

# 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 unique combination of sufficient wind resource, good physical access, the presence of suitable transmission access, and few known environmental issues.

The Wind Farm Site would include 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.

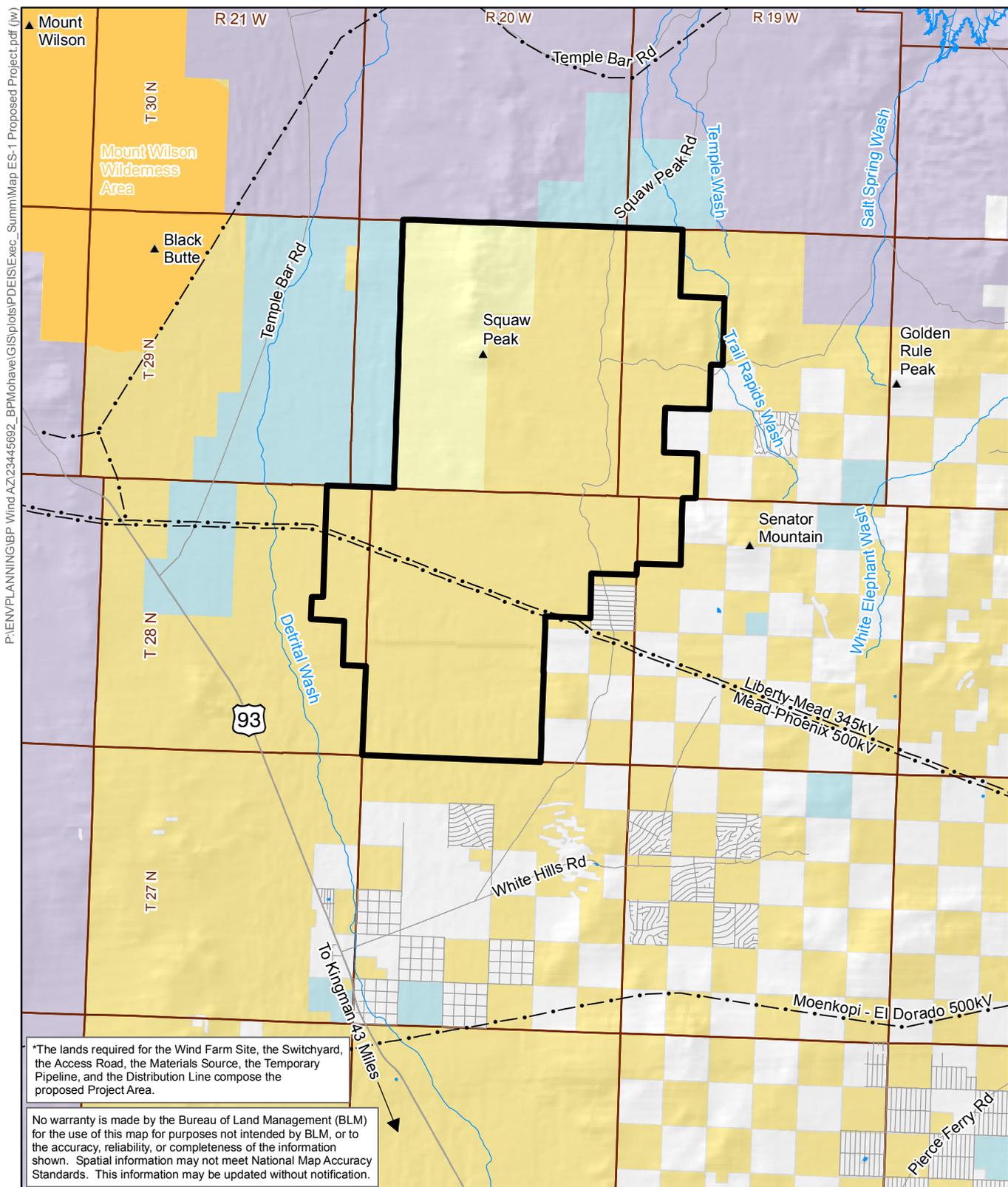
Project features outside of the Wind Farm Site include the primary access road, a materials source, a temporary water pipeline, and an electrical power distribution line. An approximately 3-mile long access road would be constructed between US Highway 93 and the Wind Farm Site. The materials source for 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 construction-phase water 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. 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 the operations phase to provide power to the O&M building. The public and Federal 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.

