

**U.S. Department of the Interior  
Bureau of Land Management**

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**Environmental Assessment  
DOI-BLM-NV-S010-2013-0053-EA**

**May 1, 2013**

**Boulder Solar Power, LLC Project Transmission Line, Access Road, and  
Waterline**

**PREPARING OFFICE**

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**Environmental Assessment  
for the  
Boulder Solar Power, LLC Project**

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N-91253



Prepared For:



U.S. Department of the Interior  
Bureau of Land Management  
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## Acronyms and Abbreviations

APHIS	Animal and Plant Health Inspection Service
BA	Biological Assessment
BO	Biological Opinion
BCCE	Boulder City Conservation Easement
BLM	Bureau of Land Management
BMP	Best Management Practices
BSP	Boulder Solar Power
CAA	Clean Air Act
CFR	Code of Federal Register
CO	Carbon monoxide
DAQ	Department of Air Quality
EA	Environmental Assessment
ESA	Endangered species act
EZ	Energy Zone designated by the City of Boulder City
FLPMA	Federal Land Policy and Management Act
GHG	Greenhouse gas emissions
kV	Kilovolt
MSL	Mean sea level
MW	Megawatt
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NDOW	Nevada Department of Wildlife
NO <sub>2</sub>	Nitrogen dioxide
O <sub>3</sub>	Ozone
OHV	Off-Highway Vehicles
Pb	Lead
PEA	Programmatic Environmental Assessment
PM <sub>2.5</sub>	Particulate matter equal to or less than 2.5 microns in diameter
PM <sub>10</sub>	Particulate matter equal to or less than 10 microns in diameter
PV	Photovoltaic
ROW	Rights-of-way
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USC	United States Code
WEAP	Worker Environmental Awareness Program

## **1 Purpose and Need**

### **1.1 Background**

Boulder Solar Power LLC (BSP or applicant) has submitted a rights-of-way (ROW) application to and is seeking a ROW grant from the Bureau of Land Management (BLM) to construct a transmission line, a north access road with a water line underneath, and a south access road. The project would be located approximately 7 miles southwest of the incorporated City of Boulder City, NV (Figure 1.3-1). The proposed project elements would be located primarily within BLM-managed utility corridors. The transmission line would connect the Boulder Solar Power Project to the Marketplace Substation, the Eldorado Substation, or the McCullough Switching Station. The northern access road would connect the Boulder Solar Power Project to Interstate 95 (US-95). Underneath the northern access road, BSP is proposing a water line that would connect to an existing water line adjacent to U.S. 95 to provide water to the solar facility. The southern access road would connect the solar facility to the Marketplace Substation, and/or Eldorado Valley Drive.

### **1.2 Purpose and Need for the Action**

In accordance with the Federal Land Policy and Management Act (FLPMA) (Section 103(c)), public lands are to be managed for multiple uses that take into account the long-term needs of future generations for renewable and non-renewable resources. The Secretary of the Interior is authorized to grant right-of-ways (ROWs) on public lands for systems of generation, transmission, and distribution of electric energy (Section 501(a)(4)). Taking into account the BLM's multiple use mandate, the BLM purpose and need for the Proposed Actions is to respond to a FLPMA ROW application submitted by BSP to construct, operate, maintain, and decommission a transmission line on public lands administered by the BLM. Consideration of the ROW application would be in compliance with FLPMA, BLM right-of-way regulations, and other applicable Federal laws and policies. These actions, if approved, would assist the BLM in addressing the management objectives in the Energy Policy Act of 2005, (Title II, Section 211) which establish a goal for the Secretary of the Interior to approve at least 10,000 MWs of electricity from non-hydropower renewable energy projects located on public lands. This Proposed Action, if approved, would also further the purpose of Secretarial Order 3285A1, (March 11, 2009) that establishes the development of environmentally responsible renewable energy as a priority for the Department of the Interior.

### **1.3 Scope of Analysis and Decisions to be Made**

This Environmental Assessment (EA) presents four alternative transmission line routes for analysis, which are discussed in detail in Section 2.3, Overview of Alternatives. This EA is tiered to the Eldorado Valley Transmission and Utility Corridor Programmatic Environmental Assessment (PEA) (BLM-NV-S010-2012-0024-EA).

Each transmission line alternative would connect the Boulder Solar Power Project to one of three switching stations: Los Angeles Department of Water and Power's (LADW&P) Marketplace Substation, Southern California Edison's (SCE) Eldorado Substation, or LADW&P McCullough Switching Station. The northern access road would connect the solar facility to US-95. Underneath this road, BSP is proposing a water line that would connect the solar facility to an existing water line providing the solar facility with water for construction and operation. The southern access road would connect the solar facility to the Marketplace Substation, and/or Eldorado Valley Drive. The BLM will decide whether to

deny the proposed ROW, grant the ROW, or grant the ROW with modifications. Modifications may include modifying the proposed use or changing the route or location of the proposed facilities (43 Code of Federal Regulations (CFR) 2805.20[a][1]).

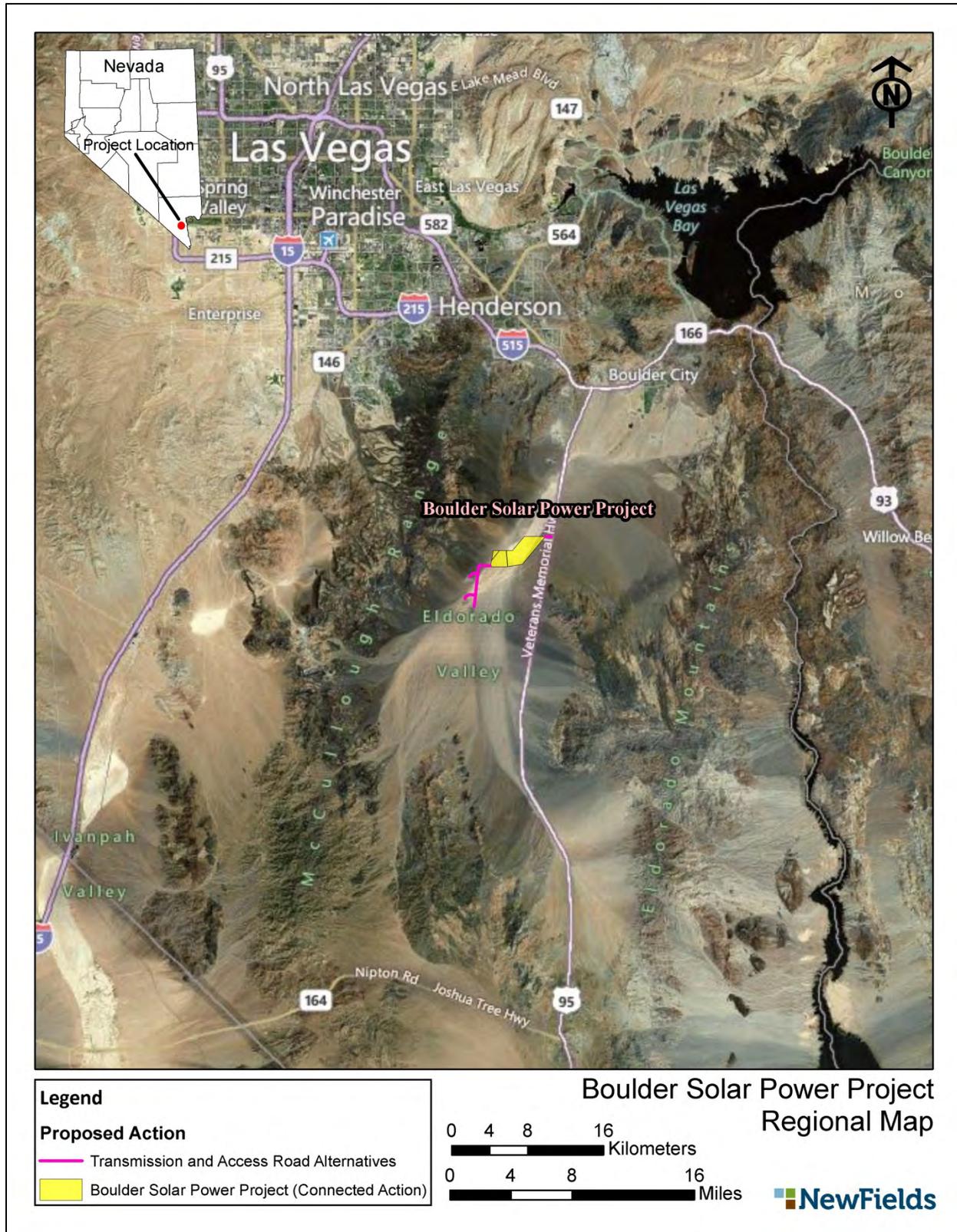


Figure 1.3-1. Project Vicinity

BSP is also proposing to construct a solar energy-generating facility on private land owned by the City of Boulder City, which would be considered a connected action (see Section 2.2 Non-federal Connected Action). Construction of the solar facility is dependent upon the BLM's approval of the transmission lines, access roads, and water line because electricity generated at the solar facility would not reach the power grid without utilizing the BLM utility corridors for nearly all of the possible transmission line routes. Because the connected action can be prevented by the BLM decision, the effects of the connected action are properly considered indirect effects of the Proposed Action, and as such are analyzed as effects of the Proposed Action (40 CFR 1508.7 and 1508.25[c]).

#### **1.4 Relationship to Laws, Regulations, Policies, and Other Plans**

This EA has been prepared in accordance with the following statutes, regulations, policies, and procedures:

- National Environmental Policy Act (NEPA) of 1969, as amended (Public Law 91-190, 42 United States Code [USC] 4321 et seq.);
- 40 CFR 1500 et seq.: Regulations for Implementing the Procedural Provisions of NEPA;
- BLM NEPA Handbook (H-1790-1) (BLM 2008);
- FLPMA, as amended, Sections 103(c) and 501(a)(4);
- Boulder City Master Plan (Boulder City 2003);
- Clark County Multiple Species Habitat Conservation Plan (Clark County 2000); and
- Las Vegas Resource Management Plan (RMP) and Final Environmental Impact Statement (BLM 1998).

The BLM lands in southern Nevada are managed under the Las Vegas Resource Management Plan (RMP) and Final Environmental Impact Statement (BLM 1998). This RMP provides management objectives and directions for lands within the Las Vegas District of the BLM. The BLM manages approximately 2.5 million acres of public land in Clark County, Nevada. The Boulder Solar Power Project is in conformance with the RMP, specifically objective RW-1 (providing legal access to major utility transmission lines and related facilities) and management action RW-1-h (public land is available for ROW at agency discretion under the FLPMA).

#### **1.5 Supplemental Authorities**

To comply with NEPA, the BLM requires that compliance with other authorities is addressed in the NEPA document. Supplemental authorities may be executive orders or other federal and state laws that provide procedural or substantive responsibilities relevant to the NEPA process and may "help identify issues for analysis." Table 1.5-1 presents a list of elements dictated by Supplemental Authorities and specifies if these elements are present in the proposed project area, and if they are present if they potentially would be affected by the proposed project or not affected by the proposed project and the rationale for that conclusion.

**Table 1.5-1. Supplemental Authorities**

<b>Supplemental Authority*</b>	<b>Not Present**</b>	<b>Present/ Not Affected</b>	<b>Present/ may be Affected***</b>	<b>Rationale</b>
Air Quality Clean Air Act			X	Addressed in Section 3.1
Cultural Resources National Historic Preservation Act			X	Addressed in Section 3.9
Fish Habitat Magnuson-Stevens Act Provision: Essential Fish Habitat	X			Not present
Forests and Rangeland Health Forests Restoration Act of 2003	X			Not present.
Migratory Birds Migratory Bird Treaty Act of 1918 EO 131186			X	Addressed in Section 3.8
Native American Religious Concerns American Religious Freedom Act of 1978			X	Addressed in Section 3.9
Threatened or Endangered Species Endangered Species Act of 1983			X	Addressed in Section 3.8
Wastes, Hazardous or Solid Resources Conservation and Recovery Act of 1976 Comprehensive Environmental Repose Compensation and Liability Act of 1980			X	Addressed in Section 3.12
Water Quality(Drinking/Ground) Safe Drinking Water Act Clean Water Act			X	Addressed in Section 3.4
Wild and Scenic Rivers Wild and Scenic Rivers Act	X			Not present
Wilderness Federal Land Policy and Management Act	X			Not present
Environmental Justice Executive Order (EO) 12898, Environmental Justice	X			Not present
Floodplains EO 11988, Floodplain Management	X			Not present
Wetlands-Riparian Zones EO 11990, Protection of Wetlands			X	Addressed in Section 3.4
* See H-1790 Appendix 1: Supplemental Authorities to be Considered (BLM 2008)				
** Supplemental Authorities determined to be "Not Present" were not analyzed in this document				
*** Supplemental Authorities determined to by "Present/May be Affected" are required to be carried forward for analysis in this document				

## 1.7 Identifying Information

Title: Boulder Solar Power Project

BLM Case Number: N-91253

Type of Project: Transmission Line, Access Road, and Water pipeline

Location of Proposed Action:  
Refer to Appendix A for a complete description of aliquot parts.

Transmission Line:  
Township 24 South, Range 63 East – Section 30  
Township 24 South, Range 62 East – Sections 25, 26, 35, 36  
Township 25 South, Range 62 East – Sections 1, 2

North Access Road:  
Township 24 South, Range 63 East – Section 15, 16

South Access Road:  
Township 24 South, Range 63 East – Section 30  
Township 24 South, Range 62 East – Sections 25, 26, 35, 36  
Township 25 South, Range 62 East – Sections 1, 2

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## **2 Proposed Action and Alternatives**

### **2.1 Proposed Action**

The “Proposed Action” refers to the transmission line and facilities for which BSP has submitted a ROW application to the BLM.

### **2.2 Non-federal Connected Action**

BSP also proposes to construct, operate, and maintain a solar energy-generating facility of up to 350 megawatts (MW) on 1,550 acres of land owned by the City of Boulder City and leased by BSP. At this time, BSP is considering either fixed tilt or tracking solar photovoltaic (PV) solar arrays. All feasible transmission line routes from this facility would require utilizing BLM-managed utility corridor. As such, construction and operation of this facility cannot proceed without BLM approval of the transmission line route to transport the electricity generated at the solar facility to the power grid. Because the non-federal connected action and the effects of the non-federal connected action are considered indirect effects of the Proposed Action they are analyzed as effects of the Proposed Action (40 CFR 1508.7 and 1508.25[c]).

### **2.3 Overview of Alternatives**

BSP has developed four transmission line alternatives, which would connect the solar energy-generating facility to the Marketplace Substation, and/or the Eldorado Substation, or the McCullough Switching Station (Figure 2.3-1). All alternatives generally parallel existing transmission lines to the extent feasible and are located within the BLM Utility Corridor.

#### **2.3.1 Features Common to All Alternatives**

For each alternative, a north access road is proposed and depicted in yellow on Figure 2.3-1. The north access road would be entirely within a BLM utility corridor. This 28-foot wide gravel or 24-foot wide paved road would be 0.3-mile long and would allow access to the solar facility from US-95. Underneath this road, BSP proposes to construct an 8 inch waterline that would connect to the City of Boulder City’s water main, which is located on the eastern side of the requested ROW and would extend underneath the proposed road to the solar facility. This connection would provide water during construction, operation, and maintenance of the transmission line, access roads, and solar facility.

For each transmission line alternative, poles would be comprised of self-supporting lattice steel towers or tubular steel pole structures. The span length between structures would range from between 500 feet and 1,200 feet except in areas where the proposed transmission line would cross under existing greater capacity transmission lines.

BSP is also proposing a south access road for each alternative. This road would provide access for construction and maintenance of the transmission line and additional access to the solar facility. Although the south access road is common to all alternatives, the length of this road varies; therefore, the specifics of the south access road are discussed under each subsequent section.

#### **2.3.2 Alternatives**

For each alternative, a 200-foot-wide ROW is requested. Table 2.3-1 and Figure 2.3-1 illustrate the differences between the alternatives. Master title plats with the transmission line and solar-energy facility are contained in Appendix A.

