td>
</tr>
<tr>
<td></td>
<td>III</td>
<td>13,876</td>
<td>Strong</td>
<td>Does Not Meet</td>
</tr>
<tr>
<td></td>
<td>IV</td>
<td>6,257</td>
<td>Strong</td>
<td>Meets</td>
</tr>
<tr>
<td>Bill Knight Gap Road</td>
<td>II</td>
<td>525</td>
<td>Weak</td>
<td>Meets</td>
</tr>
<tr>
<td></td>
<td>III</td>
<td>4,484</td>
<td>Strong</td>
<td>Does Not Meet</td>
</tr>
<tr>
<td></td>
<td>IV</td>
<td>4,508</td>
<td>Strong</td>
<td>Meets</td>
</tr>
<tr>
<td>Coronado Trail Scenic Byway</td>
<td>II</td>
<td>7</td>
<td>None</td>
<td>Meets</td>
</tr>
<tr>
<td></td>
<td>III</td>
<td>317</td>
<td>Weak</td>
<td>Meets</td>
</tr>
<tr>
<td></td>
<td>IV</td>
<td>952</td>
<td>Weak</td>
<td>Meets</td>
</tr>
<tr>
<td>Total Acres of Nonconformance</td>
<td>II</td>
<td>0</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td>III</td>
<td>20,723</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td>IV</td>
<td>0</td>
<td>NA</td>
<td>NA</td>
</tr>
</tbody>
</table>

Table Abbreviations: BLM = Bureau of Land Management; KOP = key observation point; NA = not applicable; VRM = Visual Resource Management.
**Additional Measures to Avoid and/or Minimize Impacts**

With the implementation of the BMPs and other design features in Appendix B, no additional measures to avoid and/or minimize impacts to visual resources from the Proposed Action are recommended.

**3.9.2.3 Direct and Indirect Impacts of Alternative 1 and Alternative 2**

Alternatives 1 and 2 would have similar effects as the Proposed Action. With Alternative 2, the casual observer at the Zuni Salt Lake Proprietary ACEC KOP would see eleven more turbines (37) than the Proposed Action, and twelve more turbines than Alternative 1, because of the difference in turbine height. The reduction of two turbine locations for both Alternatives 1 and 2 as compared to the Proposed Action and the increase in turbine height associated with Alternative 2 would not be perceived by the casual observer and impacts on visual resources would be consistent with those impacts associated with construction, O&M, and decommissioning of the Proposed Action.

**Conformance with BLM VRM Objectives:**

Alternatives 1 and 2 would have similar effects on VRM objectives and KOPs as the Proposed Action (Table 3-23). Overall BLM acres visible from KOPs would be reduced as a result of the smaller footprint of Alternative 1 and 2 area as compared to the Proposed Action area. Similar to the Proposed Action, Alternatives 1 and 2 would not meet VRM Class III objectives as allocated in the SFO RMP; a land use plan amendment would be required.

**Table 3-23. BLM Conformance by KOP for Alternatives 1 and 2**

<table>
<thead>
<tr>
<th>KOP</th>
<th>VRM Class</th>
<th>BLM Acres Visible</th>
<th>Contrast Rating</th>
<th>Conformance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cimarron Ranch Subdivision</td>
<td>II</td>
<td>0</td>
<td>None</td>
<td>Meets</td>
</tr>
<tr>
<td></td>
<td>III</td>
<td>387</td>
<td>Strong</td>
<td>Does Not Meet</td>
</tr>
<tr>
<td></td>
<td>IV</td>
<td>23</td>
<td>Strong</td>
<td>Meets</td>
</tr>
<tr>
<td>U.S. 60</td>
<td>II</td>
<td>312</td>
<td>Weak</td>
<td>Meets</td>
</tr>
<tr>
<td></td>
<td>III</td>
<td>3,816</td>
<td>Strong</td>
<td>Does Not Meet</td>
</tr>
<tr>
<td></td>
<td>IV</td>
<td>4,204</td>
<td>Strong</td>
<td>Meets</td>
</tr>
<tr>
<td>Bill Knight Gap Road</td>
<td>II</td>
<td>269</td>
<td>Weak</td>
<td>Meets</td>
</tr>
<tr>
<td></td>
<td>III</td>
<td>2,704</td>
<td>Strong</td>
<td>Does Not Meet</td>
</tr>
<tr>
<td></td>
<td>IV</td>
<td>3,401</td>
<td>Strong</td>
<td>Meets</td>
</tr>
<tr>
<td>Coronado Trail Scenic Byway</td>
<td>II</td>
<td>0</td>
<td>None</td>
<td>Meets</td>
</tr>
<tr>
<td></td>
<td>III</td>
<td>254</td>
<td>Weak</td>
<td>Meets</td>
</tr>
<tr>
<td></td>
<td>IV</td>
<td>969</td>
<td>Weak</td>
<td>Meets</td>
</tr>
<tr>
<td>Total Acres of Nonconformance</td>
<td>II</td>
<td>0</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td>III</td>
<td>6,907</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td>IV</td>
<td>0</td>
<td>NA</td>
<td>NA</td>
</tr>
</tbody>
</table>

*Table Abbreviations:* BLM Bureau of Land Management; KOP = key observation point; NA = not applicable; VRM = Visual Resource Management.
**Additional Measures to Avoid and/or Minimize Impacts**

With the implementation of the BMPs and other design features in Appendix B, no additional measures to avoid and/or minimize impacts to visual resources from Alternatives 1 and 2 are recommended.

### 3.9.2.4 Direct and Indirect Impacts from the No Action Alternative

Under the No Action Alternative, the BLM would not authorize the new grant application to construct, operate, maintain, and decommission the Proposed Action or Alternatives 1 or 2. No new disturbance to the characteristic landscape would occur, and no new elements or patterns would be introduced to the BLWP area. Therefore, there would be no impact on the casual viewer from stationary or linear KOPs or Special Management Areas.

### 3.10 Cumulative Impacts

The determination of what past, present, and reasonably foreseeable future actions to consider in the impact analysis is based on the resources being affected by the proposed BLWP. Past, present, and reasonably foreseeable future actions that incrementally add to the potential cumulative impacts of the Proposed Action, Alternatives 1 and 2, and No Action Alternative are considered in this EIS. The intent of this analysis is to capture the total effects of multiple actions over time that would be missed by evaluating each action individually.

#### 3.10.1. Cumulative Effects Analysis Area and Timeframe of Effects

Each resource being analyzed has a defined cumulative effects analysis area (CEAA) for the Proposed Action, Alternatives 1 and 2, and No Action Alternative. Table 3-24 provides the geographic area of the CEAAs by resource.

**Table 3-24. Cumulative Effects Analysis Areas (CEAAs)**

<table>
<thead>
<tr>
<th>Resource</th>
<th>CEAA and Rationale for CEAA</th>
<th>Acres of Proposed Action CEAA</th>
<th>Proposed Area Percent of Total CEAA</th>
<th>Acres of Alternatives 1 and 2 CEAA</th>
<th>Alternatives 1 and 2 Percent of Total CEAA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cultural Resources</td>
<td>5 miles. Applies to all land ownership types and areas visible within 5 miles of any project component or to the visual horizon, whichever is closer.</td>
<td>220,587</td>
<td>19.73</td>
<td>175,542</td>
<td>9.48</td>
</tr>
<tr>
<td>Mexican Wolf</td>
<td>Species’ current occupied range (not including Tribal lands).</td>
<td>11,155,987</td>
<td>0.39</td>
<td>11,155,987</td>
<td>0.15</td>
</tr>
<tr>
<td>Special Status Species</td>
<td>10 miles. Anticipated area of effect for local area populations.</td>
<td>490,188</td>
<td>8.88</td>
<td>424,171</td>
<td>3.92</td>
</tr>
<tr>
<td>Bald Eagle</td>
<td>86 miles. Area of potential impacts to bald eagles related to the regional breeding population and the usual dispersal distance for eagle fledglings.</td>
<td>16,951,207</td>
<td>0.26</td>
<td>16,553,819</td>
<td>0.10</td>
</tr>
<tr>
<td>Golden Eagle</td>
<td>109 miles. Area of potential impacts to golden eagles related to the regional breeding population and the usual dispersal distance for eagle fledglings.</td>
<td>26,510,746</td>
<td>0.16</td>
<td>26,012,930</td>
<td>0.06</td>
</tr>
</tbody>
</table>
### Resource CEAA and Rationale for CEAA

<table>
<thead>
<tr>
<th>Resource</th>
<th>CEAA and Rationale for CEAA</th>
<th>Acres of Proposed Action CEAA</th>
<th>Proposed Area Percent of Total CEAA</th>
<th>Acres of Alternatives 1 and 2 CEAA</th>
<th>Alternatives 1 and 2 Percent of Total CEAA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visual</td>
<td>30 miles. Due to the scale and visibility of wind turbines, facilities beyond this distance might sometimes be noticed by casual observers, but would appear to be so small as to have negligible impacts.</td>
<td>2,570,753</td>
<td>1.69</td>
<td>2,417,815</td>
<td>0.69</td>
</tr>
</tbody>
</table>

1 Where miles are used, miles refers to the distance from the Proposed Action or Alternatives 1 and 2 area boundaries.

In terms of timeframe, the cumulative effects analysis is considered over a 35-year period. The proposed BLWP has a life expectancy of 35 years based on electrical demand, maintenance, and the expected life of the project facilities and major components.

