

# EXECUTIVE SUMMARY

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## INTRODUCTION

BP Wind Energy North America Inc. (BP Wind Energy) is proposing to construct, operate, maintain, and eventually decommission a wind-powered electrical generation facility in Mohave County, Arizona. The proposed action, the Mohave County Wind Farm Project (Project), would be built in the White Hills of Mohave County about 40 miles northwest of Kingman, Arizona, and just south of Lake Mead National Recreation Area (Map ES-1). The side slopes of the White Hills provide a combination of attributes suitable for wind powered electrical generation facilities, including sufficient wind resource, good physical access, the presence of suitable transmission access, and few known environmental issues.

The Wind Farm Site would include up to approximately 38,099 acres of public land managed by the Bureau of Land Management (BLM) Kingman Field Office (KFO), and approximately 8,960 acres of land managed by the Bureau of Reclamation (Reclamation). Project features within the Wind Farm Site would include, but not be limited to, turbines aligned within corridors, access roads, an operations and maintenance (O&M) building, two temporary laydown/staging areas (with temporary batch plant<sup>1</sup> operations), temporary and permanent meteorological (met) towers, two substations, and electrical collector lines and a transmission line to bring the power to the switchyard<sup>2</sup> that would be operated by the Western Area Power Administration (Western). The switchyard would interconnect to one of the two high-voltage transmission lines that pass through the Wind Farm Site to tie the power generated into the electrical grid.

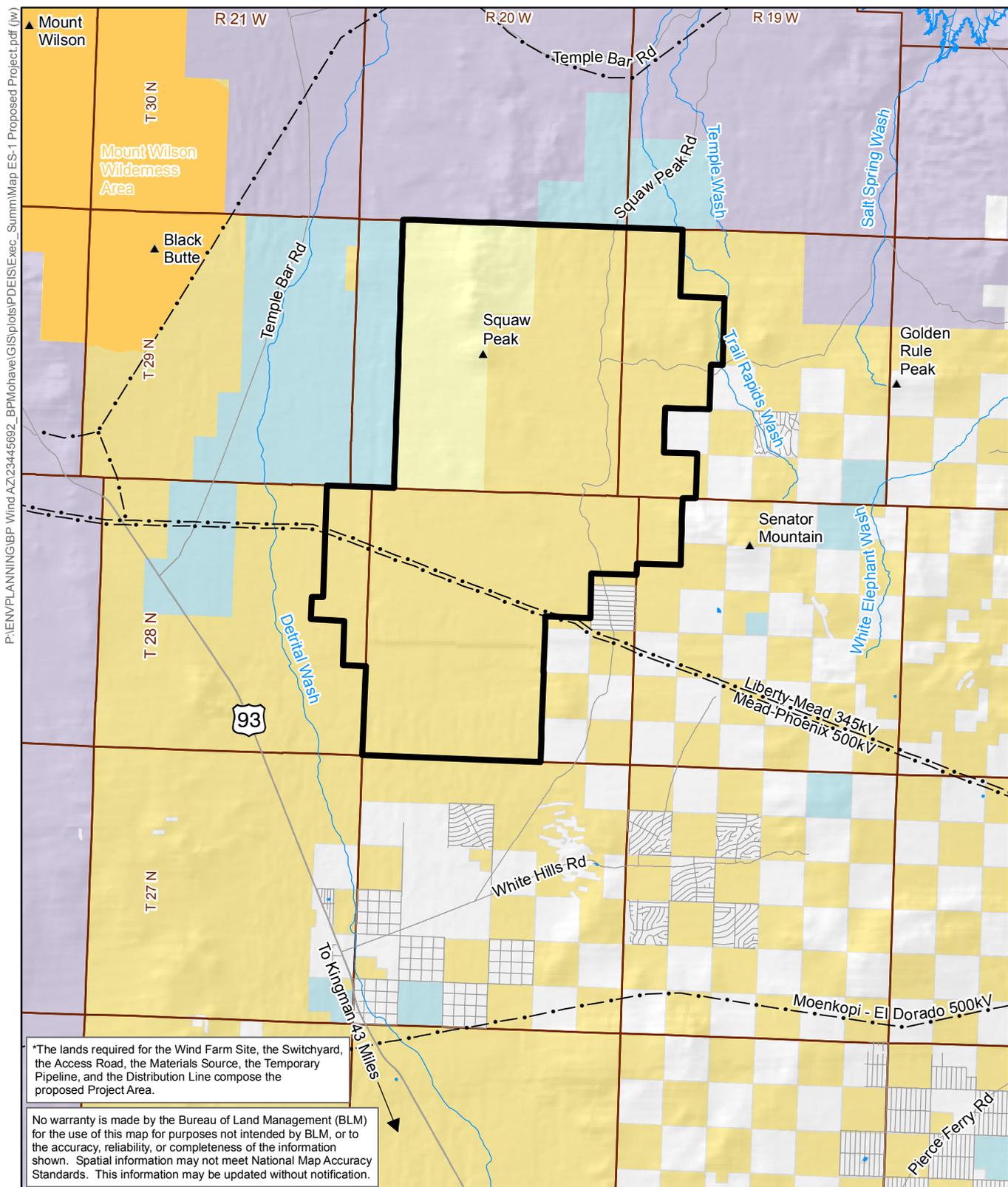
Project features outside of the Wind Farm Site include the primary access road, a materials source, a temporary water pipeline, and an electrical power distribution line. An approximately 3-mile long access road would be constructed between US Highway 93 (US 93) and the Wind Farm Site. The materials source for access road aggregate and for mixing concrete for foundations would be from the existing Detrital Wash Materials Pit (Materials Source), located near US 93 and along the proposed access road. Existing water wells in the vicinity of the Materials Source would provide water during construction via a temporary pipeline located along the access road right-of-way (ROW) to one of the temporary batch plants within the Wind Farm Site. A well at the O&M building also may be used as a source of water during construction. Power for batch plant operations would be provided by either an on-site generator or a distribution line that would tap into an existing Unisource Energy power line south of the Project Area and brought to the site along road ROWs; if a distribution line carries power to the batch plant near the primary access road, it would be retained through operations to provide power to the O&M building. The public lands required for the Wind Farm Site, the Switchyard, the Access Road, the Materials Source, the Temporary Pipeline, and the Distribution Line compose the proposed Project Area.

The National Environmental Policy Act (NEPA) directs every federal agency to prepare a detailed study of the effects of “major federal actions significantly affecting the quality of the human environment.” BLM is responsible for reviewing and processing applications for ROWs on public lands in accordance with the Federal Land Policy and Management Act (FLPMA). BLM is authorized to issue ROWs for “systems for generation, transmission, and distribution of energy...” per FLPMA Section 1761(a)(4). A ROW grant is a Federal action that requires the completion of environmental reviews pursuant to NEPA.

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<sup>1</sup> A manufacturing plant where concrete is mixed and made ready to be poured before being transported to a construction site.

<sup>2</sup> A facility where electricity from the electrical generator is transferred to the electric grid.



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\*The lands required for the Wind Farm Site, the Switchyard, the Access Road, the Materials Source, the Temporary Pipeline, and the Distribution Line compose the proposed Project Area.

No warranty is made by the Bureau of Land Management (BLM) for the use of this map for purposes not intended by BLM, or to the accuracy, reliability, or completeness of the information shown. Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification.

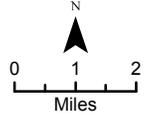


- Legend**
- Wind Farm Site\*
  - Existing Transmission Line
  - Township and Range Boundary
  - Lake
  - Road
  - Wash
  - Mountain Summit

- Surface Management**
- Bureau of Land Management
  - National Park Service
  - Bureau of Reclamation
  - State Trust Land
  - Private Land
  - Bureau of Land Management Wilderness Area

## Map ES-1 Proposed Wind Farm Area

Mohave County  
Wind Farm Project



Source:  
Base Map: ALRIS 2007-2008, NHD 2008 Project Area Boundary: BPWE North America 2011  
Transmission Lines: Platts, A Division of the McGraw-Hill Companies, Inc. - POWERmap (Platts analytical database: 2009)

It is Reclamation's responsibility under the Act of Congress of June 17, 1902 (32 Stat. 388); the Act of Congress approved August 4, 1939 (53 Stat. 1187), Section 10; and 43 CFR Part 429 to respond to a request for ROWs on Reclamation-administered Federal lands.

Western must consider interconnection requests to its transmission system in accordance with its Open Access Transmission Service Tariff (Tariff) and the Federal Power Act, as amended (FPA). Western satisfies FPA requirements to provide transmission service on a non-discriminatory basis through compliance with its Tariff. Under the FPA, Federal Energy Regulatory Commission (FERC) has the authority to order Western to allow an interconnection and to require Western to provide transmission service at rates it charges itself and under terms and conditions comparable to those it provides itself.

BP Wind Energy has filed applications for ROWs with BLM and Reclamation to develop the Wind Farm Site, access road, and temporary water pipeline, on public/Federal lands, respectively. BP Wind Energy has requested to interconnect its proposed Project with the Mead-Phoenix 500-kilovolt (kV) or the Liberty-Mead 345-kV transmission line through a new switchyard to be constructed by Western within the Wind Farm Site; BLM would issue a ROW to Western for the Switchyard if the Project is approved. A separate ROW application would be filed for the distribution line, which would be submitted by the owner of that line, UniSource Energy. The BLM would conduct a competitive bid or negotiated sale for the proposed materials source. Based on the analyses, three Records of Decision (RODs) may be issued, although BLM and Reclamation have elected to issue a joint ROD:

- BLM's and Reclamation's jointly issued ROD would approve, deny, or approve as modified separate ROWs to BP Wind Energy for development of the Wind Farm Site and any associated facilities (e.g., the access road and the temporary pipeline), and a contract for sale of mineral materials located outside the Wind Farm Site on BLM-administered public lands and Reclamation-administered Federal lands. The ROD also would address a separate ROW for the switchyard and a separate ROW to UniSource Energy for the distribution line.
- Western's ROD would approve, deny, or approve as modified the interconnection request if the Project interconnects with one of the existing transmission lines (the Liberty-Mead 345-kV or the Mead-Phoenix 500-kV transmission line) through the Switchyard. If the 500-kV interconnection request is approved, Western would construct, operate, and maintain the Switchyard in support of the proposed Project. If the 345-kV interconnection is selected, Western would construct, own, operate, and maintain the Switchyard and Western's ROD also would approve the replacement of the 345/230-kV transformer at Mead Substation with two new 600 megavolt-ampere (MVA) 345/230-kV transformers and associated equipment such as breakers and switches. These replacements, which would be required to accommodate the increased electrical loading related to generation from the proposed Project, would be accomplished by Western at BP Wind Energy's expense. The existing transformer is at the terminus of the Liberty-Mead 345-kV line in Mead Substation; the substation is located near Boulder City, Nevada.

The Project's energy generating capacity would depend on the transmission line selected. The power generation capacity would be 425 megawatts (MW) if the Project interconnects to the 345-kV Liberty-Mead transmission line and 500 MW if the Project interconnects to the 500-kV Mead-Phoenix transmission line. Power generated by the Project would enter the regional electrical grid through a proposed interconnection with one of two existing transmission lines crossing the Project Area.

Each turbine would have the capability to generate up to its nameplate capacity between 1.5 MW and 3.0 MW per turbine. Depending on the turbine model used, the turbine hubs would be between 262 feet (80 meters) and 345 feet (105 meters) above the ground, and the turbine blades would extend between 126 feet (38.5 meters) and 194 feet (59 meters) above the hub. At the top of their arc, the blades would be between 390 feet (118.5 meters) and 539 feet (164 meters) above the ground.

## **PURPOSE AND NEED**

Overall, the purpose for federal action by the BLM, Reclamation, and Western is to respond to BP Wind Energy's Proposal to use Federal lands. In accordance with Section 1702(c) of the FLPMA, public lands administered by the BLM are to be managed for multiple-use that takes into account the long-term needs of future generations for renewable and non-renewable resources. The Secretary of the Interior is authorized to grant rights-of-way on public lands for systems of generation, transmission, and distribution of electric energy (43 U.S.C. § 501(a)(4)). Taking into account the BLM's multiple-use mandate, the purpose and need for the proposed action is to respond to a FLPMA right-of-way application submitted by BP Wind Energy to construct, operate, maintain, and decommission a wind energy facility and associated infrastructure in compliance with FLPMA, BLM right-of-way regulations, and other applicable Federal laws and policies. The proposed action responds to the projected demand for renewable energy and assists Arizona (or other western states) with meeting established renewable energy portfolio standards. This proposed action, if approved, would assist the BLM in addressing the management objectives in the Energy Policy Act of 2005 (EPA) (Title II, Section 211), which establish a goal for the Secretary of the Interior to approve 10,000 MW of electricity from non-hydropower renewable energy projects located on public lands. This proposed action, if approved, would advance Secretarial Order 3285A1 (March 11, 2009), which establishes the development of environmentally responsible renewable energy as a priority for the Department of the Interior.

## **KEY PROJECT COMPONENTS AND PROJECT LIFE CYCLE**

Construction of the Project would be subject to BLM's Best Management Practices (BMPs), which are designed to guide project planning, construction activities, and development of facilities to minimize environmental and operational impacts. BMPs include standards associated with overall project management, surface disturbance, facilities design, erosion control, revegetation and other mitigation, hazardous materials, project monitoring, and responsibilities for environmental inspection. The Project would develop wind energy resources in compliance with the BMPs that were evaluated in the *Final Programmatic Environmental Impact Statement for Wind Energy Development on BLM-Administered Lands in the Western United States* (BLM 2005a). Project construction and operations would incorporate the BMPs as stated in Attachment A of the *Record of Decision for the Implementation of a Wind Energy Development Program and Associated Land Use Plan Amendments* (BLM 2005b); these BMPs are included as Appendix B of this Final EIS.

A summary of the key components and land requirements for operation of the Project is provided in Table ES-1.

**Table ES-1. Key Project Components, Quantities, and Land Requirements**

<b>Component</b>	<b>Quantity and Land Requirements for Operations</b>	<b>Purpose</b>	<b>Best Management Practices (BMPs) (if applicable)</b>
Temporary Laydown/Staging Area	Two areas (estimated at 11 acres and 21 acres, respectively)	Secure areas for temporary construction offices, construction vehicle parking, equipment and construction materials storage, and stockpiled soil storage	Secure area placed in in relatively flat location, and sited to avoid environmentally sensitive areas. Topsoil salvaged for reuse. The Spill Prevention Control and Countermeasure (SPCC) Plan, and site-specific Stormwater Pollution Prevention Plan (SWPPP) would be followed.
Temporary Concrete Batch Plant	Two areas (within laydown/staging areas)	Facility for mixing concrete needed in construction	Plant to be located in the Temporary Laydown/Staging area, with all BMPs applicable. Water source would be from existing wells or the well to be established for the O&M building.
Wind Turbines	Up to 283	Generate power	Each turbine site would have a plan for on-the-ground layout of turbine components before erection. The SPCC Plan would be followed.
Foundations and Pad-Mounted Transformers for the Wind Turbines	Up to 283 (foundations range from 50-60 feet wide and 8-10 feet deep)	Foundations support the turbines and transformers step up the voltage between the turbine and the electrical collection system	After the concrete has cured, the area would be backfilled leaving only the concrete pier and the transformer pad visible. The SPCC Plan would be followed.
Electrical Collection System and Communications	Approximately 100 to 120 miles of 34.5-kilovolt (kV) collector lines (located parallel to access roads: temporary disturbance area accounted for with roads)	Connect each turbine to the substation and provide for communications between the turbine and substation	As part of the perfected Plan of Development, trenching plans would be developed in cooperation with BLM and Reclamation, with input from appropriate regulatory agencies, to minimize the environmental effects that may occur with open trenches. The SPCC Plan and SWPPP would be followed. Weeds would be controlled in accordance with the Integrated Reclamation Plan. A Supervisory Control and Data Acquisition (SCADA) system would network underground fiber optic cables within the Wind Farm Site to allow for remote control monitoring of the turbines and communication between the wind turbines and the substation. The two systems would be buried in the same trenches to avoid additional need for excavation.

<b>Component</b>	<b>Quantity and Land Requirements for Operations</b>	<b>Purpose</b>	<b>Best Management Practices (BMPs) (if applicable)</b>
Electrical Distribution Substation	Two (approximately 5 acres each)	Step up the voltage of the electrical collection system for delivery through a high-voltage transmission line	Secure area placed in in relatively flat location, and sited to avoid environmentally sensitive areas. Topsoil salvaged for reuse. The SPCC Plan and SWPPP would be followed. Weeds would be controlled in accordance with the Integrated Reclamation Plan.
Overhead Transmission Line	Approximately 6 miles in length with 8 support structures per mile for 345-kV or 500-kV line	Connect with existing regional transmission line to deliver Project power to purchasing utility	Depth and diameter of holes to be determined during engineering. Vegetation removal for the corridors to use BLM approved guidelines, and be in accordance with the Plan of Development. Existing roads used when possible, but helicopters for portions of the work may be used. Design criteria would follow Avian Power Line Interaction Committee (APLIC) guidelines, to minimize the likelihood of electrocution of raptors.
Interconnection Switchyard	One (up to 10 acres )	Interface at the interconnection point between the proposed transmission line and an existing regional transmission line	Foundations would be designed for ease of removal during decommissioning. Vertical steel support structures would be erected and electrical equipment would be installed. General components would include power transformers, circuit breakers, switchgear, voltage regulators, capacitors, air switches, arresters, and various monitoring instruments/equipment. Finally, the perimeter fence and the final layer of crushed rock surfacing would be installed, possibly with an underlayment to help prevent weeds, and include spill containment where appropriate. If needed, substation and switchyard maintenance to control weeds may include physical, biological, and/or chemical control methods, as approved by the BLM, and in accordance with the Integrated Reclamation Plan.

<b>Component</b>	<b>Quantity and Land Requirements for Operations</b>	<b>Purpose</b>	<b>Best Management Practices (BMPs) (if applicable)</b>
Mead Substation Transformer Replacement (applicable with a 345-kV interconnection)	Not applicable (within existing Mead Substation)	To provide adequate equipment, the existing 345/230-kV transformer and associated equipment at Mead Substation would be replaced with two new 600 MVA 345/230-kV transformers and ancillary equipment if the Project is interconnected to the 345-kV transmission line	Western presently operates and maintains an existing switchyard at the location, and would construct, own, operate, and maintain the replacement. Work would be confined to the existing disturbed area.
Operations and Maintenance Building	One (up to 5 acres)	Employee facility for operation and maintenance of Project facilities and storage of supplies and maintenance equipment	The roof and side panels would be painted a color to blend with the environment. External lighting would be minimal with downward directed lighting. The SPCC Plan and SWPPP would be followed. Septic system would be installed in accordance with all applicable permits.
Access Roads	Approximately 3 miles of access roads linking the Wind Farm Site to US 93	Provide primary access to the Wind Farm Site from US 93	Existing roads used as much as possible. Any improvements to US 93 to be coordinated with Arizona Department of Transportation (ADOT). Road specification to be determined during final engineering design, with plans approved by BLM, Reclamation, and ADOT. Low posted speed limits for dust control.
Interior Roads	Approximately 85 to 111 miles within the Wind Farm Site	Provide internal access within the Wind Farm Site between facilities (turbines, substation, and operations and maintenance building)	Adherence to the Plan of Development Flagging Plan. Road specification to be determined during final engineering design, with plans approved by BLM and Reclamation. Low posted speed limits for dust control.
Utility and Communication Lines	Approximately 5 to 10 miles	Provide operational power and communication abilities for on-site facilities	Planning for the distribution line would be done in consultation with appropriate federal, state, and local agencies, and would include use of previously disturbed areas (where feasible and practical), avoidance of known cultural resources, consideration of temporary habitat loss, and a design that would discourage bird perching or nesting, that would be APLIC compliant.

<b>Component</b>	<b>Quantity and Land Requirements for Operations</b>	<b>Purpose</b>	<b>Best Management Practices (BMPs) (if applicable)</b>
Meteorological Towers	Up to four permanent and up to 10 additional temporary met towers (9 square feet for each tower)	Monitor wind speed	The area disturbed by installation of meteorological towers (i.e., footprint) will be kept to a minimum. No fencing, utilities, welding, or road building would be required. Structural design would discourage bird perching, and would be APLIC compliant.

Following is the summary of the pre-construction and site preparation activities; construction schedule and activities; an overview of operations and maintenance; and decommissioning process.