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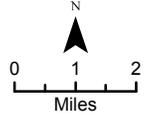


- Legend**
- Wind Farm Site\*
  - Existing Transmission Line
  - Township and Range Boundary
  - Lake
  - Road
  - Wash
  - Mountain Summit

- 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 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 issue a contract for the sale of mineral materials if BP Wind Energy is the successful bidder for the proposed materials source. Based on the analyses, three separate Records of Decision (RODs) may be issued:

- BLM's 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, the materials source, and the temporary pipeline) located outside the Wind Farm Site on BLM-administered public lands. BLM's ROD also would address a separate ROW to Western for the switchyard and a separate ROW to UniSource Energy for the distribution line.
- Reclamation's ROD would approve, deny, or approve as modified a ROW for the use of the Reclamation-administered portion of Federal lands for the Wind Farm Site.
- Western's ROD would approve, deny, or approve as modified the interconnection request if the Project interconnects with one of the existing transmission lines operated by Western — the Liberty-Mead 345-kV or Mead-Phoenix 500-kV transmission line through the Switchyard. If the interconnection request is approved, Western would construct, own, and operate the Switchyard in support of the proposed Project. If the 345-kV interconnection is selected, Western's ROD also would approve the replacement of the 345/230-kV transformer at Mead Substation with two new 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 be dependent on the turbine type, placement and number of turbines within approved corridors, and the transmission line selected. The power generation capacity is proposed to 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 capacity to generate between 1.5 and 3.0 MW. 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**

The overall purpose of the proposed action is to respond to BP Wind Energy's Proposal to use Federal lands. With regard to the affected public lands administered by the BLM, the BLM must respond to a FLPMA ROW application submitted by BP Wind Energy to construct, operate, maintain, and decommission a wind energy facility and associated infrastructure in compliance with FLPMA, BLM ROW regulations, BLM's multiple use mandate, 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 (EPAAct) (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, also would be consistent with 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 PHASES**

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 EIS.

A summary of the key components 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 Requirement (if applicable)</b>	<b>Purpose</b>	<b>Best Management Practices (BMPs) (if applicable)</b>
Temporary Laydown/Staging Area	Two areas (up to 20 acres per area)	Secure areas for temporary construction offices, construction vehicle parking, and equipment and construction materials 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 Stormwater Pollution Prevention Plan (SWPPP) would be followed.
Temporary Concrete Batch Plant	Two areas (approximately 10-15 acres of new disturbance)	Facility for mixing concrete needed in the construction phase	Plant to be located in the Temporary Laydown/Staging area, with all BMPs applicable. Water source would be from existing wells.
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 (within access roads: 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. 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 Requirement (if applicable)</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. May treat crushed rock surfaces to control weeds with herbicides if approved by BLM, and in accordance with the Weed Management Plan.
Overhead Transmission Line	Approximately 5 miles in length with 8 support structures per mile for 345-kV or 500-kV line (150-250 feet wide corridor for each route)	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.
Interconnection Switchyard	One (up to 37 acres)	Interface at the interconnection point between the proposed transmission line and an existing regional transmission line	One switchyard location has been identified for each transmission line being considered. If a 345-kV switchyard is built, the location would be in Section 8 of Township 28 North, Range 20 West. If a 500-kV switchyard is built, the location would be in Section 9 of Township 28 North, Range 20 West.
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 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 (approximately 4-5 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.

<b>Component</b>	<b>Quantity and Land Requirement (if applicable)</b>	<b>Purpose</b>	<b>Best Management Practices (BMPs) (if applicable)</b>
Access Roads	3.0 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	About 106 to 113 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, Reclamation, and ADOT. Low posted speed limits for dust control.
Utility and Communication Lines	About 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 Avian Power Line Interaction Committee (APLIC) compliant.
Meteorological Towers	Up to three permanent and up to 10 additional temporary met towers (9 square feet for each tower)	Monitor wind	No fencing, utilities, welding, cranes, concrete work (including permanent foundations), grading, 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 to further guide site preparation, construction, and post-construction phases. This may include, but is not limited to, an adaptive weed management plan, equipment transport plan, flagging plan, emergency response plan, facility security plan, spill prevention plan, reclamation plan, and waste management plan. These plans, along with site plans, grading plans, 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 any 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.
- Removed 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 Control 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
Collection Line Installation	Week 9	22 weeks
Turbine Generator Installation	Week 11	35 weeks
Turbine Commissioning	Week 15	35 weeks
Site Restoration	Week 50	8 weeks

The number of construction personnel on site is expected to range from 90 to 275 (during peak construction) at approximately 240 one-way personal trips per day during the construction period. Personal vehicles would be parked at the main staging area for the site. From this point, construction access roads would be used only by delivery and on-site construction vehicles.

Construction of the Project is anticipated to commence in 2012 or early 2013, with generation and delivery of electricity to the grid anticipated by 2013. Ideally, the wind farm would be developed in a single phase. However, depending on the market for the power and the negotiated power purchase agreement, the proposed Project could potentially be developed in phases. Should the Project need to be phased, 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 year round 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 the reclamation phase.

### **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 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 the operation phase of the Project, 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. In general, unless there are unplanned events, 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, a 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 electrical system – BLM and Reclamation would decide if the cables buried between each turbine would be removed or left in place.
- 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	Shadow gray
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 proposes 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, and geotechnical testing results, 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**

<b>Alternatives (acreage)</b>	<b>Turbine Rotor Diameter (meters)</b>	<b>Per Turbine Electrical Output (MW)</b>	<b>Number of Turbine Positions <sup>1</sup></b>	<b>Power Production (MW) <sup>2</sup></b>
<b>Alternative A</b>				
38,099 on BLM; 8,960 on Reclamation	77 to 82.5	1.5	283	425
	100 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
	90 to 101	1.6 to 3.0	194	310 to 500
	112 to 118	2.3 to 3.0	153	352 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
	90 to 101	1.6 to 3.0	194	310 to 500
	112 to 118	2.3 to 3.0	154	354 to 462 <sup>3</sup>

**NOTES:**

- <sup>1</sup> Number of turbines positions is approximate and subject to minor changes as Project moves through detailed design and into construction.
- <sup>2</sup> Greater than 500 MW 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.