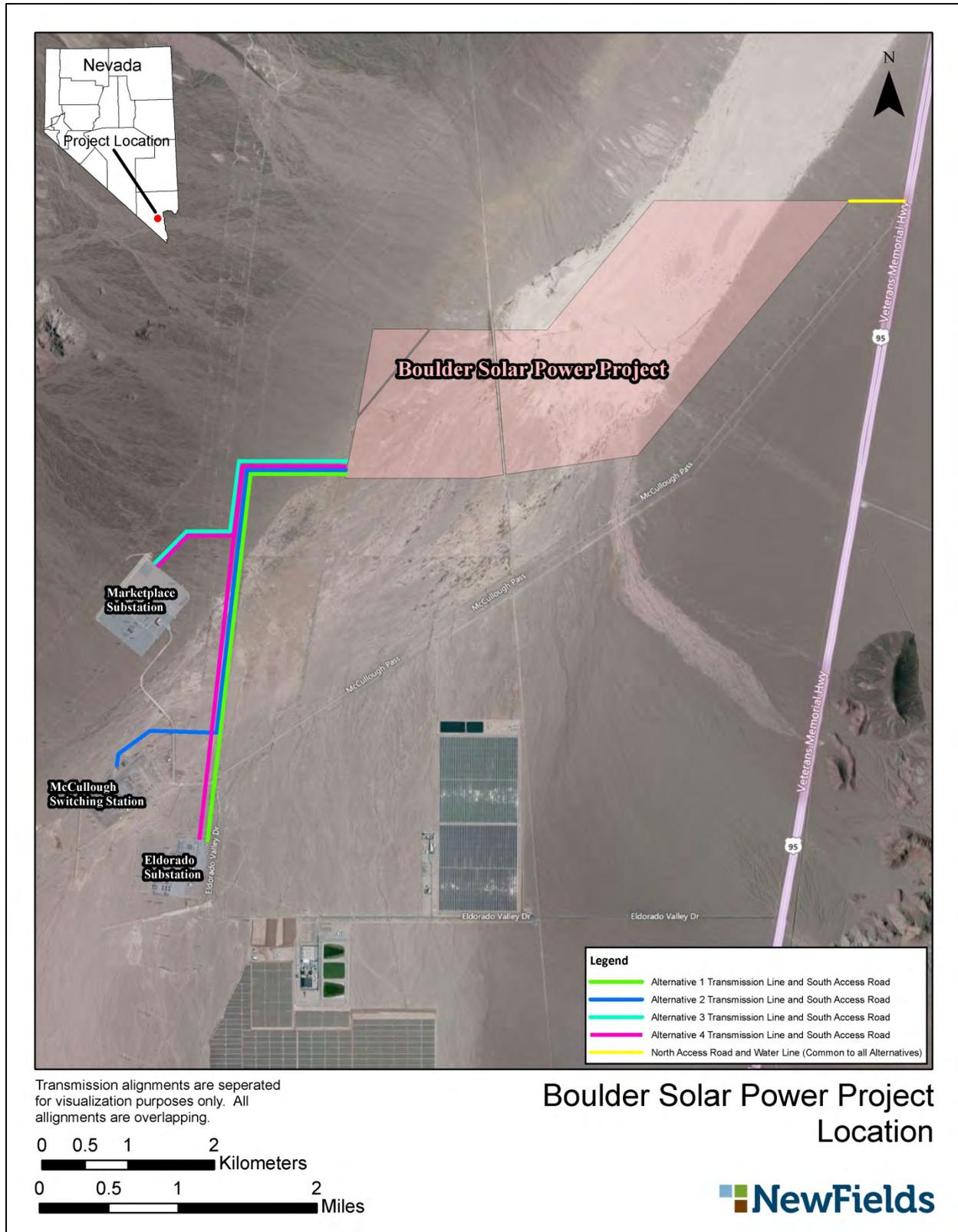


Figure 2.3-1. Transmission Line Alternatives

**Table 2.3-1. Comparison of Alternatives**

	<b>Alternative 1</b> <b>230 kV</b> <b>Connecting to</b> <b>Eldorado</b> <b>Substation</b>	<b>Alternative 2</b> <b>230 kV</b> <b>Connecting to</b> <b>McCullough</b> <b>Switching</b> <b>Station</b>	<b>Alternative 3</b> <b>500 kV</b> <b>Connecting to</b> <b>Marketplace</b> <b>Substation</b>	<b>Alternative 4</b> <b>500 kV</b> <b>Connecting to</b> <b>Marketplace</b> <b>and Eldorado</b> <b>Substations</b>
Total Length of the transmission line	2.7 miles	2.8 miles	1.5 miles	3.3 miles
<b>Within BLM Utility Corridor</b>				
Transmission Line Length	2.49 miles	2.05 miles	1.15 miles	2.95 miles
Transmission Line ROW Width	200 feet	200 feet	200 feet	200 feet
South Access Road Length	2.2 miles	2.1 miles	1.2 miles	2.75
South Access Road Width	15 feet	15 feet	15 feet	15 feet
Total ROW Acres Requested for the Transmission Line and the Associated South Access Road*	60 acres	50 acres	28 acres	72 acres
North Access Road Length	0.3 mile	0.3 mile	0.3 mile	0.3 mile
North Access Road Width	100 feet	100 feet	100 feet	100 feet
Total ROW Acres Requested for the North Access Road	3.6 acres	3.6 acres	3.6 acres	3.6 acres
<b>Total ROW Acres Requested</b>	<b>63.6 acres</b>	<b>53.6 acres</b>	<b>31.6 acres</b>	<b>75.6 acres</b>
<b>New Temporary Disturbance within BLM Utility corridor</b>				
Wire Pulling Sites (2)	4 acres (2 acres each)	4 acres (2 acres each)	4 acres (2 acres each)	4 acres (2 acres each)
Transmission Line Poles (10 poles per mile, 400-40,000 square feet of disturbance per pole)	0.23 acre (10,000 square feet) 25 poles	0.18 acre (8,000 square feet) 20 poles	11 acres (480,000 square feet) 12 poles	27.5 acres (1,200,000 square feet) 30 poles
Previous Disturbed Area	4.1 acres	4.1 acres	4.1 acres	4.1 acres
<b>Total New Disturbance</b>	<b>4.23 acres</b>	<b>4.18 acres</b>	<b>15 acres</b>	<b>31.5 acres</b>
<b>Total Disturbance New and Old</b>	<b>8.33</b>	<b>8.28</b>	<b>19.1</b>	<b>35.6</b>
<b>New Permanent Disturbance within the BLM Utility corridor</b>				
Transmission Line Poles (10 poles per miles, 27-360 square feet per pole)	0.02 acre (675 square feet)	0.01 acre (540 square feet)	0.10 acre (4,320 square feet)	0.25 acre (10,800 square feet)
Northern Access Road (40 feet permanent disturbance)	1.45 acres	1.45 acres	1.45 acres	1.45 acres
Southern Access Road (15 feet permanent disturbance)	3.9 acres	3.7 acres	2.7 acres	5 acres
<b>Total</b>	<b>5.57 acres</b>	<b>5.16 acres</b>	<b>4.25 acres</b>	<b>6.7 acres</b>
<b>Within Land Owned by the City of Boulder City</b>				
Transmission Line Length	0.25 mile	0.75 mile	0.35 mile	0.35 mile
Access Road	0.25 mile	0.75 mile	0.35 mile	0.35 mile

### **2.3.2.1 Alternative 1**

Alternative 1 would consist of a single circuit, 2.7-mile, 230kV transmission line that would originate at the southwest corner of the solar facility and terminate at the Eldorado Substation. Approximately 2.49 miles of the transmission line would be located within a BLM utility corridor. The 0.25 miles of transmission line outside the BLM utility corridor would be located on land owned by the City of Boulder City. Project activities within the BLM utility corridor would require a ROW grant from the BLM.

Directly adjacent and parallel to the transmission line, BSP is proposing an access road (i.e. South Access Road) for construction and maintenance of the transmission and additional access to the solar facility. This southern access road would be a graded road that is 15-foot wide and 2.4 miles long, 2.2 miles of which would be located within a BLM ROW.

### **2.3.2.2 Alternative 2**

Alternative 2 would consist of a single circuit, 2.8-mile, 230kV transmission line that would originate at the southwest corner of the solar facility and terminate at the McCullough Switching Station. Approximately 2.05 miles of the transmission line would be located within a BLM utility corridor. The 0.75 miles of transmission line outside the BLM utility corridor would be located on land owned by the City of Boulder City.

Directly adjacent and parallel to most of the transmission line, BSP is proposing a south access road for construction and maintenance of the transmission line and additional access to the solar facility. This road would be a graded road that is 15-foot wide and 2.8 miles long, 2.05 miles of which would be located within a BLM ROW.

### **2.3.2.3 Alternative 3**

Alternative 3 would consist of a single circuit, 1.5-mile, 500kV transmission line that would originate at the southwest corner of the solar facility and terminate at the Marketplace Substation. Approximately 1.15 miles of the transmission line would be located within the BLM utility corridor. The 0.35 miles of transmission line outside the BLM utility corridor would be located on land owned by the City of Boulder City. Project activities within the BLM utility corridor would require a ROW grant from the BLM.

Directly adjacent and parallel to the transmission line, BSP is proposing an access road (i.e. South Access Road) for construction and maintenance of the transmission line and additional access to the solar facility. This South Access Road would be a 15-foot wide graded road that is 1.5 miles long, 1.2 miles of which would be located within a BLM ROW.

### **2.3.2.4 Alternative 4**

Alternative 4 would consist of a 3.3-mile, 500kV transmission line that would originate at the southwest corner of the solar facility. From the solar facility the 500 kV line would be a double circuit that would split into two single circuit lines, with one terminating at the Marketplace Substation and the other terminating at the Eldorado Substation. Approximately 2.95 miles of the transmission line would be located within a BLM utility corridor. The 0.35 miles of transmission line outside the BLM utility corridor would be located on land owned by the City of Boulder City. Project activities within the BLM utility corridor would require a ROW grant from the BLM.

Directly adjacent and parallel to the transmission line, BSP is proposing an access road (i.e. South Access Road) for construction and maintenance of the transmission and additional access to the solar facility. This southern access road would be a graded road that is 15-foot wide and approximately 3 miles long, 2.75 miles of which would be located within a BLM ROW

**2.3.2.5 No Action Alternative**

The No Action Alternatives means that the ROW grant would not be approved, and the proposed transmission line and facilities would not be constructed. Without the transmission line, the Boulder Solar Power Project would not be able to deliver energy generated from the solar facility to the grid; therefore, the solar facility would not be constructed.

**2.3.3 Alternatives Considered but not Analyzed in Detail**

No other alternatives routes were identified. The proposed routes were identified because they represented the shortest routes with the least environmental impacts, because they were located within the BLM-managed utility corridor, followed existing transmission lines, and crossed the least number of existing ROWs (such as existing gas and power lines).

**2.4 Proposed Project Facilities**

Typical design characteristics of a 230kV or 500 kV transmission line are listed in Table 2.4-1. Final design characteristics of the transmission line would be determined in the detailed design phase of the project.

Table 2.4-2 and Figure 2.4-3 respectively list and illustrate the typical design characteristics of an access road.

**Table 2.4-1. Typical Design Characteristics for a 230kV and 500 kV Transmission Line**

<b>Feature</b>	<b>230 kV Characteristics</b>	<b>500 kV Characteristics</b>
Type of structure	Single-pole wood or tubular steel structures	Steel lattice or tubular steel structures
Structure height	Approximately 90 - 100 feet	Approximately 110 - 180 feet
Span length	Approximately 500 feet to 1,200 feet	Approximately 500 feet to 1,200 feet
Number of structures per mile	10	10
Right-of-Way width	200 feet	200 feet
Voltage	500 or 230 kV	500 kV
Circuit configuration	Delta	Delta
Conductor size	795 nominal amp rating	2 - 2,156 circular mil aluminum conductor steel reinforced
Ground clearance of conductor	27 feet	50 feet
Pole foundation depth	10% of pole height + 4 feet	10% of pole height + 4 feet

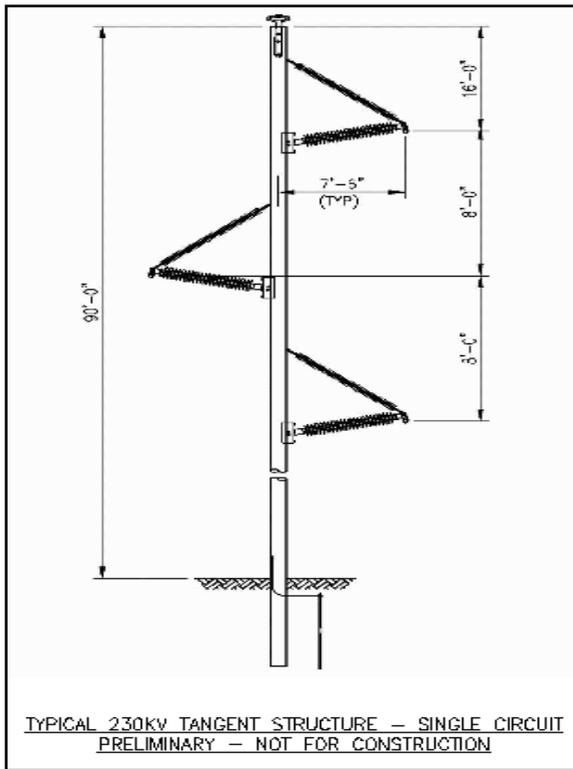
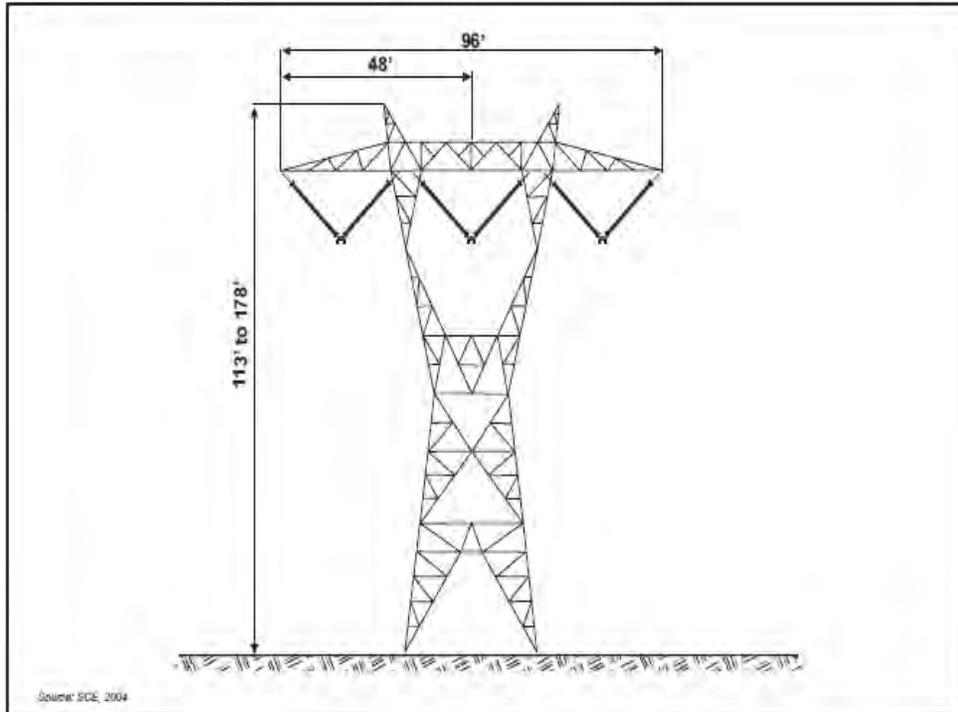


Figure 2.4-1. Typical 230kV Transmission Line Structure Specifications



**Figure 2.4-2. Typical 500kV Transmission Line Structure Specifications**

**Table 2.4-2. Typical Design Characteristics of a Gravel or Paved Access Road (north access road)**

Feature	Gravel	Paved
Type and depth of base	4 inches of Type II aggregate base over 6 inches of type I aggregate base or 10 inches of Type II aggregate base	4 inches of type II aggregate base
Topcoat Layer	Type II aggregate at 95% compaction	Prime coat, fog seal
Width of Road	28 feet	24 feet
Width of Shoulders (2)	6 foot each	8 foot each
Total Width (Road plus Shoulder)	40 feet	40 feet