#### 3.10.2. Past and Present Actions

The cumulative effects analysis does not attempt to quantify the effects of past human actions by adding up all prior actions on an action-by-action basis. Existing conditions reflect the aggregate impact of prior human actions and natural events that have affected the environment and could contribute to cumulative effects. By looking at current conditions, the residual effects of past human actions and natural events are captured, regardless of which particular action or event contributed those effects. The CEQ issued an interpretive memorandum on June 24, 2005 regarding analysis of past actions, which states, “agencies can conduct an adequate cumulative effects analysis by focusing on the current aggregate effects of past actions without delving into the historical details of individual past actions.”

#### 3.10.3. Reasonably Foreseeable Future Actions

Reasonably foreseeable future actions are actions that have existing decisions, funding, or formal proposals or that are highly probable. These actions are not connected to the Proposed Action, Alternatives 1 and 2, and No Action Alternative. They are projections being made so that future effects, cumulative and otherwise, can be estimated, as required by NEPA. Specific projects within the resource CEAAs have been reviewed by land managers, including the USFS Schedule of Proposed Actions (SOPA), NMDOT, Arizona Department of Transportation, NMSLO, and Catron, Apache, and Greenlee counties. Table 3-25 identifies the name and provides a brief description of each project within the CEAAs.
Table 3-25. Projects in the Cumulative Effects Analysis Areas

<table>
<thead>
<tr>
<th>Project Name</th>
<th>Owner/Proponent</th>
<th>Project Summary</th>
<th>Relevant Resource</th>
</tr>
</thead>
<tbody>
<tr>
<td>4FRI Rim Country Project EIS</td>
<td>Apache-Sitgreaves National Forests</td>
<td>Landscape-scale restoration on the Coconino, Apache-Sitgreaves, and Tonto National Forests of ponderosa pine ecosystems; designed to maintain, improve, and restore ecosystem structure, pattern, function, and resiliency.</td>
<td>Mexican Wolf, Special Status Species, Bald and Golden Eagles</td>
</tr>
<tr>
<td>Luna Restoration Project EIS</td>
<td>Gila National Forest Quemado Ranger District</td>
<td>Ecological restoration treatments to minimize impacts of high severity fire across the landscape and provide community protection, provide vegetation and forest health management, improve watershed conditions, and protect and conserve wildlife habitat.</td>
<td>Mexican Wolf, Special Status Species, Bald and Golden Eagles, and Cultural Resources</td>
</tr>
<tr>
<td>Sheep Cabin Water System CE</td>
<td>Gila National Forest Quemado Ranger District</td>
<td>Improve existing water sources on the El Caso Allotment near Poison Canyon. These water improvement structures will benefit wildlife, including bats, and livestock. Action will install approximately 2.3 miles of pipeline, 4 storage tanks, 3 troughs, and 1 well.</td>
<td>Mexican Wolf, Special Status Species, Visual and Cultural Resources</td>
</tr>
<tr>
<td>Quemado RD Willie Steele and Escondido Trail Re-Routes CE</td>
<td>Gila National Forest Quemado Ranger District</td>
<td>Decommission approximately 0.75 mile of trail segments on Willie Steele and Escondido trails that dead end on private land, and construct 1.6- and 1.0-mile segments of Willie Steele and Escondido trails, respectively, around private land to provide access entirely on USFS lands.</td>
<td>Mexican Wolf, Special Status Species, Visual and Cultural Resources</td>
</tr>
<tr>
<td>Agua Fria Water System CE</td>
<td>Gila National Forest Quemado Ranger District</td>
<td>Improve existing water sources on the Agua Fria Allotment to benefit wildlife and livestock. Proposed to install approximately 2.7 miles of pipeline, 1 or 2 storage tanks, and 2 troughs.</td>
<td>Mexican Wolf, Special Status Species, Visual and Cultural Resources</td>
</tr>
</tbody>
</table>

Table Abbreviations: 4FRI = Four Forest Restoration Initiative, CE = Categorical Exclusion, EIS = Environmental Impact Statement, RD = Ranger District

Other reasonably foreseeable future actions and management activities occurring in the CEAAs that are highly probable include livestock grazing, range improvements, vegetation management, recreation (e.g., hunting, OHV use), road improvements, temporary MET towers, transmission lines, telephone lines, communication towers, and community development. Other disturbances that are ongoing include wildland fire and spread and establishment of noxious weeds and invasive plant species.

3.10.4. Cumulative Impacts to Resources

For this analysis, cumulative resource impacts for the CEAAs are the combined direct and indirect effects of the present and reasonably foreseeable future actions, in addition to the direct and indirect impacts of the Proposed Action, Alternatives 1 and 2, and No Action Alternative. The levels of cumulative impacts are categorized as major, moderate, or minor based on the same thresholds defined in Section 3.1 Introduction. If the results of the analysis of direct or indirect impacts were considered to be none or negligible as a result of the build alternatives and No Action Alternative, there would be no measurable contribution to a cumulative effect; therefore, no cumulative effects analysis for the respective resource/use has been done.
Based on the analysis of direct and indirect impacts, only short-term impacts would occur from the construction or decommissioning of the Proposed Action or Alternatives 1 and 2 for a resource/use. It is unlikely that all of the reasonably foreseeable future actions and management activities occurring in the CEAA would be built at the same time as the Proposed Action or Alternatives 1 and 2. Therefore, there would be no measurable contribution of the alternatives’ short-term impacts to a given resource’s/use’s cumulative impacts, and no cumulative short-term effects analysis for the respective resource/use has been done.

Based on the analysis of direct and indirect impacts provided in Chapter 3, neither the Proposed Action, nor Alternatives 1 and 2, nor No Action Alternative would have long-term, minor, moderate, or major direct or indirect effects to lands and reality; transportation and travel management; general vegetation; special status plant, reptile, and amphibian species; or federally listed species within the BLWP area. There would be no measurable contribution to the resource’s/use’s respective cumulative impacts; therefore, there is no cumulative effects analysis for these resources/uses. Refer to the specific resource subsection in Chapter 3 for detailed information.

At the end of the description of the cumulative impacts for each resource below, concluding statements of impacts are provided. The alternative’s magnitude, duration, and intensity of direct and indirect impacts are restated, followed by a similar summary of total cumulative impacts that includes consideration of the direct and indirect alternative’s effects. A statement on the contribution of the alternatives’ impacts to the cumulative impacts is made as well.

3.10.4.1 Cultural Resources

Only a portion of the approximately 345 square miles within the Proposed Action CEAA and 274 square miles within the Alternatives 1 and 2 CEAA has been surveyed for cultural resources. The region surrounding the Proposed Action and Alternatives 1 and 2 areas is one with a rich history and prehistory.

The identified past, present, and reasonably foreseeable projects that could contribute impacts to cultural resources include community development, transmission line development, roads, and forest health management. Although the extent of these disturbances is not readily quantifiable, much of the CEAA remains undeveloped, and thousands of cultural resources probably remain intact but have yet to be discovered and recorded. Potential impacts to public land managed by BLM and NMSLO would be considered for projects proposed in the future, and measures to avoid, reduce, or mitigate impacts on important cultural resources are likely to be implemented.

Proposed Action and Alternatives 1 and 2 Contribution to Cumulative Impacts

The cultural resources that would be directly affected by the Proposed Action and Alternatives 1 and 2 are a small fraction of a percent of the cultural resources within the CEAA, and impacts on those resources would be avoided or mitigated to the maximum extent practicable. If disturbance is unavoidable, recovery and preservation of artifacts and information and other potential mitigation measures would be implemented in accordance with Section 106 consultation. Direct visual impacts of the wind farm on the setting of cultural resource sites could be largely reversible with decommissioning of the BLWP at the end of its use life and the restoration of the landscape.