**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 the operations phase, 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, which would place more turbines away from proposed future residential areas. 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 North America'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 respond to the purpose and need to increase renewable energy production on public lands by the year 2015 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 to satisfy the purpose and need through other renewable energy projects.

### **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. 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 situations. This may also result in changes to the acreages of anticipated disturbance, most likely resulting in a reduction to the amount of disturbance. The estimated areas of disturbance are conservative and are listed as the estimated maximum size, 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, variances also may include ground disturbance beyond the specific areas identified for the EIS analysis.

A variance process would be used to approve refinements outside the parameters of the analysis in this EIS. Where work is required outside the specifically evaluated areas of ground disturbance, additional evaluation would be performed for biological and cultural resources to ensure the refinements would not result in an adverse effect after the application of appropriate BMPs or other mitigation measures. Location of the workspace, date, and survey results would be documented and forwarded to the BLM, Reclamation, and Mohave County, as appropriate. In cases where no state or Federally protected species or cultural resources are found, work would proceed upon approval of the variance. In cases where protected species or cultural resources are found, the applicable agencies would provide direction prior to disturbance in that area. As-built drawings would be provided to the BLM and/or Reclamation at the end of the Project's construction phase.

If Project design refinements required Project features beyond the areas defined in this EIS, additional actions to comply with environmental regulations likely would be required. "Refinements" involve three levels of approval depending on the degree of change and who is delegated for approving the variance request. Level 1 and 2 variances would be used as an amendment to the Plan of Development. Level 3 variances would require an amendment to the BLM and/or Reclamation grant.

BP Wind Energy would post a BLM-required security bond 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 Draft 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, are not repeated in Table ES-5. Unless noted, mitigation measures for Alternatives B and C 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
Climate and Air Quality	<p><b>Construction:</b> Average site-wide total pollutant emission rates:</p> <ul style="list-style-type: none"> <li>• volatile organic compounds (VOCs): 18.88 lb/hour.</li> <li>• carbon monoxide (CO): 128.01 lb/hour.</li> <li>• nitrogen oxides (NOx): 105.18 lb/hour.</li> <li>• particulate matter (PM<sub>10</sub>): 444.09 lb/hour.</li> <li>• sulfur dioxide (SO<sub>2</sub>): 12.19 lb/hour.</li> <li>• Releases of these and greenhouse gas (GHG) emissions would be temporary (through the construction period) and would not exceed allowed limits.</li> </ul> <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 (Appendix C).</li> <li>• Comply with the Dust and Emissions Control Plan.</li> </ul>	<p><b>Construction:</b></p> <ul style="list-style-type: none"> <li>• Same emission compounds as Alternative A, but slightly lower emissions due to small Project footprint.</li> </ul>	<p><b>Construction:</b></p> <ul style="list-style-type: none"> <li>• Same as Alternative B.</li> </ul>	<p>Construction, operations, and decommissioning would not occur.</p> <p>As noted in the analysis, there could be a potential increase in GHG and criteria pollutant emissions (PM, CO, NOx, 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>Operations:</b></p> <ul style="list-style-type: none"> <li>• Relatively small amounts of PM, NOx, VOCs CO, SO<sub>2</sub> and GHG of 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:</b></p> <ul style="list-style-type: none"> <li>• Similar to Alternative A, but slightly lower emissions.</li> </ul>	<p><b>Operations:</b></p> <ul style="list-style-type: none"> <li>• Same as Alternative B.</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.</li> </ul>	<p><b>Decommissioning:</b></p> <ul style="list-style-type: none"> <li>• Same as 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>• Permanent surface and subsurface disturbance, and possible bedrock disturbance, which would be dependent on each construction activity and contingent on the specific location.</li> <li>• Temporary impacts to approximately 1,477 acres. Long-term impacts to approximately 339 acres.</li> </ul> <p><b>Soil:</b></p> <ul style="list-style-type: none"> <li>• Disturbance areas and acreages same as Geology.</li> <li>• Possible erosion from disturbance.</li> <li>• Eight to 12 inches of topsoil and soils removed for reuse in reclamation. Graded areas would permanently relocate soil.</li> <li>• Erosion from wind and water from localized new disturbance to soils. Soil disturbance minimized through use of Dust Control Plans and Stormwater Pollution Prevention Plan (SWPPP).</li> </ul>	<p><b>Construction:</b></p> <p><b>Geology:</b></p> <ul style="list-style-type: none"> <li>• Similar to Alternative A.</li> <li>• Temporary impacts to approximately 1,189 acres. Long-term impacts to approximately 280 acres.</li> </ul> <p><b>Soil:</b></p> <ul style="list-style-type: none"> <li>• Similar to Alternative A, except less trenching, resulting in less soil disturbance (acreages same as Geology).</li> </ul>	<p><b>Construction:</b></p> <p><b>Geology:</b></p> <ul style="list-style-type: none"> <li>• Similar to Alternative A</li> <li>• Temporary impacts to approximately 1,180 acres. Long-term impacts to approximately 276 acres.</li> </ul> <p><b>Soil:</b></p> <ul style="list-style-type: none"> <li>• Similar to Alternatives A and B, except less trenching, resulting in less soil disturbance (acreages same as Geology).</li> </ul>	No impacts.