### **Pre-Construction and Site Preparation**

During final design, detailed plans would be developed or refined to further guide site preparation, construction, and post-construction. This may include, but is not limited to, an Integrated Reclamation Plan, Transportation and Traffic plan (which would address the transport of equipment); Health, Safety, Security and Environment (HSSE) Plan (including emergency response and waste management); and Historic Properties Treatment Plan. During final design, these plans, along with the Site Grading Plan (which would incorporate the Flagging Plan and construction drawings), and an updated Plan of Development would be reviewed with appropriate agencies with jurisdictional or technical expertise or regulatory responsibilities, including but not limited to BLM, Reclamation, Western, and Mohave County.

All pre-construction activities would use BMPs to minimize potential impacts to the environment. Pre-construction activities would include:

- A site survey to stake out the exact location of the wind turbines, access roads, electrical lines, substation areas, and other major Project features. Locations of sensitive resources would be flagged or clearly marked for avoidance. Limits of proposed disturbance areas would be flagged per the Flagging Plan.
- A site walk-over inspection by environmental and agency inspectors, the contractor, and any subcontractors to identify and mark sensitive resources to avoid, limits of clearing, location of drainage features, and the layout for sedimentation and erosion control measures. This walk-over would occur on a regular basis, both pre-construction and during construction.
- An orientation and training for supervisors and work crews to explain safety rules, environmental awareness and compliance programs, and minimization of construction waste.

Site preparation activities would include clearing, grading, and blasting. Proposed activities include:

- Establishing sediment and erosion controls in accordance with the Stormwater Pollution Prevention Plan (SWPPP) as well as BMPs.
- Removing topsoil<sup>3</sup> bearing organic components would be used in reclamation that takes place during construction or stockpiled for use in site reclamation.
- Potential blasting to achieve the necessary slope and gradient for access roads or for foundation construction, which would be conducted in accordance with a Blasting Plan prepared in advance of construction and approved by BLM and Reclamation.

### **Construction**

Construction is anticipated to begin after permitting is complete and purchasers of the Project's power are identified; construction would take approximately 12 to 18 months (52 to 78 weeks). Table ES-2 outlines the construction activities and their anticipated duration.

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<sup>3</sup> Surface soil usually including the organic layer in which plants have most of their roots.

**Table ES-2. Proposed Construction Schedule (Approximate)**

<b>Facility</b>	<b>Start</b>	<b>Duration</b>
Road Construction	Week 3	25 weeks
Substation Construction	Week 4	32 weeks
Transmission Line Installation	Week 6	20 weeks
Foundation Construction	Week 7	28 weeks
O&M Building Construction	Week 8	16 weeks
Collector Line Installation	Week 9	22 weeks
Turbine Generator Installation	Week 11	35 weeks
Turbine Commissioning	Week 15	35 weeks
Site Restoration (Interim Reclamation)	Week 50	8 weeks

The number of construction personnel on site is expected to range from 300 to 500 (during peak construction). The expected total round trip count of 55,930 to 80,930 vehicles over a 12- to 18-month period results in an average trip count of 215 to 311 trips into and out of the Project Area per workday. Personal vehicles would be parked at the main staging area for the site. From this point, only delivery and on-site construction vehicles would use construction access roads.

Construction of the Project is anticipated to commence after a Notice to Proceed and a right to use authorization is issued by BLM, Reclamation, and Western and other necessary commercial agreements are issued. Ideally, the wind farm would be developed in a single construction interval. However, depending on the market for the power and the negotiated power purchase agreement, the proposed Project could potentially be developed in two or more construction intervals. Should more than one construction interval be necessary, plans would be coordinated with BLM and/or Reclamation to address treatment of temporary facilities and the reclamation schedule. Once completed, the wind energy facility is planned to operate for up to 30 years.

The components of the Project would include wind turbines; foundations and pad-mounted transformers; electrical collection, communication, and distribution systems; access roads; and ancillary facilities including an O&M building and permanent met towers. The exact location of the wind turbines, roads, and transmission interconnect lines would be determined during final design following completion of wind resource data analyses and other environmental studies, including identification of construction constraints and sensitive cultural or natural resources to be avoided. However, proposed locations have been identified with buffers large enough to account for the anticipated minor adjustments in the placement of Project components during final design. Throughout all facets of the Project, BMPs would be required and would be applied both to the management of the Project and as environmental mitigation.

Clearing and disposing of trash, debris, and shrub/scrub on those portions of the site where construction would occur would be performed at the end of each work day through all stages of construction unless held for later use in reclamation. Disposal of non-hazardous cuttings and debris would be in an approved facility designed to handle such waste or at the direction of the BLM/Reclamation-authorized officer, which may include using vegetative cuttings as mulch in the Project Area during reclamation.

### **Operations and Maintenance**

The functionality of the wind turbines and safety systems would be tested to ensure they operate in accordance with the manufacturer's specification before the turbines are commissioned for operation. Energizing the Project would start at the point of interconnection and eventually be energized all the way to the turbines. In general the order of energizing the system would be:

- The switchyard (the point of interconnection)
- The transmission line
- The substation
- The collection system
- The pad mounted transformers at each turbine
- The turbines

At each stage, testing would be performed to ensure the equipment has been installed correctly. When all systems have been tested and are operating properly, the Project would be commissioned for commercial operation and sale of energy.

Wind farm facilities are comprised of many individual wind turbine generators, and O&M activities would not affect the entire wind farm's operation. Annual maintenance would be conducted on a turbine-by-turbine basis and would not affect performance of the wind farm. Routine wind turbine maintenance and service would occur every six months commencing after the first six months that the Project is in service, and would be performed by a staff of approximately 30 employees. Maintenance and service would include the following activities:

- Hydraulic pressure checks
- Accumulators' nitrogen recharge
- Oil level checks on all operating parts
- Visual checks for leaks
- Grease all bearings on moving parts
- Check all bolt torques
- General clean-up within the wind turbine
- Perform any additional modifications/replacements needed

During the Project operations period, roads would be specifically inspected for erosion, blockage of culverts, and damaged cattle guards twice annually. During Project operations, public access to the Project Area would be monitored at certain access points to provide for the safety of the public in and around the operating equipment; however long-term dispersed recreational use throughout the Project Area would continue to be allowed. Public access in the Project Area may be temporarily restricted during maintenance activities on roads or facilities, when warranted for public safety reasons. Access also may be restricted (i.e., closed to public vehicle travel), upon approval by BLM, in areas where reclamation efforts have been undertaken and public access into those areas would diminish the reclamation efforts. The transmission line ROW would be cleared, as needed, to ensure that vegetation does not come within the safe operating distance of the transmission line. Substation and switchyard maintenance may include treating crushed rock surfaces with herbicides to control weeds, if approved by the BLM and/or Reclamation. In general, unless there are unplanned events such as repair of turbine components due to manufacturer defects, maintenance would only consist of routine services that would require only normal access to the Project Area.

## **Decommissioning**

The Project is anticipated to have a lifetime of up to 30 years, after which it may no longer be cost effective to continue operations. The Project would be decommissioned, and the existing equipment removed. At that time, an updated decommissioning plan would be provided to BLM and Reclamation for review and approval.

The goal of Project decommissioning is to remove the installed power generation equipment and return the site to a condition as close to a pre-construction state as feasible. The major activities required for the decommissioning are as follows:

- Remove wind turbines and met towers – the disassembly approach would limit the need for new clearance of areas.
- Remove aboveground substations, transmission line, and aboveground collector lines.
- Remove structural foundations in accordance with BLM- and/or Reclamation-approved decommissioning plan.
- Remove roads not desired for other purposes – if BLM or Reclamation choose to retain the roads, maintenance would become the responsibility of the agency.
- Remove the O&M building.
- Re-grade and recontour the disturbed areas.
- Revegetate disturbed areas.

## **PROJECT FEATURE OPTIONS**

Within the Project, there are several options related to specific Project features. Any of the options identified could be selected and still satisfy the purpose and need. Table ES-3 summarizes the Project feature options.

**Table ES-3. Project Feature Options**

<b>Project Feature</b>	<b>Option 1</b>	<b>Option 2</b>
Turbine Color	White	Light gray (such as RAL 7035 or equivalent)
Transmission Line Interconnection	345-kV Liberty-Mead on site	500-kV Mead-Phoenix on site
Collector Lines	All below ground	Partly below ground, partly aboveground

## **Alternative A – Proposed Action**

Alternative A is the proposed action identified by BP Wind Energy. The Wind Farm Site would encompass approximately 38,099 acres of public land managed by the BLM and approximately 8,960 acres of land managed by Reclamation. The number of turbines constructed would vary depending on the turbine type that is installed, but Alternative A could accommodate a greater maximum number of turbines than the other alternatives. Alternative A could support development of approximately 203-283 turbines depending on turbine size chosen (Table ES-4). The specific turbine count and layout would be determined through micro-siting, which may include analysis of the physical constraints of the landscape; the strength of the wind resource; geotechnical testing results; and avoidance of waters of the U.S. and cultural resources, among other factors. Micro-siting would occur as part of perfecting the Plan of Development. Flexibility to place turbines within the corridors would be necessary in order to address

specific engineering and environmental constraints identified through this EIS and during BLM’s and Reclamation’s review of construction plans prior to issuance of notices to proceed with construction.

While the various Project feature options of transmission line interconnection and collector lines could be considered with Alternative A, BP Wind Energy proposes to install industry-standard non-reflective white or light off-white turbines. Future studies would determine the best solution for the collector lines, but a combination of underground and aboveground collector lines is expected. The preferred option for an interconnection cannot be firmly identified until more progress is made in determining which utility is interested in purchasing the power generated by the plant. In addition, the 500-kV Mead-Phoenix line has the potential to be converted to direct current upon approval by the owners (or “participants”) involved with that line (of which Western is one). Converting the line to direct current could entail negative operational and financial impacts on the Project proponent and other power generators interconnected to this line.

**Table ES-4. Range of Turbine Types, Turbine Counts, and Power Production by Alternative**

Alternatives (acreage)	Turbine Rotor Diameter (meters)	Per Turbine Electrical Output (MW)	Number of Turbine Positions <sup>1</sup>	Power Production (MW) <sup>2</sup>
<b>Alternative A</b>				
38,099 on BLM; 8,960 on Reclamation	77 to 82.5	1.5	283	425
	90 to 101	1.6 to 2.0	255	408 to 500
	112 to 118	2.3 to 3.0	203	467 to 500
<b>Alternative B</b>				
30,872 on BLM; 3,848 on Reclamation	77 to 82.5	1.5	208	312 <sup>4</sup>
	90 to 101	1.6 to 3.0	194	310 <sup>4</sup> to 500
	112 to 118	2.3 to 3.0	153	352 <sup>4</sup> to 459 <sup>3</sup>
<b>Alternative C</b>				
30,178 on BLM; 5,124 on Reclamation	77 to 82.5	1.5	208	312 <sup>4</sup>
	90 to 101	1.6 to 3.0	194	310 <sup>4</sup> to 500
	112 to 118	2.3 to 3.0	154	354 <sup>4</sup> to 462 <sup>3</sup>
<b>Alternative E</b>				
35,329 on BLM; 2,781 on Reclamation	77 to 82.5	1.5	243	364 <sup>4</sup>
	90 to 101	1.6 to 3.0	228	364 <sup>4</sup> to 500
	112 to 118	2.3 to 3.0	179	411 to 500

**NOTES:**

<sup>1</sup> Number of turbines positions is approximate and subject to minor changes as the Project moves through detailed design and into construction.

<sup>2</sup> Greater than 500 MWs total Project generating capacity is physically possible for some turbine models, but the Project would not exceed 500 MW as that is the maximum output sought per the Project’s transmission interconnection applications.

<sup>3</sup> If the Project interconnects to the 500-kV Mead-Phoenix transmission line, a 500 MW nameplate capacity would be achieved by using a combination of turbine types with certain corridors using a turbine model with high MW capacity but a smaller rotor diameter that can be spaced more closely together. Therefore, the maximum number of turbines would be within the range of 153-194 turbines.

<sup>4</sup> The power production range falls below the applicant’s need to meet an interconnection requirement of 425 MW to 500 MW if turbines of lower nameplate MW were selected.

**Alternative B**

In response to concerns raised by the National Park Service and residential developers, BLM developed Alternative B, which reduces the Wind Farm Site footprint and likely would have fewer turbines than Alternative A. The intent would be to reduce visual and noise impacts primarily on Lake Mead National

Recreation Area (NRA) and secondly on private property. The Wind Farm Site would encompass approximately 30,872 acres of public land managed by the BLM and approximately 3,848 acres of land managed by Reclamation. The number of turbines constructed would vary depending on the turbine type that is installed, but Alternative B could support development of a 153-208 turbines.

With a smaller footprint than Alternative A, Alternative B presents greater challenges associated with achieving the nameplate capacity per the interconnection agreements. While it is preferable to have a single turbine type (size and manufacturer) throughout the wind farm for uniformity of equipment, parts, and maintenance processes during operations, one option (to achieve nameplate capacity if a smaller turbine is used) would be to have one or more turbine corridors filled by a larger generation capacity turbine than in the balance of the wind farm. Alternatively, the turbines in certain corridors could be squeezed more closely together as long as they retain the manufacturer's spacing requirements. While tighter spacing may reduce the generation efficiency of an individual turbine, the added turbines may collectively help to achieve the nameplate capacity rating. However, 208 turbines would remain the maximum number of turbines installed with Alternative B. The Project would still be required to meet the 425 MW or 500 MW interconnection requirements.

Other Project features would be comparable to those identified with Alternative A. All Project feature options (turbine color, transmission line, and collector lines) would be considered as suitable options for Alternative B.

### **Alternative C**

Alternative C also reduces the Wind Farm Site footprint and likely would have fewer turbines than Alternative A with the intent of reducing visual and noise impacts primarily on private property and secondly on Lake Mead NRA. The Wind Farm Site would encompass approximately 30,178 acres of public land managed by the BLM and approximately 5,124 acres of land managed by Reclamation. Distances between turbines and private property would be greater with Alternative C than with the other action alternatives. The number of turbines constructed would vary depending on the turbine type that is installed, but Alternative C could support development of 154-208 turbines, and no more than 208 turbines would be installed with this alternative.

Like Alternative B, methods to achieve the nameplate capacity with Alternative C could include use of more than one turbine type and alteration of the turbine spacing to generate the 425 or 500 MW of power needed to satisfy the interconnection request, while staying within the turbine corridors identified in the reduced land area. The Project would still be required to meet the 425 MW or 500 MW interconnection requirements.

Other Project features would be comparable to those identified with Alternative A. All Project features options (turbine color, transmission line, and collector lines) would be considered as suitable options for Alternative C.

### **Alternative D – No Action**

Alternative D is the no-action Alternative in which the Project would not be built and provides a baseline against which action alternatives can be compared. Alternative D assumes that no actions associated with the Project would occur, and no ROWs or interconnections would be granted. The BLM-administered public lands would continue to be managed in accordance with the Kingman Resource Management Plan and the Reclamation-administered lands would continue to be managed by Reclamation. The need would not be met for the agencies to respond to BP Wind Energy's application to develop the wind farm and to interconnect with Western's transmission system, through the established application processes of both agencies. Capacity on Western's transmission lines would remain available for other projects.

The No Action Alternative would not support the BLM's management objective to increase renewable energy production on public lands per the Energy Policy Act (EPAct); support BLM's Wind Energy Development Policy for increasing renewable energy production on BLM-administered public lands; or respond to the projected demand for energy described in the EPAct. However, taking no action on the Project would not preclude the opportunity for other renewable energy projects to be considered.

### **Alternative E – Agencies' Preferred Alternative**

The Agencies' Preferred Alternative was selected based on the analysis in this EIS, consideration of public comments, and the golden eagle survey data that emerged during the 2012 biological surveys. These data indicated a need to establish a no-build area and curtailment zone to reduce potential impacts on golden eagles within the Squaw Peak breeding area in the northwest portion of the Wind Farm Site. As a result, Alternative E was established with the rationale focused on (1) coordination and consultation among the U.S. Fish and Wildlife Service (USFWS), BLM, Reclamation, and Arizona Game and Fish Department (AGFD) regarding concerns for golden eagle breeding areas, (2) concerns for visual and noise impacts on Lake Mead NRA, and (3) concerns for visual and noise impacts on existing residences.

Alternative E, the Agencies' Preferred Alternative, is a combination of Alternatives A and B. Similar to Alternative B, several of the turbine corridors in the northwest corner of the Alternative A Wind Farm Site and certain corridors in the northeastern portion of the site where the turbines would be along ridgelines would be excluded from the Project Area. Consistent with Alternative A and B, Alternative E would provide for a minimum of ¼ mile between private property boundaries and the nearest turbine. Like Alternative A, the southernmost turbine corridor in the Wind Farm Site would be available, but only if needed to meet the generation capacity requirements identified in the interconnection agreement with Western. The Alternative E Wind Farm Site would consist of up to approximately 35,329 acres of BLM-administered land and approximately 2,781 acres of Reclamation-administered land (see Maps 2-11 to 2-13 in Chapter 2). As described in Section 2.6.6, certain turbine corridors would be available for use only if required to meet the nameplate capacity identified in interconnection agreements with Western, so the total amount of land needed could be somewhat less. If the turbine corridors are not needed to meet the generation requirements, Alternative E would further mitigate the potential for impacts to golden eagles, reduce the visual and noise effects on Lake Mead NRA, and reduce the visual and noise effects on private property and residences south of the Project Area.

The number of turbines constructed with Alternative E would vary depending on the turbine type that is installed and the full range of micro-siting constraints. Alternative E could support development of 179 turbines, and no more than 243 turbines would be installed with this alternative. With Alternative E, the turbines would be a light gray color to reduce visual contrast.

Alternative E would not result in effects that are outside the range of alternatives analyzed in the EIS because the proposed turbine corridors are already part of the alternatives analyzed in the EIS. Therefore, the impacts associated with the construction, operation, maintenance, and decommissioning of wind turbines within those corridors are fully disclosed and analyzed in the EIS. The identification of a preferred alternative does not constitute a commitment or decision in principle, and there is no requirement to select the preferred alternative in the ROD.

### **Project Design Refinements and Bonding**

Surface disturbance locations and acreages identified in this EIS are based on a preliminary level of engineering and represent a reasonable maximum disturbance amount anticipated for the Project. The estimated areas of disturbance are conservative and are listed as the estimated maximum amount, thus generally covering more acres than would be required for the proposed facilities. This serves to disclose a greater degree of environmental impact than is likely to occur. However, due to possible Project

refinement during construction, Project features and alignments may change slightly to enhance safety, minimize environmental disturbance, and better accommodate on-the-ground conditions. Consistent with the terms and conditions of a Right of Way grant if issued by BLM, Reclamation, or Western, a variance process, defined in the Compliance and Monitoring Plan, would be used to approve minor project refinements.

BP Wind Energy would post a BLM-required bond or other form of mutually acceptable security for the Project to ensure compliance with the terms and conditions of the ROW authorization and the requirements of applicable regulations. The amount of the security bond would be based on the number of turbines and site-specific and Project-specific factors.

## **ENVIRONMENTAL CONSEQUENCES AND MITIGATION MEASURES**

Impacts are defined as modifications to the environment over existing conditions (the No Action Alternative) that are caused by a proposed action. Potential impacts considered include ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems) aesthetic, historical, cultural, economic, social, and health impacts.

Impacts were analyzed by resource area based on information provided by BP Wind Energy in the initial application and in response to subsequent data requests; field investigations and surveys; public scoping; literature research; and input from federal, state, and local agencies. The environmental effects of constructing, operating, maintaining, and decommissioning the Project as proposed in the action alternatives are presented in Table ES-5. Impact analysis and methodology are described in detail in each resource section in Chapter 4 of this Final EIS. The mitigation measures identified in Table ES-5 refer to the Project-specific mitigation measures described in Chapter 4. The BMPs that are described in Chapter 2 as applicant committed measures and the BMPs from the *Final Programmatic EIS on Wind Energy Development of BLM Administered Lands in the Western States*, as described in Appendix B of this Final EIS, are not repeated in Table ES-5. Unless noted, mitigation measures for Alternatives B, C, and E (the Agencies' Preferred Alternative) would be the same as those listed for Alternative A.