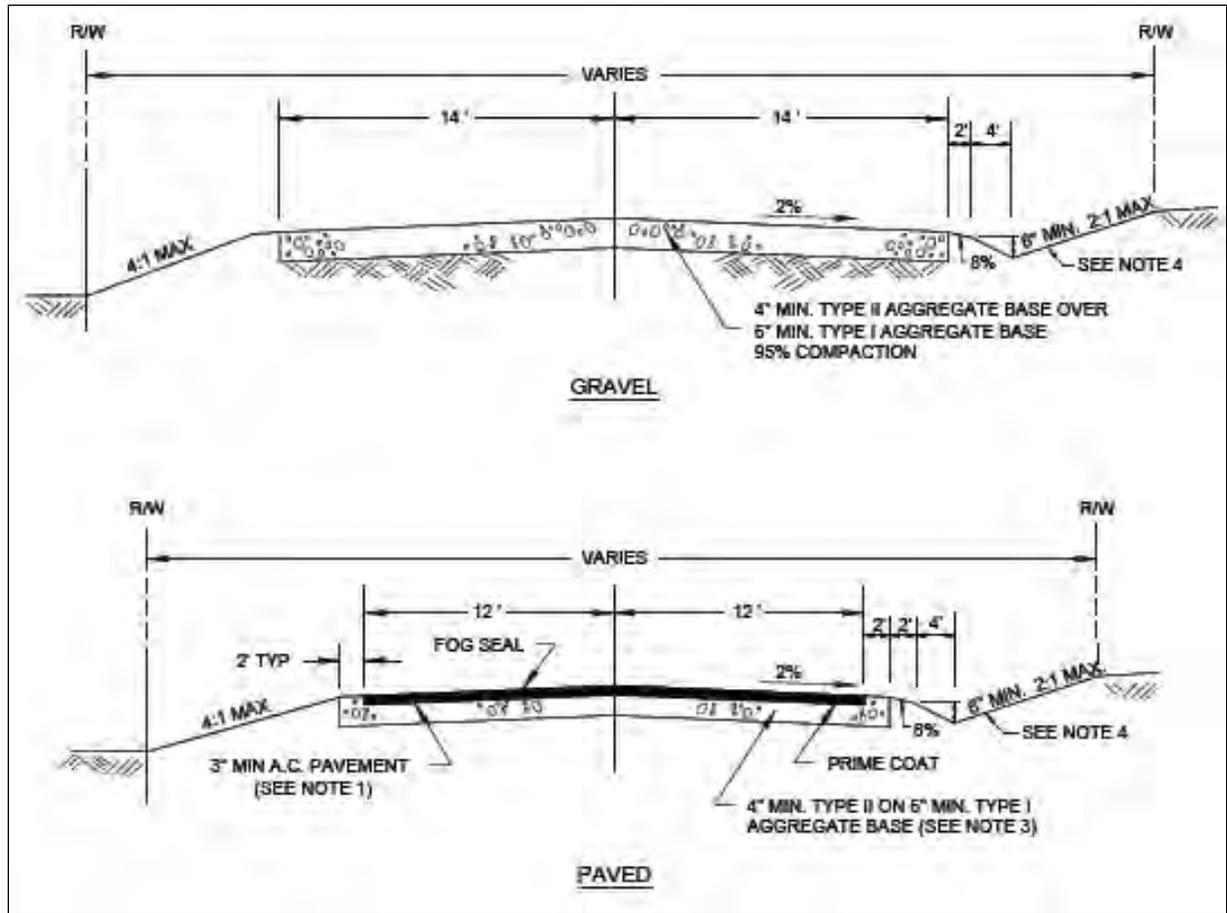


Figure 2.4-3. Typical Paved or Access Road Specifications

Design characteristics would be the same for Alternatives 1 and 2 while Alternatives 3 and 4 would require a different structure with a larger footprint for the 500kV transmission line. Assembly and erection of each transmission line pole would require approximately 400-40,000 square feet of disturbance around the base of each pole; 27-360 square feet of which would be permanent disturbance (see Table 2.3-1). Additionally, two 2-acre wire pulling sites would be needed to install the transmission line wire upon each pole. The disturbance in these areas would be temporary during construction and would be completed within the requested 200-foot ROW.

Access to the transmission line and facilities during construction and operation would be via an access road that would connect the project site to U.S. Highway 95, as well as a southern access road from the solar facility to the Marketplace Substation, McCullough Switching Station, or Eldorado Valley Drive. No equipment storage areas would be located within the transmission line ROW. No other transmission line components are anticipated.

#### **2.4.1 Site Preparation and Mobilization Activities**

Transmission line pole assembly would occur at each pole structure location. Vegetation may be temporarily crushed so that installation equipment can get from the main road to the pole locations. Specific structure locations would be determined during final design and construction. Structure assembly and mounting of associated line hardware would take place within the 27-360 square foot permanent disturbance area at each structure location. A temporary disturbance area of approximately 400-40,000 square feet per pole may be utilized during assembly, but would be reclaimed post-construction. All temporary disturbance would occur within the requested 200-ft. ROW.

No turn-around pads would be constructed.

Additionally, two 2-acre wire pulling sites would be required to install the transmission lines. Tensioning and pulling sites would be specifically located on a map and provided to the BLM prior to construction. The tensioning site is an area approximately 150 feet by 60 feet. The tensioner, line truck, and wire trailer that are needed for stringing and anchoring the conductors would be located at this site. The tensioner, along with the puller, maintains tension on the conductor. Maintaining tension ensures adequate ground clearance and is necessary to avoid damage to the conductor or any objects below them during the stringing operation. The pulling site requires two-thirds the area of the tension site. A puller and trucks are needed for the pulling and temporary anchoring of the ground wire and conductor.

#### **2.4.2 Waste and Hazardous Materials Management**

No hazardous materials are associated with the operation of the transmission line. However, during maintenance of the transmission line the potential for a vehicle petroleum spill exists. Spill cleanup kits would be available on equipment so that spills or leaks of vehicle fluids could be quickly cleaned up for proper disposal.

Construction sites, material storage yards, and access roads would be located on land owned by the City of Boulder City and kept in an orderly condition throughout the construction period. Refuse and trash, including stakes and flags, would be removed from the sites and disposed of in an approved manner. No construction equipment oil or fuel would be drained on the ground. Oils or chemicals would be hauled to

an approved site for disposal. No open burning of construction trash would occur on BLM-administered lands.

The contractor would be required to have a continuous cleanup program throughout construction. Construction sites (located at the solar facility) and access roads would be kept in an orderly condition and free of trash and rubbish throughout the construction period. Trash and rubbish would be stored in predator-proof storage containers on-site. Waste materials and debris from construction areas, would be collected, hauled away, or disposed of at approved landfill sites.

An operational Environmental Health and Safety Plan would be prepared for the proposed project and solar facility (connected action). The Safety Plan would outline all project activities, identify all hazardous substances and chemicals used at the site, and ensure compliance with Occupational Safety and Health Administration (OSHA) Standards, the Nevada Division of Industrial Relations requirements, and all other local, state, and federal regulatory requirements. The Safety Plan would identify site-specific safety control measures, site health and safety roles and responsibilities, speed limits, and site safety hazards and controls.

### **2.4.3 Surface Reclamation**

Following construction and cleanup, reclamation of temporarily disturbed areas within the ROW would be completed. Temporarily disturbed areas include wire-pulling sites and construction staging/laydown areas. The disturbed surfaces would be restored to the appropriate contour of the land surface.

The Boulder Solar Power Project and Transmission Line Project are designed to function for a minimum of 30 years with a land lease for 50 years. When the project is decommissioned, the transmission line and poles would be removed. Stabilization and re-vegetation strategies would be developed in a reclamation plan six months prior to the decommissioning of the transmission line.

### **2.4.4 Best Management Practices**

To minimize effects to biological resources, the applicant would adhere to the Best Management Practices (BMPs) presented in Appendix B. These BMPs were developed in the Eldorado Valley Transmission and Utility Corridor PEA.

## **2.5 Project Construction Schedule**

BSP anticipates that transmission line construction would begin in the third quarter of 2013 and last approximately 12 weeks. Construction of the solar facility would begin also in the third quarter of 2013 and continue for approximately 18 months. Typical construction work schedules are expected to be from 7:00 A.M. to 5:00 P.M., Monday through Friday, which complies with the local noise ordinance restrictions for construction activity of 7:00 AM to 7:00 PM, except Sundays and federal holidays. Anticipated workforce and equipment needed for construction of the transmission line is described in Table 2.5-1.

**Table 2.5-1. Transmission Line Construction Estimated Personnel and Equipment Required**

<b>Activity</b>	<b>Number Workers</b>	<b>of</b>	<b>Type of Equipment</b>
Survey	3		2 pickup trucks
Hole digging	2		1 auger 1 pickup truck
Pole haul	2		1 flatbed
Structure erection	4		1 line truck 1 crane
Contracting (Wire pulling)	12		1 drum puller 1 splicing truck 1 double-wheeled tensioner 1 wire reel trailer 1 line truck 1 sagging equipment 2 pickup trucks
Clean-up	4		2 pickup trucks
Rehabilitation	2		1 pickup truck
<b>TOTAL</b>	<b>31*</b>		

\* More personnel may be used in order to meet schedule

### **3 Affected Environment, Environmental Consequences, and Mitigation Measures**

#### **3.1 Proposed Project General Setting**

The proposed project site is located in Boulder City's Solar Energy Zone in the Eldorado Valley, Clark County, Nevada. This area is approximately 15 miles southeast of Las Vegas and 7 miles southwest of the incorporated City of Boulder City.

The Eldorado Valley is within the southern portion of the Basin and Range province characterized by mountains interspersed with north-south trending valleys. Specifically this portion of the Eldorado Valley is flanked by the McCullough Mountain Range directly west and the Eldorado Range directly to the East.

Resources analyzed in this EA include the following:

Air Quality and Climate, Section 3.2

Geology, Minerals and Soils, Section 3.3

Water Resources, Section 3.4

Vegetation, Section 3.5

Special Status Vegetation, Section 3.6

Wildlife, Section 3.7

Special Status Wildlife Species, Section 3.8

Cultural Resources, Section 3.9

Land Use, Section 3.10

Visual Resources, Section 3.11

Recreation, Section 3.12

Noise, Section 3.13

Socioeconomics, Section 3.14

Waste Management and Hazardous Materials, Section 3.15

Additionally, much of the mitigation in this section has been extracted from the Eldorado Valley Transmission and Utility Corridor PEA. As the mitigation measures are very detailed, they are included in their entirety in Appendix B; however, they are summarized in the appropriate sections.

## 3.2 Air Quality and Climate

### 3.2.1 Affected Environment

Air quality is characterized by the existing concentrations of various pollutants and those conditions that influence the quality of ambient air surrounding the proposed project. The primary factors that work in determining the air quality of a region are the locations of pollutant sources, the type and magnitude of pollutant emissions, and the local meteorological conditions. The U.S. EPA defines ambient air in 40 CFR Part 50 as “that portion of the atmosphere, external to buildings, to which the general public has access.” In compliance with the 1970 Clean Air Act (CAA) and the 1977 and 1990 Clean Air Act Amendments (CAAA), the U.S. EPA has promulgated National Ambient Air Quality Standards (NAAQS). The NAAQS include primary standards which set limits to protect public health, including the health of "sensitive" populations such as asthmatics, children, and the elderly. To date, the U.S. EPA has issued NAAQS for seven criteria pollutants: carbon monoxide (CO), sulfur dioxide (SO<sub>2</sub>), particles with a diameter less than or equal to a nominal 10 micrometers (PM<sub>10</sub>), particles with a diameter less than or equal to a nominal 2.5 micrometers (PM<sub>2.5</sub>), ozone (O<sub>3</sub>), nitrogen dioxide (NO<sub>2</sub>), and lead (Pb). Individual states may promulgate their own ambient air quality standards for these “criteria” pollutants, provided that they are at least as stringent as the federal standards. Table 3.2-1 presents both State of Nevada and federal primary ambient air quality standards for criteria air pollutants.

**Table 3.2-1: State and Federal Ambient Standards for Criteria Air Pollutants**

Pollutant	Averaging Period	Federal Primary Standard	Nevada State Standard
Ozone	8-hour	0.075 ppm	Same as Federal
	1-hour (daily max.)	0.12 ppm	Same as Federal
PM <sub>2.5</sub>	Annual (arithmetic mean)	15.0 µg/m <sup>3</sup>	Same as Federal
	24-hour	35 µg/m <sup>3</sup>	Same as Federal
PM <sub>10</sub>	Annual (arithmetic mean)	NA	Same as Federal
	24-hour	150 µg/m <sup>3</sup>	Same as Federal
Carbon Monoxide	8-hour (less than 5,000' above mean sea level (MSL))	9 ppm	Same as Federal
	8-hour (greater than 5,000' above mean sea level (MSL))	9 ppm	6 ppm
	1-hour	35 ppm	Same as Federal
Nitrogen Dioxide	Annual (arithmetic mean)	0.053 ppm	Same as Federal
	1-hour	0.100 ppm	Same as Federal
Sulfur Dioxide	Annual (arithmetic mean)	0.03 ppm	Same as Federal
	24-hour	0.14 ppm	Same as Federal
	3-hour	NA	0.50 ppm
Lead	Rolling 3-month average	0.15 µg/m <sup>3</sup>	Same as Federal
	Quarterly average	1.5 µg/m <sup>3</sup>	Same as Federal
Sources: USEPA, 2011; NDEP, 2010. ppm = parts per million µg/m <sup>3</sup> = micrograms per cubic meter			

Geographic areas are designated as being in attainment, non-attainment, or unclassified for each of the six criteria pollutants with respect to the NAAQS. Areas that have experienced persistent air quality problems are designated by the U.S. EPA as nonattainment areas.

Clark County had been designated non-attainment for CO, PM<sub>10</sub>, and Ozone. However, Clark County was redesignated to attainment for carbon monoxide in 2010 (Federal Register Vol. 75, No. 145, July 29, 2010). Clark County was also redesignated to attainment for PM<sub>10</sub> in 2010 (Federal Register Vol. 75, No. 148, August 3, 2010), and was redesignated to attainment for ozone in 2011 (Federal Register Vol. 76, No. 60, March 29, 2011).

The United States Department of the Interior (Department), Secretary of Interior Order Number 3289, made effective September 14, 2009, establishes a “Climate change Response Council” that will execute a coordinated Department-wide approach for applying scientific tools in an effort to increase understanding of climate change. The Council will establish an effective response to impacts on tribes as well as on the land, water, ocean, fish and wildlife and cultural heritage resources that the Department manages.

The project area and surrounding region is located in a dry lake bed in the low-elevation arid Mojave Desert, surrounded by desert mountain terrain, all within Clark County, Nevada. Clark County experiences an arid climate year round, with an average temperature of 68 degrees Fahrenheit. The hottest month is July with an average temperature of 104 degrees and the coldest month is December with an average temperature of 57 degrees (The Weather Channel, 2012). The project lies within the Eldorado Valley, between the McCullough Range to the west and the Eldorado Range to the east. Within the valley elevation in the vicinity of the project area is approximately 470 feet above mean sea level (MSL), the highest elevations in the area include peaks of more than 7,000 feet above MSL in the McCullough Range and 5,060 feet above MSL in the Eldorado Range. The elevation of these mountain ranges along with the lower elevations of the valley creates existing discernible air quality effects in the valley as the mountain ranges keep pollutants within the valley.

Sources of criteria pollutants in the vicinity of the project area include the Nevada Solar One (concentrated solar technology) power plant, the Eldorado Energy power plant and associated helipad, windblown dust, fugitive dust from off-road vehicle use and emissions and fugitive dust from vehicles traveling on Eldorado Valley Drive and U.S. Highway 95.

There are no ambient air quality monitoring stations within the project area. The nearest station, which monitors O<sub>3</sub> and PM<sub>10</sub> is located approximately 10 miles to the northeast of the project area in Boulder City, Nevada.

Ozone (O<sub>3</sub>) is not emitted directly from emission sources, but is created in the atmosphere via a chemical reaction between NO<sub>x</sub> and VOCs in the presence of sunlight; these compounds are known as ozone precursors.

## **3.2.2 Environmental Consequences**

### **3.2.2.1 No Action Alternative**

Under the No Action Alternative, the project would not be built; therefore, no project related effects on air quality would occur.

**3.2.2.2 Alternative 1**

It is anticipated that there would be long-term and short-term impacts to air quality due to emissions associated with the construction and operation transmission lines and access roads. Air emissions associated with the project are expected to be primarily short-term and chiefly associated with fugitive dust during construction from ground-disturbing activities including road grading and transmission line construction, as well as some emissions associated with engine exhaust from construction equipment and from transportation of goods and construction workers, all of which are included in this analysis. Once the facility is operational relatively few contributions to air emissions would be generated due to on-road travel of vehicles associated with worker commutes for maintenance activities.