Resource	Possible Impacts			
	Alternative A	Alternative B	Alternative C	Alternative D – No Action
	<p><b>Minerals:</b></p> <ul style="list-style-type: none"> <li>The proposed Project ROW has been segregated from appropriation for 2 years, starting March 2, 2012.</li> <li>Subject to a sales contract with the BLM, the Detrital Wash Materials Pit would be used to supply approximately 120,000 to 210,000 cubic yards of aggregate material for the Project.</li> <li>Future mineral resources are expected to be unchanged from the current conditions.</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>Recontour disturbed areas with salvaged topsoil.</li> <li>Reduce on-site disturbance by using the established Materials Source.</li> </ul>	<p><b>Minerals:</b></p> <ul style="list-style-type: none"> <li>Same as 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:</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> </ul>	<p><b>Operations:</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:</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>Areas decommissioned would be replaced with purchased native rock if possible.</li> </ul> <p><b>Soil:</b></p> <ul style="list-style-type: none"> <li>Temporary increased risk of stormwater-related erosion and blowing dust.</li> <li>Turbine foundations below 36 inches would not be removed, but the non-leaching materials used would not impact soils.</li> </ul> <p><b>Minerals:</b></p> <ul style="list-style-type: none"> <li>Mineral resources expected to be unchanged.</li> <li>Materials Source would conduct reclamation activities under its approved Mine Plan of Operations.</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>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>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>	

Resource	Possible Impacts			
	Alternative A	Alternative B	Alternative C	Alternative D – No Action
Water Resources	<p><b>Construction:</b></p> <p><b>Surface Water:</b></p> <ul style="list-style-type: none"> <li>• Potential for increased sediment loads in ephemeral washes at transmission line connections, with disturbance greatest for the Mead-Phoenix line.</li> <li>• Up to 74 miles (93.8 acres) of jurisdictional water impacted (the total may be lower in final design through avoidance). Intent is to comply with Nation Wide Permit 51 to avoid a pre-construction notification.</li> <li>• Increase in potential for sediment erosion and transport in disturbed areas, until successfully reclaimed.</li> <li>• Delivery of sediment to ephemeral washes associated with stormwater.</li> <li>• Potential spills and leaks from vehicles and motorized equipment; use of SWPPP and Spill Prevention, Containment, and Countermeasures (SPCC) Plan would minimize impacts.</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 – 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, but impacts unlikely given the depth to groundwater (160 feet) use of SPCC Plan would minimize impacts.</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>• Implement a SSPCC Plan.</li> <li>• Implement a SWPPP.</li> <li>• Comply with all necessary permits (Federal, state, and local).</li> <li>• Comply with erosion control actions, as described in the Reclamation Plan.</li> </ul>	<p><b>Construction:</b></p> <p><b>Surface Water:</b></p> <ul style="list-style-type: none"> <li>• Disturbance from the transmission connection same as Alternative A.</li> <li>• Potential for impacts to jurisdictional water similar to Alternative A. Greater potential to avoid certain areas, and the total may be lower in final design.</li> <li>• Until successfully reclaimed, disturbed areas would contribute to sediment erosion and transport, but temporary disturbance area would be about 17 percent less than Alternative A.</li> <li>• Less delivery of sediment to ephemeral washes associated with stormwater than Alternative A.</li> <li>• Potential spills and leaks from vehicles and motorized equipment same as Alternative A, although potentially fewer vehicles would be needed compared to Alternative A, or the duration of the need would be reduced.</li> </ul> <p><b>Groundwater:</b></p> <ul style="list-style-type: none"> <li>• Approximately 25 percent less water use than Alternative A.</li> <li>• Combined total: 56.4 acre-feet, which represents 0.02 percent of recoverable groundwater.</li> <li>• Reduced potential impact from spills, but is unlikely given the depth to groundwater (160 feet).</li> </ul>	<p><b>Construction:</b></p> <p><b>Surface Water:</b></p> <ul style="list-style-type: none"> <li>• Disturbance from the transmission connection same as Alternative A.</li> <li>• Remaining impacts, same as Alternative B.</li> </ul> <p><b>Groundwater:</b></p> <ul style="list-style-type: none"> <li>• Same as Alternative B.</li> </ul>	<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>Operations:</b></p> <p><b>Surface Water:</b></p> <ul style="list-style-type: none"> <li>• The placement of the switchyard, substations, and O&amp;M facilities would modify natural surface flow (about 46 acres for 500-kV line interconnection; about 23 acres for 345-kV line interconnection).</li> <li>• Increase in sediment production from surface transport.</li> <li>• Temporary increase in erosion during road maintenance, contributing to sediment in local surface water.</li> </ul>	<p><b>Operations:</b></p> <p><b>Surface Water:</b></p> <ul style="list-style-type: none"> <li>• Similar to Alternative A, but impacts would be eliminated where the footprint is smaller, with about 17 percent less disturbance.</li> </ul>	<p><b>Operations:</b></p> <p><b>Surface Water:</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
	<p><b>Groundwater:</b></p> <ul style="list-style-type: none"> <li>• A residential use well 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 an 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 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 B.</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>• Temporary disturbance and short-term effects on water quality from stormwater runoff would be less than with Alternative A.</li> </ul> <p><b>Groundwater:</b></p> <ul style="list-style-type: none"> <li>• Though a source would be identified at a later time, water used for dust suppression would be approximately 25 percent less than with Alternative A.</li> </ul>	<p><b>Decommissioning:</b></p> <p><b>Surface Water:</b></p> <ul style="list-style-type: none"> <li>• Same as Alternative B.</li> </ul> <p><b>Groundwater:</b></p> <ul style="list-style-type: none"> <li>• Same as Alternative B.</li> </ul>	
<b>Biological Resources</b>	<p><b>Construction:</b></p> <p><b>Vegetation and Land Cover Types:</b></p> <ul style="list-style-type: none"> <li>• Total short-term impact to vegetation includes 1,477 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.</li> <li>• Limit vehicle and foot traffic.</li> <li>• Implement an ecological awareness program.</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 invasive weed seeds and other plant parts that could introduce noxious weeds or invasive plant species.</li> </ul>	<p><b>Construction:</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 1,189 acres where plants (primarily Sonoran-Mojave Creosotebush-White Bursage Desert Scrub cover type) would be cleared for construction.</li> <li>• Avoidance of mountainous habitat in the northwestern part and northeastern part of the Project Area, which contains habitat for bats, golden eagles, small birds and falcons, and would result in less impacts to wildlife, BLM species of concern, and Arizona wildlife of concern than under Alternative A.</li> <li>• The configuration of Alternative B would avoid potential habitat for the silver leaf sunray and Las Vegas bear poppy.</li> <li>• Potential disturbance or loss of habitat for the Gila monster would be a total of about 18 acres.</li> </ul>	<p><b>Construction:</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>• Total short-term impact to vegetation would include 1,180 acres where plants (primarily Sonoran-Mojave Creosotebush-White Bursage Desert Scrub cover type) would be cleared for construction.</li> <li>• Potential disturbance or loss of habitat for the Gila monster would be a total of about 14 acres.</li> </ul>	No impacts.