**Table ES-5. Comparison of Resource-Specific Impacts**

Resource	Possible Impacts				
	Alternative A	Alternative B	Alternative C	Alternative D – No Action	Alternative E – Agencies’ Preferred Alternative
Climate and Air Quality	<p><b>Construction:</b> The construction period would be 12 to 18 months with a total area of temporary ground disturbance of 1,537 acres. Average site-wide total pollutant emissions during construction:</p> <ul style="list-style-type: none"> <li>• volatile organic compounds (VOCs): 37.80 tons.</li> <li>• carbon monoxide (CO): 262.9 tons.</li> <li>• nitrogen oxides (NO<sub>x</sub>): 206.2 tons.</li> <li>• particulate matter (PM<sub>10</sub>): 958.4 tons.</li> <li>• sulfur dioxide (SO<sub>2</sub>): 23.8 tons.</li> </ul> <p>Releases of these pollutants and greenhouse gas (GHG) emissions would be temporary (through the construction period) and would not exceed allowed limits.</p> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>• Reduce earthmoving activity if winds exceed 22 miles per hour or gusts exceed 30 miles per hour.</li> <li>• Apply water or BLM-approved palliatives to the ground surface.</li> <li>• Enforce an on-site 25 mile per hour speed limit.</li> <li>• Place cobble beds at egress points.</li> <li>• Use trained personnel to observe opacity conditions.</li> <li>• Comply with the Transportation and Traffic Plan (summarized in Appendix C.2.8 in this Final EIS).</li> <li>• Comply with the Dust and Emissions Control Plan (summarized in Appendix C.2.6 in this Final EIS).</li> </ul>	<p><b>Construction:</b></p> <ul style="list-style-type: none"> <li>• Temporary ground disturbance would be approximately 303 fewer acres than Alternative A. Reducing ground disturbing activities decreases the air pollutant emissions during construction.</li> </ul>	<p><b>Construction:</b></p> <ul style="list-style-type: none"> <li>• Temporary ground disturbance would be approximately 273 fewer acres than Alternative A and would reduce air emissions.</li> </ul>	<p>Emissions related to construction, operations and maintenance, and decommissioning would not occur.</p> <p>As noted in the analysis, there could be a potential increase in GHG emissions and criteria pollutant emissions (PM, CO, NO<sub>x</sub>, PM, SO<sub>2</sub>, Lead, and Ozone) from producing energy using non-renewable energy sources, which is a potential consequence of not developing renewable energy projects.</p>	<p><b>Construction:</b></p> <ul style="list-style-type: none"> <li>• Air pollutant emissions attributable to construction for Alternative E would be lower than the construction air emissions predicted for Alternative A and higher than those predicted for Alternatives B and C. Phasing construction of turbines as the nameplate capacity is achieved could potentially decrease air pollutant emissions for the Project relative to the Alternatives A, B and C.</li> </ul>
	<p><b>Operations and Maintenance:</b></p> <ul style="list-style-type: none"> <li>• Small amounts of PM, NO<sub>x</sub>, VOCs CO, SO<sub>2</sub> and GHG emissions and small quantities of VOCs during routine maintenance.</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>• Enforce an on-site 25 mile per hour speed limit.</li> </ul>	<p><b>Operations and Maintenance:</b></p> <ul style="list-style-type: none"> <li>• Same as Alternative A.</li> </ul>	<p><b>Operations and Maintenance:</b></p> <ul style="list-style-type: none"> <li>• Same as Alternative A.</li> </ul>	<p><b>Operations and Maintenance:</b></p> <p>No impacts.</p>	<p><b>Operations and Maintenance:</b></p> <ul style="list-style-type: none"> <li>• Same as Alternative A.</li> </ul>
	<p><b>Decommissioning:</b></p> <ul style="list-style-type: none"> <li>• Similar to Construction, and temporary in nature.</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>• Same as Construction.</li> </ul>	<p><b>Decommissioning:</b></p> <ul style="list-style-type: none"> <li>• Similar to Construction emissions for this alternative; however, as there would be fewer turbines to decommission, air pollutant emissions could be less compared to Alternative A due to the decrease in ground disturbing activities.</li> </ul>	<p><b>Decommissioning:</b></p> <ul style="list-style-type: none"> <li>• Similar to Alternative B.</li> </ul>	<p><b>Decommissioning:</b></p> <p>No impacts.</p>	<p><b>Decommissioning:</b></p> <ul style="list-style-type: none"> <li>• Similar to Alternative B, although decommissioning would affect up to 83 acres more than Alternative B.</li> </ul>
Geology, Soils, and Minerals	<p><b>Construction (including Pre-construction):</b></p> <p><b>Geology:</b></p> <ul style="list-style-type: none"> <li>• Surface and subsurface disturbance during construction activities could affect geologic resources including bedrock. However, the extent of bedrock disturbance depends upon the construction item and the location of the individual item.</li> <li>• Temporary impacts to approximately 1,537 acres. Long-term impacts to approximately 317 acres.</li> </ul>	<p><b>Construction:</b></p> <p><b>Geology:</b></p> <ul style="list-style-type: none"> <li>• Similar to Alternative A except there would be a reduction in impacts on geologic resources and bedrock due to fewer acres of temporary and long-term disturbance. Temporary ground disturbance would be approximately 303 fewer acres and long-term disturbance would be 56 fewer acres than Alternative A.</li> </ul>	<p><b>Construction:</b></p> <p><b>Geology:</b></p> <ul style="list-style-type: none"> <li>• Similar to Alternative A except temporary ground disturbance would be approximately 273 fewer acres and long-term disturbance would be 48 fewer acres than Alternative A.</li> </ul>	<p><b>Construction:</b></p> <p><b>Geology:</b></p> <p>No impacts</p>	<p><b>Construction:</b></p> <p><b>Geology:</b></p> <ul style="list-style-type: none"> <li>• Similar to Alternative A except temporary ground disturbance would be approximately 220 fewer acres and long-term disturbance would be 49 fewer acres than Alternative A.</li> </ul>

Resource	Possible Impacts				
	Alternative A	Alternative B	Alternative C	Alternative D – No Action	Alternative E – Agencies' Preferred Alternative
	<p><b>Soil:</b></p> <ul style="list-style-type: none"> <li>• Ground disturbing activities could result in 1,537 acres of temporary removal or disturbance of surface soils and 317 acres of long-term disturbance.</li> <li>• Long-term impacts would be the localized removal of soils for turbine foundations and other project feature foundations.</li> </ul> <p><b>Minerals:</b></p> <ul style="list-style-type: none"> <li>• Subject to a sales contract with the BLM, the Detrital Wash Materials Pit would be used to supply approximately 180,000 to 210,000 cubic yards of aggregate material for the Project.</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>• Areas of temporary disturbance would be reclaimed to as near as possible to pre-disturbance conditions in accordance with the Integrated Reclamation Plan.</li> <li>• Soil erosion minimized through implementation of the Dust Control Plans and Stormwater Pollution Prevention Plan (SWPPP).</li> <li>• Apply water or BLM-approved palliatives to the ground surface.</li> <li>• Enforce an on-site 25 mile per hour speed limit.</li> <li>• Recontour disturbed areas to pre-disturbance conditions to the extent possible.</li> <li>•</li> </ul>	<p><b>Soil:</b></p> <ul style="list-style-type: none"> <li>• Similar to Alternative A except there would be a reduction in impacts on soil resources due to fewer acres of temporary and long-term disturbance. Temporary ground disturbance would be approximately 303 fewer acres and long-term disturbance would be 56 fewer acres than Alternative A.</li> </ul> <p><b>Minerals:</b></p> <ul style="list-style-type: none"> <li>• Same as Alternative A.</li> </ul>	<p><b>Soil:</b></p> <ul style="list-style-type: none"> <li>• Similar to Alternative A except temporary ground disturbance would be approximately 273 fewer acres and long-term disturbance would be 48 fewer acres than Alternative A.</li> </ul> <p><b>Minerals:</b></p> <ul style="list-style-type: none"> <li>• Same as Alternative A.</li> </ul>	<p><b>Soil:</b></p> <p>No impacts</p> <p><b>Minerals:</b></p> <p>No impacts</p>	<p><b>Soil:</b></p> <ul style="list-style-type: none"> <li>• Similar to Alternative A except temporary ground disturbance would be approximately 220 fewer acres and long-term disturbance would be 49 fewer acres than Alternative A.</li> </ul> <p><b>Minerals:</b></p> <ul style="list-style-type: none"> <li>• Same as Alternative A.</li> </ul>
	<p><b>Operations and Maintenance:</b></p> <p><b>Geology:</b></p> <ul style="list-style-type: none"> <li>• Minimal to No impacts.</li> </ul> <p><b>Soil:</b></p> <ul style="list-style-type: none"> <li>• Minimal impact related to maintenance of roads and erosion control activities.</li> </ul> <p><b>Minerals:</b></p> <ul style="list-style-type: none"> <li>• The ability to mine future discoveries would be limited during operations unless BLM or Reclamation would allow mining between turbine corridors during operations. Historically, however, mining interest in this area has been minimal.</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>• Comply with the Dust and Emissions Control Plan.</li> <li>• Apply water or BLM-approved palliatives to the ground surface.</li> <li>• Enforce an on-site 25 mile per hour speed limit.</li> <li>• To the extent practicable, roads, turbines, and other structures would be located away from unstable areas.</li> <li>• Reclamation activities for the Materials Source would be conducted under its approved Mine Plan of Operations.</li> </ul>	<p><b>Operations and Maintenance:</b></p> <p><b>Geology:</b></p> <ul style="list-style-type: none"> <li>• Similar to Alternative A.</li> </ul> <p><b>Soil:</b></p> <ul style="list-style-type: none"> <li>• Similar to Alternative A.</li> </ul> <p><b>Minerals:</b></p> <ul style="list-style-type: none"> <li>• Similar to Alternative A.</li> </ul>	<p><b>Operations and Maintenance:</b></p> <p><b>Geology:</b></p> <ul style="list-style-type: none"> <li>• Similar to Alternative A.</li> </ul> <p><b>Soil:</b></p> <ul style="list-style-type: none"> <li>• Similar to Alternative A.</li> </ul> <p><b>Minerals:</b></p> <ul style="list-style-type: none"> <li>• Similar to Alternative A.</li> </ul>	<p><b>Operations and Maintenance:</b></p> <p><b>Geology:</b></p> <p>No impacts.</p>	<p><b>Operations and Maintenance:</b></p> <p><b>Geology:</b></p> <ul style="list-style-type: none"> <li>• Similar to Alternative A.</li> </ul> <p><b>Soil:</b></p> <ul style="list-style-type: none"> <li>• Similar to Alternative A.</li> </ul> <p><b>Minerals:</b></p> <ul style="list-style-type: none"> <li>• Similar to Alternative A.</li> </ul>
	<p><b>Decommissioning:</b></p> <p><b>Geology:</b></p> <ul style="list-style-type: none"> <li>• Disturbed areas would be recontoured and reclaimed and rock slope would be cut back to a stable grade.</li> </ul>	<p><b>Decommissioning:</b></p> <p><b>Geology:</b></p> <ul style="list-style-type: none"> <li>• Similar to Alternative A.</li> </ul>	<p><b>Decommissioning:</b></p> <p><b>Geology:</b></p> <ul style="list-style-type: none"> <li>• Similar to Alternative A.</li> </ul>	<p><b>Decommissioning:</b></p> <p><b>Geology:</b></p> <p>No impacts.</p>	<p><b>Decommissioning:</b></p> <p><b>Geology:</b></p> <ul style="list-style-type: none"> <li>• Similar to Alternative A.</li> </ul>

Resource	Possible Impacts				
	Alternative A	Alternative B	Alternative C	Alternative D – No Action	Alternative E – Agencies' Preferred Alternative
	<p><b>Soil:</b></p> <ul style="list-style-type: none"> <li>• Temporary increased risk of stormwater-related erosion and blowing dust.</li> <li>• Top 36 inches of the turbine foundation would be removed; foundations would be constructed of non-leaching materials so no long-term effect on geological and soil characteristics removed.</li> </ul> <p><b>Minerals:</b></p> <ul style="list-style-type: none"> <li>• Mineral resources expected to be unchanged.</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>• Same as Construction.</li> </ul>	<p><b>Soil:</b></p> <ul style="list-style-type: none"> <li>• Similar to Alternative A.</li> </ul> <p><b>Minerals:</b></p> <ul style="list-style-type: none"> <li>• Similar to Alternative A.</li> </ul>	<p><b>Soil:</b></p> <ul style="list-style-type: none"> <li>• Similar to Alternative A.</li> </ul> <p><b>Minerals:</b></p> <ul style="list-style-type: none"> <li>• Similar to Alternative A.</li> </ul>	<p><b>Soil:</b></p> <p>No impacts.</p> <p><b>Minerals:</b></p> <p>No impacts.</p>	<p><b>Soil:</b></p> <ul style="list-style-type: none"> <li>• Similar to Alternative A.</li> </ul> <p><b>Minerals:</b></p> <ul style="list-style-type: none"> <li>• Similar to Alternative A.</li> </ul>
Water Resources	<p><b>Construction:</b></p> <p><b>Surface Water:</b></p> <ul style="list-style-type: none"> <li>• Construction activities that disturb the surface, such as clearing, grading, trenching, and excavation to build turbine foundations, could increase the potential for sediment erosion and transport by removing stabilizing vegetation and increasing runoff during storm events.</li> <li>• Ground disturbing activities could result in the removal and disturbance of surface soils from 1,537 acres of temporary disturbance and 317 acres of long-term disturbance, increasing the potential for sediment erosion and transport in disturbed areas, until successfully reclaimed.</li> <li>• Up to 17.26 acres of jurisdictional water impacted (the total may be lower in final design through avoidance). BP Wind Energy, in consultation with U.S. Army Corps of Engineers, would obtain a Permit under the Section 404 Clean Water Act.</li> <li>•</li> </ul>	<p><b>Construction:</b></p> <p><b>Surface Water:</b></p> <ul style="list-style-type: none"> <li>• Similar to Alternative A except fewer acres of temporary and long-term ground disturbance would lessen delivery of sediment to ephemeral washes associated with stormwater than Alternative A. Temporary ground disturbance would be approximately 303 fewer acres and long-term disturbance would be 56 fewer acres than Alternative A.</li> <li>• Up to 15.5 acres of jurisdictional water impacted, other impacts similar to Alternative A.</li> </ul>	<p><b>Construction:</b></p> <p><b>Surface Water:</b></p> <ul style="list-style-type: none"> <li>• Similar to Alternative A except temporary ground disturbance would be approximately 273 fewer acres and long-term disturbance would be 48 fewer acres than Alternative A.</li> <li>• Up to 15.75 acres of jurisdictional water impacted; other impacts similar to Alternative A.</li> </ul>	<p><b>Construction:</b></p> <p><b>Surface Water</b></p> <p>The primary actions and features that currently affect water quality and hydrology would remain the same. Existing hydrologic processes, including erosion and sedimentation, would continue to occur.</p>	<p><b>Construction:</b></p> <p><b>Surface Water:</b></p> <ul style="list-style-type: none"> <li>• Similar to Alternative A except temporary ground disturbance would be approximately 220 fewer acres and long-term disturbance would be 49 fewer acres than Alternative A.</li> <li>• Up to 16.10 acres of jurisdictional water impacted, other impacts similar to Alternative A.</li> </ul>
	<p><b>Groundwater:</b></p> <ul style="list-style-type: none"> <li>• Average daily water use at the batch plant of 28,000 to 40,000 gallons for the 25-week construction period (maximum 5.0 million gallons total).</li> <li>• 100,000 gallons per day (five days a week, for 39 weeks) for dust control (19.5 million gallons total).</li> <li>• Combined total (batch plan and dust control): 75.2 acre-feet, which represents 0.03 percent of recoverable groundwater.</li> <li>• Potential impact from spills and leaks from motorized equipment, but impacts unlikely given the depth to groundwater (160 feet).</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>• Prevent water degradation by implementing a SPCC Plan and a site-specific SWPPP; complying with all necessary permits (Federal, state, and local), and complying with erosion control actions, as described in the Integrated Reclamation Plan.</li> </ul>	<p><b>Groundwater:</b></p> <ul style="list-style-type: none"> <li>• Impacts would be similar to Alternative A, but with proportionally less effects if there are fewer turbines constructed.</li> </ul>	<p><b>Groundwater:</b></p> <ul style="list-style-type: none"> <li>• Impacts would be similar to Alternative A, but with proportionally less effects if there are fewer turbines constructed.</li> </ul>	<p><b>Groundwater:</b></p> <p>No impacts.</p>	<p><b>Groundwater:</b></p> <ul style="list-style-type: none"> <li>• Impacts would be similar to Alternative A, but with proportionally less effects if there are fewer turbines constructed.</li> </ul>
	<p><b>Operations and Maintenance:</b></p> <p><b>Surface Water:</b></p> <ul style="list-style-type: none"> <li>• Temporary increase in erosion during road maintenance, contributing to sediment in local surface water.</li> </ul>	<p><b>Operations and Maintenance:</b></p> <p><b>Surface Water:</b></p> <ul style="list-style-type: none"> <li>• Similar to Alternative A except there would be a reduction in potential for sediments in local surface water due to fewer acres of temporary and long-term ground disturbance. Long-term disturbance would be 56 fewer acres than Alternative A.</li> </ul>	<p><b>Operations and Maintenance:</b></p> <p><b>Surface Water:</b></p> <ul style="list-style-type: none"> <li>• Similar to Alternative A except long-term disturbance would be 48 fewer acres than Alternative A.</li> </ul>	<p><b>Operations and Maintenance:</b></p> <p><b>Surface Water:</b></p> <p>No impacts</p>	<p><b>Operations and Maintenance:</b></p> <p><b>Surface Water:</b></p> <ul style="list-style-type: none"> <li>• Similar to Alternative A except long-term disturbance would be 49 fewer acres than Alternative A.</li> </ul>

Resource	Possible Impacts				
	Alternative A	Alternative B	Alternative C	Alternative D – No Action	Alternative E – Agencies' Preferred Alternative
	<p><b>Groundwater:</b></p> <ul style="list-style-type: none"> <li>A well, comparable to residential use, would be installed near the O&amp;M building and pumped at an estimated 100 gallons per day (0.1 acre-feet per year).</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>Implement an SPCC Plan.</li> <li>Implement a site-specific SWPPP.</li> <li>Inspect roads monthly and after heavy rainfall for road/culvert degradation.</li> <li>Comply with all necessary permits (Federal, state, and local).</li> <li>Comply with erosion control actions as described in the Integrated Reclamation Plan.</li> </ul>	<p><b>Groundwater:</b></p> <ul style="list-style-type: none"> <li>Same as Alternative A.</li> </ul>	<p><b>Groundwater:</b></p> <ul style="list-style-type: none"> <li>Same as Alternative A.</li> </ul>	<p><b>Groundwater:</b></p> <p>No impacts.</p>	<p><b>Groundwater:</b></p> <ul style="list-style-type: none"> <li>Same as Alternative A.</li> </ul>
	<p><b>Decommissioning:</b></p> <p><b>Surface Water:</b></p> <ul style="list-style-type: none"> <li>Increase in potential for sediment erosion and transport in disturbed areas, until successfully reclaimed.</li> </ul> <p><b>Groundwater:</b></p> <ul style="list-style-type: none"> <li>Similar to the amount of water used during construction for dust suppression.</li> <li>An appropriate source of water for dust suppression would be identified in coordination with BLM and Reclamation during planning for the decommissioning process because available sources may change by the time the Project is decommissioned.</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>Same as Construction.</li> </ul>	<p><b>Decommissioning:</b></p> <p><b>Surface Water:</b></p> <ul style="list-style-type: none"> <li>Similar to Alternative A except there would be a reduction in potential for sediment erosion and transport due to fewer acres of temporary disturbance</li> </ul> <p><b>Groundwater:</b></p> <ul style="list-style-type: none"> <li>Overall, impacts would be similar to Alternative A, but with proportionally lesser effects because the Project footprint and amount of surface disturbance would be smaller.</li> </ul>	<p><b>Decommissioning:</b></p> <p><b>Surface Water:</b></p> <ul style="list-style-type: none"> <li>Similar to Alternative B.</li> </ul> <p><b>Groundwater:</b></p> <ul style="list-style-type: none"> <li>Same as Alternative B.</li> </ul>	<p><b>Decommissioning:</b></p> <p><b>Surface Water:</b></p> <p>No impacts.</p> <p><b>Groundwater:</b></p> <p>No impacts.</p>	<p><b>Decommissioning:</b></p> <p><b>Surface Water:</b></p> <ul style="list-style-type: none"> <li>Similar to Alternative B.</li> </ul> <p><b>Groundwater:</b></p> <ul style="list-style-type: none"> <li>Same as Alternative B.</li> </ul>