Criteria pollutant emissions during construction activities would result from construction employees and construction vehicles, and heavy equipment moving across the site during construction. Emissions from worker travel to and from the site have been included in this analysis. Exhaust from construction vehicles and heavy equipment would result in increases in CO and NO<sub>x</sub> but would be localized and short-term.

Estimates of emissions from each of the different transmission line and access road alternatives as well as are presented below with General Conformity de minimis thresholds. Table 3.2-2 lists emission estimates for the entirety of the construction project and per year and the de minimis thresholds listed are for individual years.

**Table 3.2-2. Transmission Line and Access Road Construction Emissions Estimates and General Conformity De Minimis Thresholds for Alternative 1**

	Emissions (tons)	Emissions (tons/yr)	General Conformity De Minimis Threshold
<b>NO<sub>x</sub></b>	3.32	2.21	100
<b>VOCs</b>	.24	.16	100
<b>PM<sub>2.5</sub></b>	.45	.30	100
<b>SO<sub>2</sub></b>	.10	.07	100
<b>CO</b>	.86	.57	100

Exhaust and fugitive dust emissions generated from construction equipment and vehicles would increase ambient concentrations of air pollutants. Wind-driven emissions of fugitive dust would be generated following disturbance by construction activities, including travel on roads. However, these emissions of engine exhaust and fugitive dust are not expected to contribute to exceeding of regional criteria air pollutant National Ambient Air Quality Standards (NAAQS) for which the areas have been designated as nonattainment. The proposed project site is in Clark County in Hydrographic Basin 167 of the Eldorado Valley which is designated as in attainment for O<sub>3</sub>. The estimated yearly emissions totals and complete project emission totals for O<sub>3</sub> precursors (NO<sub>x</sub> and VOCs) associated with the project construction would be well less than the de minimis thresholds as specified under the Federal General Conformity Rule (40 CFR 93). Thus, the project emissions are assumed to conform to the SIP and regional air quality plans.

While the construction phase would temporarily cause fugitive dust related to grading and other construction activities, the applicant, in order to comply with Clark County dust control requirements, would use water to control dust. Currently, only water is approved for dust control within potential

threatened and endangered (T&E) species habitat.

### Greenhouse Gas Emissions

The CEQ issued draft guidance in February 2010 stating that “if a Proposed Action would be reasonably anticipated to cause direct emissions of 25,000 metric tons or more of CO<sub>2</sub>-equivalent GHG emissions on an annual basis, agencies should consider this an indicator that a quantitative and qualitative assessment may be meaningful to decision makers and the public”. CEQ does not propose this as an indicator of a threshold of significant effects, but rather as an indicator of a minimum level of GHG emissions that may warrant some description in the appropriate NEPA analysis for agency actions. During construction of the solar generation facility as well as any of the proposed transmission line and access road alternatives, it is estimated that approximately 9,850 metric tons of CO<sub>2</sub>e will occur annually and approximately 14,770 metric tons of CO<sub>2</sub>e will occur through the entire construction period from construction equipment and worker commute vehicles. Ongoing operational emissions of GHGs are estimated at approximately 48 metric tons of CO<sub>2</sub>e, and even when combined with construction emissions would not adversely affect levels of GHG emissions or hinder federal or state attempts to reduce GHG emissions levels.

#### 3.2.2.3 Alternative 2

The impacts to air quality for Alternative 2 would be similar to those described under Alternative 1. However, due to slightly greater disturbance, emissions would be greater as presented in Table 3.2-3

**Table 3.2-3. Transmission Line and Access Road Construction Emissions Estimates and General Conformity De Minimis Thresholds for Alternative 2**

	Emissions (tons)	Emissions (tons/yr)	General Conformity De Minimis Threshold
NO <sub>x</sub>	3.41	2.27	100
VOCs	.25	.17	100
PM <sub>2.5</sub>	.47	.31	100
SO <sub>2</sub>	.10	.07	100
CO	.89	.59	100

#### 3.2.2.4 Alternative 3

The impacts to air quality for Alternative 3 would be the similar to those described under Alternative 1. However, due to slightly less disturbance, emissions would be slightly less as presented in Table 3.2-4.

**Table 3.2-4. Transmission Line and Access Road Construction Emissions Estimates and General Conformity De Minimis Thresholds for Alternative 3**

	Emissions (tons)	Emissions (tons/yr)	General Conformity De Minimis Threshold
NO <sub>x</sub>	3.26	2.17	100
VOCs	.24	.16	100
PM <sub>2.5</sub>	.44	.29	100
SO <sub>2</sub>	.09	.06	100
CO	.83	.55	100

#### 3.2.2.5 Alternative 4

The impacts to air quality for Alternative 3 would be the similar to those described under Alternative 1.

However, due to slightly more disturbance, emissions would be slightly greater as presented in Table 3.2-5.

**Table 3.2-5. Transmission Line and Access Road Construction Emissions Estimates and General Conformity De Minimis Thresholds for Alternative 4**

	Emissions (tons)	Emissions (tons/yr)	General Conformity De Minimis Threshold
<b>NO<sub>x</sub></b>	3.42	2.28	100
<b>VOCs</b>	.25	.17	100
<b>PM<sub>2.5</sub></b>	.47	.31	100
<b>SO<sub>2</sub></b>	.10	.07	100
<b>CO</b>	.90	.60	100

**3.2.2.6 Connected Action**

It is anticipated that there would be long-term and short-term impacts to air quality due to emissions associated with the construction and operation of the 350 MW photovoltaic solar-powered generation facility. Air emissions associated with the project are expected to be primarily short-term and chiefly associated with fugitive dust during construction from ground-disturbing activities such as grading, solar pad construction and transmission line construction, as well as some emissions associated with engine exhaust from construction equipment and from transportation of goods and construction workers, all of which are included in this analysis. Once the facility is operational relatively few contributions to air emissions would be generated due to on-road travel of vehicles associated with worker commutes for maintenance activities.

Construction of the proposed project would take approximately eighteen months to complete and would require approximately 1,500 total acres for the 350 MW facility is projected to have construction traffic estimated at 350 construction trips per day, 400 workers during peak construction and approximately 30 trips per day of truck traffic and would generate emissions of carbon monoxide (CO), nitrogen oxides (NO<sub>x</sub>), volatile organic compounds (VOCs), sulfur dioxide (SO<sub>2</sub>), and particulate matter with a mean aerodynamic diameter of 2.5 micrometers or less (PM<sub>2.5</sub>). Ozone (O<sub>3</sub>) is not emitted directly from emission sources, but is created in the atmosphere via a chemical reaction between NO<sub>x</sub> and VOCs in the presence of sunlight; these compounds are known as ozone precursors.

Emissions of criteria pollutants for the proposed project were calculated for three distinct project elements:

- Initial land disturbance, including, clearing, grading, grubbing, etc.
- Construction of the solar array
- Operation and maintenance of the facility following construction.

Criteria pollutant emissions during construction activities would result from construction employee and construction vehicles, and heavy equipment moving across the site during construction. Emissions from worker travel to and from the site have been included in this analysis. Exhaust from construction vehicles and heavy equipment would result in increases in CO and NO<sub>x</sub> but would be localized and short-term.

Estimates of total emissions during construction as well General Conformity de minimis thresholds are listed in Table 3.2-6. Emissions listed are estimated for the entirety of the construction project and per

year and the de minimis thresholds listed are for individual years.

**Table 3.2-6. Construction Emissions Estimates and General Conformity De Minimis Thresholds for the Solar Facility.**

	Emissions (tons)	Emissions (tons/yr)	General Conformity De Minimis Threshold
<b>NO<sub>x</sub></b>	46.76	31.17	100
<b>VOCs</b>	3.76	2.51	100
<b>PM<sub>2.5</sub></b>	4.67	3.11	100
<b>SO<sub>2</sub></b>	1.48	0.99	100
<b>CO</b>	18.86	12.57	100

Operations and maintenance of the solar facility would produce criteria pollutant emissions for vehicle traffic. These emissions are expected to be minimal and relative to NAAQs would be negligible and not approach *de minimis* thresholds.

### 3.2.3 Mitigation

To reduce impacts on air quality, the applicant would implement BMPs from the Eldorado Valley Transmission and Utility Corridor PEA including AIR-1: Compliance with Clark County DAQ Regulations, AIR-2: Acquire Air Quality Permits, AIR-3 Develop Dust Control Plan, and AIR-13: Implement Wind Erosion Control measures (Appendix B).

Operations and maintenance of the transmission line would produce criteria pollutant emissions for vehicle traffic. These emissions are expected to be minimal and relative to NAAQs would be negligible and not approach de minimis thresholds.

### **3.3 Geology, Minerals, and Soils**

#### **3.3.1 Affected Environment**

The Eldorado Valley, with an average elevation of 1700 feet, is at the terminus of a large alluvial fan which drains eastward out of the McCullough Range. The deepest portion of the Eldorado Valley is the dry lake or playa, in which water accumulates from time to time, depending on the amount of precipitation. The proposed facility will be located on alluvial soils in the Eldorado Valley. These consist of alluvial, aeolian, and playa deposits which are surrounded by steeply sloping alluvial aprons of gravel and sand (USDA, Natural Resources Conservation Service 2012). The thickness of the alluvium below the site is approximately 1,000 feet, where it is underlain by bedrock of the Bridge Spring formation, a Miocene-age rhyolitic ash-flow tuff.

Eldorado Valley is a closed drainage basin bounded to the west by the McCullough Range, to the north by the River Mountains, and the east by the Eldorado Mountains and the Opal Mountains. In the McCullough, River, and Eldorado Mountains mid-Tertiary volcanic and plutonic rocks occur. The southern part of the McCullough Range and the Opal Mountains are formed primarily of Precambrian foliated metamorphic rock. The Eldorado Mountains were uplifted during a geological period known as the Miocene Basin and Range Uplift.

The soil textures in the project area include very gravelly, loamy sand, and very gravelly, fine sandy loam derived mainly from volcanic rocks. In some desert environments biological crusts may form on the soil surface. These crusts are formed by living organisms and their by-products, creating a crust of soil particles bound together by organic material. When biological crusts are disturbed, they can take hundreds of years to recover. While biological crusts have not been documented in the project area, any areas that will be disturbed will be examined for the presence of biological crusts prior to site development. There is a potential for soils in the Eldorado valley to be corrosive and reactive to concrete. The soil slopes range from 0 to 8 percent. The soil erosion potential for the entire project area is low. The project area has a moderate wind erosion potential, soils with rapid permeability, and very deep soil depths.

Desert pavements are surfaces of closely packed angular or rounded rock fragments, commonly only one or two fragments thick that form a mosaic in a matrix of fine sediment. Desert pavements developed by detachment and uplifting of clasts from bedrock surfaces as eolian fines accumulate in fractures (McFadden and Wells, et al, 1987). Studies of development of desert pavement on volcanic bedrock (Valentine and Harrington, 2005) has shown that desert pavement can develop by eolian processes of infiltration of fine material down into the larger rock fragments and accretion of fine sediments that lift and protect the pavement-forming clasts. The newest theory of pavement formation suggests that pavements are born at the soil surface. Research in the Mojave Desert shows that pavement clasts are continuously maintained at the land surface in response to deposition and pedogenic modification of windblown dust (Wells et al. 1995). The presence of desert pavement has not been documented in the project area. Disturbance of desert pavement may result in exposure of fine-grained material that would be subject to wind and water erosion. Locations that may be disturbed would be examined for the presence of desert pavement prior to site development.

According to the Supplemental Environmental Impact Statement for the Clark County Regional Flood Control District (BLM 2004), the Quaternary alluvial deposits that cover most of the valley floors (Las

Vegas Valley and Boulder City), including the Project site, have little or no paleontological potential.

### **3.3.2 Environmental Consequences**

#### **3.3.2.1 No Action Alternative**

Under the No Action Alternative, the project would not be constructed; therefore, no project related effects to geologic resources would occur.

#### **3.3.2.2 Alternative 1**

The erosion susceptibility of the soils in Eldorado Valley ranges from low to moderate under Alternative 1 (BLM, 1992). Most of the erosion conditions range from slight to moderate, but two areas of critical erosion condition have been identified within the basin. Soils disturbed by grading and excavation will have a higher potential for erosion by wind and water. The presence of biological soil crusts in the Alternative 1 area has not been documented. Locations that may be disturbed would be examined for the presence of biological soil crusts prior to site development. Locations that may be disturbed in the Alternative 1 area would be examined for the presence of desert pavement prior to site development

#### **3.3.2.3 Alternative 2**

The impacts to geologic resources for Alternative 2 would be the same as those described for Alternative 1.

#### **3.3.2.4 Alternative 3**

The impacts to geologic resources for Alternative 3 would be the same as those described for Alternative 1.

#### **3.3.2.5 Alternative 4**

The impacts to geologic resources for Alternative 4 would be the same as those described for Alternative 1.

#### **3.3.2.6 Connected Action**

The types of impacts associated with the connected action would be similar to those described under Alternative 1, but would occur over a larger area. In addition to the BMPs described in Appendix A, all required permits would be obtained and an Enhanced Fugitive Dust Plan with mitigation measures would be developed to minimize erosion impacts.

### **3.3.3 Mitigation**

To reduce impacts on geology, soils and minerals, the applicant would implement BMPs from the Eldorado Valley Transmission and Utility Corridor PEA including GEO-1: Limit Biological Crust Disturbance and GEO-3 Minimize Ground Disturbance from Grading for New Access Roads. (Appendix B). Additionally, before the start of construction, the construction contractor will adhere to BMPs including obtaining a dust control permit from the Clark County Department of Air Quality and Environmental Management (AIR-1 and AIR-2)(Clark County DAQ 2003). BSP would also develop a Dust Control Plan (AIR-12) and a Wind Erosion Control Plan (AIR-13) with mitigation measures to reduce the potential for fugitive dust.

### **3.4 Water Resources**

Hydrologic resources include groundwater, surface water, and wetlands. Groundwater quality and the issuance of permits for the use of both groundwater and surface water are overseen by the State Engineer under authority granted by the Nevada Revised Statutes 533 and 534. Wetlands are managed by the US Army Corps of Engineers.

#### **3.4.1 Affected Environment**

##### **3.4.1.1 Groundwater**

The Las Vegas Flow System, a subsystem of the regional Colorado Flow System, contains the Eldorado Valley. Precipitation originating in the mountains surrounding the Eldorado Valley flows toward the axis of the basin and then northward into either the Las Vegas Valley or eastward to the Colorado River Valley, eventually becoming groundwater. Approximately, 1,000 acre-feet of groundwater is estimated to discharge annually to the Colorado River Valley (Harrill et al., 1988).

The two sources from which groundwater in the Eldorado Valley area is derived include the recharge of the basin via precipitation (an estimated 1,100 acre-feet/year) and as subsurface inflow from Hidden Valley. The inflow from Hidden Valley is thought to be less than 300 acre-feet/year (Rush and Huxel, 1966).

According to the Nevada Division of Water Resources, Eldorado Valley is a designated groundwater basin with high variability in the depth of water. Records from the Nevada Division of Water Resources list a borehole, approximately [distance from borehole at lat: 35.8208313, long: 115.0066681] from the proposed project site. The depth in the borehole to static groundwater was measured at 315 feet below land surface in March of 1994 (<http://water.nv.gov>).

Eldorado Valley's groundwater has high concentrations of total dissolved solids, is primarily sodium-bicarbonate, and is a medium to high salinity hazard (Rush and Huxel, 1966). Historically, some areas of the Eldorado Valley have groundwater that exceeds drinking water standards for concentrations of total dissolved solids, sulfate, and chloride. Other trace constituents and soluble metals may also be present in parts of the aquifer as a result of the presence of historic mining districts in the area. Iron, lead, manganese, mercury, and nitrate have been detected in the groundwater at levels which exceed their respective maximum contaminant levels according to records with the Clark County Department of Health Services (Buqo and Giampaoli, 1988).

##### **3.4.1.2 Surface Water**

The presence of surface water resources in the Eldorado valley is very limited. Estimated runoff within the basin, though not known, is estimated at less than 100 acre-feet/year (Scott et al., 1971). There is infrequent runoff from the surface which occurs as ephemeral flow in streambeds and rarely ponding of water occurs on the playa. It is likely that the flooding characteristic of the Eldorado Valley basin exhibit shallow flash flooding over large areas as observed in surrounding basins.