Any residual direct impacts would not represent a major cumulative impact to those of other past, present, and reasonably foreseeable future actions.

The BLWP, in combination with other highly probable reasonably foreseeable projects, including other planned renewable energy and residential development projects, could result in cumulative indirect
impacts to cultural resources. Cumulative impacts resulting from most types of development projects are likely to be long-term because those facilities probably would be present for decades.

No Action Alternative Contribution to Cumulative Impacts
There would be no contribution to cumulative impacts to cultural resources because the No Action Alternative would not result in any impacts. As such, the No Action Alternative is not analyzed for cumulative impacts to cultural resources.

3.10.4.2 Mexican Wolf
The types of projects or actions that could contribute to impacts to Mexican wolves include livestock grazing, community development, OHV use, transmission line development, roads, vegetation management, and forest health management (including prescribed burning). Livestock grazing, as well as wildlife movement, may spread invasive plants and alter the cover and composition of plant communities used by wildlife. Community development, roads, and infrastructure development would potentially consume useable habitat and fragment large blocks of habitats into smaller isolated ones. Future Federal planning efforts such as the 4FRI Rim Country and the Luna Restoration projects would help to implement measures to reduce impacts since their purpose is to protect and conserve wildlife habitat. Some of the foreseeable future actions, such as fuels and vegetation management found within the Mexican Wolf CEAA would have beneficial impacts to Mexican wolves and their suitable habitats on federally managed lands. Approximately 64 percent of the lands within the Proposed Action and Alternatives 1 and 2 CEAA for Mexican wolves are federally managed. In combination, past, present, and reasonably foreseeable future actions would result in long-term, direct and indirect, minor impacts to Mexican wolves because the majority of the CEAA would have measures implemented by the BLM and/or USFS to minimize potential effects to Mexican wolves and their respective habitats.

Proposed Action and Alternatives 1 and 2 Contribution to Cumulative Impacts
In the long-term, the Proposed Action would have direct and indirect, minor effects to Mexican wolves and their habitats. These long-term effects would be reduced gradually over time as natural reclamation of plant composition and cover occurs following construction and decommissioning activities. Cumulatively, the effects of the Proposed Action or Alternatives 1 and 2, when combined with past, present, and reasonably foreseeable future actions, would result in minor cumulative impacts to Mexican wolves within the Mexican Wolf CEAA due to the potential for further habitat loss, degradation, and fragmentation. The Proposed Action and Alternatives 1 and 2 would have a minor contribution to the cumulative effect on Mexican wolves.

No Action Alternative Contribution to Cumulative Impacts
There would be no contribution to cumulative impacts to Mexican wolves because the No Action Alternative would not result in any impacts. As such, the No Action Alternative is not analyzed for cumulative impacts to Mexican wolves.

3.10.4.3 Special Status Species
The types of projects or actions that could contribute to impacts to special status species include livestock grazing, community development, OHV use, transmission line development, roads, vegetation management, and forest health management (including prescribed burning). Livestock grazing, as well as wildlife movement, may spread invasive plants and alter the cover and composition of plant communities used by wildlife. Community development, roads, and infrastructure development would potentially consume useable habitat and fragment large blocks of habitats into smaller isolated ones. Future Federal planning efforts such as the 4FRI Rim Country and the Luna Restoration projects would help to implement measures to reduce impacts since their purpose is to protect and conserve wildlife habitat. Some of the foreseeable future actions, such as fuels and vegetation management found within the Special Status Species CEAA would have beneficial impacts to special status species and suitable
habitats on federally managed lands. Approximately 69 percent of the lands within the Proposed Action CEAA and approximately 71 percent of the lands within the Alternatives 1 and 2 CEAA for these special status species are federally managed. In combination, past, present, and reasonably foreseeable future actions would result in long-term, direct and indirect, minor, impacts to special status species because the majority of the CEAA would have measures implemented by the BLM and/or USFS to minimize potential effects to these special status species and their respective habitats.

**Proposed Action and Alternatives 1 and 2 Contribution to Cumulative Impacts**

In the long-term, the Proposed Action would have direct and indirect, minor effects to special status species and their habitats. These long-term effects would be reduced gradually over time as natural reclamation of plant composition and cover occurs following construction and decommissioning activities. Cumulatively, the effects of the Proposed Action or Alternatives 1 and 2, when combined with past, present, and reasonably foreseeable future actions, would result in moderate cumulative impacts to special status species within the Special Status Species CEAA due to the potential for further habitat loss, degradation, and fragmentation. The Proposed Action and Alternatives 1 and 2 would have a minor to moderate contribution to the cumulative effect on special status species.

**No Action Alternative Contribution to Cumulative Impacts**

There would be no contribution to cumulative impacts to special status species because the No Action Alternative would not result in any impacts. As such, the No Action Alternative is not analyzed for cumulative impacts to special status species.

**3.10.4.4 Bald and Golden Eagles**

The types of projects or actions that could contribute to impacts to bald and golden eagles include livestock grazing, community development, OHV use, transmission line development, roads, vegetation management, and forest health management (including prescribed burning). Livestock grazing, as well as wildlife, may spread invasive plants and alter the cover and composition of plant communities used by prey species. Community development, roads, and infrastructure development would potentially consume useable habitat and fragment large blocks of habitats into smaller isolated ones. Future Federal planning efforts such as the 4FRI Rim Country and the Luna Restoration projects would help to implement measures to reduce impacts since their purpose is to protect and conserve wildlife habitat. Some of the foreseeable future actions, such as fuels and vegetation management found within the Bald and Golden Eagles CEAAAs would have beneficial impacts to bald and golden eagles and their suitable habitats on federally managed lands. Approximately 40 percent of the lands within the Proposed Action and Alternatives 1 and 2 CEAAAs for bald eagles and 37 percent of the lands within the Proposed Action and Alternatives 1 and 2 CEAAAs for golden eagles are federally managed. In combination, past, present, and reasonably foreseeable future actions would result in long-term, direct and indirect, minor, impacts to bald and golden eagles because a large percentage of the CEAAAs would have measures implemented by the BLM and/or USFS to minimize potential effects to these species and their respective habitats.

**Proposed Action Contribution to Cumulative Impacts**

The USFWS’s Programmatic EIS for the Eagle Rule Revision (USFWS 2016a) concluded that an annual take rate of 5 percent of the local area eagle population was the upper threshold of what would be appropriate to authorize (i.e., permit), whether or not the take is offset by compensatory mitigation. The USFWS has not issued any permits for authorized take of golden eagles that overlap with the project’s local area population.

In the long-term, the Proposed Action and Alternatives 1 and 2 may have direct and indirect, major effects to eagles and their suitable habitat. These long-term effects would be reduced gradually over time as natural reclamation of plant composition and cover occurs following construction and
decommissioning activities. Cumulatively, the effects of the Proposed Action and Alternatives 1 and 2, when combined with past, present, and reasonably foreseeable future actions, may result in major cumulative impacts to eagles within CEAA due to the potential for take of eagles as well as habitat loss, degradation, and fragmentation. The Proposed Action and Alternatives 1 and 2 may have a major contribution to the cumulative effect on eagles, though the cumulative effect to eagles would be offset to some degree through voluntary compensatory mitigation.

**No Action Alternative Contribution to Cumulative Impacts**

There would be no contribution to cumulative impacts to bald and golden eagles because the No Action Alternative would not result in any impacts. As such, the No Action Alternative is not analyzed for cumulative impacts to bald and golden eagles.