Resource	Possible Impacts				
	Alternative A	Alternative B	Alternative C	Alternative D – No Action	Alternative E – Agencies' Preferred Alternative
Biological Resources	<p><b>Construction:</b>  <b>Vegetation and Land Cover Types:</b></p> <ul style="list-style-type: none"> <li>Total short-term impact to vegetation includes about 1,537 acres where plants (primarily Sonoran-Mojave Creosotebush-White Bursage Desert Scrub cover type) would be cleared for construction.</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>Mow or crush vegetation in areas of temporary disturbance, where practical.</li> <li>Limit vehicle and foot traffic.</li> <li>Implement an ecological awareness program.</li> <li>Develop an Integrated Reclamation Plan with a habitat restoration plan.</li> </ul> <p><b>Noxious Weeds:</b></p> <ul style="list-style-type: none"> <li>Disturbed ground from clearing activities would be prone to infestation by noxious weeds and invasive plant species.</li> <li>Potential for trucks delivering materials to carry noxious or invasive weed seeds and other plant parts that could introduce noxious weeds or invasive plant species.</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>Mow or crush vegetation (rather than removing it) in areas of temporary disturbance.</li> <li>Limit vehicle and foot traffic.</li> <li>Implement an ecological awareness program.</li> <li>Survey for noxious weeds and invasive species, and treat according to Integrated Reclamation Plan requirements.</li> <li>Pre-treat reclamation sites to limit germination. <ul style="list-style-type: none"> <li>Clean and inspect vehicles to prevent propagating reproductive materials of invasive plants and noxious weeds from entering the Project Area.</li> <li>Use fill materials from on-site sources to the extent possible. Use weed-free sources of outside fill material.</li> <li>Use certified weed free mulch material and seeds for reclamation.</li> <li>Use an integrated approach to manage infestations.</li> </ul> </li> </ul>	<p><b>Construction:</b>  <b>Vegetation and Land Cover Types:</b></p> <p>Overall, impacts would be similar to Alternative A, but with proportionally lesser effects because the Project footprint and amount of surface disturbance would be smaller. Specific differences from Alternative A include:</p> <ul style="list-style-type: none"> <li>Total short-term impact to vegetation would include about 1,234 acres where plants (primarily Sonoran-Mojave Creosotebush-White Bursage Desert Scrub cover type) would be cleared for construction.</li> </ul> <p><b>Construction:</b>  <b>Noxious Weeds</b></p> <p>Impacts from noxious weeds and invasive plant species would be reduced slightly compared to Alternative A, with about 303 fewer acres subject to temporary ground disturbance than Alternative A. With fewer acres disturbed, the potential for establishment of noxious weeds would decrease under Alternative B in comparison to Alternative A.</p>	<p><b>Construction:</b>  <b>Vegetation and Land Cover Types:</b></p> <p>Overall, impacts would be the similar to Alternative A, but with proportionally lesser effects because the Project footprint and amount of surface disturbance would be smaller. Specific differences would include:</p> <ul style="list-style-type: none"> <li>Total short-term impact to vegetation would include about 1,264 acres where plants (primarily Sonoran-Mojave Creosotebush-White Bursage Desert Scrub cover type) would be cleared for construction.</li> </ul> <p><b>Construction:</b>  <b>Noxious Weeds</b></p> <p>Impacts are reduced slightly compared to Alternative A, but would differ little from Alternative B. The short-term disturbance area would be about 1,264 acres, which is approximately 273 fewer acres than Alternative A and 30 acres more than Alternative B.</p>	<p><b>Construction:</b>  <b>Vegetation and Land Cover Types:</b></p> <p>No impacts.</p> <p><b>Construction:</b>  <b>Noxious Weeds</b></p> <p>No impacts.</p>	<p><b>Construction:</b>  <b>Vegetation and Land Cover Types:</b></p> <p>Overall, impacts would be similar to Alternative A, but with proportionally lesser effects because the Project footprint and amount of surface disturbance would be smaller. Specific differences from Alternative A include:</p> <ul style="list-style-type: none"> <li>Total short-term impact to vegetation would include about 1,317 acres where plants (primarily Sonoran-Mojave Creosotebush-White Bursage Desert Scrub cover type) would be cleared for construction.</li> </ul> <p><b>Construction:</b>  <b>Noxious Weeds</b></p> <p>Similar impacts as Alternatives A, B, and C except the short-term disturbance area would be approximately 1,317 acres which could reduce impacts from noxious weeds and invasive plant species compared to A.</p>

Resource	Possible Impacts				
	Alternative A	Alternative B	Alternative C	Alternative D – No Action	Alternative E – Agencies' Preferred Alternative
	<p><b>Wildland Fire:</b></p> <ul style="list-style-type: none"> <li>Traffic and human activity would provide the potential for human sourced ignitions.</li> <li>Potential infestation from invasive plant species and noxious weeds would provide for wildland fire to affect areas outside the disturbance footprint.</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>Remove vegetative fuel and manage weeds to help retain the current Class 2 condition.</li> <li>Limit traffic to only essential vehicles in the construction areas.</li> <li>Establish parking guidelines.</li> <li>Establish safety guidelines for construction flame and spark sources.</li> </ul>	<p><b>Construction:</b> <b>Wildland Fire:</b> Impacts would be similar to Alternative A, but with risk of fire reduced from human activity because the Project footprint is 12,339 acres smaller than Alternative A.</p>	<p><b>Construction:</b> <b>Wildland Fire:</b> Impacts would be similar to Alternative A, but with risk of fire reduced from human activity because the Project footprint is 11,757 acres smaller than Alternative A.</p>	<p><b>Construction:</b> <b>Wildland Fire:</b> Risk of wildland fire would not change from the current risk associated with recreational and other human source ignitions.</p>	<p><b>Construction:</b> <b>Wildland Fire:</b> Overall, impacts would be similar to Alternatives A, but with risk of fire reduced from human activity because the Project footprint is 8,949 acres smaller than Alternative A if all Project phases are implemented; risk reduced further if Project footprint is further reduced by building fewer phases.</p>
	<p><b>Wildlife:</b> <b>Small Mammals, Reptiles, and Amphibians</b></p> <ul style="list-style-type: none"> <li>Temporary and long-term loss of habitat from vegetation clearing and soil disturbance, with species inhabiting creosote scrub affected the most.</li> <li>Approximately 3 percent of the available habitat in the Project Area lost or degraded.</li> <li>Minor impacts related to individual mammals that could be injured, killed, or trapped in trenches, although mitigation measures would minimize the possibility of entrapment.</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>Identify species present before initiating construction.</li> <li>Mow or crush vegetation (rather than removing it) in areas of temporary disturbance.</li> <li>Limit vehicle and foot traffic.</li> <li>Fill any trenches/holes immediately, or cover them at night and provide escape ramps, when not in use.</li> <li>Implement an ecological awareness program.</li> </ul> <p><b>Bats:</b></p> <ul style="list-style-type: none"> <li>The California myotis, California leaf-nosed bat, Townsend's big eared bat, long-eared myotis, and cave myotis would experience loss of foraging habitat where wash vegetation is removed.</li> <li>Blasting in mountainous areas could disturb roost sites for crevice roosting bats, which could impact up to 16 species that roost in crevices all the time or some of the time.</li> </ul>	<p><b>Construction:</b> <b>Small Mammals, Reptiles, and Amphibians</b> Similar to Alternative A except there would be a reduction in impacts due to fewer acres of temporary ground disturbance. The area subject to temporary ground disturbance with Alternative B is estimated at 1,234 acres, which is about 303 acres less than Alternative A.</p> <p><b>Construction:</b> <b>Bats</b> Impacts would be similar to Alternative A except that the Project would have fewer turbines and avoid sensitive resources for bats and two unoccupied nest sites for golden eagles.</p>	<p><b>Construction:</b> <b>Small Mammals, Reptiles, and Amphibians</b> Similar to Alternatives A and B except impacts associated with ground disturbance and loss of habitat would be the less than Alternative A. The area subject to short-term ground disturbance with Alternative C is estimated at 1,264 acres, which is about 273 acres less than Alternative A and 30 acres more than Alternative B.</p> <p><b>Construction:</b> <b>Bats</b> Similar to Alternative B.</p>	<p><b>Construction:</b> <b>Small Mammals, Reptiles, and Amphibians</b> No impacts.</p> <p><b>Construction:</b> <b>Bats</b> No impacts.</p>	<p><b>Construction:</b> <b>Small Mammals, Reptiles, and Amphibians</b> Construction of Alternative E would have effects similar to Alternatives A, B, and C except impacts associated with ground disturbance and loss of habitat would be the less than Alternative A, but more than Alternatives B and C. The area subject to short-term ground disturbance with Alternative E is estimated at 1,317 acres, which is about 220 acres less than Alternative A.</p> <p><b>Construction:</b> <b>Bats</b> Similar to Alternative A, B, and C except Alternative E would have less impacts on bats due to the eagle nest avoidance area, curtailment zone, fewer turbines, and phased construction.</p>

Resource	Possible Impacts				
	Alternative A	Alternative B	Alternative C	Alternative D – No Action	Alternative E – Agencies' Preferred Alternative
	<p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>• Implement the Bat Conservation Strategy that has been developed for the Project.</li> <li>• Implement an ecological awareness program.</li> </ul> <p><b>Big Game:</b></p> <ul style="list-style-type: none"> <li>• Habitat loss mainly to mule deer would be minimal (about 3 percent of the available habitat in Project Area) because vegetation types are widely available in the region. All other impacts to big game would be minimal based on the large use area of the big game species.</li> <li>• Construction noise could initiate alert of flight responses, and result in displacement of individuals or smaller populations in the Project Area, but the degree of impact is uncertain because the Project Area already experiences noise and human activity.</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>• Limit vehicle and foot traffic.</li> <li>• Fill any trenches/holes immediately, or cover them at night and provide escape ramps, when not in use.</li> <li>• Implement an ecological awareness program.</li> </ul> <p><b>Wild Burros:</b></p> <ul style="list-style-type: none"> <li>• It is unknown if burros utilize the Project Area, but if they do utilize the area; impacts would be similar to that discussed under Big Game.</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>• Same as for those described for Big Game.</li> </ul> <p><b>Birds:</b> <b>Resident and Migratory Birds:</b></p> <ul style="list-style-type: none"> <li>• Noise and human activity could contribute to alert or flight responses, interfere with vocal communication and breeding behavior, and lead to displacement of individuals.</li> <li>• Clearing of land could impact nests, eggs, or nestlings.</li> </ul>	<p><b>Construction:</b> <b>Big Game:</b></p> <p>Similar to Alternative A except there would be a reduction in impacts on habitat due to fewer acres of temporary ground disturbance. The area subject to temporary ground disturbance with Alternative B is estimated at 1,234 acres, which is about 303 acres less than Alternative A.</p> <p><b>Construction:</b> <b>Wild Burros:</b></p> <p>Similar to Alternative A except there would be a reduction in impacts on habitat due to fewer acres of temporary ground disturbance. The area subject to temporary ground disturbance with Alternative B is estimated at 1,234 acres, which is about 303 acres less than Alternative A.</p> <p><b>Construction:</b> <b>Resident and Migratory Birds:</b></p> <p>Impacts would be similar to Alternative A except that the Project boundary would avoid potential use regions for birds compared to Alternative A.</p>	<p><b>Construction:</b> <b>Big Game:</b></p> <p>Similar to Alternatives A and B except impacts associated with ground disturbance and loss of habitat would be the less than Alternative A. The area subject to short-term ground disturbance with Alternative C is estimated at 1,264 acres, which is about 273 acres less than Alternative A and 30 acres more than Alternative B.</p> <p><b>Construction:</b> <b>Wild Burros:</b></p> <p>Similar to Alternatives A and B except impacts associated with ground disturbance and loss of habitat would be the less than Alternative A. The area subject to short-term ground disturbance with Alternative C is estimated at 1,264 acres, which is about 273 acres less than Alternative A and 30 acres more than Alternative B.</p> <p><b>Construction:</b> <b>Resident and Migratory Birds:</b></p> <p>Similar to Alternatives A and B except impacts associated with ground disturbance and loss of habitat would be the less than Alternative A. The area subject to short-term ground disturbance with Alternative C is estimated at 1,264 acres, which is about 273 acres less than Alternative A and 30 acres more than Alternative B.</p>	<p><b>Construction:</b> <b>Big Game:</b></p> <p>No impacts.</p> <p><b>Construction:</b> <b>Wild Burros:</b></p> <p>No impacts.</p> <p><b>Construction:</b> <b>Resident and Migratory Birds:</b></p> <p>No impacts.</p>	<p><b>Construction:</b> <b>Big Game:</b></p> <p>Similar impacts as Alternatives A, B, and C except the short-term disturbance area would be approximately 1,317 acres, assuming use of all phases, which could reduce impacts on big game habitat compared to A.</p> <p><b>Construction:</b> <b>Wild Burros:</b></p> <p>Similar impacts as Alternatives A, B, and C except the short-term disturbance area would be approximately 1,317 acres, assuming use of all phases, which could reduce impacts on habitat compared to A.</p> <p><b>Construction:</b> <b>Resident and Migratory Birds:</b></p> <p>Similar impacts as Alternatives A, B, and C except the short-term disturbance area would be approximately 1,317 acres, assuming use of all phases, which could reduce impacts on habitat compared to A.</p>

Resource	Possible Impacts				
	Alternative A	Alternative B	Alternative C	Alternative D – No Action	Alternative E – Agencies' Preferred Alternative
	<p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>• Complete pre-construction surveys to identify species and potential impacts to nest, eggs, or nestlings.</li> <li>• Design above ground lines to follow APLIC guidelines.</li> <li>• Use bird flight diverter devices, if needed.</li> <li>• Avoid non-mandatory night-lighting.</li> <li>• Clear vegetation during non-breeding season, or survey and flag to avoid destroying nests.</li> <li>• Develop and implement a bird conservation strategy.</li> <li>• Implement an ecological awareness program.</li> </ul> <p><b>Raptors:</b></p> <ul style="list-style-type: none"> <li>• Raptors could be displaced or forced to forage over a greater area, due to the loss of vegetation and habitat for prey.</li> <li>• Noise and human activity could lead to displacement of individuals.</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>• Same as those described for Resident and Migratory Birds.</li> <li>• Follow Arizona Game and Fish Department (AGFD) Burrowing Owl Project Clearance Guidance.</li> </ul> <p><b>Game Birds:</b></p> <ul style="list-style-type: none"> <li>• Loss, fragmentation, or degradation of habitat in washes, and construction noise could contribute to decrease in local population.</li> <li>• Possible establishment of invasive plants or noxious weeds could reduce forage.</li> <li>• Noise from construction activities could temporarily initiate flight responses, inhibit breeding success, or lead to area abandonment.</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>• Same as those described for Resident and Migratory Birds.</li> </ul> <p><b>Special Status Plants (BLM Sensitive Plants and Protected Arizona Native Plants) :</b></p> <ul style="list-style-type: none"> <li>• The BLM sensitive silverleaf sunray and four Arizona protected species (three cactus species and the Las Vegas bear poppy) may be disturbed from ground clearing activities. However, pre-construction surveys for species would identify avoidance areas.</li> <li>• The spread of noxious weeds and introduced plant species could threaten local plant populations.</li> <li>• Cacti and yucca may be salvaged and used for future revegetation.</li> </ul>	<p><b>Construction:</b></p> <p><b>Raptors:</b></p> <p>Avoidance of mountainous habitat in the northwestern part and northeastern part of the Project Area, which contains habitat for, red-tailed hawks, falcons, and other raptor species, would result in less impacts to wildlife, BLM species of concern, and Arizona wildlife of concern than under Alternative A.</p> <p><b>Construction:</b></p> <p><b>Game Birds</b></p> <p>Impacts would be similar to Alternative A except that the Project boundary would reduce potential use regions for birds compared to Alternative A.</p> <p><b>Construction:</b></p> <p><b>Special Status Plants</b></p> <p>The configuration of Alternative B would avoid potential habitat for the silver leaf sunray and Las Vegas bear poppy.</p>	<p><b>Construction:</b></p> <p><b>Raptors:</b></p> <p>Similar to Alternatives A and B except impacts associated with ground disturbance and loss of habitat would be the less than Alternative A and would avoid the mountain habitat in the northwestern and northeastern part of the Project Area.</p> <p><b>Construction:</b></p> <p><b>Game Birds</b></p> <p>Similar to Alternatives A and B except impacts associated with ground disturbance and loss of habitat would be the less than Alternative A.</p> <p><b>Construction:</b></p> <p><b>Special Status Plants</b></p> <p>Alternative C would avoid potential silver leaf sunray and Las Vegas bear poppy habitat. The potential magnitude for impacts from ground disturbance would be reduced slightly compared to Alternative A, but would differ little from Alternative B. The short-term disturbance area would be about 1,264 acres, which is about 273 fewer acres than Alternative A.</p>	<p><b>Construction:</b></p> <p><b>Raptors:</b></p> <p>No impacts.</p> <p><b>Construction:</b></p> <p><b>Game Birds</b></p> <p>No impacts.</p> <p><b>Construction:</b></p> <p><b>Special Status Plants</b></p> <p>No impacts.</p>	<p><b>Construction:</b></p> <p><b>Raptors:</b></p> <p>The no-build and curtailment zone would reduce construction in areas with sensitive wildlife resources and reduce the risk of collision by golden eagles, other raptors and bats relative to Alternatives A, B and C.</p> <p><b>Construction:</b></p> <p><b>Game Birds</b></p> <p>Similar impacts as Alternatives A, B, and C except the short-term disturbance area would be approximately 1,317 acres which could reduce impacts on habitat compared to A.</p> <p><b>Construction:</b></p> <p><b>Special Status Plants</b></p> <p>Impacts on special status plants would be similar to Alternatives B, and C in avoiding potential silver leaf sunray and Las Vegas bear poppy habitat.</p>

Resource	Possible Impacts				
	Alternative A	Alternative B	Alternative C	Alternative D – No Action	Alternative E – Agencies' Preferred Alternative
	<p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>• Complete preconstruction surveys to identify sensitive or special status species.</li> <li>• Mow or crush vegetation (rather than removing it) in areas of temporary disturbance.</li> <li>• Limit vehicle and foot traffic.</li> <li>• Micro-site turbines, collector lines, and roads to avoid sensitive biological resources to the extent possible.</li> <li>• Locate other Project facilities away from sensitive areas or habitats to avoid further impacts on sensitive biological resources.</li> <li>• Develop and implement an Integrated Reclamation Plan to identify vegetation, soil stabilization, and erosion prevention measures to be implemented as soon as possible following construction of elements in the Project Area.</li> <li>• Conserve and redistribute native topsoil and associated seed bank of rare plant species.</li> </ul> <p><b>Special Status Wildlife:</b></p> <ul style="list-style-type: none"> <li>• Potential degradation from temporary surface disturbance of approximately 524 acres of Category III habitat for the Sonoran desert tortoise (a federal candidate species).</li> <li>• Potential vehicle mortality to the tortoise.</li> <li>• Development could result in providing new areas for the construction of tortoise burrows, which would represent a positive impact to tortoise populations.</li> <li>• Spread of noxious weeds and introduced plant species could threaten tortoise food resources.</li> <li>• Blasting could cause tortoise burrows to collapse, and vehicle travel could crush the tortoise.</li> <li>• Impacts to BLM sensitive and Arizona wildlife of concern bat, bird, and raptor species would be the same as discussed in the species sections above.</li> <li>• Loss or degradation of habitat of about 67 acres of rocky and upland habitats in mountainous terrain for the Arizona protected banded Gila monster.</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>• Conduct preconstruction surveys.</li> <li>• Follow AGFD guidelines for monitoring and handling of desert tortoise on construction projects.</li> <li>• Monitor construction activities using a qualified/certified desert tortoise monitor.</li> <li>• Mow or crush vegetation (rather than removing it) in areas of temporary disturbance.</li> <li>• Limit vehicle and foot traffic.</li> <li>• Monitor or provide internal support for tortoise burrows in blast areas.</li> <li>• Inspect, remove, and relocate on-site eggs and tortoises from burrows that would be destroyed by land clearing activities, and collapse burrows after removal.</li> <li>• Fill any trenches/holes immediately, or cover them at night and provide escape ramps, when not in use.</li> <li>• Implement an ecological awareness program.</li> </ul>	<p><b>Construction:</b></p> <p><b>Special Status Wildlife</b></p> <ul style="list-style-type: none"> <li>• Similar to Alternative A with the following differences:</li> <li>• Potential degradation from temporary surface disturbance of approximately 380 acres of Category III habitat for the Sonoran desert tortoise.</li> <li>• Potential disturbance or loss of habitat for the Gila monster would be a total of approximately 41 acres.</li> </ul>	<p><b>Construction:</b></p> <p><b>Special Status Wildlife</b></p> <ul style="list-style-type: none"> <li>• Similar to Alternative A with the following differences:</li> <li>• Potential degradation from temporary surface disturbance of approximately 412 acres of Category III habitat for the Sonoran desert tortoise.</li> <li>• Potential disturbance or loss of habitat for the Gila monster would be a total of approximately 36 acres.</li> </ul>	<p><b>Construction:</b></p> <p><b>Special Status Wildlife</b></p> <p>No impacts.</p>	<p><b>Construction:</b></p> <p><b>Special Status Wildlife</b></p> <ul style="list-style-type: none"> <li>• Similar to Alternative A with the following differences:</li> <li>• Potential degradation from temporary surface disturbance of approximately 384 acres of Category III habitat for the Sonoran desert tortoise.</li> <li>• Potential disturbance or loss of habitat for the Gila monster would be a total of approximately 42 acres.</li> </ul>