No permanent surface waters or wetlands exist in or near the project area. Narrow and shallow ephemeral drainage swales flow from west to east toward the Eldorado Dry Lake. Though water does flow during infrequent storm events, since there is no nexus of this flow to the Colorado River system, there is no

regulation under section 404 of the Clean Water Act. Surface water in the closed Eldorado Valley basin runs off from higher elevations into the Eldorado Dry Lake and the project site. The project area is located within the Eldorado Dry Lake which has been designated as a special flood hazard area subject to inundation by the 100-year floodplain.

“Water of the United States,” defined in 33 CFR 328.3(a) to include navigable waters as well as intermittent streams, are not present in the Eldorado Valley. Additionally, the project area does contain hydric soils and habitat in the area does not meet the definition of a wetland. It does not contain: (1) wetlands, wetland fringes or adjacent wetlands, or (2) spawning, feeding, or nesting areas for fish or other important aquatic species.

Eldorado Valley is a closed basin; surface water runoff from the surrounding mountains is directed to the Eldorado Dry Lake. There are no permanent surface water sources or wetlands in the project area. Several narrow and shallow ephemeral drainage swales or washes cross the site, predominantly in a west to east direction toward the Eldorado Dry Lake. The flow of water in these small drainage systems occurs only during infrequent storm events and has no nexus to the Colorado River system, and therefore would not be regulated by the U.S. Army Corps of Engineers under Section 404 of the Clean Water Act. A request for a jurisdictional determination has been submitted to the U.S. Army Corps of Engineers for this project.

### **3.4.2 Environmental Consequences**

#### **3.4.2.1 No Action Alternative**

Under the No Action Alternative, the project would not be constructed; therefore, no project related effects to surface and groundwater would occur.

#### **3.4.2.2 Alternative 1**

##### **Groundwater**

Water for construction of the transmission line and access road would be provided by connection to the Boulder City Public Works Department’s 14 inch water main located along the west side of US-95. Water would primarily be used for dust control for the access road during the construction of the project which is estimated to take 12 weeks. For dust control, an application rate was assumed of 0.0046 acre-ft/day. Total water usage for all the transmission line and access road alternatives range from 0.8 acre-feet to 1.8 acre feet. Specific amounts are described under each alternative below. Excavations during construction are not expected to be deep enough to intercept groundwater.

##### **Surface Water**

The proposed project would not divert flows from areas of perennial flow or ephemeral washes, nor would the project divert water from downstream habitat dependent on that water. During construction, increased surface disturbance could result in an increased level of erosion. With BMPs in place, impacts from increased erosion and sedimentation due to ground-disturbance activity would be reduced to a level of non-significance.

#### **3.4.2.3 Alternative 1**

Estimated water usage for Alternative 1 is 1.0 acre feet if the northern access road is used and 1.47 acre feet if the south access road is used.

#### **3.4.2.4 *Alternative 2***

Estimated water usage for Alternative 1 is 1.0 acre feet if the northern access road is used and 1.41 acre feet if the south access road is used.

#### **3.4.2.5 *Alternative 3***

Estimated water usage for Alternative 1 is 1.0 acre feet if the northern access road is used and 0.80 acre feet if the south access road is used.

#### **3.4.2.6 *Alternative 4***

Estimated water usage for Alternative 1 is 1.0 acre feet if the northern access road is used and 1.84 acre feet if the south access road is used.

#### **3.4.2.7 *Connected Action***

Water for construction of the solar facility would be provided by connection to the Boulder City Public Works department 14 inch water main located along the west side of US-95. Water from this connection would be piped to tanks or a temporary lined pond. Water would primarily be used for grading and for dust control during the construction of the project. Construction is estimated to take 18 months and broken down into 15 phases, each phase would equate to approximately 100 acres under construction at a time. It is assumed that dust control would be required up to the point when the panels are installed which is approximately 3 weeks for each phase (15 days). For dust control, an application rate was assumed of 0.46 acre-ft/day; which equates to 10 acre-ft/month or 120 acre-ft/year. Total water needs were estimated to be 180 acre-ft for total project construction.

Water for the operation and maintenance of the connected action would be provided by a water meter connection to the Boulder City Public Works department water main located along the west side of US-95. This would utilize approximately 11 acre feet of water per year and would be used primarily for dust control and maintenance activities.

### **3.4.3 *Mitigation***

#### **3.4.3.1 *Groundwater***

No excavations greater than 30 feet in depth are planned during construction. Because the depth to static groundwater in the Project area is approximately 315 feet, no mitigation measures are necessary.

During construction, a sanitary service will be contracted to provide and maintain portable toilets on the solar facility site. With BMPs in place both during construction and operation, potential impacts from the sanitary discharges would be non-significant (Appendix B).

#### **3.4.3.2 *Surface Water***

To reduce impacts on water quality, the applicant would implement BMPs from the Eldorado Valley Transmission and Utility Corridor PEA including W-1: Avoid Placement of Equipment in Intermittent Stream Channels, W-2 Develop an Erosion Control Plan, W-8: Develop a Stormwater Pollution Prevention Plan, and W-13: Avoid Use of Invasive Species for Soil Stabilization. (Appendix B). With BMPs in place for control of on-site surface flows, impacts from increased erosion, and sedimentation due to ground disturbance activities would be reduced to non-significance.

### 3.5 Vegetation

#### 3.5.1 Affected Environment

##### Existing Vegetation

The project area is located within the floristic province known as the Mojave Desert. This Desert encompasses some 32 million acres. Mojave creosote bush scrub is the main vegetation community in the transmission line area. This vegetation community forms the matrix throughout Eldorado Valley except in the dry lake area. This community typically is dominated by creosote bush (*Larrea tridentata*) and white bursage (*Ambrosia dumosa*) with some other species such as four-winged saltbush (*Atriplex canescens*), cheesebush (*Hymenoclea salsola*), and broom snakeweed (*Gutierrezia sarothrae*). Also, Sahara mustard (*Brassica tournefortii*), a plant species designated by the Nevada Department of Agriculture as a Category B noxious weed species, was found within the area. Category B species are defined as “weeds established in scattered populations in some counties of the state; actively excluded where possible, and actively eradicated from nursery stock dealer premises; control required by the state in areas where populations are not well established or previously unknown to occur (Nevada Department of Agriculture 2005).”

Vegetation within the proposed project area has previously been disturbed by various activities including Off-Highway Vehicle recreation, construction of the nearby Nevada Solar One power plant, construction of existing power lines, and construction of the historic Highway 5 (DuBarton 2009). These disturbed areas possess urban and construction related trash and display high rates of erosion.

##### Invasive Species / Noxious Weeds

Invasive plants and noxious weeds are managed on public lands by the BLM under the direction of the National Invasive Species Council (NISC) established in 1999 (Executive Order [EO] 13112). This statute defines invasive species as “...an alien (non-native) species whose introduction does, or is likely to cause, economic or environmental harm or harm to human health” (NISC 2008). In addition, much of the management of invasive plants and the listing of noxious weeds are regulated by the USDA under the Federal Noxious Weed Act (7 U.S.C. 2801 et seq. 1974).

Executive Order 13112 outlines the federal responsibility to “prevent the introduction of invasive species and provide for their control and to minimize the economic, ecological, and human health impacts that invasive species cause...” Additionally, Nevada Revised Statutes, Chapter 555.05 defines “noxious weeds” and mandates the extent that land owners and land management agencies must control specific noxious weed species on lands under their jurisdiction. Southern Nevada lands are impacted by the presence of noxious and invasive, non-native vegetation. The BLM has prepared the LVFO Weed Plan that provides guidance for an active integrated weed management program using Best Management Practices (BMP).

The proposed site may be impacted by various noxious and/or invasive weeds that are known to occur within the Southern Nevada District. A list of some of the weed species that are a concern includes (but is not limited to); Sahara mustard (*Brassica tournefortii*), camelthorn (*Alhagi maurorum*), perennial pepper weed (*Lepidium latifolium*), several knapweeds, malta starthistle (*Centaurea melitensis*) and yellow starthistle (*Centaurea solstitialis*), Johnson grass (*Sorghum halepense*), Scotch thistle (*Onopordum acanthium*), Canada thistle (*Cirsium arvense*), fountain grass (*Pennisetum setaceum*), puncture vine (*Tribulus terrestris*), Russian thistle (*Salsola tragus*) and tamarisk (*Tamarix ramosissima*). Sahara

mustard was the only weed documented on the site; however, a potential exists for the above-listed species to colonize the site after disturbance. A complete list of State of Nevada Noxious Weeds can be obtained from the BLM District Weed Management Specialist.

### **3.5.2 Environmental Consequences**

#### **3.5.2.1 No Action Alternative**

Under the No Action Alternative the project would not be constructed; therefore, no project related impacts to vegetation would occur.

#### **3.5.2.2 Alternative 1**

The proposed project will create up to approximately 10 acres of new surface disturbance (4.23 temporary and 5.57 permanent), which has the potential to permanently impact the project area as well as adjacent lands by introducing and/or exacerbating current weed populations.

The construction of the proposed project will involve activities such as clearing, blading, and drive—and—crush, which have the potential to decrease native plant cover and increase soil disturbance. The bare ground resulting from the vegetation removal provides opportunity for non-native invasive weed species to colonize the project area. If weeds are established on the site there is potential for species to out-compete native plants for resources. Noxious and/or invasive weeds effectively compete with native species for sunlight, soil, water, nutrients, and space, thereby reducing forage productivity. Additionally, soil disturbance could reduce the native seed bank associated with the site.

Increased vehicle traffic during all phases of the proposed project will also impact noxious and/or invasive weeds. Vehicles are effective at introducing and/or spreading weeds by discharging weed seed along roadways. More specifically the increased vehicular activity at the site has the potential to spread non-native invasive annual grasses. Studies suggest that the Mojave Desert is threatened by the spread of non-native, invasive annual grasses which results in increased fire and loss of natural resources (Brooks 1999). The increase of fine fuels may result in ignitions and ultimately increase the number of wildfires.

Mojave Desert wildfires are occurring at historically unprecedented frequencies and extents and have the potential to dramatically change the species composition in affected areas (Brooks and Matchett 2006).

Therefore in addition to competing with native plant species, and reducing the productivity of rangelands, forest lands, riparian areas, and wetlands, the spread of invasive weed infestations, cheat grass and red brome in particular, increase fine fuels, thereby increasing the likelihood of fire. Although the non-native annual grasses are not legally designated as noxious by the State of Nevada, their role within the Mojave Desert ecosystem is increasingly important with respect to their relationship to fire and future disturbance.

Aggressively managing invasive or noxious species will limit residual effects to manageable levels. This is made possible by maintaining discontinuous, dispersed native vegetation, nonflammable native species, propagation and planting of native species, and treatment or removal of nonnative species.

#### **3.5.2.3 Alternative 2**

Impacts to vegetation would be similar under alternative 2 as those described under alternative 1, except the amount of temporary vegetation disturbance and permanent vegetation removed would be slightly

less: approximately 4.18 acres and 5.16 acres, respectively.

#### **3.5.2.4 *Alternative 3***

Impacts to vegetation would be similar under alternative 2 as those described under alternative 1, except the amount of temporary vegetation disturbance and permanent vegetation removed would be slightly more: approximately 15 acres and 4.25 acres, respectively.

#### **3.5.2.5 *Alternative 4***

Impacts to vegetation would be similar under alternative 4 as those described under alternative 1, except the amount of temporary vegetation disturbance and permanent vegetation removed would be substantially more: approximately 31.5 acres and 6.7 acres, respectively.

#### **3.5.2.6 *Connected Action***

The entire solar facility would be graded causing direct removal of vegetation and wildlife habitat; however, only approximately 550 acres of the solar facility is vegetated as described under affected environment. The additional approximately 1,000 acres is dry lakebed and is not vegetated.

### **3.5.3 Mitigation**

To reduce impacts on vegetation and habitat, the applicant would implement the following BMPs from the Eldorado Valley Transmission and Utility Corridor PEA (Appendix B):

- BIO-1: Avoidance (of sensitive biological resources to the maximum extent possible)
- BIO-2: Preconstruction Surveys (for sensitive biological resources)
- BIO-3: Flagging (to insure that sensitive biological resources are avoided to the greatest extent possible)
- BIO-18: Preconstruction Surveys for Vegetation
- BIO-19: Minimize Vegetation Removal
- BIO-20: Minimize Soil Disturbance
- BIO-21: Invasive Plant Management Plan
- BIO-22: Reclamation, Restoration and Revegetation Plan (RRRP)
- BIO-23: BLM Guidance Documents for Treatments and Herbicides
- BIO-24: Avoid Areas with Nonnative or Noxious Weed Species
- BIO-25: Pretreatment
- BIO-26: Clean Vehicles and Equipment
- BIO-27: Use of Herbicides

### 3.6 Special Status Vegetation

Special status plants include: USFWS listed or candidate species, BLM special status plants, and plants protected by the State of Nevada under Nevada Revised Statute (NRS) 527.260-300. Cacti and yucca are also included in this section. On BLM lands, cacti and yucca are considered government property and are regulated under the BLM Forestry Program. Additionally, the sale and transport of cacti and yucca are regulated by the Nevada Division of Forestry under NRS 527.060-527.120. , Nevada State Protection of Christmas Trees, Cacti, and Yucca and addressed in this section.

Additionally, the USFWS requested that A list of At-Risk Plant and Animal Species be was obtained from the State of Nevada Natural Heritage Program (NNHP). NewFields submitted the request and on May 14, 2012, the NNHP replied to the request. The NNHP identified Las Vegas bear poppy (*Arctomecon californica*), a BLM Sensitive Species and protected by the state of Nevada under Nevada Revised Statute (NRS) 527.260-300, and Rosy Twotone Beardtongue, (*Penstemon bicolor* ssp. *roseus*), a Nevada Bureau of Land Management (BLM) Sensitive Species. These species are addressed in this section. According to BLM rare plant survey protocols, a rare plant survey should be conducted before NEPA documents are completed so that impacts can be adequately described; however, a rare plant survey was not completed for this project because the Eldorado Valley Transmission and Utility Corridor PEA has assessed potential impacts to this species and identifies mitigation and best management practices, which are incorporated into this EA. A habitat assessment of the general area was completed by BLM as part of the Eldorado Valley Transmission and Utility Corridor Programmatic Environmental Assessment. A habitat assessment on the site was completed by Adam Hamburg and Sean Milne from Newfields in April and May of 2013.

#### 3.6.1 Existing Condition

##### **Cactus and Yucca**

During field surveys, only a few cactus plants were observed in the proposed project area including silver cholla (*Cylindropuntia echinocarpa*) and pencil cholla (*Cylindropuntis ramosissima*). No yucca was observed within the proposed project area.

##### **Las Vegas Bearpoppy**

Las Vegas bearpoppy, a BLM special status species, is fully protected under Nevada State Law (NRS 527.260 - .300), and the Clark County Multiple Species Habitat Conservation Plan. Habitat requirements include open “badland” or hummocked soils with high gypsum content (NNHP 2001). No potential habitat was found in the proposed project area: therefore, Las Vegas bearpoppy will not be addressed further in this EA.

##### **Rosy Twotone Beardtongue**

Rosy Twotone Beardtongue is a BLM special status species deemed a species of concern by the USFWS . Its habitat is rocky calcareous, granitic, or volcanic soils in washes, roadsides, scree at outcrop bases, rock crevices, or similar places receiving enhanced runoff, in the creosote-bursage, blackbrush, and mixed-shrub zones (NNHP 2001). The plant is present in Clark and Nye counties, Nevada; Mohave County, Arizona; and California (NNHP 2001). The plant is known to occur in the general vicinity of the project (NNHP 2013). The BLM and Newfields habitat assessment identified potential habitat within the project area. Potential habitat for rosy twotone beardtongue may be found in the proposed project area.

### **3.6.2 Environmental Consequences**

#### **3.6.2.1 No Action Alternative**

Under the No Action Alternative, the project would not be constructed and no project related effects to special status vegetation species would occur.

#### **3.6.2.2 Alternative 1**

Very few cacti were observed in the proposed project area; however, it is possible that a cactus could be crushed or removed during construction activities. A small amount of potential rosy twotone beardtongue habitat would be disturbed (4.23 acres) or permanently removed (5.57 acres) during construction activities. Additionally, construction and maintenance of the proposed project may cause the proliferation or introduction of invasive weed species decreasing the habitat quality.