### 3.10.4.5 Visual Resources

The types of projects or actions that could contribute to impacts to visual resources include overhead transmission lines, MET towers, pipelines, communication towers, and community development. These actions generally result in a transformation of the natural landscape to a more developed setting when viewed during both day and night conditions over the long-term. Currently there are no projects or actions identified within the cumulative effects analysis area on BLM administered lands. Four reasonably foreseeable future actions have been identified which occur on USFS managed lands within the Quemado Ranger District. The Sheep Cabin Water System, Quemado Road Willie Steele and Escondido Trail Re-Routes, and the Agua Fria Water System may contribute to overall cumulative impacts to visual resources, though at this time there is not sufficient documentation to evaluate the level of impact associated with these identified projects. In addition, wildland fire would also create a substantial change in the characteristic landscape for decades depending on the scale and intensity of the wildfire. The expansion of residential areas would expand the footprint of developed areas through the addition of structures, roads, and electrical distribution lines. The expanded developed area would be particularly evident during nighttime conditions, when lighting would extend for a substantial distance from the developed area. Impacts of the combined actions would be perceived as strongest where viewed from sensitive viewing platforms, traditional areas identified by Native American Tribes, and from wilderness areas and WSAs. The implementation of the respective VRM objectives for BLM and USFS lands within the Visual Resources CEAA would help to implement measures to reduce impacts. In combination, past, present, and reasonably foreseeable future actions would result in long-term, direct and indirect, minor to moderate, impacts to visual resources that overall would reduce scenic quality and notably transform the characteristic landscape.

**Proposed Action and Alternatives 1 and 2 Contribution to Cumulative Impacts**

The large stature of the proposed wind turbines with the white color of the towers, the movement of the blades and the synchronized flashing of the ADLS at night when activated (or if the ADLS is not approved, the flashing would be continuous at night) would attract attention, create a substantial change in the landscape character, and result in a strong visual contrast within the foreground area of both linear and stationary sensitive viewing platforms (i.e., KOPs). The view of the casual observer from the foreground of these sensitive viewing platforms would be visually dominated by the Proposed Action and Alternatives 1 and 2. Based on the analysis of potential effects in this EIS, the Proposed Action and Alternatives 1 and 2 would have long-term, direct and indirect, minor to major, impacts to visual resources depending on the distance from the proposed project components. Cumulatively, effects of the Proposed Action and Alternatives 1 and 2, when combined with past, present, and reasonably foreseeable future actions, would result in long-term, direct and indirect, minor to moderate, cumulative impacts to the visual resources within the Visual Resources CEAA. The Proposed Action and Alternatives 1 and 2 would have a moderate contribution to the cumulative effects to visual resources because of the scale, strong contrast, and industrial characteristic of the wind facility in a sparsely
largely reversible with decommissioning of the BLWP at the end of its use life and restoration of the landscape.

**No Action Alternative Contribution to Cumulative Impacts**

There would be no contribution to cumulative impacts to visual resource because the No Action Alternative would not result in any impacts. As such, the No Action Alternative is not analyzed for cumulative impacts to visual resources.

### 3.11 Land Use Plan Amendment

Actions approved or authorized by Federal land management agencies must conform to the approved land use plans for the lands they administer (43 CFR 1610.5-3). The BLWP area includes VRM Class II, III, and IV allocations (Figure 3-18 and Figure 3-19). The BLM’s VRM Class III allocation allows for management/project activities that may attract attention, but should not dominate the view of the casual observer. However, the construction and operation of the BLWP wind turbines over the 35-year life of the proposed project would create strong visual contrast in terms of scale, line, form, color, and texture in the characteristic landscape. None of the alternatives would be in conformance with VRM Class III objectives established in the SFO RMP for the management of the visual resource values associated with this landscape. The VRM Class III allocations in the Proposed Action area would be re-classified as VRM Class IV for the BLWP. The VRM Class III allocations in the Alternatives 1 and 2 area would have to be re-classified as VRM Class IV for the BLWP to meet the objectives of the VRM class where the turbines are located. Therefore, a plan amendment would be required for the BLWP to be in conformance with the RMP.

The SFO RMP has allocated a VRM Class II and ROW avoidance area within a 37-mile-long by approximately 1.0-mile-wide segment (15,084 acres of BLM-managed lands) along the south side of U.S. 60 from just west of Quemado to the AZ–NM State line. The BLWP access roads proposed within this VRM Class II allocation and ROW avoidance area designation would not be compatible with the SFO RMP avoidance area allocation. The ROW avoidance area was delineated to protect the VRM Class II allocation and would no longer be applicable if the VRM Class II allocation was removed. As part of the proposed RMP amendment, the VRM Class II allocation would be removed and therefore the ROW avoidance designation would no longer be applicable. The removal of the VRM Class II and ROW avoidance would be completed within the Proposed Action and Alternatives 1 and 2 areas, as well as the entire 37-mile segment. The original allocation of VRM Class II in the RMP is not supported by the RMP record and no rationale exists for retaining the VRM Class II and ROW avoidance areas. This is beyond the scope of what is immediately necessary for the project but is being considered because of the lack of any rationale supporting the original allocation. The proposed plan amendment would re-classify the VRM II to a VRM III classification and remove the ROW avoidance area allocation.

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11 A ROW Avoidance area is an environmentally sensitive area where ROWs may be granted only when no feasible alternative route is available (BLM 2010a).
Figure 3-18. VRM RMP Amendment within the Proposed Action
Figure 3-19. VRM RMP Amendment within Alternatives 1 and 2
Table 3-26 and Table 3-27 provide the acres of the proposed VRM changes, and Figure 3-18 and Figure 3-19 show the location of these modifications to the VRM class allocations for the Proposed Action and Alternatives 1 and 2, respectively. The acres of the various VRM classes in the SFO RMP (BLM 2010a:pp. 42–43) and Map 6 Visual Resources Management Designations in the SFO RMP (BLM 2010:p. 44) would require revisions to show the change in VRM classes and the removal of the ROW avoidance area.

Table 3-26. SFO RMP Proposed Amendment for the Proposed Action

<table>
<thead>
<tr>
<th>VRM Class</th>
<th>Existing VRM (acres)</th>
<th>Proposed VRM Change (acres)</th>
<th>Current RMP VRM (acres)</th>
<th>Proposed RMP VRM (acres)</th>
<th>Difference from Existing VRM RMP (percent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class II</td>
<td>2,044*</td>
<td>-2,044</td>
<td>520,024</td>
<td>517,980</td>
<td>-0.39</td>
</tr>
<tr>
<td>Class III</td>
<td>15,026</td>
<td>-12,982</td>
<td>448,910</td>
<td>435,928</td>
<td>-2.89</td>
</tr>
<tr>
<td>Class IV</td>
<td>13,267</td>
<td>+15,026</td>
<td>509,432</td>
<td>524,458</td>
<td>+2.95</td>
</tr>
</tbody>
</table>

* All VRM Class II allocated areas within the Proposed Action area are located within the U.S. 60 ROW avoidance area.

Table 3-27. SFO RMP Proposed Amendment for Alternatives 1 and 2

<table>
<thead>
<tr>
<th>VRM Class</th>
<th>Existing VRM (acres)</th>
<th>Proposed VRM Change (acres)</th>
<th>Current RMP VRM (acres)</th>
<th>Proposed RMP VRM (acres)</th>
<th>Difference from Existing VRM RMP (percent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class II</td>
<td>188*</td>
<td>-188</td>
<td>520,024</td>
<td>519,836</td>
<td>-0.04</td>
</tr>
<tr>
<td>Class III</td>
<td>6,634</td>
<td>-4,032</td>
<td>448,910</td>
<td>444,878</td>
<td>-0.90</td>
</tr>
<tr>
<td>Class IV</td>
<td>9,826</td>
<td>+4,220</td>
<td>509,432</td>
<td>513,652</td>
<td>+0.83</td>
</tr>
</tbody>
</table>

* All VRM Class II designated areas within Alternatives 1 and 2 areas are located within the U.S. 60 ROW avoidance area.

Amending the land use plan for the Proposed Action area would result in 12,982 fewer acres in VRM Class III and 15,026 more acres in VRM Class IV. For Alternatives 1 and 2, there would be 4,032 fewer acres in VRM Class III and 4,220 more acres in VRM Class IV.

There would be 15,084 fewer acres in VRM Class II in the SFO from the 37-mile-long segment (including the Proposed Action and Alternatives 1 and 2 areas). The total area removed from the ROW avoidance area in the SFO RMP (342,363 acres) would be a 15,084-acre, or 4.4 percent, reduction.

3.11.1. Environmental Effects of RMP Amendment

Direct and indirect effects of the BLWP Proposed Action and Alternatives 1 and 2 have been described in the preceding resource sections. This section includes descriptions of the potential impacts resulting from the proposed RMP amendment. With the No Action Alternative, no plan amendment would be implemented; it would not result in any additional environmental impacts other than those identified in the 2008 SFO RMP EIS (BLM 2008b) and ROD signed on August 20, 2010 (BLM 2010b). The following discussion addresses impacts from the change in allocation of VRM Class III to Class IV and the change from VRM Class II to Class III along with the removal of the ROW avoidance designation along U.S. 60 within the Proposed Action and Alternatives 1 and 2 areas.