Resource	Possible Impacts				
	Alternative A	Alternative B	Alternative C	Alternative D – No Action	Alternative E – Agencies' Preferred Alternative
	<p><b>Golden Eagles:</b></p> <ul style="list-style-type: none"> <li>Temporary surface disturbance could remove 1,537 acres of golden eagle foraging habitat, approximately 3 percent of the habitat available in the Project Area.</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>Same as those described for Resident and Migratory Birds.</li> <li>Implement the Eagle Conservation Plan/Bird Conservation Strategy that has been prepared for this Project.</li> </ul>	<p><b>Construction:</b> <b>Golden Eagles:</b></p> <p>Impacts would be similar to Alternative A except the Project boundary would largely avoid mountainous habitat in the northwestern part of the Project Area near Squaw Peak and rocky uplands in the northeastern part of the Project Area including two unoccupied nest sites for golden eagles and a potential use region for golden eagles. The short-term disturbance area would be 1,234 acres, which is about 303 fewer acres than Alternative A.</p>	<p><b>Construction:</b> <b>Golden Eagles:</b></p> <ul style="list-style-type: none"> <li>Similar to Alternatives A and B except the area subject to short-term ground disturbance with Alternative C is estimated at 1,264 acres, which is about 273 acres less than Alternative A and 30 acres more than Alternative B.</li> </ul>	<p><b>Construction:</b> <b>Golden Eagles:</b></p> <p>No impacts.</p>	<p><b>Construction:</b> <b>Golden Eagles:</b></p> <ul style="list-style-type: none"> <li>Impacts would be similar to Alternatives A, B, and C except Alternative E would have less impact on golden eagles due to the eagle nest avoidance area curtailment zone, and phased construction.</li> </ul>
	<p><b>Operations and Maintenance:</b></p> <p><b>Vegetation and Land Cover Types:</b></p> <ul style="list-style-type: none"> <li>Long-term disturbance to about 317 acres of vegetation.</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>Limit vehicle and foot traffic at facilities.</li> </ul> <p><b>Noxious Weeds:</b></p> <ul style="list-style-type: none"> <li>Potential for introducing and spreading noxious weeds from vehicles traveling onto the site for routine delivery of materials.</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>Limit vehicle and foot traffic.</li> <li>Implement an ecological awareness program.</li> <li>Survey for noxious weeds and invasive species, and treat according to Integrated Reclamation Plan requirements.</li> </ul>	<p><b>Operations and Maintenance:</b> <b>Vegetation and Land Cover Types:</b></p> <p>Overall, impacts would be similar to Alternative A, but with proportionally lesser effects because the Project footprint and amount of surface disturbance would be smaller. Specific differences from Alternative A include:</p> <ul style="list-style-type: none"> <li>Long-term disturbance to about 261 acres of vegetation.</li> </ul> <p><b>Operations and Maintenance:</b> <b>Noxious Weeds</b></p> <p>Impacts and the potential establishment of noxious weeds and invasive plant species would be reduced slightly compared to Alternative A. Long-term disturbance would reduce to about 261 acres, which is about 56 acres less than Alternative A.</p>	<p><b>Operations and Maintenance:</b> <b>Vegetation and Land Cover Types:</b></p> <p>Overall, impacts would be the same as Alternative B, but specific differences would include:</p> <ul style="list-style-type: none"> <li>Long-term disturbance to about 268 acres of vegetation.</li> </ul> <p><b>Operations and Maintenance:</b> <b>Noxious Weeds</b></p> <p>Impacts would be similar to Alternatives A and B except the long-term disturbance for Alternative C would be about 269 acres, which is about 48 fewer acres than Alternative A and 8 acres more than Alternative B.</p>	<p><b>Operations and Maintenance:</b> <b>Vegetation and Land Cover Types:</b></p> <p>No impacts.</p> <p><b>Operations and Maintenance:</b> <b>Noxious Weeds</b></p> <p>No impacts.</p>	<p><b>Operations and Maintenance:</b> <b>Vegetation and Land Cover Types:</b></p> <p>Overall, impacts would be similar to Alternative A, but with proportionally lesser effects because the Project footprint and amount of surface disturbance would be smaller. Specific differences from Alternative A include:</p> <ul style="list-style-type: none"> <li>Long-term disturbance to about 268 acres of vegetation.</li> </ul> <p><b>Operations and Maintenance:</b> <b>Noxious Weeds</b></p> <p>Impacts and the potential establishment of noxious weeds and invasive plant species would be reduced slightly compared to Alternative A. Long-term disturbance would reduce to about 268 acres, which is about 49 acres less than Alternative A.</p>

Resource	Possible Impacts				
	Alternative A	Alternative B	Alternative C	Alternative D – No Action	Alternative E – Agencies' Preferred Alternative
	<p><b>Wildland Fire:</b></p> <ul style="list-style-type: none"> <li>Although less than during construction, traffic and human activity would provide the potential for human sourced ignitions.</li> <li>Potential for invasive plant species and noxious weeds and wildland fire to affect areas outside the disturbance footprint.</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>Remove vegetative fuel and manage weeds to help retain the current Class 2 condition.</li> <li>Limit traffic to only essential vehicles in the facilities areas.</li> <li>Establish safety guidelines for maintenance related flame and spark sources.</li> </ul> <p><b>Wildlife:</b> <b>Small Mammals, Reptiles, and Amphibians</b></p> <ul style="list-style-type: none"> <li>Chronic noise could mask communication, impede detection of predators, and increase vigilance behavior.</li> <li>Noise combined with human presence could indirectly add to the displacement of individual mammals.</li> <li>Following reclamation of construction activities, small mammal diversity could increase.</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>Limit vehicle and foot traffic.</li> <li>Implement an ecological awareness program.</li> <li>Adhere to noise mitigation (presented in noise section below).</li> <li>Enforce an on-site 25 mile per hour speed limit.</li> </ul> <p><b>Bats:</b></p> <ul style="list-style-type: none"> <li>An estimated 2.17 to 4.29 bat fatalities/MW/year (in relative and not absolute numbers) could occur from collisions with wind turbines.</li> <li>Bats could develop barotrauma (condition in which the lungs of bats are fatally damaged from the negative pressure created around operating turbines).</li> <li>Turbine noise could impede echolocation, resulting in decreased foraging efficiency.</li> </ul>	<p><b>Operations and Maintenance:</b> <b>Wildland Fire</b></p> <p>The potential risk of and impacts from wildland fire would decrease slightly compared to Alternative A, due to fewer disturbance acres. The long-term disturbance would reduce to about 261 acres, which is about 56 acres less than Alternative A.</p> <p><b>Operations and Maintenance:</b> <b>Small Mammals, Reptiles, and Amphibians</b></p> <p>The types of direct and indirect impacts on wildlife that could occur during operations would not differ from Alternatives A, but the magnitude of the effects would be less. The long-term disturbance area would be about 261 acres, which is about 56 acres less than with Alternative A. The potential for collisions with vehicles also would decrease under Alternative B</p> <p><b>Operations and Maintenance:</b> <b>Bats</b></p> <p>The potential for fatal collisions with wind turbines would decrease under Alternative B. The Project could accommodate a maximum of about 166 to 208 turbines which would be about 75 fewer than for Alternative A. Avoiding potential use areas for bats and birds near Squaw Peak and the northeastern part of the Project Area would further decrease the potential for turbine fatalities.</p>	<p><b>Operations and Maintenance:</b> <b>Wildland Fire</b></p> <p>The potential for impacts from wildland fire under Alternative C would decrease slightly compared to Alternative A due to a smaller area of ground disturbance, but would differ little from Alternative B.</p> <p><b>Operations and Maintenance:</b> <b>Small Mammals, Reptiles, and Amphibians</b></p> <p>The magnitude of the effects would be less with Alternative C than Alternative A and similar to Alternative B. The long-term disturbance area would be about 269 acres, which is about 49 fewer acres than Alternative A, and 8 acres more than Alternative B.</p> <p><b>Operations and Maintenance:</b> <b>Bats</b></p> <p>For bats, the potential for fatal collisions with wind turbines also would decrease compared to Alternative A and would be the same as Alternative B. Like Alternative B, Alternative C also would avoid the same potential risk and sensitive areas that are near Squaw Peak and in the northeastern part of the Alternative A Project boundary.</p>	<p><b>Operations and Maintenance:</b> <b>Wildland Fire</b></p> <p>No impacts.</p> <p><b>Operations and Maintenance:</b> <b>Small Mammals, Reptiles, and Amphibians</b></p> <p>No impacts.</p> <p><b>Operations and Maintenance:</b> <b>Bats</b></p> <p>No impacts.</p>	<p><b>Operations and Maintenance:</b> <b>Wildland Fire</b></p> <p>Alternative E would have less potential magnitude for wildland fire impacts based on ground disturbance than Alternative A and the effects would be similar to Alternatives B and C.</p> <p><b>Operations and Maintenance:</b> <b>Small Mammals, Reptiles, and Amphibians</b></p> <p>Similar to Alternatives B and C, but the long-term disturbance area would be about 268 acres.</p> <p>The no-build and curtailment zone would reduce construction in areas with wildlife resources and reduce the risk of collision by golden eagles, other raptors and bats relative to Alternatives A, B and C.</p> <p><b>Operations and Maintenance:</b> <b>Bats</b></p> <p>Alternative E is estimated to have a maximum of 243 turbines, and the curtailment area reduce the potential for fatal collisions relative to Alternative A. Similar to Alternative B and C, turbines would not be constructed in the Squaw Peak area which could reduce collision risk and disturbance. If fewer turbines were constructed to meet the required nameplate generation capacity, there could be even less impact on bats due to the reduction in collision risk and disturbance.</p>

Resource	Possible Impacts				
	Alternative A	Alternative B	Alternative C	Alternative D – No Action	Alternative E – Agencies' Preferred Alternative
	<p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>• Implement the Bat Conservation Strategy that has been developed for the Project.</li> <li>• Implement an ecological awareness program.</li> <li>• Adhere to noise mitigation (presented in noise section below).</li> </ul> <p><b>Big Game:</b></p> <ul style="list-style-type: none"> <li>• Changes in behavior would decrease because of less human activity in the Project Area than during construction.</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>• None required.</li> </ul> <p><b>Wild Burros:</b></p> <ul style="list-style-type: none"> <li>• It is unknown if burros utilize the Project Area, but if they do utilize the area; impacts would be similar to that discussed under Big Game.</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>• None required.</li> </ul> <p><b>Birds:</b> <b>Resident and Migratory Birds:</b></p> <ul style="list-style-type: none"> <li>• Injury or death could occur from colliding with turbines, and other facilities on the Wind Farm Site; however, the risk is low.</li> <li>• Noise from operating turbines could indirectly impact through displacement, or by impeding local breeding songs.</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>• Use bird flight diverter devices, if needed.</li> <li>• Avoid non-mandatory night-lighting.</li> <li>• Develop and implement a bird conservation strategy.</li> <li>• Implement an ecological awareness program.</li> <li>• Adhere to noise mitigation (presented in noise section below).</li> </ul>	<p><b>Operations and Maintenance:</b> <b>Big Game</b></p> <p>Similar to Alternative A, but the magnitude of the effects would be less. The long-term disturbance area would be about 261 acres, which is about 56 acres less than with Alternative A.</p> <p><b>Operations and Maintenance:</b> <b>Wild Burros:</b></p> <p>Impacts on wild burros from operations and maintenance would be the same as the impacts on big game.</p> <p><b>Operations and Maintenance:</b> <b>Resident and Migratory Birds:</b></p> <p>For birds, the potential for fatal collisions with wind turbines would decrease under Alternative B. The Project could accommodate a maximum of about 166 to 208 turbines which would be about 75 fewer than for Alternative A. Avoiding potential use areas for birds near Squaw Peak and the northeastern part of the Project Area would further decrease the potential for turbine fatalities.</p>	<p><b>Operations and Maintenance:</b> <b>Big Game</b></p> <p>Similar to Alternative A, but the magnitude of the effects would be less. The long-term disturbance area would be about 269 acres, which is about 49 fewer acres than Alternative A, and 8 acres more than Alternative B.</p> <p><b>Operations and Maintenance:</b> <b>Wild Burros:</b></p> <p>Impacts on wild burros from operations and maintenance would be the same as the impacts on big game.</p> <p><b>Operations and Maintenance:</b> <b>Resident and Migratory Birds:</b></p> <p>Similar to Alternative B.</p>	<p><b>Operations and Maintenance:</b> <b>Big Game</b></p> <p>No impacts.</p> <p><b>Operations and Maintenance:</b> <b>Wild Burros:</b></p> <p>No impacts.</p> <p><b>Operations and Maintenance:</b> <b>Resident and Migratory Birds:</b></p> <p>No impacts.</p>	<p><b>Operations and Maintenance:</b> <b>Big Game</b></p> <p>The no-build and curtailment zone in Alternative E would reduce impacts from operation and maintenance in areas with sensitive resources. Impacts from long-term ground disturbance would be about 268 acres, which is similar to Alternatives B and C.</p> <p><b>Operations and Maintenance:</b> <b>Wild Burros:</b></p> <p>Impacts on wild burros from operations and maintenance would be the same as the impacts on big game.</p> <p><b>Operations and Maintenance:</b> <b>Resident and Migratory Birds:</b></p> <p>The no-build and curtailment zone in Alternative E would reduce impacts from operations and maintenance in areas with sensitive resources. Alternative E would have a maximum of 243 turbines, and may have fewer if not all phases are required to meet nameplate generation requirements.</p>

Resource	Possible Impacts				
	Alternative A	Alternative B	Alternative C	Alternative D – No Action	Alternative E – Agencies' Preferred Alternative
	<p><b>Raptors:</b></p> <ul style="list-style-type: none"> <li>Fewer than 5 fatalities per year are estimated from raptors colliding with turbine blades, with the red-tailed hawks at a greater risk, because they are the most common raptor in the area.</li> <li>Possible fatality or injury from strikes with other structures on the Wind Farm Site.</li> <li>Noise could impede local use of the Project Area, but the impact is unlikely to affect raptor use in the long term.</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>Same as those described for Resident and Migratory Birds.</li> </ul>	<p><b>Operations and Maintenance: Raptors:</b></p> <p>The potential for fatal collisions with wind turbines would decrease under Alternative B. The Project could accommodate a maximum of about 166 to 208 turbines which would be about 75 fewer than for Alternative A which could decrease raptor fatalities.</p>	<p><b>Operations and Maintenance: Raptors:</b></p> <p>The potential for fatal raptor collisions with wind turbines would be the same as Alternative B.</p>	<p><b>Operations and Maintenance: Raptors:</b></p> <p>No impacts.</p>	<p><b>Operations and Maintenance: Raptors:</b></p> <p>Alternative E could accommodate a maximum of 243 turbines and may be less if not all construction phases are required to meeting nameplate generation requirements. Alternative E also would avoid the most sensitive raptor uses areas due to the eagle nest avoidance area and the curtailment zone.</p> <p>The removal of turbines around the Squaw Peak golden eagle breeding area is expected to reduce collision risk for golden eagles, other raptors, and bats.</p>
	<p><b>Game Birds:</b></p> <ul style="list-style-type: none"> <li>Flight responses could be initiated from turbine noise, but the magnitude of impacts is unknown.</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>Same as those described for Resident and Migratory Birds.</li> </ul> <p><b>Special Status Plants (BLM Sensitive Plants and Protected Arizona Native Plants):</b></p> <ul style="list-style-type: none"> <li>Potential indirect impacts to habitat from noxious weeds and introduced plant species.</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>Limit vehicle and foot traffic.</li> <li>Implement an ecological awareness program.</li> <li>Survey for noxious weeds and invasive species, and treat according to Integrated Reclamation Plan requirements.</li> </ul>	<p><b>Operations and Maintenance: Game Birds:</b></p> <p>Same as those described for Resident and Migratory Birds.</p> <p><b>Operations and Maintenance: Special Status Plants</b></p> <p>Similar to Alternative A. Long-term indirect impacts from noxious weeds and invasive plant would be reduced slightly compared to Alternative A because the long-term impact from ground disturbance would reduce to about 261 acres, which is about 56 acres less than Alternative A.</p>	<p><b>Operations and Maintenance: Game Birds:</b></p> <p>Same as those described for Resident and Migratory Birds.</p> <p><b>Operations and Maintenance: Special Status Plants</b></p> <p>Similar to Alternative B. Alternative C would result in about 269 acres of long-term disturbance, which is about 48 fewer acres than Alternative A.</p>	<p><b>Operations and Maintenance: Game Birds:</b></p> <p>No impacts.</p> <p><b>Operations and Maintenance: Special Status Plants</b></p> <p>No impacts.</p>	<p><b>Operations and Maintenance: Game Birds:</b></p> <p>Same as those described for Resident and Migratory Birds.</p> <p><b>Operations and Maintenance: Special Status Plants</b></p> <p>Similar to Alternative C. Long-term disturbance for Alternative E would be about 268 acres, which is about 49 acres fewer than Alternative A.</p>
	<p><b>Special Status Wildlife:</b></p> <ul style="list-style-type: none"> <li>Possibility of noxious weed infestation could indirectly reduce the quality of tortoise and banded Gila monster habitat.</li> <li>Possibility for collisions of the tortoise and banded Gila monster from vehicles.</li> <li>Impacts to BLM sensitive and Arizona wildlife of concern bat, bird, and raptor species would be the same as discussed in the species sections above.</li> </ul>	<p><b>Operations and Maintenance: Special Status Wildlife:</b></p> <p>Similar to Alternative A except long-term impacts from ground disturbance would reduce to about 261 acres, which is about 56 acres less than Alternative A.</p>	<p><b>Operations and Maintenance: Special Status Wildlife:</b></p> <p>Impacts based on a ground disturbance would be less than Alternative A and the effects would be similar to Alternative B. The long-term disturbance for Alternative C would be about 269 acres, which is about 48 acres less than Alternative A and 8 acres more than Alternative B.</p>	<p><b>Operations and Maintenance: Special Status Wildlife:</b></p> <p>No impacts.</p>	<p><b>Operations and Maintenance: Special Status Wildlife:</b></p> <p>Similar to Alternatives B and C. Long-term disturbance for Alternative E would be about 268 acres, which is about 49 acres fewer than Alternative A.</p>