Resource	Possible Impacts			
	Alternative A	Alternative B	Alternative C	Alternative D – No Action
	<p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>• Use only BLM approved herbicides.</li> <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 and report weed infestations.</li> <li>• Pre-treat reclamation sites to limit germination.</li> </ul> <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>Wildlife:</b></p> <p><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 affect the most.</li> <li>• Approximately 3 percent of the available habitat 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, when not in use, or when there is water inside the trenches/holes.</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>			

Resource	Possible Impacts			
	Alternative A	Alternative B	Alternative C	Alternative D – No Action
	<p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>• Develop and implement a bat protection plan.</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) 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, when not in use, or when there is water inside the trenches/holes.</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></p> <p><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>Mitigation:</b></p> <ul style="list-style-type: none"> <li>• Complete preconstruction 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 an avian protection plan.</li> <li>• Fill any trenches/holes immediately, or cover them at night, when not in use, or when there is water inside the trenches/holes.</li> <li>• Implement an ecological awareness program.</li> </ul>			

Resource	Possible Impacts			
	Alternative A	Alternative B	Alternative C	Alternative D – No Action
	<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>• Non-salvage restricted cactus may be salvaged and used for future revegetation.</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>• Complete preconstruction surveys to identify sensitive or special status species.</li> <li>• Design above ground lines to follow APLIC guidelines.</li> <li>• Consider using 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>• Implement an ecological awareness program.</li> </ul>			

Resource	Possible Impacts			
	Alternative A	Alternative B	Alternative C	Alternative D – No Action
	<p><b>Special Status Wildlife:</b></p> <ul style="list-style-type: none"> <li>• Potential loss of habitat for the Sonoran desert tortoise (a federal candidate species), and the banded Gila monster (an Arizona protected 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 21 acres of rocky habitat and 20 acres of other 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, when not in use, or when there is water inside the trenches/holes.</li> <li>• Implement an ecological awareness program.</li> </ul> <p><b>Golden Eagles:</b></p> <ul style="list-style-type: none"> <li>• Same impacts as discussed under Raptors above.</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>• Prepare and implement an Eagle Conservation Plan.</li> </ul>			
	<p><b>Operations:</b></p> <p><b>Vegetation and Land Cover Types:</b></p> <ul style="list-style-type: none"> <li>• Long-term disturbance to about 339 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>Operations:</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 280 acres of vegetation.</li> <li>• The potential for mortality to birds, bats, raptors (including eagles), and wildlife species would be reduced because there would be about 75 fewer turbines</li> </ul>	<p><b>Operations:</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 276 acres of vegetation.</li> </ul>	