#### **3.6.2.3 Alternative 2**

Under Alternative 2, impacts to cacti would be the same as those discussed under Alternative 1. A small amount of potential rosy twotone beardtongue habitat would be disturbed (4.18 acres) or permanently removed (5.16 acres) during construction activities. Additionally, construction and maintenance of the proposed project may cause the proliferation or introduction of invasive weed species decreasing the habitat quality.

#### **3.6.2.4 Alternative 3**

Under Alternative 3, impacts to cacti would be the same as those discussed under Alternative 1. A small amount of potential rosy twotone beardtongue habitat would be disturbed (15 acres) or permanently removed (4.25 acres) during construction activities. Additionally, construction and maintenance of the proposed project may cause the proliferation or introduction of invasive weed species decreasing the habitat quality.

#### **3.6.2.5 Alternative 4**

Under Alternative 3, impacts to cacti would be the same as those discussed under Alternative 1. A small amount of potential rosy twotone beardtongue habitat would be disturbed (31.5 acres) or permanently removed (6.7 acres) during construction activities. Additionally, construction and maintenance of the proposed project may cause the proliferation or introduction of invasive weed species decreasing the habitat quality.

#### **3.6.2.6 Connected Action**

The entire 1,550 acre solar facility would be graded; however only approximately 550 is vegetated, causing direct removal of a few cactus plants. Such removals would be below the threshold for requiring notification under NRS.570.070.

### **3.6.3 Mitigation**

As some flexibility exists in the placement of transmission line poles, cactus will be avoided to the extent possible. To further reduce impacts to cacti, if these species unable to be avoided, all cactus and yucca within permanent and temporary impact areas must be salvaged and replanted in temporary impact areas or undisturbed portions of the project area. Unless otherwise directed by the BLM botanist, all replanted cactus and yucca must be watered and otherwise maintained for a period of one year. To ensure

successful salvage and transplant, all cactus and yucca must be salvaged using a contractor (or other approved by the BLM botanist) with at least three years' experience salvaging and maintaining plant materials in the Mojave or Sonoran Deserts.

In addition to the BMPs presented in the previous section, impacts to the Rosy twotone beardtongue would be reduced through implementation of BMPs from the Eldorado Valley Transmission and Utility Corridor PEA including BIO-10: Special-Status Plant Restoration and Compensation and BIO-22 Reclamation, Restoration, and Revegetation Plan (Appendix B).

### 3.7 Wildlife

#### 3.7.1 Affected Environment

The proposed project area supports wildlife characteristic of the north-eastern Mojave Desert. Common wildlife observed during surveys is described below.

Several reptile species were observed during the 2011 desert tortoise field surveys including the Great Basin whiptail (*Cnemidophorus tigris*), and desert horned lizard (*Phrynosoma platyrhinos*). Migratory birds observed were recorded during desert tortoise surveys and it is assumed that the action area contains potential nesting and foraging habitat for a wide range of migratory birds including the burrowing owl. Bird species observed included the common nighthawk (*Chordeiles minor*), and the common raven (*Corvus corax*). The only mammal species observed was the black-tailed jack rabbit (*Lepus californicus*), but evidence of kit fox (*Vulpes macrotis*), coyote (*Canis latrans*), and various rodents were observed. The presence of burrows and droppings suggests the presence of common Mojave Desert rodent inhabitants such as cactus mice (*Peromyscus* spp.), and kangaroo rats (*Dipodomys* spp.).

Although not observed during field surveys, additional species have been observed in the project area by Nevada Department of Wildlife (NDOW). Please see below for a species list.

**Table 3.7-1. Species recorded by NDOW in the project area.**

Common Name	Scientific Name
Common kingsnake	<i>Lampropeltis getula</i>
Desert horned lizard	<i>Phrynosoma platyrhinos</i>
Long-nosed leopard lizard	<i>Gambelia wislizenii</i> <sup>1</sup>
Zebra-tailed lizard	<i>Callisaurus draconoides</i>
Desert banded gecko	<i>Cleonyx variegatus</i>
Mojave rattlesnake	<i>Crotalus scutulatus</i>
Western whiptail	<i>Aspidoscelis tigris</i>

Additional reptiles and birds may also frequent the project vicinity as a residents or as a seasonal migrant and have not been observed so are not included in resident databases.

#### 3.7.2 Environmental Consequences

##### 3.7.2.1 No Action Alternative

Under the No Action Alternative, the project would not be constructed; therefore, no project related impacts to wildlife would occur.

##### 3.7.2.2 Alternative 1

A small amount of wildlife habitat would be disturbed (4.23 acres) or permanently removed (5.57 acres) during construction activities. Ground-disturbing activities such as grading or creating a trench for the waterline could directly result in mortality to various wildlife species. Some species that are particularly mobile might be able to avoid injury or mortality by leaving the area. However, some wildlife, such as nocturnal species or species that use burrows, might be more susceptible to injury or mortality.

Although temporary in nature, noise and activity associated with construction could cause animals to

avoid the area, thus altering their normal behavior patterns.

Increased traffic on established roads could result in more vehicle/wildlife collisions, thereby resulting in injury or death to wildlife. This might be of particular concern for reptiles and species that utilize roads for heat sources or for other small wildlife.

#### **3.7.2.3 *Alternative 2***

Under Alternative 2 impacts to wildlife would be the similar as discussed under Alternative 1. A small amount of wildlife habitat would be disturbed (4.18 acres) or permanently removed (5.16 acres) during construction activities.

#### **3.7.2.4 *Alternative 3***

Under Alternative 3 impacts to wildlife would be the similar as discussed under Alternative 1. A small amount of wildlife habitat would be disturbed (15 acres) or permanently removed (4.25 acres) during construction activities.

#### **3.7.2.5 *Alternative 4***

Under Alternative 4 impacts to wildlife would be the similar as discussed under Alternative 1. A small amount of potential wildlife habitat would be disturbed (31.5 acres) or permanently removed (6.7 acres) during construction activities.

#### **3.7.2.6 *Connected Action***

The types of impacts associated with the connected action would be similar to those described under Alternative 1, but would occur over a larger area, approximately 1,550 acres of private land. This entire solar facility site would be graded and fenced to exclude wildlife.

### **3.7.3 *Mitigation***

To reduce impacts on wildlife, the applicant would implement BMPs from the Eldorado Valley Transmission and Utility Corridor PEA as described in Appendix B.

### 3.8 Special Status Wildlife Species

On May 10, 2012, the USFWS responded to NewFields' request for a species list for the Boulder Solar Power Project. The desert tortoise (*Gopherus agassizii*) (Mojave population) was the only federally listed species identified by the USFWS. However, the USFWS was concerned about other species in the proposed project area including migratory birds, specifically the Western burrowing owl (*Athene cunicularia hypugea*) (also a BLM Sensitive Species) and the Nevada state-protected banded Gila monster (*Heloderma suspectum cinctum*); therefore, these species are addressed in this section. Additionally, BLM Sensitive Species addressed in this Section are included in Table 3.8-1.

**Table 3.8-1. BLM Sensitive Species.**

Common Name	Scientific Name
chuckwalla	<i>Sauromalus ater</i> <sup>1,3</sup>
desert iguana	<i>Dipsosaurus dorsalis</i> <sup>1,3</sup>
Mojave shovel-nosed snake	<i>Chionactis occipitalis occipitalis</i>
long-nosed leopard lizard	<i>Gambelia wislizenii</i> <sup>1,3</sup>
desert tortoise	<i>Gopherus agassizii</i> <sup>1,2,3</sup>
sidewinder	<i>Crotalus cerastes</i> <sup>1,3</sup>
mastiff bat	<i>Eumops perotis californicus</i>
Allen's big-eared bat	<i>Idionycteris phyllotis</i>
western red bat	<i>Lasiurus blossevillii</i>
California leaf-nosed bat	<i>Macrotus californicus</i>
cave myotis	<i>Myotis velifer</i>
Yuma myotis	<i>Myotis yumanensis</i>
big free-tailed bat	<i>Nyctinomops macrotis</i>
<sup>1</sup> State of Nevada Species of Conservation Priority	
<sup>2</sup> Federally Listed under the Endangered Species Act	
<sup>3</sup> Recorded by NDOW near the project area	

#### 3.8.1 Affected Environment

##### 3.8.1.1 Desert Tortoise

During April 2012 (and May 2012 for the connected action), regionally experienced biologists conducted pre-project tortoise surveys within the entire action area in accordance with 2010 USFWS protocols (USFWS 2010). The survey area was located using topographical maps, aerial photographs, and global positioning system (GPS) coordinates. Physical landmarks such as roads, surveyor markers, existing transmission lines, solar power plants and substations were also used for orientation.

According to the USFWS, the objective of the field surveys is to determine presence or absence of desert tortoise, estimate the number of tortoises (abundance), and assess the distribution of tortoises within the action area (USFWS 2010). Within the Proposed Action area, a minimum of 40-meters (132-feet) were surveyed on each side of the proposed centerline with 100 percent coverage. Additionally, the perimeter of both the Eldorado Substation and McCullough Switching Station were surveyed.

One live tortoise was found within the action area; therefore, the estimated number of tortoise throughout

the action area was calculated to be 2.48<sup>1</sup>.

Additionally, three tortoise burrows were found within the action area. Two burrows were in good condition and possibly utilized by desert tortoise (i.e. Condition Class 4). One Condition Class 5 burrow was found, meaning it was in deteriorated condition; this includes collapsed burrows that are possibly used by desert tortoise.

In addition, Zone-of-Influence (ZOI) surveys were completed because linear facilities may overlap only part of a tortoise's annual home range. ZOI surveys account for the possibility that a resident tortoise was outside the project area at the time surveys were conducted. This included completion of three additional 10-meter (~30-foot) belt transects spaced at 200-meter (~655-foot) intervals parallel to the alignment (200-m, 400-m, and 600-m). Tortoises and/or tortoise sign encountered during these surveys were recorded; however these transects were only used for the presence/absence determination and are not included in the estimates of tortoise abundance within the project area. ZOI surveys were completed on BLM managed lands only.

Although only one tortoise and limited tortoise sign were found in the Proposed Action area, the entire action area is within desert tortoise habitat; therefore, a tortoise could potentially be affected by the proposed project.

### **3.8.1.2 Other Reptiles**

The Gila monster is classified as a State sensitive reptile (NAC 503.080) and is protected under Nevada state law (NAC 503.090 and NAC 503.093). The geographic range and habitat of the Gila monster overlaps with that of the desert tortoise. This venomous lizard is found below 5,000 feet elevation on rocky slopes and landscapes of upland desert scrub interspersed with desert washes (NDOW 2012). No Gila monsters were observed during the biological surveys; however, this species could be encountered during construction activities in the proposed project area. Chuckwalla (*Sauromalus ater*) are classified as a BLM Nevada Sensitive Species. The chuckwalla is restricted to rocky areas in desert flats, hillsides, and mountains where crevices are available for shelter. The common chuckwalla is widely distributed across western Arizona, southern Nevada, southeastern California, Baja California, and northwestern Sonora. Very little potential habitat (i.e. hillsides or rocky outcrops) exist in the proposed project area, which consists of flat sandy areas and dry lakebed.

The Mojave shovel-nosed snake, desert glossy snake, and Mojave Desert sidewinder all are classified as BLM Nevada Sensitive Species. These snakes inhabit a variety dry desert habitats with little vegetation such as washes, dunes, sandy flats, and rocky hillsides. Most of the project area could contain potential habitat for these species.

### **3.8.1.3 Migratory Birds**

Executive Order (January 11, 2001) defines the responsibilities of the Federal Agencies to protect migratory birds. The Migratory Bird Treatment Act (MBTA) of 1918, and subsequent amendments (16 U.S.C. 703–711), states that it is unlawful to take, kill, or possess migratory birds. Numerous bird species

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<sup>1</sup> Estimated number of tortoises using USFWS 2010 protocols =  $((1/(0.64*0.63))*(75/75))$

travel through Nevada during spring and fall migrations. A complete list is published at the USFWS web site (USFWS 2006). A list of those birds that are protected is found in 50 CFR 10.13. The list of birds protected under this regulation is extensive and the project area has potential to support many of these species. During the breeding season (from March 15 through August 31) is when these species are most sensitive to disturbance.

Migratory birds were recorded during desert tortoise surveys and it is assumed that the action area contains potential nesting and foraging habitat for a wide range of migratory birds including the burrowing owl.

The burrowing owl, a USFWS species of concern, is known to occur in the project area and is protected by the MBTA and the State of Nevada (NRS 503.620). This species is a day-active bird of prey specialized for grassland and shrub-steppe habitats in western North America. The owls are widely distributed throughout the Americas and are found from central Alberta, Canada to Tierra del Fuego in South America.

Burrowing owl habitat typically consists of open, dry, treeless areas on plains, prairies, and desert floors (Haug et al. 1993). Burrowing owls most frequently use burrows created by other animals such as kit fox, coyotes or desert tortoises. Burrow presence is the limiting factor to burrowing owl distribution and abundance (Coulumbe 1971; Martin 1973; Green and Anthony 1989; Haug et al. 1993). The burrows are used for nesting, roosting, cover, and caching prey (Coulumbe 1971; Martin 1973; Green and Anthony 1989; Haug et al. 1993).

Primarily due to agricultural, industrial, and urban development the range and species count have been declining in recent decades. The owls also face increased mortality rates from pesticides and edge-effect predation (Haug et al. 1993).

Although burrowing owls were not observed during the May 2011 field surveys, the proposed project contains burrowing owl habitat. Therefore, burrowing owls potentially could be affected by the proposed project.

#### **3.8.1.4 Bats**

As previously mentioned, the BLM has identified a number of BLM sensitive bat species that may utilize the including the greater western mastiff bat, Allen's big-eared bat, western red bat, California leafed-nosed bat, cave myotis, Yuma myotis, and big free-tailed bat. It is unlikely that bats would utilize the area for roosting as these bats tend to roost in a variety of other habitats including riparian areas, forests, buildings, crevices, and cliff faces. None of which are present in the study area. However, it is likely that bats would forage in this area.

### **3.8.2 Environmental Consequences**

### **3.8.2.1 Desert Tortoise**

#### **No Action Alternative**

Under the No Action Alternative, the project would not be built; therefore, no project related effects on desert tortoise would occur.

#### **Alternative 1**

Tortoises may be injured or killed during construction activities such as grading or trenching. Biological monitors would be present at all active construction locations to locate tortoises and, if necessary, direct the contractor to cease construction activities until the tortoise moves out of harm's way. Only 400 square feet of temporary disturbance is associated with each transmission pole installation site (totaling 4.23 acres) and 27 square feet being permanent land disturbance (totaling 5.6). This small area is readily surveyed for the presents of tortoises and burrows. If a tortoise in a burrow is encountered, the transmission line poles may be relocated to avoid tortoises in burrows. This will limit the handling of tortoises. If avoidance is not possible, an authorized biologist would relocate tortoises. Capturing, handling and relocating desert tortoises from transmission line installation locations may result in harassment and possibly injury or death (Blythe et al. 2003). Additionally, if capture and relocation methods are performed improperly, the tortoise could void its bladder, which would lower its chances of survival (Averill-Murray 2001). Another risk is that if multiple tortoises are improperly handled by the same biologist, pathogens for upper respiratory disease could be spread amongst the tortoise.

Increased human activity and construction vehicle traffic may also result in tortoise/vehicle collisions that result in tortoise injury or death. Tortoise may take shelter under parked vehicles and be killed, injured, or harassed. Minimization measures such as a Worker Environmental Action Plan (WEAP), and speed limits on roads, would reduce or eliminate these effects.

Indirect effects could be caused by access roads and transmission lines include increased predation. Predators such as ravens, coyotes, or other raptors may be attracted to the construction site due to an increase in food opportunities including construction site litter and voluntary feeding from construction staff; an increased number of perching opportunities due to new transmission lines, fences, or other opportunities; or increased water sources due to dust control protocols. An increased presence of predators could lead to a predation increase on smaller, more vulnerable tortoises.

Ground disturbing activities during construction may result in an increase of noxious and invasive plant species in the area. Construction machinery may facilitate the spread of existing noxious or invasive species throughout the site, or may facilitate the introduction of new noxious weeds or invasive species. Noxious and invasive plants may displace native species that provide forage for tortoises.