Resource	Possible Impacts				
	Alternative A	Alternative B	Alternative C	Alternative D – No Action	Alternative E – Agencies' Preferred Alternative
	<p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>• Monitor construction activities using a qualified/certified desert tortoise monitor.</li> <li>• Limit vehicle and foot traffic.</li> <li>• Implement an ecological awareness program.</li> <li>•</li> </ul> <p><b>Golden Eagles:</b></p> <ul style="list-style-type: none"> <li>• Modeling conservatively estimates there could be up to 0.33 golden eagle fatalities per year if 283 turbines were constructed.</li> <li>• Potential mortality of 1.65 golden eagle fatalities over a 5-year period and 9.9 eagle fatalities over the anticipated 30-year life of the Project from turbine collisions and other structures. The estimate of fatalities is conservative and the actual number of fatalities could vary from these projections. The exposure risk to golden eagles is low based on the small numbers of observed eagles and the small proportion of flights within rotor swept heights.</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>• Same as those described for Resident and Migratory Birds. Implement the Eagle Conservation Plan/Bird Conservation Strategy that has been prepared for this Project.</li> </ul>	<p><b>Operations and Maintenance:</b></p> <ul style="list-style-type: none"> <li>• Modeling conservatively estimates that there could be up to 0.24 golden eagle fatalities per year if 208 turbines were constructed.</li> </ul>	<p><b>Operations and Maintenance:</b></p> <ul style="list-style-type: none"> <li>• Modeling conservatively estimates that there could be up to 0.24 golden eagle fatalities per year if 208 turbines were constructed.</li> </ul>	<p><b>Operations and Maintenance:</b></p> <p>No impacts.</p>	<p><b>Operations and Maintenance:</b></p> <p>Alternative E is would have a maximum of 243 turbines, and could have fewer turbines if all phases are not needed to meeting nameplate generation requirements. The estimated golden eagle fatalities would be fewer than Alternative A, but potentially more than Alternatives B and C is more turbines are constructed. However, Alternative E has a golden eagle avoidance area and curtailment area designed to limit operations in the most sensitive golden eagle habitat, potentially resulting in the least operational impacts of the action alternatives.</p> <p><b>Mitigation Measures:</b></p> <ul style="list-style-type: none"> <li>• Implement golden eagle avoidance area and curtailment zone. To avoid possible eagle nest mortality, turbines would be shut down daily from 11:00 a.m. to 4:00 p.m. between December 1 and March 15, and from 4 hours after sunrise until 2 hours before sunset between March 16 and September 30, or when certain biological criteria identified in the Eagle Conservation Plan have been met. Data would be evaluated periodically to determine if and when the curtailment zone requirements might end.</li> </ul>
	<p><b>Decommissioning:</b></p> <p><b>Vegetation and Land Cover Types:</b></p> <ul style="list-style-type: none"> <li>• Some vegetation would be removed during activities to remove infrastructure.</li> <li>• Following decommissioning and reclamation, disturbed areas should resemble the original vegetation community at an early stage of ecological succession.</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>• Same as Construction mitigation for Alternatives A, B, C and E.</li> </ul>	<p><b>Decommissioning:</b></p> <p>Overall, impacts would be similar to Alternative A. Until reclamation is complete, there would be proportionally lesser short-term effects because the Project footprint and amount of surface disturbance from removal of Project features would be smaller.</p>	<p><b>Decommissioning:</b></p> <ul style="list-style-type: none"> <li>• Same as Alternative B.</li> </ul>	<p><b>Decommissioning:</b></p> <p>No impacts.</p>	<p><b>Decommissioning:</b></p> <ul style="list-style-type: none"> <li>• Same as Alternative B.</li> </ul>

Resource	Possible Impacts				
	Alternative A	Alternative B	Alternative C	Alternative D – No Action	Alternative E – Agencies' Preferred Alternative
	<p><b>Noxious Weeds:</b></p> <ul style="list-style-type: none"> <li>• Same as Construction impacts.</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>• Same as Construction mitigation for Alternatives A, B, C and E.</li> </ul> <p><b>Wildland Fire:</b></p> <ul style="list-style-type: none"> <li>• Ground re-disturbance would increase the potential to introduce or spread invasive plants or noxious weeds.</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>• Remove vegetative fuel and manage weeds to help retain the current Class 2 condition for Alternatives A, B, C and E.</li> </ul> <p><b>Wildlife:</b> <b>Small Mammals, Reptiles, and Amphibians</b></p> <ul style="list-style-type: none"> <li>• Similar to Construction, and impacts would continue until disturbed areas are revegetated.</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>• Same as Construction for Alternatives A, B, C, and E.</li> </ul> <p><b>Bats:</b></p> <ul style="list-style-type: none"> <li>• Similar to Construction.</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>• Same as Construction.</li> </ul> <p><b>Big Game:</b></p> <ul style="list-style-type: none"> <li>• Similar to Construction.</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>• Same as Construction.</li> </ul> <p><b>Wild Burros:</b></p> <ul style="list-style-type: none"> <li>• It is unknown if burros utilize the Project Area, but if they do utilize the area; impacts would be similar to that discussed under Big Game.</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>• Same as Construction.</li> </ul> <p><b>Birds:</b> <b>Resident and Migratory Birds:</b></p> <ul style="list-style-type: none"> <li>• Similar to Construction.</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>• Same as Construction.</li> </ul> <p><b>Raptors:</b></p> <ul style="list-style-type: none"> <li>• Similar to Construction.</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>• Same as Construction.</li> </ul> <p><b>Game Birds:</b></p> <ul style="list-style-type: none"> <li>• Similar to Construction.</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>• Same as Construction.</li> </ul>	<p><b>Decommissioning:</b> <b>Wildland Fire</b></p> <p>Overall, impacts would be similar to Alternative A, but with proportionally lesser effects because the Project footprint and amount of surface disturbance would be smaller.</p> <p><b>Decommissioning:</b> <b>Small Mammals, Reptiles, and Amphibians</b></p> <p>Impacts are similar to construction under Alternative B.</p> <p><b>Decommissioning:</b> <b>Bats:</b></p> <p>Impacts are similar to construction under Alternative B.</p> <p><b>Decommissioning:</b> <b>Big Game</b></p> <p>Impacts are similar to construction under Alternative B.</p> <p><b>Decommissioning:</b> <b>Wild Burros</b></p> <p>Impacts are similar to construction under Alternative B.</p> <p><b>Decommissioning:</b> <b>Resident and Migratory Birds:</b></p> <p>Impacts are similar to construction under Alternative B.</p> <p><b>Decommissioning:</b> <b>Raptors:</b></p> <p>Impacts are similar to construction under Alternative B.</p> <p><b>Decommissioning:</b> <b>Game Birds</b></p> <p>Impacts are similar to construction under Alternative B.</p>	<p><b>Decommissioning:</b> <b>Wildland Fire</b></p> <p>Similar to Alternative B.</p> <p><b>Decommissioning:</b> <b>Small Mammals, Reptiles, and Amphibians</b></p> <p>Impacts are similar to construction under Alternative C.</p> <p><b>Decommissioning:</b> <b>Bats:</b></p> <p>Impacts are similar to construction under Alternative C.</p> <p><b>Decommissioning:</b> <b>Big Game</b></p> <p>Impacts are similar to construction under Alternative C.</p> <p><b>Decommissioning:</b> <b>Wild Burros</b></p> <p>Impacts are similar to construction under Alternative C.</p> <p><b>Decommissioning:</b> <b>Resident and Migratory Birds:</b></p> <p>Impacts are similar to construction under Alternative C.</p> <p><b>Decommissioning:</b> <b>Raptors</b></p> <p>Impacts are similar to construction under Alternative C.</p> <p><b>Decommissioning:</b> <b>Game Birds</b></p> <p>Impacts are similar to construction under Alternative C.</p>	<p><b>Decommissioning:</b> <b>Wildland Fire</b></p> <p>No impacts.</p> <p><b>Decommissioning:</b> <b>Small Mammals, Reptiles, and Amphibians</b></p> <p>No impacts.</p> <p><b>Decommissioning:</b> <b>Bats:</b></p> <p>No impacts.</p> <p><b>Decommissioning:</b> <b>Big Game</b></p> <p>No impacts</p> <p><b>Decommissioning:</b> <b>Wild Burros</b></p> <p>No Impacts</p> <p><b>Decommissioning:</b> <b>Resident and Migratory Birds:</b></p> <p>No Impacts.</p> <p><b>Decommissioning:</b> <b>Raptors</b></p> <p>No Impacts.</p> <p><b>Decommissioning:</b> <b>Game Birds</b></p> <p>No Impacts</p>	<p><b>Decommissioning:</b> <b>Wildland Fire</b></p> <p>Impacts would be less than those under the Alternative A and similar to Alternatives B and C.</p> <p><b>Decommissioning:</b> <b>Small Mammals, Reptiles, and Amphibians</b></p> <p>Impacts are similar to construction under Alternative E.</p> <p><b>Decommissioning:</b> <b>Bats:</b></p> <p>Impacts are similar to construction under Alternative E.</p> <p><b>Decommissioning:</b> <b>Big Game</b></p> <p>Impacts are similar to construction under Alternative E.</p> <p><b>Decommissioning:</b> <b>Wild Burros</b></p> <p>Impacts are similar to construction under Alternative E.</p> <p><b>Decommissioning:</b> <b>Resident and Migratory Birds:</b></p> <p>Impacts are similar to construction under Alternative E.</p> <p><b>Decommissioning:</b> <b>Raptors</b></p> <p>Impacts are similar to construction under Alternative E.</p> <p><b>Decommissioning:</b> <b>Game Birds</b></p> <p>Impacts are similar to construction under Alternative E.</p>

Resource	Possible Impacts				
	Alternative A	Alternative B	Alternative C	Alternative D – No Action	Alternative E – Agencies' Preferred Alternative
	<p><b>Special Status Plants (BLM Sensitive Plants and Protected Arizona Native Plants) :</b></p> <ul style="list-style-type: none"> <li>• Similar to Construction.</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>• Same as Construction.</li> </ul> <p><b>Special Status Wildlife:</b></p> <ul style="list-style-type: none"> <li>• Similar to Construction.</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>• Same as Construction.</li> </ul> <p><b>Golden Eagles:</b></p> <ul style="list-style-type: none"> <li>• Similar to Construction.</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>• Same as Construction.</li> </ul>	<p><b>Decommissioning: Special Status Plants</b> Impacts are similar to construction under Alternative B.</p> <p><b>Decommissioning: Special Status Wildlife:</b> Impacts are similar to construction under Alternative B.</p> <p><b>Decommissioning: Golden Eagles:</b> Impacts are similar to construction under Alternative B.</p>	<p><b>Decommissioning: Special Status Plants</b> Impacts are similar to construction under Alternative C.</p> <p><b>Decommissioning: Special Status Wildlife:</b> Impacts are similar to construction under Alternative C.</p> <p><b>Decommissioning: Golden Eagles:</b> Impacts are similar to construction under Alternative C.</p>	<p><b>Decommissioning: Special Status Plants</b> No Impacts</p> <p><b>Decommissioning: Special Status Wildlife:</b> No Impacts</p> <p><b>Decommissioning: Golden Eagles:</b> No impacts.</p>	<p><b>Decommissioning: Special Status Plants</b> Impacts are similar to construction under Alternative E.</p> <p><b>Decommissioning: Special Status Wildlife:</b> Impacts are similar to construction under Alternative E.</p> <p><b>Decommissioning: Golden Eagles:</b> Impacts are similar to construction under Alternative E.</p>
<b>Cultural Resources</b>	<p><b>Construction:</b></p> <p><b>Archaeological and Historical Resources:</b></p> <ul style="list-style-type: none"> <li>• Nine prehistoric sites determined as eligible for the National Register: <ul style="list-style-type: none"> <li>○ Impacts to two sites near existing roads potentially may be avoided so impacts are expected to be negligible.</li> <li>○ Seven sites potentially may be affected by siting of the turbines, depending on final engineering design.</li> </ul> </li> <li>• A segment of Stone's Ferry Road that does not contain historical artifacts or features could be disturbed by the main access road.</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>• Develop and implement a Memorandum of Agreement (MOA) with SHPO, Federal agencies, tribes, and BP Wind Energy (included as Appendix G in this Final EIS).</li> <li>• As stipulated by the MOA develop and implement a historic properties treatment plan.</li> <li>• Prepare a Native American Graves Protection and Repatriation Act plan of action.</li> </ul> <p><b>Traditional Cultural Resources Sensitive to Visual Impacts:</b></p> <ul style="list-style-type: none"> <li>• Two National Register-eligible traditional Hualapai cultural resources adversely affected by visual impacts: Wi Knyimáya (Squaw Peak) and Wi Hla'a (Senator Mountain).</li> <li>• One traditional cultural resource listed in the National register (Gold Strike Canyon-Sugarloaf Mountain) and one traditional cultural resource considered eligible for the National Register (Mat Kwata [Red Lake]) not affected.</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>• Develop educational programs, curriculum materials, or public outreach designed to preserve information about the traditional cultural importance of the area for the Hualapai Tribe and to reinforce the Tribe's continuing cultural connections to the area.</li> </ul>	<p><b>Construction:</b></p> <p><b>Archaeological and Historical Resources:</b></p> <ul style="list-style-type: none"> <li>• Potential impacts on historic sites same as Alternative A.</li> </ul> <p><b>Traditional Cultural Resources Sensitive to Visual Impacts</b></p> <ul style="list-style-type: none"> <li>• Similar to Alternative A except reducing the number of turbines would reduce impacts on Wi Knyimáya (Squaw Peak) and Wi Hla'a (Senator Mountain) relative to Alternative A.</li> </ul>	<p><b>Construction:</b></p> <p><b>Archaeological and Historical Resources:</b></p> <ul style="list-style-type: none"> <li>• Potential impacts on historic sites same as Alternative A.</li> </ul> <p><b>Traditional Cultural Resources Sensitive to Visual Impacts</b></p> <ul style="list-style-type: none"> <li>• Similar to Alternative B.</li> </ul>	<p><b>Construction:</b></p> <p>Archaeological and Historical Resources and Traditional Cultural Resources Sensitive to Visual Impacts:</p> <ul style="list-style-type: none"> <li>• No impact from the Project. Cultural resources would continue to be subject to impacts of ongoing land uses and any modification of those uses approved in the future.</li> </ul>	<p><b>Construction:</b></p> <p><b>Archaeological and Historical Resources:</b></p> <ul style="list-style-type: none"> <li>• One prehistoric archaeological site is in the curtailment area but could still be disturbed by turbine and access road/electrical collector line construction.</li> </ul> <p><b>Traditional Cultural Resources Sensitive to Visual Impacts</b></p> <ul style="list-style-type: none"> <li>• Similar to Alternative B except the no-build area would eliminate turbine corridors within the eagle nest avoidance area. This could further reduce impacts on Wi Knyimáya (Squaw Peak) relative to Alternatives B and C but eliminate fewer turbines in the vicinity of Wi Hla'a (Senator Mountain).</li> </ul>

Resource	Possible Impacts				
	Alternative A	Alternative B	Alternative C	Alternative D – No Action	Alternative E – Agencies' Preferred Alternative
	<b>Operations and Maintenance:</b> <ul style="list-style-type: none"> <li>No change from impacts during construction.</li> </ul> <b>Mitigation:</b> <ul style="list-style-type: none"> <li>As stipulated by the MOA develop and implement a historic properties treatment plan.</li> <li>Prepare a Native American Graves Protection and Repatriation Act plan of action.</li> </ul>	<b>Operations and Maintenance:</b> <b>Archaeological and Historical Resources and Traditional Cultural Resources Sensitive to Visual Impacts:</b> <ul style="list-style-type: none"> <li>Similar to Alternative A.</li> </ul>	<b>Operations and Maintenance:</b> <b>Archaeological and Historical Resources and Traditional Cultural Resources Sensitive to Visual Impacts</b> <ul style="list-style-type: none"> <li>Similar to Alternative A.</li> </ul>	<b>Operations and Maintenance:</b> <b>Archaeological and Historical Resources and Traditional Cultural Resources Sensitive to Visual Impacts</b> <p>No impacts.</p>	<b>Operations and Maintenance:</b> <b>Archaeological and Historical Resources and Traditional Cultural Resources Sensitive to Visual Impacts:</b> <ul style="list-style-type: none"> <li>Similar to Alternative A.</li> </ul>
	<b>Decommissioning:</b> <b>Archaeological and Historical Resources and Traditional Cultural Resources Sensitive to Visual Impacts:</b> <ul style="list-style-type: none"> <li>No change from impacts during construction.</li> </ul> <b>Mitigation:</b> <ul style="list-style-type: none"> <li>Same as Operations and Maintenance</li> </ul>	<b>Decommissioning:</b> <b>Archaeological and Historical Resources and Traditional Cultural Resources Sensitive to Visual Impacts:</b> <ul style="list-style-type: none"> <li>Similar to Alternative A.</li> </ul>	<b>Decommissioning:</b> <b>Archaeological and Historical Resources and Traditional Cultural Resources Sensitive to Visual Impacts:</b> <ul style="list-style-type: none"> <li>Similar to Alternative A.</li> </ul>	<b>Decommissioning:</b> <b>Archaeological and Historical Resources and Traditional Cultural Resources Sensitive to Visual Impacts:</b> <p>No impacts.</p>	<b>Decommissioning:</b> <b>Archaeological and Historical Resources and Traditional Cultural Resources Sensitive to Visual Impacts:</b> <ul style="list-style-type: none"> <li>Similar to Alternative A.</li> </ul>
<b>Paleontological Resources</b>	<b>Construction, Operations and Maintenance, and Decommissioning:</b> <p>Records search identified no known paleontological localities within the Project Area, or within 10 miles of the Project. The Quaternary deposits in the area have the potential to produce significant paleontological resources based on similar deposits elsewhere in Arizona. Excavation may uncover these resources. Preconstruction activities would require a pedestrian survey conducted by a qualified paleontologist.</p>	<b>Construction, Operations and Maintenance, and Decommissioning:</b> <ul style="list-style-type: none"> <li>Similar to Alternative A, although Alternative B has the fewest square miles of Quaternary deposits of the action alternatives.</li> </ul>	<b>Construction, Operations and Maintenance, and Decommissioning:</b> <ul style="list-style-type: none"> <li>Similar to Alternative A, although fewer square miles of Quaternary deposits.</li> </ul>	<b>Construction, Operations and Maintenance, and Decommissioning:</b> <p>No impacts.</p>	<b>Construction, Operations and Maintenance, and Decommissioning:</b> <ul style="list-style-type: none"> <li>Similar to Alternative B, however, disturbance may be less if fewer turbines are constructed to meet nameplate generation capacity.</li> </ul>
	<b>Mitigation:</b> <ul style="list-style-type: none"> <li>Stabilize and prepare any collected paleontological resources to the point of identification, and curate them in a museum.</li> <li>Submit final reports of findings to BLM/Reclamation after construction and decommissioning activities.</li> </ul>				
<b>Land Use</b>	<b>Construction:</b> <ul style="list-style-type: none"> <li>Light industrial uses, small mining claims, livestock grazing allotments, residential land uses, and a private airstrip adjacent to the Project Area could be affected by temporary access restrictions.</li> <li>Dust and noise and additional vehicle traffic could increase temporarily and impact nearby residences.</li> <li>Construction activities would change the character of semi-primitive recreational experience.</li> <li>Public access to the Project Area would be restricted, but use numbers in the area are not known, and the impact would be short term.</li> <li>Construction related traffic may cause temporary delays in traffic accessing Mount Wilson Wilderness Area.</li> <li>Loss of vegetation, possible increase in invasive plants and noxious weeds, and dust on forage for livestock in Big Ranch Units A and B would be localized with negligible impacts on grazing opportunities.</li> </ul> <b>Mitigation:</b> <ul style="list-style-type: none"> <li>Continue contact with appropriate agencies, property owners, and other stakeholders during permitting to identify potentially sensitive land uses and local and regional land use concerns.</li> <li>Maintain conformance with existing land use plans,</li> <li>Implement mitigation measures in the Dust Control Plan and reclamation as described in the Integrated Reclamation Plan.</li> </ul>	<b>Construction:</b> <ul style="list-style-type: none"> <li>Similar to Alternative A, but reduced visual, noise, and dust impacts to residents and recreational visitors compared with Alternative A due to 303 fewer acres of temporary disturbance.</li> <li>Traffic delays could be reduced compared to Alternative A, because fewer turbine components would be delivered to the site.</li> </ul>	<b>Construction:</b> <ul style="list-style-type: none"> <li>Similar to Alternative B. Impacts from temporary ground disturbance would be similar to Alternative A, but there would be approximately 273 fewer acres disturbed.</li> </ul>	<b>Construction</b> <p>No impacts.</p>	<b>Construction:</b> <ul style="list-style-type: none"> <li>Similar to Alternative B. Impacts from temporary ground disturbance would be similar to Alternative A, but there would be approximately 220 fewer acres disturbed. Temporary ground disturbance could be less if fewer turbine corridors are needed to meet nameplate generation requirements.</li> <li>Reduced visual, noise and dust impacts to residents compared with Alternatives A.</li> </ul>