Resource	Possible Impacts			
	Alternative A	Alternative B	Alternative C	Alternative D – No Action
	<p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>• Use only BLM approved herbicides.</li> <li>• Limit vehicle and foot traffic.</li> <li>• Implement an ecological awareness program.</li> <li>• Survey for and report weed infestations.</li> </ul> <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></p> <p><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> </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>Mitigation:</b></p> <ul style="list-style-type: none"> <li>• Develop and implement a bat protection plan.</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>			

Resource	Possible Impacts			
	Alternative A	Alternative B	Alternative C	Alternative D – No Action
	<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></p> <p><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 an avian protection plan.</li> <li>• Implement an ecological awareness program.</li> <li>• Adhere to noise mitigation (presented in noise section below).</li> </ul> <p><b>Raptors:</b></p> <ul style="list-style-type: none"> <li>• An estimated less than 5 fatalities per year from 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>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>• Use only BLM approved herbicides.</li> <li>• Limit vehicle and foot traffic.</li> <li>• Implement an ecological awareness program.</li> <li>• Survey for and report noxious weed infestations.</li> </ul>			

Resource	Possible Impacts			
	Alternative A	Alternative B	Alternative C	Alternative D – No Action
	<p><b>Special Status Wildlife:</b></p> <ul style="list-style-type: none"> <li>• Possibility of noxious weed infestation would 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>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> </ul> <p><b>Golden Eagles:</b></p> <ul style="list-style-type: none"> <li>• Potential mortality of 5 to 10 golden eagles during the life of the Project from turbine collisions and other structures, 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> <li>• Other impacts would be the same as discussed under Raptors above.</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>• Same as those described for Resident and Migratory Birds. Prepare and implement an Eagle Conservation Plan.</li> </ul>			
	<p><b>Decommissioning:</b></p> <p><b>Vegetation and Land Cover Types:</b></p> <ul style="list-style-type: none"> <li>• Removal of vegetation during activities to remove infrastructure.</li> <li>• Following demolition 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.</li> </ul> <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.</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.</li> </ul> <p><b>Wildlife:</b></p> <p><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.</li> </ul>	<p><b>Decommissioning:</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 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>	

Resource	Possible Impacts			
	Alternative A	Alternative B	Alternative C	Alternative D – No Action
	<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></p> <p><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>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>			

Resource	Possible Impacts			
	Alternative A	Alternative B	Alternative C	Alternative D – No Action
Cultural Resources	<p><b>Construction:</b>  <b>National Register-Eligible 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. One of the seven has little potential to be avoided. Data recovery could mitigate the impacts to the seven sites.</li> </ul> </li> <li>• Stone’s Ferry Road determined eligible for the National Register; disturbance would be to a short segment where no historical artifacts or features have been identified.</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, BP Wind Energy, and interested parties.</li> <li>• As part of the MOA, develop a cultural resource management plan.</li> </ul> <p><b>Traditional Cultural Resources Sensitive to Visual Impacts:</b></p> <ul style="list-style-type: none"> <li>• Three sites would have high visual impact, but are compatible with BLM visual resource management objectives. BLM has been consulting with the Hualapai Tribe, and will continue to do so, to determine whether traditional cultural values of these features would be affected.</li> <li>• Three sites would have low visual impact with no needed treatment.</li> <li>• Two sites would not be impacted, as the Project would not be visible from these sites.</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>• Continue BLM’s consultation with tribes regarding visual impacts and potential treatment.</li> </ul> <p><b>Other Cultural Resources Sensitive to Visual Impacts:</b></p> <ul style="list-style-type: none"> <li>• Three sites would have no effect on information potential; no treatment recommended.</li> <li>• One site would have weak to moderate visual contrast, but night time aviation obstruction lighting more noticeable; no treatment recommended.</li> <li>• One site would have weak visual contrast, no treatment.</li> <li>• Three sites would not be impacted, as the Project would not be visible from these sites.</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>• None required.</li> </ul>	<p><b>Construction:</b>  <b>National Register-Eligible Archaeological and Historical Resources:</b></p> <ul style="list-style-type: none"> <li>• Similar to 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.</li> </ul> <p><b>Other Cultural Resources Sensitive to Visual Impacts:</b></p> <ul style="list-style-type: none"> <li>• Similar to Alternative A.</li> </ul>	<p><b>Construction:</b>  <b>National Register-Eligible Archaeological and Historical Resources:</b></p> <ul style="list-style-type: none"> <li>• Potential impact on historic site 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.</li> </ul> <p><b>Other Cultural Resources Sensitive to Visual Impacts:</b></p> <ul style="list-style-type: none"> <li>• Similar to Alternative A.</li> </ul>	<p>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.</p>
	<p><b>Operations:</b></p> <ul style="list-style-type: none"> <li>• No change from impacts during construction.</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>• Implement MOA, including cultural resource management plan.</li> </ul>	<p><b>Operations:</b></p> <ul style="list-style-type: none"> <li>• Similar to Alternative A.</li> </ul>	<p><b>Operations:</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
	<b>Decommissioning:</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.</li> </ul>	<b>Decommissioning:</b> <ul style="list-style-type: none"> <li>Similar to Alternative A.</li> </ul>	<b>Decommissioning:</b> <ul style="list-style-type: none"> <li>Similar to Alternative A.</li> </ul>	
<b>Paleontological Resources</b>	Records search identified no known paleontological localities are 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. <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>	Similar to Alternative A, although Alternative B has the fewest square miles of Quaternary deposits of the action alternatives.	Similar to Alternative A, although fewer square miles of Quaternary deposits.	No impacts.
<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 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> </ul>	<b>Construction:</b> <ul style="list-style-type: none"> <li>Similar, but slightly reduced visual, noise, and dust impacts to residents and recreational visitors compared with Alternative A.</li> <li>Reduced traffic delays compared to Alternative A, because fewer turbine parts would be delivered to the site.</li> <li>Localized negligible impacts on forage for grazing opportunities, but about 20 percent smaller effects than with Alternative A.</li> </ul>	<b>Construction:</b> <ul style="list-style-type: none"> <li>Reduced visual, noise and dust impacts to residents compared with Alternatives A and B. Fewer effects on recreational visitors than Alternative A, but greater than with Alternative B.</li> <li>Same impact to available vegetation for forage as Alternative B, except the location would shift.</li> </ul>	No impacts.