#### **Alternative 2**

Effects to desert tortoise under Alternative 2 would be the same as those described under Alternative 1, except temporary disturbance would total approximately 4.18 acres, and permanent habitat removal would total 5.16 acres.

#### **Alternative 3**

Effects to desert tortoise under Alternative 3 would be the similar to those described under Alternative 1. Temporary land disturbance associated with each transmission structures would be 40,000 square feet

with 360 square feet of that being permanent land disturbance. Effects to desert tortoise under Alternative 3 would be the same as those described under Alternative 1, except temporary disturbance would be approximately 15 acres, and permanent habitat removal would be 4.25 acres.

#### **Alternative 4**

Effects to desert tortoise under Alternative 3 would be the similar to those described under Alternative 1. Temporary land disturbance associated with each transmission structures would be 40,000 square feet with 360 square feet of that being permanent land disturbance. Effects to desert tortoise under Alternative 4 would be the same as those described under Alternative 1, except temporary disturbance would be approximately 27.5 acres, and permanent habitat removal would be 6.7 acres.

#### **Connected Action**

The types of impacts to desert tortoise associated with the connected action would be similar to those described under Alternative 1, but would occur over a larger area, approximately 1,550 acres of private land. However, during surveys conducted in May 2012, no tortoise or tortoise sign was found in the solar facility site. Much of the habitat in the solar facility is dry lakebed (approximately 1,000 acres); therefore, not suitable for desert tortoise. However, approximately 550 acres is vegetated and suitable for desert tortoise. Development of the solar facility is on private lands (i.e. those owned by the City of Boulder City) and therefore would utilize the existing Clark County MSHCP Section 10 permit for potential take of desert tortoise and limit disturbance to desert tortoise habitat to the minimum extent possible.

#### **3.8.2.2 Other Reptiles**

##### **No Action Alternative**

Under the No Action Alternative, the project would not be built; therefore, no project related effects on Gila monsters, chuckwalla, Mojave-shovel nosed snake, desert glossy snake, or Mojave sidewinder would occur.

##### **Alternative 1**

No chuckwalla habitat was observed in the proposed project area as the area is flat and sandy with no rocky outcroppings; therefore, it is unlikely that chuckwalla would be affected.

Gila monsters and snake species could be injured or killed during construction activities. Indirect effects may include habitat fragmentation and disruption of normal activity patterns. Gila monsters and snakes also may be disturbed by noise from construction. The proposed project would result in the permanent loss of approximately 5.57 acres of habitat and the temporary disturbance of 4.23 acres of habitat.

##### **Alternative 2**

No chuckwalla habitat was observed in the proposed project area as the area is flat and sandy with no rocky outcroppings; therefore, it is unlikely that chuckwalla would be affected.

Effects to Gila monsters and snakes under Alternative 2 would be the similar as those described under Alternative 1, except that 5.16 acres of habitat would be permanently removed and 4.18 acres of habitat would be temporarily disturbed.

### **Alternative 3**

No chuckwalla habitat was observed in the proposed project area as the area is flat and sandy with no rocky outcroppings; therefore, it is unlikely that chuckwalla would be affected.

Effects to Gila monsters and snakes under Alternative 3 would be the similar as those described under Alternative 1 except that 4.25 acres of habitat would be permanently removed and 15 acres would be temporarily disturbed.

### **Alternative 4**

No chuckwalla habitat was observed in the proposed project area as the area is flat and sandy with no rocky outcroppings; therefore, it is unlikely that chuckwalla would be affected.

Effects to Gila monsters and snakes under Alternative 4 would be the same as those described under Alternative 1, except that 6.7 acres of habitat would be permanently removed and 31.5 acres would be temporarily disturbed.

### **Connected Action**

The types of impacts associated with the connected action would be similar to those described under Alternative 1, but would occur over a larger area, approximately 1,550 acres of private land. Much of the habitat in the solar facility is dry lakebed (approximately 1,000 acres); therefore, not suitable for chuckwalla, Gila monster, or BLM sensitive snake species.

#### **3.8.2.3 Migratory Birds**

##### **No Action Alternative**

Under the No Action Alternative, the project would not be built; therefore, no project related effects on migratory birds would occur.

##### **Alternative 1**

Migratory birds could be injured or killed during vegetation removal and grading activities. Adult birds may be able to flee the area; however, during migratory bird nesting season, eggs and juvenile birds that are confined to nests may be killed. During operation of the facility birds may be injured, electrocuted, or killed from collisions with power lines or construction vehicles.

Only a small amount of native plant communities that provide habitat to nesting migratory birds would be temporarily disturbed (4.23 acres) or eliminated (5.57 acres) as a result of the proposed project.

##### **Alternative 2**

Effects to migratory birds under Alternative 2 would be the similar as those described under Alternative 1; a small amount of native plant communities that provide habitat to nesting migratory birds would be temporarily disturbed (4.18 acres) or eliminated (5.16 acres) as a result of the proposed project.

##### **Alternative 3**

Effects to migratory birds under Alternative 3 would be the similar as those described under Alternative 1; a small amount of native plant communities that provide habitat to nesting migratory birds would be temporarily disturbed (15 acres) or eliminated (4.25 acres) as a result of the proposed project.

#### **Alternative 4**

Effects to migratory birds under Alternative 3 would be the similar as those described under Alternative 1; a small amount of native plant communities that provide habitat to nesting migratory birds would be temporality disturbed (31.5 acres) or eliminated (6.7 acres) as a result of the proposed project.

#### **Connected Action**

The types of impacts associated with the connected action would be similar to those described under Alternative 1, but would occur over a larger area, approximately 1,550 acres of private land. Much of the habitat in the solar facility is dry lakebed (approximately 1,000 acres); therefore, not suitable for migratory bird foraging or nesting.

#### **3.8.2.4 Bats**

##### **Alternative 1**

Since BLM sensitive bat species are unlikely to roost in the project area, impacts to bats would be limited to loss of desert foraging habitat. For Alternative 1 only a small amount of native plant communities that provide foraging habitat to BLM sensitive bat species would be temporarily disturbed (<4.23 acres) or eliminated (<5.57 acres) as a result of the proposed project.

##### **Alternative 2**

Effects to bats under Alternative 2 would be the similar as those described under Alternative 1; a small amount of native plant communities that provide foraging habitat to BLM sensitive bat species would be temporarily disturbed (< 4.18 acres) or eliminated (< 5.16 acres) as a result of the proposed project.

##### **Alternative 3**

Effects to bats under Alternative 3 would be the similar as those described under Alternative 1; a small amount of native plant communities that provide foraging habitat for BLM sensitive bat species would be temporarily disturbed (< 15 acres) or eliminated (< 4.25 acres) as a result of the proposed project.

##### **Alternative 4**

Effects to bats under Alternative 3 would be the similar as those described under Alternative 1; a small amount of native plant communities that provide habitat to nesting migratory birds would be temporality disturbed (< 31.5 acres) or eliminated (< 6.7 acres) as a result of the proposed project.

#### **Connected Action**

The types of impacts associated with the connected action would be similar to those described under Alternative 1, but would occur over a larger area, approximately 1,550 acres of private land. Much of the habitat in the solar facility is dry lakebed (approximately 1,000 acres); therefore, not suitable for bat foraging.

### **3.8.3 Mitigation**

#### **3.8.3.1 Desert Tortoise**

On January 2, 2013, the BLM and the USFWS issued a Programmatic Biological Opinion (PBO) under Section 7 of the Endangered Species Act for the effects to threatened and endangered species and their critical habitat that may occur as a result of actions proposed by the BLM Southern Nevada District Office. Under this PBO, federal actions that affect less than 20 acres can be permitted under the PBO by

the BLM. Actions that affect more than 20 acres require an action to append the PBO.

As this project will affect over 20 acres of federal land, the BLM has submitted an action appended to the BLM's Southern Nevada District PBO. Final desert tortoise mitigation measures would be determined by the USFWS in the response to the action to append the PBO. A ROW grant will not be issued until consultation with the USFWS is complete (i.e. the USFWS approves the action to append the PBO). Mitigation measures will be implemented as part of the project to avoid, or reduce environmental impacts associated with the Proposed Action to federal or state protected species. Mitigation measures and actions are to comply with the USFWS guidelines, the Clark County Multi-Species Habitat Conservation, and Nevada Department of Wildlife (NDOW) standards.

Section 7 consultation was conducted for Alternative 4 and is covered under the Biological Opinion (BO) File No. 84320-2013-F-0100 append to the BLM Programmatic BO (84320-2010-F-0365), contingent on compliance with the attached terms and conditions and uploaded fee payment and reporting forms (Appendix C). If another Alternative is selected, further consultation is required with the US Fish and Wildlife Service.

Associated development on private lands (i.e. those owned by the City of Boulder City) would utilize the existing Clark County MSHCP Section 10 permit for potential take of desert tortoise and limit disturbance to desert tortoise habitat to the minimum extent possible.

BSP would be required to adhere to the applicable mitigation measures as described in the PBO. A summary of the mitigation measures proposed by the BLM are presented below. Refer to Appendix C for the complete mitigation measures as described in the PBO (Note: The numbers of the mitigation measures below directly corresponds to those present in the PBO).

- **1.a. Field Contact Representative**

BLM shall ensure an FCR is designated for each contiguous stretch of construction activity. The FCR will serve as an agent of the BLM and the USFWS to ensure that all instances of noncompliance or incidental take are reported.

- **1.b. Authorized desert tortoise biologist**

An authorized desert tortoise biologist will serve as a mentor to train desert tortoise monitors and shall approve monitors to conduct specific activities based on the monitor's demonstrated skills, knowledge, and qualifications. An authorized desert tortoise biologist is responsible for errors committed by desert tortoise monitors.

- **1.d. Desert tortoise monitor**

Desert tortoise monitors assist on project activities to ensure proper implementation of protective measures, and record and report desert tortoises and sign observations in accordance with Term and Condition 1.d.

- **1.e. Desert tortoise education program**

A desert tortoise education program shall be presented by an authorized desert tortoise biologist to all personnel on-site during construction activities.

- **1.f. Vehicle travel**

Project personnel shall exercise vigilance when commuting to the project area to minimize

risk for inadvertent injury or mortality to desert tortoises encountered on paved and unpaved roads leading to and from the project site.

- **1.h. Desert tortoise clearance**

Prior to surface-disturbing activities, an authorized desert tortoise biologist, potentially assisted by desert tortoise monitors, shall conduct a clearance survey to locate and remove all desert tortoises from harm's way or from areas to be disturbed, using techniques that provide full coverage of all areas (USFWS 2009).

- **1.i. Desert tortoise in harm's way**

Any project-related activity that may endanger a desert tortoise shall cease if a desert tortoise is found on the project site.

- **1.j. Handling of desert tortoises**

Desert tortoises shall only be moved by an authorized desert tortoise biologist or desert tortoise monitor (see restrictions in Term and Condition 1.e.) solely for the purpose of moving the tortoises out of harm's way.

- **1.k. Penning**

Penning shall be accomplished by installing a circular fence, approximately 20 feet in diameter, to enclose and surround the tortoise burrow. All instances of penning or issues associated with penning shall be reported to the USFWS within 3 days.

- **1.o. Dust control**

Water applied to the construction ROW and topsoil piles for dust control shall not be allowed to pool. Similarly, leaks on water trucks and water tanks will be repaired to prevent pooling water.

- **1.q. Power transmission projects**

Transmission line support structures and other facility structures shall be designed to discourage their use by raptors for perching or nesting (*e.g.*, by use of anti-perching devices) in accordance with the most current Avian Power Line Interaction Committee guidelines (see terms and conditions 2.b and 2.c.).

- **1.r. Timing of construction**

The BLM shall ensure that when possible, the project proponent schedules and conducts construction, operation, and maintenance activities within desert tortoise habitat during the less-active season (generally October 31 to March 1) and during periods of reduced desert tortoise activity (typically when ambient temperatures are less than 60 or greater than 95 °F).

- **2.a. Litter control**

A litter-control program shall be implemented to reduce the attractiveness of the area to opportunistic predators such as desert kit foxes, coyotes, and common ravens.

- **2.b. Deterrence**

The applicant will implement best management practices to discourage the presence of predators on-site (coyotes, ravens, etc.).

- **2.c. Monitoring and predator control**

The applicant will inspect structures annually for nesting ravens and report observations of raven nests to the USFWS.

- **3.a. Habitat protection plans**

BLM shall ensure that the applicants develop and implement an approved fire prevention and response plan, erosion control plan, and a weed management plan approved by BLM prior to surface disturbance.

- **3.b. Restoration plan**

BLM shall ensure that the applicant develop and implement a restoration/reclamation plan.

- **3.c. Minimizing new disturbance**

Cross-country travel outside designated areas shall be prohibited.

- **3.d. Weed prevention**

Vehicles and equipment shall be cleaned with a high pressure washer prior to arrival in desert tortoise habitat and prior to departure from areas of known invasive weed and nonnative grass infestations to prevent or at least minimize the introduction or spread these species.

- **3.e. Chemical spills**

Hazardous and toxic materials such as fuels, solvents, lubricants, and acids used during construction will be controlled to prevent accidental spills.

- **3.f. Residual impacts from disturbance**

BLM shall collect remuneration fees to offset residual impacts to desert tortoises from project-related disturbance to desert tortoise habitat.

The current rate is \$824 per acre of disturbance, as indexed for inflation.

- **7.a. Desert tortoise deaths**

The deaths and injuries of desert tortoises shall be investigated as thoroughly as possible to determine the cause. The USFWS and appropriate state wildlife agency must be verbally informed immediately and within 5 business days in writing.

- **7.b. Non-compliance**

Any incident occurring during project activities that was considered by the FCR, authorized desert tortoise biologist, or biological monitor to be in non-compliance with this biological opinion shall be immediately documented by an authorized desert tortoise biologist.

- **7.d. Project reporting requirements**

Quarter (non-appended actions), annual, and comprehensive final project reports will be submitted to BLM and the USFWS's Nevada Fish and Wildlife Office in Las Vegas.

- **7.e. Operation and maintenance**

A written assessment report shall be submitted annually to the USFWS outlining the operation and maintenance activities that occurred over the past year.

- **7.f. Restoration monitoring**

Vegetation restoration success shall be monitored by project proponent and reported to BLM and the USFWS. Monitoring will include both qualitative and quantitative data collection and analysis.

Minimization measures in the above biological opinion contain measures to reduce potential impacts to desert tortoise. This notice will serve as the Section 7 Determination and no additional paperwork will be provided (Sec Y Log #NV-052-13-084). The following has been added to the BO, and therefore will be implemented as a mitigation measure.

Trenches: All trenches and holes will be covered, fenced, or backfilled to ensure desert tortoise do not become trapped unless alternate measures are in place as agreed by BLM and the USFWS. If trenches or holes are to remain open during construction, they will be checked for tortoise as least four times a day, at the start of day, at mid-morning, early afternoon, and at the end of the work day. The trenches or holes will also be checked immediately before backfilling regardless of the season. Any tortoise that is found in a trench or excavation shall be promptly reported and removed by an authorized desert tortoise biologist in accordance with handling protocols (USFWS 2009). If the authorized desert tortoise biologist is not allowed to enter the trench for safety reasons, the alternative method of removal must have prior approval by USFWS.

Additional, impacts to tortoise will be reduced by implementation of BMPs from the Eldorado Valley Transmission and Utility Corridor PEA, specifically BIO-4: Worker Environmental Awareness Program, BIO-5: Desert Tortoise Measures, and BIO-6: Water Usage (Appendix B).

### **3.8.3.2 *Other Reptile Species***

To reduce impacts on Gila Monsters, the applicant would implement BMPs from the Eldorado Valley Programmatic EA, specifically BIO-9: Gila Monster and Chuckwalla Measures (Appendix B). Additional BMPs from the Eldorado Valley Programmatic EA such as BIO-1: Avoidance, BIO-2: Preconstruction Surveys, as well as others would reduce impacts on other special status reptiles (Appendix B).

### **3.8.3.3 *Migratory Birds***

To reduce impacts to migratory birds, BMPs would be implemented as described in the Eldorado Valley Transmission and Utility Corridor PEA BMPs, specifically BIO-11: Breeding Season Preconstruction Surveys, BIO-12: Schedule Construction Outside of Breeding Season, BIO-13: Vegetation Removal During Nesting Season, and BIO-15: Additional BMPs for Migratory Birds and Raptors (Appendix B). Additionally to reduce impacts to the Western Burrowing Owl, BMP-8 would be implemented (Appendix B).