Resource	Possible Impacts				
	Alternative A	Alternative B	Alternative C	Alternative D – No Action	Alternative E – Agencies' Preferred Alternative
	<p><b>Operations and Maintenance:</b></p> <ul style="list-style-type: none"> <li>• May influence the location of future residential developments.</li> <li>• Aircraft would not be able to operate at low levels within the airspace of the Project, which could influence take-off and landing patterns at Triangle Airpark.</li> <li>• Operation and visual effects of the wind farm would reduce the opportunity for a semi-primitive recreational experience; however, the area is not managed by BLM for specific recreational values. Opportunity for natural vistas from Temple Bar Road would be reduced, potentially diminishing the recreational experience at Lake Mead NRA.</li> <li>• Minor localized impacts on livestock and grazing opportunities through loss of forage in development areas. Development of new access roads could provide better access for lessees with grazing livestock.</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>• Maintain conformance with existing land use plans.</li> </ul>	<p><b>Operations and Maintenance:</b></p> <ul style="list-style-type: none"> <li>• Smaller development area for wind farm would reduce impacts for future residential developments compared with Alternative A.</li> <li>• Reduced noise and visual impacts compared with Alternative A from the construction of fewer turbines.</li> <li>• Operations would change the character of solitude and semi-primitive recreation opportunities, but reduced size of the Project compared with Alternative A would result in a lesser effect, particularly for visitors to Lake Mead NRA because the boundary of the Project would not abut the NRA.</li> <li>• Reduced potential displacement of livestock from Alternative A.</li> </ul>	<p><b>Operations and Maintenance:</b></p> <ul style="list-style-type: none"> <li>• Smaller development area for wind farm particularly near existing and proposed residential areas would reduce impacts (such as noise, proximity of access roads) compared with Alternatives A and B.</li> <li>• Similar impact on recreational experience as Alternative B except one additional turbine corridor on Reclamation land would result in turbines nearer to the recreational activities at Lake Mead NRA.</li> <li>• Same as Alternative B for displacement of livestock.</li> </ul>	<p><b>Operations and Maintenance:</b></p> <p>No impacts.</p>	<p><b>Operations and Maintenance:</b></p> <ul style="list-style-type: none"> <li>• Smaller development area for wind farm would reduce impacts for some future residential developments compared with Alternative A, particularly if some phases are not needed to meet nameplate generation requirements.</li> <li>• Reduced noise and visual impacts compared to Alternative A if some phases are not required.</li> <li>• The no build area would reduce impacts relative to Alternatives A, B and C on semi-primitive recreation opportunities as turbines would not be constructed in this area.</li> <li>• Compared with Alternative A would result in a lesser effect, for visitors to Lake Mead NRA because the boundary of the Project would not abut the NRA.</li> </ul>
	<p><b>Decommissioning:</b></p> <ul style="list-style-type: none"> <li>• Most impacts similar to construction activities except removal of facilities would initiate restoration of natural environment for recreational experience.</li> <li>• If BLM and Reclamation reclaim access roads, the landscape would transition back to semi-rural development area. If roads are not reclaimed, access for recreation would remain.</li> <li>• Revegetation activities would restore existing forage availability and opportunities for livestock grazing.</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>• Maintain conformance with existing land use plans and the Project Decommissioning Plan.</li> </ul>	<p><b>Decommissioning:</b></p> <ul style="list-style-type: none"> <li>• Same as Alternative A except noise and dust impacts would be reduced because there would be fewer turbines to decommission. This could reduce traffic delays in site specific areas and to access Mount Wilson Wilderness, Lake Mead NRA, and Hoover Dam.</li> </ul>	<p><b>Decommissioning:</b></p> <ul style="list-style-type: none"> <li>• Same as Alternative B.</li> </ul>	<p><b>Decommissioning:</b></p> <p>No impacts.</p>	<p><b>Decommissioning:</b></p> <ul style="list-style-type: none"> <li>• Same as Alternative B.</li> </ul>
<b>Transportation and Access</b>	<p><b>Construction:</b></p> <ul style="list-style-type: none"> <li>• New access road would be developed from US 93 to the Wind Farm Site, eliminating the need for access to the site via existing roads.</li> <li>• Increase in vehicular traffic within the Project Area, and the surrounding areas.</li> <li>• Proposed peak construction schedule could temporarily increase daily traffic volume along US 93 by 4 percent over the existing level between the Arizona/Nevada State Line and Pierce Ferry Road, but would not be considered a negative impact on existing traffic.</li> <li>• Estimated number of round trips for all construction related vehicles is estimated to be between 55,930 to 80,930. The range represents the number of estimated trips based on the construction schedule and needs. Of these trips, roughly 2,830 round trips would be for turbine deliveries; these oversized and slow-moving transport vehicles on US 93 could result in some traffic delays.</li> <li>• OHV use would be limited due to construction activity to protect public safety.</li> </ul>	<p><b>Construction:</b></p> <ul style="list-style-type: none"> <li>• Construction traffic and OHV access would be the similar to Alternative A, but there could be less traffic because fewer turbines would be constructed.</li> </ul>	<p><b>Construction:</b></p> <ul style="list-style-type: none"> <li>• Construction traffic and OHV access would be the same as Alternative B.</li> </ul>	<p><b>Construction:</b></p> <p>The existing traffic along US 93 in the vicinity of the Project Area would remain consistent and grow in accordance with Arizona Department of Transportation traffic projections.</p>	<p><b>Construction:</b></p> <ul style="list-style-type: none"> <li>• The road network associated with Alternative E (see Maps 2-11 to 2-13) is similar to the access roads identified with Alternative B, but with the omission of roads in the no build area; there could be less construction traffic and fewer changes to OHV access in this portion of the Project Area.</li> </ul>

Resource	Possible Impacts				
	Alternative A	Alternative B	Alternative C	Alternative D – No Action	Alternative E – Agencies' Preferred Alternative
	<p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>Implement the Transportation and Traffic Plan, Blasting Plan (if one is required), and Dust and Emissions Control Plan.</li> <li>Survey and flag areas to avoid disturbing areas with sensitive resources.</li> <li>Obtain appropriate permits for transporting oversized loads and closely coordinate with ADOT and other state transportation departments.</li> </ul>				
	<p><b>Operations and Maintenance:</b></p> <ul style="list-style-type: none"> <li>Minor to no impact on traffic or access along US 93.</li> <li>Some fenced areas (such as the O&amp;M building) would be necessary, limiting access for OHV use.</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>Coordinate with ADOT and other state transportation departments, if needed, to transport oversized loads as part of maintenance activities.</li> </ul>	<p><b>Operations and Maintenance:</b></p> <ul style="list-style-type: none"> <li>Same as Alternative A.</li> </ul>	<p><b>Operations and Maintenance:</b></p> <ul style="list-style-type: none"> <li>Same as Alternative A.</li> </ul>	<p><b>Operations and Maintenance:</b></p> <p>No impacts.</p>	<p><b>Operations and Maintenance:</b></p> <ul style="list-style-type: none"> <li>Same as Alternative A.</li> </ul>
	<p><b>Decommissioning:</b></p> <ul style="list-style-type: none"> <li>Similar impacts as those from Construction, except aggregate and water trucks for mixing concrete (approximately 1,300 trips) would not be required.</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>Same as Construction.</li> </ul>	<p><b>Decommissioning:</b></p> <ul style="list-style-type: none"> <li>Same as Alternative A.</li> </ul>	<p><b>Decommissioning:</b></p> <ul style="list-style-type: none"> <li>Same as Alternative A.</li> </ul>	<p><b>Decommissioning:</b></p> <p>No impacts.</p>	<p><b>Decommissioning:</b></p> <ul style="list-style-type: none"> <li>Same as Alternative A</li> </ul>
<b>Social and Economic Conditions</b>	<p><b>Construction:</b></p> <p><b>Employment and Income:</b></p> <ul style="list-style-type: none"> <li>Workforce during construction to be 300 to 500 workers (during peak). The range represents the estimated personnel that would be needed, which would be variable during different stages of construction. Total income for all construction workers is estimated at \$21.2 million, of which an estimated \$2.9 million is for local workers (workers who currently reside in Mohave County).</li> <li>Estimated expenditures for local goods and materials such as construction supplies would support 290 jobs.</li> <li>Negligible economic impact on grazing rental leases, recreation visitor expenditures, and number of recreationists.</li> </ul> <p><b>Fiscal Effects</b></p> <ul style="list-style-type: none"> <li>Total tax revenue in Arizona from Project construction is estimated at approximately \$11.1 million, primarily in transaction privilege tax and use tax accruing to the State.</li> <li>Mohave County is anticipated to receive approximately \$366,000 over the construction period of the Project, while local purchases of goods and labor is anticipated to generate nearly \$900,000 in tax revenue for cities within the county.</li> </ul> <p><b>Other Quality of Life Effects</b></p> <ul style="list-style-type: none"> <li>The maximum population increase at any one time in Mohave County directly due to construction is estimated at 240 people; for which there are adequate available, vacant housing units.</li> <li>Project construction is anticipated to support an additional 380 jobs that are not specialized, and it is expected that most of these jobs would be filled by local residents.</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>No mitigation measures needed because income, employment, and tax revenue effects are expected to be positive.</li> </ul>	<p><b>Construction:</b></p> <p><b>Employment and Income:</b></p> <ul style="list-style-type: none"> <li>Same as Alternative A because income is estimated based on the MW of capacity rather than the number of turbines.</li> </ul> <p><b>Construction:</b></p> <p><b>Fiscal Effects</b></p> <ul style="list-style-type: none"> <li>Same as Alternative A.</li> </ul> <p><b>Construction:</b></p> <p><b>Other Quality of Life Effects</b></p> <ul style="list-style-type: none"> <li>Similar to Alternative A, except the effects would be reduced relative to the fewer turbines constructed and the smaller overall Project footprint.</li> </ul>	<p><b>Construction:</b></p> <p><b>Employment and Income:</b></p> <ul style="list-style-type: none"> <li>Same as Alternative A.</li> </ul> <p><b>Construction:</b></p> <p><b>Fiscal Effects</b></p> <ul style="list-style-type: none"> <li>Same as Alternative A.</li> </ul> <p><b>Construction:</b></p> <p><b>Other Quality of Life Effects</b></p> <ul style="list-style-type: none"> <li>Similar to Alternative A, but with a reduced effect on quality of life due to the greater separation between private lands and turbines.</li> </ul>	<p><b>Construction:</b></p> <p><b>Employment and Income:</b></p> <p>No impacts.</p> <p><b>Construction:</b></p> <p><b>Fiscal Effects</b></p> <p>No impacts.</p> <p><b>Construction:</b></p> <p><b>Other Quality of Life Effects</b></p> <p>No impacts.</p>	<p><b>Construction:</b></p> <p><b>Employment and Income:</b></p> <ul style="list-style-type: none"> <li>Same as Alternative A.</li> </ul> <p><b>Construction:</b></p> <p><b>Fiscal Effects</b></p> <ul style="list-style-type: none"> <li>Same as Alternative A.</li> </ul> <p><b>Construction:</b></p> <p><b>Other Quality of Life Effects</b></p> <ul style="list-style-type: none"> <li>Similar to Alternative A, some minor adverse impacts to quality of life, particularly during the temporary construction and decommissioning periods, may occur due to effects of Alternative E on air quality, water quality and quantity, recreation, and wildlife and habitat.</li> </ul>

Resource	Possible Impacts				
	Alternative A	Alternative B	Alternative C	Alternative D – No Action	Alternative E – Agencies' Preferred Alternative
	<p><b>Operations and Maintenance:</b></p> <ul style="list-style-type: none"> <li>An estimated 30 workers would be employed to maintain and operate the turbines, with total income of \$1.9 million.</li> <li>During operations (expected to last 30 years), total employment and income supported by Project operations (including direct, indirect and induced effects) is estimated to be 50 jobs and \$2.6 million in income annually.</li> <li>Tax revenue is estimated at \$587,000 annually, with the majority accruing to jurisdictions in Mohave County as property tax. The anticipated annual tax revenue for the State is approximately \$197,000. At current tax rates, tax revenues to Mohave County and its municipalities are estimated at \$350,000, nearly all of which is in property taxes.</li> <li>Long-term population impacts on the county would be less than 50 people, for which there are adequate available, vacant housing units.</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>No mitigation measures needed because income, employment, and tax revenue effects are expected to be positive.</li> </ul>	<p><b>Operations and Maintenance:</b></p> <ul style="list-style-type: none"> <li>Similar to Alternative A because the number of workers would remain the same.</li> </ul>	<p><b>Operations and Maintenance:</b></p> <ul style="list-style-type: none"> <li>Similar to Alternative A because the number of workers would remain the same.</li> </ul>	<p><b>Operations and Maintenance:</b></p> <p>No impacts.</p>	<p><b>Operations and Maintenance:</b></p> <ul style="list-style-type: none"> <li>Similar to Alternative A because the number of workers would remain the same.</li> </ul>
	<p><b>Decommissioning:</b></p> <ul style="list-style-type: none"> <li>There would be some income tax generated and likely some transaction privilege tax or use tax on construction services or materials purchased for decommissioning.</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>No mitigation measures needed because income and employment effects are expected to be positive.</li> </ul>	<p><b>Decommissioning:</b></p> <p>Similar to Alternative A, except quality of life environmental impacts would be reduced because there would be fewer turbines.</p>	<p><b>Decommissioning:</b></p> <p>Similar to Alternative B, except quality of life environmental impacts would be further reduced because there would be greater space between the private lands and nearest turbines.</p>	<p><b>Decommissioning:</b></p> <p>No impacts.</p>	<p><b>Decommissioning:</b></p> <ul style="list-style-type: none"> <li>Similar to Alternative B.</li> </ul>
Environmental Justice	<p><b>Construction:</b></p> <ul style="list-style-type: none"> <li>The Census Tract that would be impacted has a disproportionately high low-income population, and the Project would have a positive impact on this population in terms of potential employment.</li> <li>May be minor impacts to quality of life, related to air and water quality, visual resources, traffic, and recreation to the Census Tract population.</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>No environmental justice effects were identified; therefore, no mitigation is warranted.</li> </ul>	<p><b>Construction:</b></p> <ul style="list-style-type: none"> <li>Similar to Alternative A, except quality of life environmental impacts would be reduced because there would be fewer turbines and a smaller Project footprint.</li> </ul>	<p><b>Construction:</b></p> <ul style="list-style-type: none"> <li>Similar to Alternative B, except quality of life environmental impacts would be further reduced because there would be greater space between the private lands and nearest turbines.</li> </ul>	<p><b>Construction:</b></p> <p>No impacts.</p>	<p><b>Construction:</b></p> <ul style="list-style-type: none"> <li>Similar to Alternative B.</li> </ul>
	<p><b>Operations and Maintenance:</b></p> <ul style="list-style-type: none"> <li>Job creation- and income-related effects would be of a more permanent nature given the 30-year life of the Project.</li> <li>The quality of life effects would be smaller in magnitude compared to during construction.</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>No environmental justice effects were identified; therefore, no mitigation is warranted.</li> </ul>	<p><b>Operations and Maintenance:</b></p> <ul style="list-style-type: none"> <li>Similar to Alternative A, except quality of life environmental impacts would be reduced because there would be fewer turbines.</li> </ul>	<p><b>Operations and Maintenance:</b></p> <ul style="list-style-type: none"> <li>Similar to Alternatives A and B, except quality of life environmental impacts would be further reduced because there would be greater space between the private lands and nearest turbines.</li> </ul>	<p><b>Operations and Maintenance:</b></p> <p>No impacts.</p>	<p><b>Operations and Maintenance:</b></p> <ul style="list-style-type: none"> <li>Similar to Alternative B.</li> </ul>
	<p><b>Decommissioning:</b></p> <ul style="list-style-type: none"> <li>Similar to Construction.</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>No environmental justice effects were identified; therefore, no mitigation is warranted.</li> </ul>	<p><b>Decommissioning:</b></p> <ul style="list-style-type: none"> <li>Similar to Alternative A, except quality of life environmental impacts would be reduced because there would be fewer turbines.</li> </ul>	<p><b>Decommissioning:</b></p> <ul style="list-style-type: none"> <li>Similar to Alternative B, except quality of life environmental impacts would be further reduced because there would be greater space between the private lands and nearest turbines.</li> </ul>	<p><b>Decommissioning:</b></p> <p>No impacts.</p>	<p><b>Decommissioning:</b></p> <ul style="list-style-type: none"> <li>Similar to Alternative B.</li> </ul>

Resource	Possible Impacts						
	Alternative A	Alternative B	Alternative C	Alternative D – No Action	Alternative E – Agencies' Preferred Alternative		
Visual Resources	<p>Information common to all alternatives:            Definitions:            Contrast:            None: The element contrast is not visible or perceived            Weak: The element can be seen but does not attract attention            Moderate: The element contrast begins to attract attention and begins to dominate the characteristic landscape            Strong: The element demands attention, will not be overlooked, and is dominant in the landscape</p>						
	<p><b>Construction Impacts Common to all Action Alternatives:</b></p> <ul style="list-style-type: none"> <li>• Temporary activities associated with construction (including equipment movement, and dust from earth moving and blasting) would be visible from most Key Observation Points (KOPs).</li> <li>• Higher impacts would occur to KOPs situated closer to the Project, or higher in elevation than the proposed Project.</li> <li>• The low visual sensitivity of viewers situated within Sensitivity Level Rating Unit (SLRU) 13 established during the pre-1990 VRI cannot be reduced, but localized changes in visual sensitivity may result from the proposed action.</li> <li>• Members of the Hualapai Tribe with cultural ties to traditional locations within the Project Area may become more sensitive to the landscape changes.</li> <li>• Residential viewers may become more sensitive to the landscape changes but over time may become less sensitive based on perceived loss of the natural setting of the landscape.</li> <li>• Local visitors to Lake Mead who access the NRA via Squaw Peak Road could become accustomed to the turbines and ancillary facilities through repeated use of these roadways, and therefore become less sensitive to the change of the landscape.</li> <li>• A localized reduction in visual sensitivity within SLRU 65 could result from the proposed Project. Residents in White Hills and Indian Peak Road area may become more sensitive to the landscape changes but over time become less sensitive based on perceived loss of the natural setting of the landscape.</li> <li>• Motorists traveling through SLRU 65 are not expected to become more, or less, sensitive to landscape changes because this viewer group would experience a large portion of the SLRU that would not be affected by the Project.</li> <li>• It is assumed that the majority of visitors to the Temple Bar area of Lake Mead would still select the paved access provided by Temple Bar Road. Common travel routes and viewpoints assumed to have been used in the pre-1990 VRI would, therefore, not change as a result of the proposed Project. Consequently no change in distance zones is expected.</li> </ul>					<p><b>Construction Impacts Common to All Action Alternatives:</b></p> <ul style="list-style-type: none"> <li>• The same as Alternatives, A, B, and C.</li> </ul>	
	<p><b>Construction:</b></p> <ul style="list-style-type: none"> <li>• The majority of activity would occur on and near the ground, and consequently would be shielded by topography. All construction-related impacts would be temporary and short-term.</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>• Turbine arrays and turbine design shall be integrated with the surrounding landscape. Design elements to be addressed include visual uniformity, use of tubular towers, proportion and color of turbines, non-reflective paints, and prohibition of commercial messages on turbines.</li> <li>• Other site design elements shall be integrated with the surrounding landscape. Elements to address include minimizing the profile of the ancillary structures, burial of cables, prohibition of commercial symbols, and lighting. Regarding lighting, efforts shall be made to minimize the need for and amount of lighting on ancillary structures.</li> </ul>	<p><b>Construction:</b></p> <ul style="list-style-type: none"> <li>• In relation to Alternative A, impacts would be reduced in the northwest, northeast, and southern portions of the Project Area, which would primarily result from the decrease in viewer duration and increase in viewer distance to construction-related actions.</li> </ul>	<p><b>Construction:</b></p> <ul style="list-style-type: none"> <li>• Same as Alternative B.</li> </ul>	<p><b>Construction:</b></p> <p>No impacts.</p>	<p><b>Construction:</b></p> <ul style="list-style-type: none"> <li>• Impacts would be similar to Alternative B, except impacts may be reduced in the northwest corner of the Project Area, which would primarily result from the decrease in viewer duration and increase in viewer distance to construction-related actions. If all phases are required, impacts could be greater than Alternative B in the south because of the potential for an additional turbine corridor near private property and residences.</li> </ul>		
<p><b>Operations and Maintenance Impacts Common to all Action Alternatives:</b></p> <ul style="list-style-type: none"> <li>• Operation and maintenance of the proposed Project could include a general change in perception of the visual resources of the area over time.</li> <li>• The configuration of turbine strings would create a sequence of vertical lines and the systematic repetition of structures would contrast the landscape to varying degrees depending on the angle of observation. Operation of turbines would introduce motion to an otherwise still environment, and the radiant color of turbine hazard lighting would create strong contrast against the darkness of existing night skies.</li> <li>• Overall, the close proximity of turbines, and the motion associated with the blades would substantially change the character of the landscape when viewed from traditional locations identified by the Hualapai Tribe.</li> <li>• Overall visual contrast observed during the day from US 93 is expected to be moderate, and blinking red hazard lights at night would result in strong visual contrast against the sky.</li> <li>• Visual contrast observed during both day and night from private property areas of Indian Peak Drive and White Hills is expected to be strong.</li> <li>• Strongest visual contrast would be observed from superior vantage points, such as KOP 169, or KOP 173. Project roads are expected to result in minor to moderate contrast when viewed from US 93 and the private property areas of White Hills and Indian Peak Road.</li> <li>• The substation to be located at the northern terminus of the interconnect line would have a strong contrast to the softer lines of the surrounding landform and vegetation when viewed from Senator Mountain or Squaw Peak. Beyond 5 miles, visual contrast of the substation is expected to decline to weak.</li> </ul>							