Resource	Possible Impacts			
	Alternative A	Alternative B	Alternative C	Alternative D – No Action
	<p><b>Operations:</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 primitive recreational experience; however the area is not managed by BLM for specific recreational values. A reduction in opportunity for natural vistas from Temple Bar Road as a 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:</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 from Alternative A.</li> <li>• Operations would change the character of solitude and semi-primitive recreation opportunities, but reduced size of 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:</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>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.</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.</li> </ul>	<p><b>Decommissioning:</b></p> <ul style="list-style-type: none"> <li>• Same as Alternative B except noise and dust impacts would be reduced on the eastern portion of the Wind Farm Site and provide greater separation between private lands and the Project.</li> <li>• Same impact to available vegetation for forage as Alternative B, except the location would shift.</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 Wind Farm Site, eliminating need for access to 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 in the range of 28,231 to 68,228. 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 across the entire Project Area, due to construction activity.</li> </ul>	<p><b>Construction:</b></p> <ul style="list-style-type: none"> <li>• Would develop new access from US 93 same as Alternative A.</li> <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>• Would develop new access from US 93 same as Alternative A.</li> <li>• Construction traffic and OHV access would be the same as Alternative B.</li> </ul>	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.

Resource	Possible Impacts			
	Alternative A	Alternative B	Alternative C	Alternative D – No Action
	<p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>• Implement the Transportation and Traffic Management Plan, Blasting Plan, and Dust and Emissions Control Plan.</li> <li>• Survey and flag areas to avoid disturbing.</li> <li>• Obtain appropriate permits for transporting oversized loads and closely coordinate with ADOT and other state transportation departments.</li> </ul>			
	<p><b>Operations:</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:</b></p> <ul style="list-style-type: none"> <li>• Same as Alternative A.</li> </ul>	<p><b>Operations:</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>	
<b>Social and Economic Conditions</b>	<p><b>General Impacts:</b></p> <ul style="list-style-type: none"> <li>• Negligible economic impact on grazing rental leases, recreation visitor expenditures, and number of recreationists.</li> </ul> <p><b>Construction (assumes a 500 MW Project, a reduction of 15 percent would be realized with a 425 MW Project):</b></p> <ul style="list-style-type: none"> <li>• Construction phase to employ 90 to 275 workers; 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>• Additional local jobs would be supported by Project related expenditures on goods and materials, supporting 290 indirect jobs and \$11.1 million in income, primarily in the construction and services sectors.</li> <li>• With indirect and induced jobs, Project related economic activity during the construction phase is estimated to support 720 jobs and \$38.5 million, of which 440 jobs and \$17.3 million are estimated to accrue to local residents.</li> <li>• Total tax revenue in Arizona is estimated at approximately \$11.1 million, primarily in transaction privilege tax and use tax accruing to the State. Mohave County is anticipated to receive approximately \$366,000, and local purchases of goods and labor are anticipated to generate nearly \$900,000 in tax revenue for cities within the County.</li> <li>• The maximum population increase at any one time in Mohave County directly due to construction is estimated at 220 people; for which there are adequate available, vacant housing units.</li> </ul>	<p><b>General Impacts:</b></p> <ul style="list-style-type: none"> <li>• Same as Alternative A.</li> </ul> <p><b>Construction, Operations, and Decommissioning:</b></p> <ul style="list-style-type: none"> <li>• Similar to Alternative A because income is estimated based on the MW of capacity rather than the number of turbines.</li> </ul>	<p><b>General Impacts:</b></p> <ul style="list-style-type: none"> <li>• Same as Alternative A.</li> </ul> <p><b>Construction, Operations, and Decommissioning:</b></p> <ul style="list-style-type: none"> <li>• Similar to Alternative A because income is estimated based in the MW of capacity rather than the number of turbines.</li> </ul>	No impact.