The change in VRM objectives within the BLWP area to Class IV would allow for management/project activities to visually dominate the landscape and may be the major focus of viewer attention. The amendment to the SFO RMP to remove the ROW avoidance area would allow for ROW applications that
did not meet prior ROW avoidance perimeters to be considered on a case-by-case basis. The amendment to the SFO RMP could have direct impacts to lands, realty, and mineral resources depending on the type and scale of management/project activities that may be allowed to occur on lands affected by these changes. As noted in the RMP EIS, on page 4-23, removal of the ROW avoidance area could open the area to exploration and development. These types of activities would remove vegetation, modify landforms, and may add structural elements to the landscape. Any ground-disturbing activities associated with construction and operation of facilities would generate fugitive dust, increase traffic on access roads, and potentially use nighttime lighting.

The VRI for the BLWP area identified the area as having class C scenic quality, with a mix of high and low sensitivity levels and visual distance zones identified within the foreground/middleground as well as areas of seldom seen (see mapping in Appendix F). Future facilities and/or project activities would need to comply with the amended VRM Class III and Class IV objectives, which could have observable changes to the characteristic landscape by casual observers.

Removing the ROW avoidance designation, and changing the VRM from Class II to Class III, would allow for applications of land uses that could result in broader impacts to soil resources, such as roads wider than 14 feet. The change would reduce the BLM’s level of management protection of soil and water resources on lands in the ROW avoidance area, because the management emphasis on maintaining existing vegetation and terrain features would not apply as noted in the 2008 RMP EIS on pages 4-38 and 4-39. Because the lands would still be managed by the BLM, measures to minimize impacts to soils would be implemented as part of the authorization process.

Biological resources may be affected by the SFO RMP amendment through a potential increase in habitat fragmentation and edge effects in a variety of wildlife habitats. Special status species that use these habitats may be effected by surface-disturbing activities (BLM 2008b:pp. 4-44 through 4-46). The magnitude of the potential effects to sensitive species are uncertain, but would be dependent on the type of construction and management activities for any project activities approved in the future that would take place within the BLWP area or the U.S. 60 corridor. Any direct or indirect impacts to federally listed species or species proposed for listing would be evaluated under Section 7 of the ESA at the time that a new activity or development is proposed.

Vegetation in the BLWP area consists of sparsely vegetated short-grass grassland that transitions to shrubland and dense patches of pinyon-juniper woodland. These general vegetation communities occur throughout the region and are well represented in the surrounding area, including the U.S. 60 ROW avoidance area. Following the removal of the avoidance designation, vegetation in the ROW avoidance area would not be protected from surface-disturbing activities, which may result in loss of vegetation, reduction in soil stability, increase in erosion, and/or reduction in watershed health. The intensity of these effects would vary by the actual use allowed. The VRM Class II would be reduced to Class III, which would decrease the area where the maintenance or enhancement of existing vegetation communities is supported in accordance with VRM objectives through mitigation measures when a surface-disturbing action is proposed. Effects related to soil erosion, water quality, and invasive species could result from future surface-disturbing activities such as construction in ROWs, although it is expected that mitigation would be identified as part of the future site-specific NEPA analyses on a project-by-project basis (BLM 2008b:p. 4-40). Any invasive plant and noxious weed populations would be managed in compliance with the SFO RMP, the Final Vegetation Treatments Using Herbicides PEIS (BLM 2007), and the Vegetation Treatments Using Aminopyralid Fluroxypyr and Rimsulfuron on BLM Lands in 17 Western States PEIS (BLM 2016).

The SFO RMP amendment may include the introduction of new access into areas that were previously unavailable to the public. Any new access could allow for inadvertent damage from erosion brought
about from vehicles and OHV use. ROWs are non-exclusive and any new applications for ROWs in the project area would be analyzed on a case-by-case basis for compatibility with the existing wind facilities. Direct effects to cultural resources would be assessed, and if adverse effects are identified, they would be resolved as part of the NHPA Section 106 process for any future management/project activities.

Direct and indirect socioeconomic impacts to BLM lands are expected to be minimal as a result of the amendment to the SFO RMP. If major utility-, energy-, or transportation-related projects were to be constructed in the U.S. 60 ROW avoidance area, Catron County and surrounding communities could experience job creation and tax revenues during construction. Impacts to population, housing, and community services would be greatest during construction of future projects because new populations would temporarily relocate for work. Mitigation or BMPs would minimize impacts from noise and other potential hazards to public safety.

### 3.12 Comparison of Impacts by Alternative

Table 3-28 displays the major characteristics and substantive environmental effects of each alternative, including the Proposed Action, considered in detail in this EIS.
### Table 3-28. Comparison of Alternatives

<table>
<thead>
<tr>
<th>Resource/Use</th>
<th>Proposed Action</th>
<th>Alternative 1</th>
<th>Alternative 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bald and Golden Eagles</td>
<td>Construction and decommissioning of the BLWP would result in the loss, degradation, and fragmentation of eagle foraging habitat. Disturbance from human activities and noise during construction and decommissioning could alter eagle use patterns, including the areas used for foraging, roosting, and nesting. Eagles that fly within the Proposed Action area could be injured or killed from collisions with rotating blades of wind turbines. The USFWS predicted there would be an annual take of 0.261 golden eagles per year and a cumulative take of two golden eagles over a five-year period during the O&amp;M phase; the take of bald eagles at the BLWP is considered less likely to occur than take of golden eagles, but could not be quantified due to a lack of data resulting from few sightings within the Proposed Action area. The potential threat to eagles from collisions with wind turbines at the BLWP would exist during the anticipated 35-year life of the project. The project BMPs and other design features, and the stipulations that would be included in the BLM ROW authorization would minimize the potential short- and long-term impacts on eagles. However, the Proposed Action would still result in both short- and long-term, direct and indirect, major local and regional impacts on bald and golden eagles. The Proponent has included a commitment in their Draft Eagle Management Plan to provide voluntary compensatory mitigation to offset the anticipated impacts on eagles. The voluntary compensatory mitigation that is currently proposed by the Proponent would take the form of $165,000 in funding that would be contributed to the National Fish and Wildlife Foundation’s Eagle Mitigation Account or to a mitigation banking or in-lieu fee credit program.</td>
<td>Same as Proposed Action.</td>
<td>Same as the Proposed Action except that the results of the USFWS’s analysis of Alternative 2 indicate that a golden eagle fatality is predicted to occur at an annual rate of 0.313 eagles per year and a predicted cumulative take of two golden eagles over a five-year period during the O&amp;M phase.</td>
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<td>Cultural Resources</td>
<td>The Proposed Action would introduce direct and indirect impacts on NRHP-eligible and unevaluated cultural resources that would not occur under the No Action Alternative. All direct impacts on cultural resources would occur during the construction phase of the project. It is expected that the 29 cultural resource sites that lie within the temporary disturbance footprint of the Proposed Action would be impacted by construction activities. The 17 cultural resource sites located outside but within 100 feet of the temporary disturbance footprint of the Proposed Action may also be indirectly impacted by construction activities. The O&amp;M and decommissioning of the BLWP would likely not result in additional direct or indirect impacts to cultural resources beyond those resulting from the construction phase of the project. No cultural resources that are sensitive to potential visual impacts to setting were identified within the APE for visual effects. The PA stipulates that an HPTP, which would include procedures for data recovery, site avoidance marking, and monitoring, would be prepared and implemented prior to construction. Additional supplemental surveys may be required as more detailed construction plans are developed; if needed, they would be conducted in accordance with the PA.</td>
<td>There would be 6 cultural resource sites considered eligible, potentially eligible, or unevaluated for the NRHP within the temporary disturbance footprint of Alternative 1 that would be impacted adversely by construction activities. The 22 cultural resource sites located outside but within 100 feet of the temporary disturbance footprint of Alternative 1 may also be indirectly impacted by construction activities. The O&amp;M and decommissioning of the BLWP would likely not result in additional direct or indirect impacts to cultural resources beyond those resulting from the construction phase of the project. No cultural resources that are sensitive to potential visual impacts to setting were identified within the APE for visual effects. The PA stipulates that an HPTP, which would include procedures for data recovery, site avoidance marking, and monitoring, would be prepared and implemented prior to construction. Additional supplemental surveys may be required as more detailed construction plans are developed; if needed, they would be conducted in accordance with the PA.</td>
<td>Same as Alternative 1.</td>
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<td>Land Use</td>
<td>With the exception of the SFO RMP, the Proposed Action would be in conformance with existing State and local land use plans, and would not prohibit other permitted uses to occur over the long-term. An amendment to the SFO RMP would be needed to grant the ROW for the Proposed Action in order to construct the intersection improvements on U.S. 60 within the designated ROW avoidance area. Localized, short-term, minor impacts would occur during construction and decommissioning when ground disturbance and the presence of construction equipment would disrupt livestock grazing and create delays for local vehicular traffic. Long-term impacts to land use would include a reduction in AUMs from the negligible loss of permanent foraging acres (0.4 percent). There would be no regional impacts to land use from the Proposed Action. An amendment to the SFO RMP would be needed to grant the ROW for the Proposed Action in order to construct the intersection improvements on U.S. 60 within the designated ROW avoidance area. With an RMP amendment, the Proposed Action would be in conformance with existing State and local land use plans, and would not prohibit other permitted uses to occur over the long-term. Similar localized, short-term, minor impacts as the Proposed Action would occur during construction and decommissioning when ground disturbance and the presence of construction equipment would disrupt livestock grazing and create delays for local vehicular traffic by Alternative 1. Long-term impacts to land use would include a reduction in AUMs from the negligible loss of permanent foraging acres (0.8 percent). There would be no regional impacts to land use from Alternative 1.</td>
<td>Alternative 1 would reduce the total project boundary acreage by 26,880 acres, including 16,479 acres of BLM-administered public lands, 4,525 acres of NMSLO-managed lands, and 5,876 acres of privately owned lands as compared to the Proposed Action. With the exception of the SFO RMP, Alternative 1 would be in conformance with existing State and local land use plans, and would not prohibit other permitted uses to occur over the long-term. Similar localized, short-term, minor impacts as the Proposed Action would occur during construction and decommissioning when ground disturbance and the presence of construction equipment would disrupt livestock grazing and create delays for local vehicular traffic by Alternative 1. Long-term impacts to land use would include a reduction in AUMs from the negligible loss of permanent foraging acres (0.8 percent). There would be no regional impacts to land use from Alternative 1.</td>
<td>Same as Alternative 1.</td>
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### Migratory Birds