Resource	Possible Impacts				
	Alternative A	Alternative B	Alternative C	Alternative D – No Action	Alternative E – Agencies' Preferred Alternative
	<p><b>Operations and Maintenance:</b></p> <ul style="list-style-type: none"> <li>• Direct impacts would result from the introduction of structures characterized by strong visual contrast against the existing landscape during both day and night from the majority of viewer areas analyzed. Strong visual contrast would be observed from traditional locations identified by the both the Hualapai Tribe, private property, and Temple Bar Road. Views from US 93 and Temple Bar Road are expected to be of short duration, and experienced at varying angles of observation. Impacts to views from the lake and adjacent uplands in the Lake Mead NRA would be greatest during nighttime conditions. Prolonged and/or stationary views of Project components from traditional locations identified by the Hualapai Tribe, private property, and campers situated on or adjacent to the NRA and visitors to wilderness and proposed wilderness areas would be most affected.</li> <li>• Indirect effects may result from changes in the level of viewer sensitivity over time due to reduction in scenic quality. Although operation and maintenance of the proposed Project is expected to result in a reduction of scenic quality and the viewers becoming less sensitive as they become accustomed to the change, the VRI class would remain a Class C. Operation of the proposed Project under Alternative A would be consistent with VRM Class IV objectives.</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>• If approved by FAA, consider use of Audio Visual Warning System to activate obstruction lighting only when needed to warn an approaching aircraft.</li> </ul>	<p><b>Operations and Maintenance:</b></p> <ul style="list-style-type: none"> <li>• Visual contrast and affected views would be similar to Alternative A; however, direct and indirect effects to views from Temple Bar Road and the lake and adjacent uplands of the Lake Mead NRA would be reduced. The reduction of impacts to private property would be extremely localized and limited to the residence in the northern portion of the viewer area (Indian Peak Road). Although operation and maintenance of the proposed Project is expected to result in a reduction of scenic quality and the residences becoming less sensitive as they become accustomed to the change, the VRI class assigned to the area would remain a Class C. Operation of the proposed Project under Alternative B would be consistent with VRM Class IV objectives.</li> </ul>	<p><b>Operations and Maintenance:</b></p> <ul style="list-style-type: none"> <li>• Same as Alternative B.</li> </ul>	<p><b>Operations and Maintenance:</b></p> <p>No impacts.</p>	<p><b>Operations and Maintenance:</b></p> <ul style="list-style-type: none"> <li>• Impacts would be similar to Alternative B, except impacts may be reduced in the northwest, which would primarily result from the decrease in viewer duration and increase in viewer distance to operational turbines.</li> <li>• Commitment to use light gray turbines would reduce visual contrast when backdrop is natural terrain.</li> </ul>
	<p><b>Decommissioning:</b></p> <ul style="list-style-type: none"> <li>• Same as Construction impacts.</li> <li>• As decommissioning progresses, an incremental reduction in visual contrast from the facilities would occur.</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>• None required.</li> </ul>	<p><b>Decommissioning:</b></p> <ul style="list-style-type: none"> <li>• Similar to Alternative A except there would be an incremental reduction in visual contrast because fewer turbines would be constructed and the project footprint is smaller.</li> </ul>	<p><b>Decommissioning:</b></p> <ul style="list-style-type: none"> <li>• Same as Alternative B.</li> </ul>	<p><b>Decommissioning:</b></p> <p>No impacts.</p>	<p><b>Decommissioning:</b></p> <ul style="list-style-type: none"> <li>• Similar to Alternative B.</li> </ul>
Public Safety, Hazardous Materials, and Solid Waste	<p><b>Construction:</b></p> <p><b>Occupational Safety:</b></p> <ul style="list-style-type: none"> <li>• Potential impacts to workers from most construction activities, though impacts would be minimized through adherence to Project Health and Safety Plan as well as to all requirements under the federal Occupational Safety and Health Act, the Arizona Division of Occupational Safety and Health, and other applicable laws and regulatory requirements.</li> </ul> <p><b>Public Health and Safety:</b></p> <ul style="list-style-type: none"> <li>• Risk of public accessing the Project Area and encountering highly disturbed (uneven) ground, open trenches, or motorized heavy equipment.</li> <li>• Oversized, slow-moving heavy vehicles hauling large parts may contribute to traffic accidents.</li> <li>• Short-term impacts from increased traffic, and associated reduced visibility caused by fugitive dust.</li> </ul> <p><b>Hazardous Materials and Solid Waste:</b></p> <ul style="list-style-type: none"> <li>• Potential of risk from possible exposure from lubricants, fuels, and combustion emissions and exposure to solid waste.</li> </ul>	<p><b>Construction:</b></p> <p><b>Occupational Safety:</b></p> <ul style="list-style-type: none"> <li>• Potential impacts to workers from construction activities, but reduced number of workers and/or exposure time because fewer turbines would be constructed than with Alternative A.</li> </ul> <p><b>Public Health and Safety:</b></p> <ul style="list-style-type: none"> <li>• Opportunity for accidents involving the public would be reduced compared to Alternative A because fewer turbines would be constructed.</li> </ul> <p><b>Hazardous Materials and Solid Waste:</b></p> <ul style="list-style-type: none"> <li>• Similar to Alternative A, but with reduced risk because fewer turbines would be installed and operated.</li> </ul>	<p><b>Construction:</b></p> <p><b>Occupational Safety:</b></p> <ul style="list-style-type: none"> <li>• Similar to Alternative B.</li> </ul> <p><b>Public Health and Safety:</b></p> <ul style="list-style-type: none"> <li>• Same as Alternative B.</li> </ul> <p><b>Hazardous Materials and Solid Waste:</b></p> <ul style="list-style-type: none"> <li>• Same as Alternative B.</li> </ul>	<p><b>Construction:</b></p> <p>Any impact would be related to current available access to the area and associated opportunity for illegal dumping or accidental petroleum product releases from vehicles.</p>	<p><b>Construction:</b></p> <p><b>Occupational Safety:</b></p> <ul style="list-style-type: none"> <li>• Similar to Alternative B.</li> </ul> <p><b>Public Health and Safety:</b></p> <ul style="list-style-type: none"> <li>• Same as Alternative B.</li> </ul> <p><b>Hazardous Materials and Solid Waste:</b></p> <ul style="list-style-type: none"> <li>• Similar to Alternative A, but with reduced risk because fewer turbines would be installed and operated.</li> </ul>

Resource	Possible Impacts				
	Alternative A	Alternative B	Alternative C	Alternative D – No Action	Alternative E – Agencies' Preferred Alternative
	<p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>• Implement a site-specific SWPPP, Blasting Plan, Transportation and Traffic Plan, Dust and Emissions Control Plan, HSSE Plan, SPCC Plan, and Integrated Reclamation Plan.</li> <li>• Survey and flag areas to avoid disturbing areas beyond defined limits of disturbance.</li> <li>• Consult with local planning authorities regarding potential traffic issues.</li> <li>• Limit public access to Project Area during construction.</li> </ul>				
	<p><b>Operations and Maintenance:</b></p> <p><b>Occupational Safety:</b></p> <ul style="list-style-type: none"> <li>• Potential for accidental spills and worker accidents with risks associated with working at heights, high winds, and rotating/spinning systems, emergency maintenance procedures, inclement weather, and broken or failed mechanical components.</li> </ul> <p><b>Public Health and Safety:</b></p> <ul style="list-style-type: none"> <li>• Possible (but rare) risk of a rotor blade breaking and parts being thrown off the turbine.</li> <li>• Potential for accidental impacts between small aircraft and wind turbines is slight.</li> <li>• Electrical shorts, insufficient equipment maintenance, or contact with power lines could ignite dry vegetation and contribute to risk of fire.</li> </ul> <p><b>Hazardous Materials and Solid Waste:</b></p> <ul style="list-style-type: none"> <li>• Potential of risk from possible exposure from lubricants, fuels, and combustion emissions and exposure to solid waste.</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>• Additional plans should be prepared including a site-specific SWPPP, Blasting Plan, Transportation and Traffic Management Plan, HSSE Plan, SPCC Plan, Dust and Emissions Control Plan, and Integrated Reclamation Plan. These plans would include elements that contribute to a maintaining a safe environment and/or minimizing the potential for adverse health effects associated with dust or pollutants in water, and other safety and operations plans as needed.</li> <li>• Local planning authorities would be consulted regarding increased traffic issues during construction and decommissioning.</li> <li>• The Project would comply with FAA regulations, including use of lighting requirements to warn aviators of obstructions (FAA 2007).</li> <li>• A fire management and response strategy to minimize the potential for a fire and to promptly extinguish fires would be developed.</li> <li>• .</li> </ul>	<p><b>Operations and Maintenance:</b></p> <p><b>Occupational Safety:</b></p> <ul style="list-style-type: none"> <li>• Opportunity for worker accidents reduced because fewer turbines would be constructed; other risks would be similar to Alternative A.</li> </ul> <p><b>Public Health and Safety:</b></p> <ul style="list-style-type: none"> <li>• Risks would be similar, but reduced from Alternative A by the reduction in the number of turbines and the size of the Project footprint.</li> </ul> <p><b>Hazardous Materials and Solid Waste:</b></p> <ul style="list-style-type: none"> <li>• Similar to Alternative A, but with reduced risk because fewer turbines would be installed and operated.</li> </ul>	<p><b>Operations and Maintenance:</b></p> <ul style="list-style-type: none"> <li>• Same as Alternative B.</li> </ul> <p><b>Public Health and Safety:</b></p> <ul style="list-style-type: none"> <li>• Same as Alternative B.</li> </ul> <p><b>Hazardous Materials and Solid Waste:</b></p> <ul style="list-style-type: none"> <li>• Same as Alternative B.</li> </ul>	<p><b>Operations and Maintenance:</b></p> <p>No impacts.</p>	<p><b>Operations and Maintenance:</b></p> <ul style="list-style-type: none"> <li>• Same as Alternative B.</li> </ul> <p><b>Public Health and Safety:</b></p> <ul style="list-style-type: none"> <li>• Same as Alternative B.</li> </ul> <p><b>Hazardous Materials and Solid Waste:</b></p> <ul style="list-style-type: none"> <li>• Same as Alternative B.</li> </ul>

Resource	Possible Impacts				
	Alternative A	Alternative B	Alternative C	Alternative D – No Action	Alternative E – Agencies' Preferred Alternative
	<p><b>Decommissioning:</b></p> <p><b>Occupational Safety:</b></p> <ul style="list-style-type: none"> <li>• Similar to Construction, except no blasting is planned during decommission.</li> </ul> <p><b>Public Health and Safety:</b></p> <ul style="list-style-type: none"> <li>• Similar to Construction.</li> </ul> <p><b>Hazardous Materials and Solid Waste:</b></p> <ul style="list-style-type: none"> <li>• Potential of risk from possible exposure from lubricants, fuels, and combustion emissions and exposure to solid waste.</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>• Same as Construction.</li> </ul>	<p><b>Decommissioning:</b></p> <p><b>Occupational Safety:</b></p> <ul style="list-style-type: none"> <li>• Risk would be similar to Alternative A because the activities would be the same, although there would be fewer turbines to remove.</li> </ul> <p><b>Public Health and Safety:</b></p> <ul style="list-style-type: none"> <li>• Similar to Alternative A.</li> </ul> <p><b>Hazardous Materials and Solid Waste:</b></p> <ul style="list-style-type: none"> <li>• Similar to Alternative A, but with reduced risk because fewer turbines would be installed and operated.</li> </ul>	<p><b>Decommissioning:</b></p> <p><b>Occupational Safety:</b></p> <ul style="list-style-type: none"> <li>• Same as Alternative B.</li> </ul> <p><b>Public Health and Safety:</b></p> <ul style="list-style-type: none"> <li>• Same as Alternative B.</li> </ul> <p><b>Hazardous Materials and Solid Waste:</b></p> <ul style="list-style-type: none"> <li>• Same as Alternative B.</li> </ul>	<p><b>Decommissioning:</b></p> <p>No impacts.</p>	<p><b>Decommissioning:</b></p> <p><b>Occupational Safety:</b></p> <ul style="list-style-type: none"> <li>• Same as Alternative B.</li> </ul> <p><b>Public Health and Safety:</b></p> <ul style="list-style-type: none"> <li>• Same as Alternative B.</li> </ul> <p><b>Hazardous Materials and Solid Waste:</b></p> <ul style="list-style-type: none"> <li>• Same as Alternative B.</li> </ul>
<b>Microwave, Radar, and other Communications</b>	<p><b>All impacts would be related to Operations:</b></p> <p><b>Microwave:</b></p> <ul style="list-style-type: none"> <li>• No impacts; no interference with identified microwave beam paths has been identified.</li> </ul> <p><b>Radar/Air Traffic:</b></p> <ul style="list-style-type: none"> <li>• Based on preliminary screening, the Project Area is classified as “green” and is not likely to cause an impact with National Air Defense and Homeland Security Radars, weather radars, or Military Operations.</li> <li>• Possible hazard to navigable airspace due to height of turbines (over 200 feet); an aeronautical study in accordance with FAA Regulations Part 77 resulted in a No Hazard Determination if the turbines conform to FAA paint schemes and have synchronized warning lights at night.</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>• Relocate or eliminate wind turbines, as necessary, to avoid existing microwave signals that are near the Project site.</li> </ul>	<p><b>Operations and Maintenance:</b></p> <p><b>Microwave:</b></p> <ul style="list-style-type: none"> <li>• Same as Alternative A.</li> </ul> <p><b>Radar/Air Traffic:</b></p> <ul style="list-style-type: none"> <li>• Same as Alternative A.</li> </ul>	<p><b>Operations and Maintenance:</b></p> <p><b>Microwave:</b></p> <ul style="list-style-type: none"> <li>• Same as Alternative A.</li> </ul> <p><b>Radar/Air Traffic:</b></p> <ul style="list-style-type: none"> <li>• Same as Alternative A.</li> </ul>	<p><b>Operations and Maintenance:</b></p> <p>No impacts.</p>	<p><b>Operations and Maintenance:</b></p> <p><b>Microwave:</b></p> <ul style="list-style-type: none"> <li>• Same as Alternative A.</li> </ul> <p><b>Radar/Air Traffic:</b></p> <ul style="list-style-type: none"> <li>• Same as Alternative A.</li> </ul>
<b>Noise</b>	<p><b>Construction:</b></p> <ul style="list-style-type: none"> <li>• Impacts experienced during the night are assumed to be 4 dBA less than daytime noise emissions and would be temporary in nature.</li> <li>• Representative noise monitoring location LT2, on the boundary of a planned residential development area east of the Wind Farm Site, would be expected to experience sound exceeding 45 dBA by more than 2 dBA during the day.</li> <li>• Representative location LT3, a planned residential development east of the Wind Farm Site, would be expected to experience noise from 20 to 24 dBA.</li> <li>• Other representative locations would be expected to experience noise from 33 to 47 dBA.</li> <li>• If blasting were required for the turbine foundation nearest to LT2 (a distance of approximately 2,000 feet from the noise monitoring location on the boundaries of planned residential development areas near the Wind Farm Site), the predicted blast noise level would be 30 dBA Leq and thus considerably lower than the guidance level of 45 dBA Leq.</li> </ul>	<p><b>Construction:</b></p> <ul style="list-style-type: none"> <li>• Construction noise impacts would be similar to Alternative A.</li> <li>• Representative location LT2 expected to experience sound exceeding 45 dBA by more than 2 dBA during the day.</li> <li>• The two representative locations at Lake Mead NRA would experience less than 20 dBA.</li> <li>• .</li> </ul>	<p><b>Construction:</b></p> <ul style="list-style-type: none"> <li>• Same as Alternative B.</li> </ul>	<p><b>Construction:</b></p> <p>No impacts.</p>	<p><b>Construction:</b></p> <ul style="list-style-type: none"> <li>• Noise effects on Lake Mead NRA would be comparable to those described for Alternative B except that the turbines that could be constructed in Township 29 North, Range 20 West, Section 2 would be expected to result in occasional Project operational noise levels of 35 dBA when wind speeds from the south are at or exceed 12 m/s (about 27 mph).</li> <li>• Noise effects on private property would be similar to Alternative A if the southern turbine corridor were built to meet the required nameplate capacity, but similar to Alternative B if construction of the southern turbine corridor was not required.</li> </ul>

Resource	Possible Impacts				
	Alternative A	Alternative B	Alternative C	Alternative D – No Action	Alternative E – Agencies' Preferred Alternative
	<p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>• Ensure noise producing equipment complies with local, state, or Federal agency regulations.</li> <li>• Employ noise producing signals for safety warning purposes only.</li> <li>• Ensure public address, loudspeaker, amplified music systems, etc., comply with local noise regulations, or do not exceed noise limits imposed on wind farms, whichever is the lowest level of acceptable noise.</li> <li>• Establish a hotline for noise complaints and a system to address complaints.</li> </ul>				
	<p><b>Operations:</b></p> <ul style="list-style-type: none"> <li>• All five representative noise monitoring locations expected to experience noise levels of less than 45 dBA.</li> <li>• Sound levels for the two representative locations at Lake Mead NRA would be expected to experience less than 35 dBA, except when winds are blowing from south-to-north at 12 meters/second (m/s or about 27 miles/hour).</li> <li>• The locations with the highest dBA levels from the modeled Scenarios include: <ul style="list-style-type: none"> <li>○ LT3 to experience noise greater than 45 dBA, but less than 50 dBA during wind occurrences of 12 m/s headed south.</li> <li>○ LT3 to experience noise greater than 45 dBA, but less than 50 dBA.</li> <li>○ Two areas along the southern border where Lake Mead NRA abuts the Project Area expected to experience noise ranging from 35 to 40 dBA during wind occurrences of 12 m/s headed north.</li> </ul> </li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>• Equip vehicles with internal combustion engines with mufflers, air-inlet silencers, and noise reducing features that meet or exceed original factory specification.</li> </ul>	<p><b>Operations and Maintenance:</b></p> <ul style="list-style-type: none"> <li>• All five representative noise monitoring locations are expected to experience less than 45 dBA.</li> <li>• No planned or actual residential-use land is expected to be exposed to Project operational noise levels greater than 45 dBA <math>L_{eq}</math>, and no Lake Mead NRA land is expected to be exposed to Project operation noise levels greater than 35 dBA <math>L_{eq}</math>.</li> </ul>	<p><b>Operations and Maintenance:</b></p> <ul style="list-style-type: none"> <li>• Similar to Alternative B, but setback from some private property would be a greater distance, further minimizing the potential for residents to hear operational turbine noise.</li> </ul>	<p><b>Operations and Maintenance:</b></p> <p>No impacts.</p>	<p><b>Operations and Maintenance:</b></p> <p>Similar to Alternative B, would be expected to result in occasional Project operational noise levels of 35 dBA when wind speeds from the south are at or exceed 12 m/s (about 27 mph) and the affected area would be limited to about 100 acres or less.</p>
	<p><b>Decommissioning:</b></p> <ul style="list-style-type: none"> <li>• Similar to Construction, except no blasting is planned for decommission.</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>• Similar to Construction.</li> </ul>	<p><b>Decommissioning:</b></p> <ul style="list-style-type: none"> <li>• Similar to Construction, except no blasting is planned during decommissioning.</li> </ul>	<p><b>Decommissioning:</b></p> <ul style="list-style-type: none"> <li>• Same as Alternative B.</li> </ul>	<p><b>Decommissioning:</b></p> <p>No impacts.</p>	<p><b>Decommissioning:</b></p> <ul style="list-style-type: none"> <li>• Same as Alternative B.</li> </ul>