Resource	Possible Impacts			
	Alternative A	Alternative B	Alternative C	Alternative D – No Action
	<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:</b></p> <ul style="list-style-type: none"> <li>An estimated 20 workers would be employed, with total income of \$1.5 million.</li> <li>During the 30-year operations phase, total employment and income supported by Project operations (including direct, indirect and induced effects) is estimated to be 40 jobs and \$2.1 million in income annually.</li> <li>Tax revenue is estimated at \$585,000 annually, with the majority accruing to jurisdictions in Mohave County as property tax. The anticipated annual tax revenue for the State is approximately \$190,000. 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 35 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>Decommissioning:</b></p> <ul style="list-style-type: none"> <li>Little data are available regarding the employment and income effects of the decommissioning process.</li> <li>There would be some income tax generated and likely some transaction privilege tax or use tax.</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>			
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>	No impacts.
	<p><b>Operations:</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 the construction phase.</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:</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:</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>	

Resource	Possible Impacts			
	Alternative A	Alternative B	Alternative C	Alternative D – No Action
	<b>Decommissioning:</b> <ul style="list-style-type: none"> <li>Similar to the Construction phase.</li> </ul> <b>Mitigation:</b> <ul style="list-style-type: none"> <li>No environmental justice effects were identified; therefore, no mitigation is warranted.</li> </ul>	<b>Decommissioning:</b> <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>	<b>Decommissioning:</b> <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>	
Visual Resources	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			
	<b>Construction Impacts Common to all Action Alternatives:</b> <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, but over time may become less sensitive based on perceived loss of the natural setting of the landscape.</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>			
	<b>Construction:</b> <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> <b>Mitigation:</b> <ul style="list-style-type: none"> <li>Shadow gray turbines, if used, would mitigate visual contrast, but would require daytime lighting.</li> <li>If approved by Federal Aviation Administration (FAA), consider use of Audio Visual Warning System to activate obstruction lighting only when needed to warn an approaching aircraft.</li> </ul>	<b>Construction:</b> <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>	<b>Construction:</b> <ul style="list-style-type: none"> <li>Same as Alternative B.</li> </ul>	No impacts.

Resource	Possible Impacts			
	Alternative A	Alternative B	Alternative C	Alternative D – No Action
	<p><b>Operation 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 residential 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 residential 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 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>			
	<p><b>Operations:</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 at the majority of viewer areas analyzed. Strong visual contrast would be observed from traditional locations identified by the both the Hualapai Tribe, residential areas, 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, residential areas, and campers situated on or adjacent to the NRA 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>• Shadow gray turbines, if used, would mitigate visual contrast, but would require daytime lighting.</li> <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:</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 residential areas 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:</b></p> <ul style="list-style-type: none"> <li>• Same as Alternative B.</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>• Same as Construction impacts.</li> </ul>	<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
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. An SPCC plan would be implemented.</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>Implement SWPPP, Blasting Plan, Transportation and Traffic Management Plan, Dust and Emissions Control Plan, and Reclamation Plan.</li> <li>Survey and flag areas to avoid disturbing.</li> <li>Consult with local planning authorities regarding potential traffic issues.</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 erected 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 erected.</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>	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><b>Operations:</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>None required.</li> </ul>	<p><b>Operations:</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 erected; 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:</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>	

Resource	Possible Impacts			
	Alternative A	Alternative B	Alternative C	Alternative D – No Action
	<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 for 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>	
<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 ft); an aeronautical study in accordance with Federal Aviation Regulations Part 77 resulted in a No Hazard Determination if the turbines were painted white and have synchronized warning lights at night.</li> </ul> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>• Relocated or eliminate wind turbines, as necessary, to avoid existing microwave signals that are near the Project site.</li> </ul>	<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>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>	No impacts.
<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>• All impacts would be experienced during the day and be temporary in nature.</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>• If blasting is required, a temporary major impact would be anticipated between the blast location and a residential receiver located less than 400 feet away from the blast location to experience the guidance impact indicator of 45 dBA Leq (8-hour). On Lake Mead NRA, a potential receiver would need to be less than 1,150 feet to experience the guidance indicator of 35 dBA Leq (9-hour).</li> </ul>	<p><b>Construction:</b></p> <ul style="list-style-type: none"> <li>• Same as Alternative B.</li> </ul>	No impacts.

Resource	Possible Impacts			
	Alternative A	Alternative B	Alternative C	Alternative D – No Action
	<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>• Possible excesses in dBA levels from 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:</b></p> <ul style="list-style-type: none"> <li>• All five representative locations expected to experience less than 45 dBA.</li> <li>• Sound levels for the two representative locations at Lake Mead NRA are expected to experience less than 35 dBA.</li> </ul>	<p><b>Operations:</b></p> <ul style="list-style-type: none"> <li>• Same as Alternative B.</li> </ul>	
	<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 for decommission.</li> </ul>	<p><b>Decommissioning:</b></p> <ul style="list-style-type: none"> <li>• Same as Alternative B.</li> </ul>	