**Proposed Action:**
There are no Important Bird Areas designated within the BLWP area. With the exception of seasonal playas, the BLWP area does not contain habitats that would concentrate migrating birds, such as large bodies of water, wetlands or riparian areas, or mountain ridges that would provide updrafts for migrating raptors. However, there are many Gunnison’s prairie dog colonies that provide an abundant food source for raptors in the Proposed Action area.

Potential impacts to migratory birds during construction and decommissioning may include injury or mortality; loss of nests; habitat loss, degradation, and fragmentation; and disturbance/displacement.

During O&M, impacts to migratory birds would include injury or mortality from collision with turbines, towers, or transmission lines; electrocution from power lines; habitat loss, degradation, and fragmentation; and disturbance from human activities.

A Bird and Bat Conservation Strategy would be implemented along with BMPs and other design features as part of the Proposed Action to minimize potential impacts on migratory birds and provide for adaptive management during O&M. The Proposed Action would result in short- and long-term, direct and indirect, moderate local and regional impacts to migratory birds.

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<tr>
<td>Migratory Birds</td>
<td>There are no Important Bird Areas designated within the BLWP area. With the exception of seasonal playas, the BLWP area does not contain habitats that would concentrate migrating birds, such as large bodies of water, wetlands or riparian areas, or mountain ridges that would provide updrafts for migrating raptors. However, there are many Gunnison’s prairie dog colonies that provide an abundant food source for raptors in the Proposed Action area. Potential impacts to migratory birds during construction and decommissioning may include injury or mortality; loss of nests; habitat loss, degradation, and fragmentation; and disturbance/displacement. During O&amp;M, impacts to migratory birds would include injury or mortality from collision with turbines, towers, or transmission lines; electrocution from power lines; habitat loss, degradation, and fragmentation; and disturbance from human activities. A Bird and Bat Conservation Strategy would be implemented along with BMPs and other design features as part of the Proposed Action to minimize potential impacts on migratory birds and provide for adaptive management during O&amp;M. The Proposed Action would result in short- and long-term, direct and indirect, moderate local and regional impacts to migratory birds.</td>
<td>An amendment to the SFO RMP would be needed to grant the ROW for Alternative 1 in order to construct the intersection improvements on U.S. 60 within the designated ROW avoidance area. With an RMP amendment, Alternative 1 would be in conformance with existing State and local land use plans and would not prohibit other permitted uses to occur over the long-term.</td>
<td>Same as Proposed Action.</td>
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<td>Social and</td>
<td>The primary economic impacts of the Proposed Action would be relatively short-term potential increases in income and employment in the Social and Economic Study Area (SESA, see Section 3.3 Social and Economic Conditions for a detailed discussion), and longer term increases in tax revenue in Catron County. These potential increases in income, employment, and tax revenue would range from negligible to minor, and would include direct and indirect impacts. Potential project-related impacts to employment and income are anticipated to be highest during the 11- to 12-month construction period, with smaller income and employment impacts during O&amp;M and decommissioning. There would be short-term, minor impacts from the displacement of recreation and livestock grazing uses during construction and decommissioning. Potential impacts to population density in the area, water quantity, or housing availability due to the Proposed Action are projected to be minor and short-term. Short-term minor to negligible impacts to quality of life, particularly during the construction and decommissioning phases, may result from impacts related to frequency and quantity of vehicle traffic in the area, noise, air quality, water quality, scenic quality, and recreation. Long-term minor to major impacts to scenic values would be created by the Proposed Action. Current economic activities in the BLWP area are limited to some recreational use and livestock grazing. There would be short-term, minor impacts from the displacement of both uses during construction and decommissioning. Minor to no impacts are expected on population, water quantity, or housing availability due to the build alternatives. Short-term minor to negligible impacts to nonmarket values, particularly during the temporary construction and decommissioning periods, may result from effects on traffic, air quality, and access to recreation, hunting, and wildlife viewing opportunities. Long-term minor to major impacts to nonmarket scenic values would be created by the Proposed Action.</td>
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<td>Economic Conditions</td>
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<td>Special Status Plant and</td>
<td>There are eight special status plant species that are known to occur or could potentially occur within the Proposed Action area. None of these species have been found in the disturbance footprint. Indirect impacts on special status plant species may occur from the introduction or spread of noxious or invasive weeds in disturbed areas, as well as potentially outside of the Proposed Action footprint. The Proposed Action would result in localized, negligible impacts on special status plants. Localized, short-term impacts on special status terrestrial wildlife species during construction and decommissioning would include potential injury or death from interactions with the increased number of vehicles traveling on access roads and/or ground disturbance and underground burrow destruction by heavy equipment during construction activities. Potential impacts on special status terrestrial wildlife species during the O&amp;M phase of the Proposed Action would include injury or mortality of individuals and various types of disturbance associated with human activities (e.g., vehicle use, maintenance activities) and wind turbine operation (e.g., noise, vibration, flicker/shadows cause by moving blades). The Proposed Action would result in localized short- and long-term, minor impacts on special status terrestrial wildlife species, with the exception of the Gunnison’s prairie dog. The siting of turbines and other infrastructure in proximity to Gunnison’s prairie dog colonies and the construction of access roads and collection lines within occupied prairie dog colonies would result in ongoing injury or mortality of prairie dogs and fragmentation of prairie dog colonies; increased access could also lead to an increase in recreational shooting of prairie dogs. Even with the implementation of BMPs and species-specific mitigation measures/design features, the Proposed Action would result in localized short- and long-term, moderate impacts on prairie dogs.</td>
<td>Same as Proposed Action.</td>
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<td>Wildlife Species</td>
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<td>Potential impacts on special status birds and bats during construction and decommissioning include injury or mortality; loss of nests; habitat loss, degradation, and fragmentation; and disturbance/displacement. Special status birds and bats may be injured or killed as a result of collisions with turbines, towers, or transmission lines during the O&amp;M phase, with an increased risk for raptor and bat species that forage in the Proposed Action area. The Proposed Action would result in short- and long-term, direct and indirect, moderate, local and regional impacts on special status birds and bat species.</td>
<td>Same as Proposed Action.</td>
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<td>Federally Listed Species</td>
<td>The Mexican spotted owl and Mexican wolf are the two federally listed species that could potentially occur within the BLWP area. There are no critical habitats for federally listed species in the BLWP area. There is a lack of preferred foraging, roosting, and nesting habitat for Mexican spotted owls in the BLWP area; however, wintering/migrating or dispersing Mexican spotted owls could potentially occur in the BLWP area. The Proposed Action would not impact Mexican spotted owl PACs or areas of designated critical habitat, directly or indirectly, during construction or any other phase of the project. The incidental occurrence of Mexican spotted owls in the Proposed Action area cannot be ruled out; however, the overall risk of direct or indirect impacts on the Mexican spotted owl is low. The Proposed Action could result in localized negligible impacts on Mexican spotted owls but would not have regional impacts on Mexican spotted owl populations.</td>
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<td>Mexican wolves</td>
<td>Mexican wolves may occasionally travel through the BLWP area, but are not known to concentrate their activities in this area. Construction of the Proposed Action would result in minor habitat loss, degradation, and fragmentation for the Mexican wolf because wolves are not known to concentrate their activities in this area and there are no known den sites in the area. Construction and decommissioning of the Proposed Action would result in increased noise, human disturbance, and vehicle traffic, which could discourage adult or dispersing juvenile wolves from traveling through or foraging within the Proposed Action area. The construction of new access roads within the Proposed Action area would give the public more access to the area during O&amp;M, which would increase the potential for disturbance to Mexican wolves that may travel in the vicinity of the Proposed Action area. The Proposed Action would have minor localized impacts on the Mexican wolf during the O&amp;M phase due to the minimal use of the area by this species. The Proposed Action would result in localized minor impacts on the Mexican wolf but would not have regional impacts on Mexican wolf populations.</td>
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<td>Transportation and Travel Management</td>
<td>Lands administered by the BLM within the Proposed Action area are accessible for OHV use on existing roads and trails. During construction and decommissioning, access roads within the Proposed Action area would experience some restrictions due to localized project activity in order to protect public safety. O&amp;M activities would not impact local traffic or access to the surrounding areas because there would be no discernible increase in daily traffic in the surrounding areas. The Proposed Action would have localized, short-term, minor effects and long-term, minor effects to transportation and travel management from the construction, O&amp;M, and decommissioning of the BLWP facilities. There would be no regional impacts to transportation and travel management.</td>
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<td>Visual Resource</td>
<td>The landscape character and scenic quality within the foreground areas from the Proposed Action area would appear to be severely altered as a result of the introduction of elements of form, line, color, texture, and scale, as well as motion not common within the existing landscape. During construction, O&amp;M, and decommissioning, the Proposed Action would create major changes to the existing landscape character and the landscape would appear visually altered. The short duration synchronized flashing of the ADLS when activated by aircraft entering the airspace and approximately 30 seconds after leaving the airspace would have substantially less visual impacts at night than the standard continuous, medium-intensity red strobe light aircraft warning systems due to the short duration of activation. The Proposed Action would result in short- and long-term, direct, major impacts on visual resources within the characteristic landscape and from sensitive viewing platforms depending on the viewing distance and visibility conditions.</td>
<td>Same as Proposed Action. An RMP amendment would be required since Alternative 1 would result in a strong visual contrast within the foreground area of the U.S. 60, Cimarron Ranch Subdivision, and the Bill Knight Gap Road KOPs and would not meet the VRM Class III objective as designated in the SFO RMP similar to the Proposed Action. Amending the SFO RMP for Alternative 1 area would result in 4,032 fewer acres in VRM Class III and 4,220 more acres in VRM Class IV. The reduction in VRM Class II and the total area removed from the ROW avoidance area would be the same as the Proposed Action.</td>
<td>With Alternative 2, ten more turbines would be visible to the casual observer at the Zuni Salt Lake Proprietary ACEC KOP when compared to the Proposed Action and Alternative 1 because of the difference in turbine height. The difference in turbine height would not be perceived by the casual observer and impacts on visual resources would be consistent with those impacts associated with Alternative 1. Alternative 2 would result in short- and long-term, direct, major impacts on visual resources within the characteristic landscape and from sensitive viewing platforms depending on the viewing distance and visibility conditions.</td>
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An RMP amendment would be required since the Proposed Action would result in a strong visual contrast within the foreground area of the U.S. 60, Cimarron Ranch Subdivision, and the Bill Knight Gap Road KOPs and would not meet the VRM Class III objective as designated in the SFO RMP. Amending the SFO RMP for the Proposed Action area would result in 12,982 fewer acres in VRM Class III and an additional 15,026 acres in VRM Class IV. For Alternatives 1 and 2, there would be 4,032 fewer acres in VRM Class III and 4,220 more acres in VRM Class IV.

There would be 15,084 fewer acres in VRM Class II in the SFO from the 37-mile-long segment (including the Proposed Action and Alternatives 1 and 2 areas). The total area removed from the ROW avoidance area in the SFO RMP (342,363 acres) would be a 15,084-acre, or 4.4 percent, reduction.

An RMP amendment would be required since Alternative 2 would result in a strong visual contrast within the foreground area of the U.S. 60, Cimarron Ranch Subdivision, and the Bill Knight Gap Road KOPs and would not meet the VRM Class III objective as allocated in the SFO RMP. Amending the RMP for Alternative 2, there would be 4,032 fewer acres in VRM Class III and 4,220 more acres in VRM Class IV.

The reduction in VRM Class II and the total area removed from the ROW avoidance area would be the same as under the Proposed Action and Alternative 1.

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<td>There would be 15,084 fewer acres in VRM Class II in the SFO from the 37-mile-long segment (including the Proposed Action and Alternatives 1 and 2 areas). The total area removed from the ROW avoidance area in the SFO RMP (342,363 acres) would be a 15,084-acre, or 4.4 percent, reduction.</td>
<td>An RMP amendment would be required since Alternative 2 would result in a strong visual contrast within the foreground area of the U.S. 60, Cimarron Ranch Subdivision, and the Bill Knight Gap Road KOPs and would not meet the VRM Class III objective as allocated in the SFO RMP. Amending the RMP for Alternative 2, there would be 4,032 fewer acres in VRM Class III and 4,220 more acres in VRM Class IV.</td>
<td>The reduction in VRM Class II and the total area removed from the ROW avoidance area would be the same as under the Proposed Action and Alternative 1.</td>
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*Table Abbreviations: ACEC = Area of Critical Environmental Concern; APE = area of potential effects; AUM = animal unit month; BLWP = Borderlands Wind Project; BLM = Bureau of Land Management; BMP = best management practice; GHG = greenhouse gas; HPTP = Historic Properties Treatment Plan; KOP = key observation point; NM = New Mexico; NMSLO = New Mexico State Land Office; NRHP = National Register of Historic Places; O&M = operation and maintenance; PAC = Protected Activity Center; RMP = Resource Management Plan; ROW = right-of-way; SFO = Socorro Field Office; VRM = Visual Resource Management*
3.13 Irreversible and Irretrievable Commitments of Resources

A commitment of resources is irreversible when its primary or secondary impacts limit the future option for a resource. An irretrievable commitment refers to the use or consumption of resources neither renewable nor recoverable for later use by future generations, and represents a permanent effect. Implementation of any of the build alternatives involving construction would require a commitment of natural, physical, human, and fiscal resources. Construction and operation of any of the build alternatives would require similar commitment of these resources.

Of all the build alternatives, the Proposed Action and Alternative 1 would represent the greatest impact to irreversible and irretrievable commitments of resources, as well as unavoidable impacts because these alternatives would have the larger footprint as compared to Alternative 2. Alternative 2 would have smaller construction and operation impacts because the footprint of this alternative, and the associated resources used to construct the BLWP would be less than the Proposed Action and Alternative 1. It should be noted however, that the construction of fewer turbines would mean constructing turbines with higher generation capacity to satisfy the interconnection agreement with TEP.

The No Action Alternative would represent no irreversible and irretrievable commitment of resources or unavoidable impacts in relation to the proposed BLWP. However, the No Action Alternative may represent possible impacts to resources on a regional basis because the amount of energy required for the demand would need to be produced from other sources. Insufficient information exists to say that the demand and subsequent supply would be from other renewable energy sources.

Construction of the BLWP would require the use of fossil fuels for construction vehicles, equipment, and construction-worker vehicles. Electricity would also be used at construction trailers or by portable generators during BLWP construction. Wind is a renewable resource that would not be depleted or altered by the build alternatives and could offset the need to consume fossil fuels.

Construction of the BLWP would require the use of various types of raw building materials, including cement, aggregate, steel, electrical supplies, piping, and other building materials such as metal, stone, sand, and fill material. Additionally, the fabrication and preparation of these construction materials would require labor and natural resources. Utilization of these resources would be irretrievable. However, these resources are readily available at this time and effects on their continued availability would not be expected.

Construction and operation of the proposed facilities would require labor, which would be otherwise unavailable for other projects. The commitment of labor is considered irretrievable. This commitment of labor, while irretrievable, would not be considered an effect, because the BLWP would be supplying employment opportunities. Furthermore, fiscal resources would be irretrievably committed to construction and operation of the BLWP. These funds would then not be available for other projects and activities.

In addition to the resources used in construction and operation of the proposed Project, there would be some irreversible and irretrievable loss of existing resources in the impact areas. The loss of productivity (i.e., forage, wildlife habitat) from lands devoted to Project facilities would be an irreversible and irretrievable commitment during the time that those lands are out of production and until they are successfully revegetated. Impacts on geological resources could result from surface and subsurface disturbing activities. Both surface and subsurface geology could be damaged (fractured) or destroyed during construction activities that disturb bedrock such as coring, trenching, blasting, clearing, and grading. Blasting, coring, and trenching would fracture and permanently alter bedrock resulting in
irreversible and irretrievable impacts on geology. The permanent loss of soil and vegetation within small and highly localized areas that would not be reclaimed would result in irreversible and irretrievable impacts on soils and vegetation.

The use of groundwater from wells for the construction, O&M, and decommission activities would be irretrievable since they would either be used for consumptive purposes, such as mixing cement, or would be applied for dust control and lost to evapotranspiration. Groundwater losses associated with the BLWP would, over time, replenish the aquifer through natural processes.

Archaeological sites are by their nature finite, and once damaged or destroyed they cannot be replaced. Any loss of such sites is therefore irreversible and irretrievable. Recovering artifacts and information from archaeological sites before they are damaged or destroyed and preserving the recovered artifacts and information commonly is considered acceptable mitigation for the loss of such sites.
CHAPTER 4. CONSULTATION AND COORDINATION

In addition to the planning, analysis, and review activities performed in preparation for this EIS, the BLM is conducting consultation, coordination, and public participation efforts. These efforts started with public scoping and will continue throughout the EIS process. The purpose of the consultation and coordination program is to encourage interaction between the BLM and other Federal, State, and local agencies; Native American Tribes; and the public. The BLM’s initiative is to inform the public about the project and solicit input to assist in analysis and decision-making. The BLM has made formal and informal efforts to involve, consult with, and coordinate with these entities to ensure that the most appropriate data have been gathered and analyzed, and that agency policy and public sentiment and values are considered and incorporated.

4.1 Consultation and Coordination

Agencies and organizations that have jurisdiction and/or special expertise in the BLWP were contacted at the beginning of scoping, during resource inventory, and before the publication of the Draft EIS and Final EIS. This section describes the consultation and coordination activities with agencies, Tribes, and stakeholders that occurred throughout the EIS process, including the scoping process and public review of the Draft EIS.

4.1.1. Cooperating Agencies

The BLM SFO is the lead Federal agency responsible for the preparation of the EIS under NEPA. The BLM has decision-making authority to permit construction on affected Federal lands. The Federal, State, and local cooperating agencies are identified in Chapter 1.

4.1.2. Cultural Resources Formal Consultation

The BLM is required to prepare the EIS in coordination with studies or analyses required by the NHPA, as amended (54 U.S.C. 300101 et seq.). In accordance with Section 106 (54 U.S.C. 306108) of the NHPA, the lead Federal agency and cooperating Federal agencies are required to consider the effects of the agencies’ undertakings on historic properties listed in, or eligible for listing in, the NRHP. The regulations also specify the need for meaningful consultation with SHPOs, Tribal Historic Preservation Offices, Native American Tribes, and other interested parties during all phases of Section 106 compliance. Pursuant to Title 36 CFR Part 800, and as lead Federal agency for the undertaking, the BLM has initiated Section 106 consultation. Consultation must be completed before a ROD can be issued.

4.1.2.1 Government-to-Government and Section 106 Tribal Consultation

The United States has an important legal relationship with Native American Tribes, as established by the U.S. Constitution, treaties, EOs, Federal statutes, and Federal and Tribal policies. As sovereign nations, Native American Tribes are conferred with legal rights and benefits with respect to their relationship with the U.S. Government. This relationship is founded on the U.S. Government’s trust responsibilities to safeguard Tribal sovereignty and self-determination, as well as Tribal lands, assets, and resources reserved by treaty and other federally recognized rights. Federal agencies are required by both statute and regulation to consult with Native American Tribes on a government-to-government basis on Federal actions or undertakings that may affect “trust assets,” including cultural and natural resources of concern to Tribes. Government-to-government consultation involves the process of seeking, discussing, and considering Tribes’ views on policies, undertakings, and decisions such as environmental review of the proposed BLWP. The venue for government-to-government consultation for the BLWP has followed the established form of contact preferred by each Tribe. Consultation has
generally involved formal letters and submission of material via U.S. Postal Service Certified Mail, with follow-up telephone contact.

In May and September of 2018, the BLM formally initiated consultation with nine Native American Tribes that have previously expressed claims to cultural affiliation with the BLWP area to inform them of the project and to inquire about their interest in continuing government-to-government consultation. The contacted tribes are as follows:

- Fort Sill Apache Tribe
- Hopi Tribe
- Mescalero Apache Tribe
- Navajo Nation
- Pueblo of Acoma
- Pueblo of Isleta
- Pueblo of Laguna
- Pueblo of Zuni
- White Mountain Apache Tribe

The Pueblo of Zuni was the only Native American Tribe to request consultation on the EIS process. All other Tribes deferred to the Pueblo of Zuni or declined consultation. Additionally, on July 10, 2018, an informal meeting was held between the BLM and the Pueblo of Zuni. The Zuni Governor and two Zuni Council members were present, along with the BLM SFO Manager and the BLM National Project Manager. The BLM representatives briefly described the BLWP and associated components and explained that specific consultation with the Tribe regarding the BLWP would occur as the project moves toward the Draft EIS publication. Zuni representatives confirmed their status as a cooperating agency and stated that they would be reviewing the Draft EIS. One formal consultation meeting with the Pueblo of Zuni was held on March 16, 2020.

4.2 Scoping Process

The Proponent submitted its initial ROW application to the BLM in May 2017. On November 9, 2018, the BLM published an NOI to prepare the BLWP EIS in the Federal Register. The public scoping process began with the publication of the NOI to prepare the BLWP EIS. Scoping notifications were sent to 106 individuals and organizations, posted on the BLM’s BLWP site on ePlanning, and placed in the Catron County Courier. In addition, scoping flyers were placed in public locations in Magdalena, Datil, Pie Town, Quemado, Red Hill, Socorro, Springerville, AZ, and at the ranger stations for the Cibola, Gila, and Apache National Forests. The scoping comment period was held from November 9 through December 10, 2018. A public scoping meeting was held in Quemado, NM on November 14, 2018. A total of 40 people attended the 2018 scoping meeting. The BLM consulted with SHPO regarding the BLWP in June 2018 as part of the NHPA Section 106 review process.

4.3 Public Comment on the Draft EIS

The Draft EIS was posted to the project ePlanning website and was available to agencies, interested organizations, and individuals for review and comment. During the 90-day comment period for the Draft EIS, the BLM held a public meeting on September 18, 2019 to receive comments on the Draft EIS. Comments received on the Draft EIS and from the public meetings have been compiled and responses have been provided in Appendix G. The public release of the Final EIS will be followed by a 30-day public protest period and 60-day Governor’s Consistency Review before the BLM may issue the ROD. The Final EIS is posted to the project ePlanning website.
### 4.4 Preparers and Contributors

The following individuals from the BLM and the third-party contractor team were responsible for preparing the Final EIS.

#### 4.4.1. Bureau of Land Management

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#### 4.4.2. Office of the Solicitor

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#### 4.4.3. Logan Simpson

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CHAPTER 5. REFERENCES


Frey, J.K. 2005. *Status Assessment of the Arizona Montane Vole (Microtus montanus arizonensis) in New Mexico*. Submitted to New Mexico Department of Game and Fish, Conservation Services Division. January. Las Cruces, New Mexico: New Mexico State University, Department of Fishery and Wildlife Sciences and Department of Biology.


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