### **3.8.3.4 *Bats***

No mitigation is proposed for loss of bat foraging habitat.

### **3.9 Cultural Resources**

#### **3.9.1 Affected Environment**

##### **Regulatory Framework**

Section 106 of the National Historic Preservation Act, as amended (16 USC 40 *et seq.*), requires federal agencies to take into account the effects of their actions on properties listed or eligible for listing on the National Register of Historic Places (NRHP). The National Park Service defines archaeological and historic resources as “the physical evidences of past human activity, including evidences of the effects of that activity on the environment. What makes a cultural resource significant is its identity, age, location, and context in conjunction with its capacity to reveal information through the investigatory research designs, methods, and techniques used by archeologists.” Ethnographic resources are defined as any “site, structure, object, landscape, or natural resource feature assigned traditional legendary, religious, subsistence, or other significance in the cultural system of a group traditionally associated with it” (National Park Service 1997).

The BLM’s Proposed Action is subject to compliance with Section 106 of the NHPA as it is considered a federal undertaking. Section 106 requires federal agencies to consider the effects of their actions on historic properties and to consult with the State Historic Preservation Office. SHPO concurs that the cultural resources are not eligible for NRHP under the Secretary’s criteria (Appendix D).

##### **Area of Potential Effects**

The area of potential effects (APE) is defined in 36 CFR 800.16(d) as the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. The APE is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking. The APE for the project includes 1.5-3.3 miles of transmission lines and infrastructure for the four alternatives, as well as the solar facility area. The proposed transmission line is located within a BLM designated right-of-way and has been surveyed numerous times from 1975 to 2008. Only one of these surveys located a site within the proposed right-of-way, and the site was collected during survey. It is therefore considered to no longer exist.

#### **3.9.2 Environmental Consequences**

##### ***3.11.2.1 No Action Alternative***

Under the no action alternative, the transmission lines would not be constructed, and there would be no project induced changes in the cultural resources in the project area.

##### ***3.11.2.2 Alternative 1***

Because no sites eligible for listing on the NRHP were found during survey of this alternative, no effects to cultural resources are anticipated.

##### ***3.11.2.3 Alternative 2***

Because no sites eligible for listing on the NRHP were found during survey of this alternative, no effects to cultural resources are anticipated.

#### **3.11.2.4 Alternative 3**

Because no sites eligible for listing on the NRHP were found during survey of this alternative, no effects to cultural resources are anticipated.

#### **3.11.3 Alternative 4**

Because no sites eligible for listing on the NRHP were found during survey of this alternative, no effects to cultural resources are anticipated.

#### **3.11.4 Connected Action**

Sites that may be recommended eligible for listing on the NRHP were recorded during survey for the adjacent solar generation facility. If the solar field is constructed, impacts to NRHP eligible sites would occur over the larger area associated with the dry lake bed. A Cultural Resources Treatment Plan outlining mitigation measures would be developed to reduce potential effects upon these resources to an acceptable level.

#### **3.11.5 Mitigation**

No mitigation measures would be necessary for either of the proposed transmission line alternatives. Applicable BMPs from the Eldorado Valley Transmission and Utility Corridor PEA for cultural resources are listed in Appendix B.

### **3.10 Land Use**

#### **3.10.1 Affected Environment**

The proposed facility is located in a sparsely populated area of Clark County, Nevada, approximately 7 miles southwest of the incorporated City of Boulder City. Surrounding land is characterized primarily by power generation facilities, energy transmission infrastructure, transportation infrastructure, and open space. The BLM-managed utility corridors, where the transmission lines would be mostly located, contain several ROWs for transmission lines, pipelines, and related facilities, which is consistent with Management Objective RW-1 in the Las Vegas RMP (BLM 1998). Within the last 12 months, several private parties have applied to construct new transmission lines within the corridors.

The proposed solar generation facility is located within Boulder City's Solar Enterprise Zone. The transmission line routes would follow existing roads and transmission line routes where possible, traversing a flat desert landscape typical of the area. The route would originate at the proposed solar generation facility in the southwestern part of the project area and terminate at the existing Marketplace Substation, and/or Eldorado Substation, or McCullough Switching Station. The transmission line routes would be contained within BLM-administered utility corridors.

#### **3.10.2 Environmental Consequences**

##### ***3.10.2.1 No Action Alternative***

Under the no action alternative, the transmission lines would not be constructed; therefore, no project-related impacts to land use would occur.

##### ***3.10.2.2 Alternative 1***

Development under Alternative 1 would not prevent other authorized land uses and would not impact future land use authorizations or ROWs in the project area, including any new transmission lines constructed by other private parties within the BLM-managed utility corridors.

##### ***3.10.2.3 Alternative 2***

The impacts under Alternative 2 would be the same as described under Alternative 1.

##### ***3.10.2.4 Alternative 3***

The impacts under Alternative 3 would be the same as described under Alternative 1.

##### ***3.10.2.5 Alternative 4***

The impacts under Alternative 3 would be the same as described under Alternative 1.

##### ***3.10.2.6 Connected Action***

All development on Boulder City property would occur on lands zoned ER or Energy Zone, which is the appropriate zoning classification for the proposed solar energy generation use (Boulder City 2011).

#### **3.10.3 Mitigation**

Because the proposed transmission lines would not impact other land uses within the BLM-managed utility corridor no mitigation measures are necessary. Applicable BMPs from the Eldorado Valley Transmission and Utility PEA for land-use are presented in Appendix B.

### 3.11 Visual Resources

#### 3.11.1 Affected Environment

The landscape character of Eldorado Valley is typical of the southern Great Basin. Regional topography consists of mountain ranges arranged in a north-south orientation, separated by broad valleys. The Eldorado Valley extends south of Henderson and the River Mountains between the McCullough Mountain Range and the Eldorado Mountain Range. These mountain ranges are dominant visual features. Another interesting feature near the proposed project area is the Dry Lake Bed, which is a flat area clear of vegetation, which has a contrasting white color from the rest of the Valley.

Visible manmade features in the areas include U.S. Highway 95, two existing solar facilities, over 10 transmission lines, gravel quarries, and 3 electrical substations. Because of the amount of manmade cultural modifications, the scenic quality has been altered. An existing solar array adjacent to the proposed project area is clearly visible from U.S. 95 from the junction of U.S. 93 and south toward Laughlin. Unimproved and dirt roads cross the area, and recreational vehicle use in the dry lake bed has modified the natural environment in some locations.



**Figure 3.11-1. Representative View in the Project Area**

#### 3.11.2 Environmental Consequences

##### 3.11.2.1 *No Action Alternative*

Under the no action alternative, the transmission lines and facilities would not be constructed; therefore, no project-related impacts to visual resources would occur.

##### 3.11.2.2 *Alternative 1*

The RMP Visual Resource Management classification for utility corridors is Class III, the objective of this management classification is to partially retain the existing character of the landscape. The level of

change to the characteristic landscape should be moderate. As this project would be within an existing utility corridor, the proposed transmission line would parallel existing transmission lines within the BLM-managed utility corridor. Therefore, no substantive change in visual characteristics would occur as a result of the proposed project.

**3.11.2.3 *Alternative 2***

The impacts from Alternative 2 would be the same as those described under Alternative 1.

**3.11.2.4 *Alternative 3***

The impacts from Alternative 3 would be the same as those described under Alternative 1.

**3.11.2.5 *Alternative 4***

The impacts from Alternative 4 would be the same as those described under Alternative 1.

**3.11.2.6 *Connected Action***

The proposed project would alter the appearance of the area from vacant land to developed land; however, the solar facility would be located near existing solar facilities and substations. No private residences, schools, or other community facilities are near the proposed project area so the visual impacts from the solar facility would be minimal.

**3.11.2.7 *Mitigation***

Applicant would adhere to BMPs. Applicable BMPs from the Eldorado Valley Transmission and Utility PEA for visual are presented in Appendix B.

## **3.12 Recreation**

### **3.12.1 Affected Environment**

Recreation in the area mostly consists of off-highway vehicle (OHV) usage throughout the area, especially near the Eldorado Dry Lake bed. OHV disturbance is also apparent along the utility corridors. Adjacent Boulder City lands are utilized primarily for energy development, though the Boulder City Conservation Easement (BCCE) allows casual recreational uses, including hiking, sightseeing, and driving for pleasure at speeds below 25 miles per hour. The BCCE overlaps portions of the transmission line routes under both alternatives.

The project area is located within NDOW Hunt Unit 263 (NDOW 2012). Big game hunting in this Hunt Unit consists of desert bighorn sheep (*Ovis canadensis nelsoni*), which are predominantly found at higher elevations in the McCullough Range.

### **3.12.2 Environmental Consequences**

#### **3.12.2.1 Alternative 1**

Because bighorn sheep are only found at higher elevations in the adjacent mountain ranges, construction and operation of the transmission line would not affect hunting in the area.

Construction of the transmission line would not affect OHV recreation in the area because only small areas would be utilized for construction activities. These areas would be limited to 400 square feet for installation of each transmission line pole and two 2-acre wire-pulling sites. Contained within the temporary construction site would be 27 square feet of permanent disturbance per structure. Each of the areas would be flagged and marked to alert recreationists to possible dangers.

#### **3.12.2.2 Alternative 2**

Under Alternative 2, impacts would be the same as those described under Alternative 1.

#### **3.12.2.3 Alternative 3**

Under Alternative 3, impacts would be the similar to those described under Alternative 1, but with a larger 40,000 square foot temporary footprint for each transmission structure installation. Contained within the temporary construction site would be 360 square feet of permanent disturbance per structure.

#### **3.12.2.4 Alternative 4**

Under Alternative 4, impacts would be the similar to those described under Alternative 1, but with a larger 40,000 square foot temporary footprint for each transmission structure installation. Contained within the temporary construction site would be 360 square feet of permanent disturbance per structure.

#### **3.12.2.5 Connected Action**

The solar generation facility would be partially located on the dry lakebed. Though the site of the proposed solar generation facility would be fenced, OHV users could continue to access some of the dry lakebed and other OHV routes throughout the areas. The southern portion of the dry lakebed would no longer be open to recreational users; however, this area is private land owned by the City of Boulder City and zone for solar development not for recreational activities. Although, OHV recreational opportunities on the dry lakebed would be reduced, no designated recreational area would be affected.

### **3.12.3 Mitigation**

As no impacts are anticipated; no mitigation measures are proposed.

### 3.13 Noise

#### 3.13.1 Affected Environment

Noise sources in the project area include wind, weather, and wildlife; the existing power generating stations; traffic on U.S. Highway 95; and occasionally off-road vehicles. Ambient sound levels typical of rural areas range between 30 and 40 dBA (dBA represents A-weighted decibels, which measure sound in a manner that emphasizes the response of the human ear) (USEPA 1978).

No sensitive noise receptors are located within one mile of the project site. Sensitive noise receptors are generally considered to be homes, hospitals, schools, libraries, parks, and designated recreational areas.

The Noise Control Act of 1972, as amended by the Quiet Communities Act of 1978 (42 USC §§ 4901-4918), delegates to the states the authority to regulate environmental noise. It also directs government agencies to comply with local community noise statutes and regulations, and to conduct their programs to promote an environment free of any noise that could jeopardize public health or welfare.

The Boulder City Municipal Code governs construction-related noise in the Energy Zone.

#### 3.13.2 Environmental Consequences

##### 3.13.2.1 Alternative 1

##### Construction

As previously mentioned, no sensitive receptors are within one mile of the project; therefore, no impacts to sensitive receptors would occur.

The primary effect on the existing environment would be attributed to noise generated during construction activities. Typical construction equipment noise levels are presented in Table 3.13-1.

**Table 3.13-1. Noise Levels at Various Distances from Typical Construction Equipment**

Construction Equipment	Noise Level $L_{eq(1-h)}$ <sup>a</sup> at Distances (dBA)					
	50 ft	250 ft	500 ft	1,000 ft	2,500 ft	5,000 ft
Bulldozer/scrapper	85	71	65	59	51	45
Concrete mixer	85	71	65	59	51	45
Concrete pump	82	68	62	56	48	42
Crane, derrick	88	74	68	62	54	48
Crane, mobile	83	69	63	57	49	43
Front-end loader	85	71	65	59	51	45
Generator	81	67	61	55	47	41
Grader	85	71	65	59	51	45
Shovel	82	68	62	56	48	42
Truck	88	74	68	62	54	48

Source: Final Programmatic EIS on Wind Energy Development on BLM-Administered Lands in Western U.S., Table 4.5-5.5.2-1 (BLM 2005).

Note: An assumed propagation rate is 6 dBA per doubling of distance.

<sup>a</sup>  $L_{eq(1-h)}$  is the equivalent steady-state sound level that contains the same varying sound level during a 1-hour period.

Construction noise may affect recreational or other visitors that may be in the area; however, this would be short term and noise impacts are expected to be below Clark County and Boulder City noise thresholds.

### **Operation**

The potential sources of long-term operational noise would stem from the operation of electrical equipment primarily corona noise from the 230kV or 500kV transmission lines.

Transmission line corona noise is the noise generated from the strong electric field at the surface of a high-voltage power line conductor ionizing the nearby air, resulting in an audible, continuous, low-level noise or “buzz” during operation of transmission lines and substation equipment. The amount of corona produced by a transmission line is a function of the voltage of the line, the diameter of the conductor, the elevation of the line above sea level, the condition of the conductor and hardware, and the local weather conditions. Noise produced from the transmission line would not be audible at the closest sensitive receptor, which is more than 1 mile from the proposed project.

#### **3.13.2.2 *Alternative 2***

Under Alternative 2, impacts resulting from noise would be the same as those described under Alternative 1.

#### **3.13.2.3 *Alternative 3***

Under Alternative 3, impacts resulting from noise would be the same as those described under Alternative 1.

#### **3.13.2.4 *Alternative 4***

Under Alternative 4, impacts resulting from noise would be the same as those described under Alternative 1.

#### **3.13.2.5 *Connected Action***

Construction-related noise impacts at the solar field site would be similar to those experienced during construction of the transmission lines but in a more concentrated area.

Noise from operation of the solar facility would be limited to vehicle use and occasional equipment use during maintenance activities. These maintenance activities would be intermittent and would have little to no noise effects on visitors or recreationists.

### **3.13.3 Mitigation**

Noise generated from construction and operation of the transmission line would not be audible at the nearest sensitive receptor; therefore, no mitigation is required.

### 3.14 Socioeconomics

The region of influence (ROI) for the Proposed Action is Clark County, Nevada. Selected socioeconomic indicators for the ROI and comparative data for the state are presented in Table 3.14-1.

**Table 3.14-1. Selected Socioeconomic Indicators for the Region of Influence and State of Nevada**

Geographic Area	Population (2010)	Population (2000)	Labor Force	Housing Units	Owner-Occupied Housing Units (percent)	Housing Vacancy Rate (percent)	Median Home Price
Clark County	1,951,269	1,375,765	957,102	775,520	59.0	13.5	\$278,500
Nevada	2,700,551	1,998,260	1,329,085	1,089,982	60.7	13.4	\$275,300

Source: US Census Bureau 2000, 2009

#### 3.14.1 Environmental Consequences

##### 3.14.1.1 No Action Alternative

Under the no action alternative, the transmission lines would not be constructed, and there would be no change in socioeconomic conditions. Temporary socioeconomic benefits from construction would not be realized.

##### 3.14.2 Alternative 1

The proposed project would have a direct beneficial impact on the local and regional economy during the construction period. On average, 10 to 20 construction and supervisory personnel would be required on site to construct the transmission lines. The worker pool is expected to draw from Clark County. Operation of the transmission lines would be managed, remotely monitored, and controlled by BSP staff.

##### 3.14.3 Alternative 2

The impacts under Alternative 2 would be the same as those described in Alternative 1.

##### 3.14.4 Alternative 3

The impacts under Alternative 3 would be the same as those described in Alternative 1.

##### 3.14.5 Alternative 4

The impacts under Alternative 4 would be the same as those described in Alternative 1.

##### 3.14.6 Connected Action

The connected action would have a direct beneficial impact on the local and regional economy during the construction period. On average, 80 to 120 personnel would be needed to construct the solar field.

Operation of the solar field would be managed, remotely monitored, and controlled by BSP staff. When fully operational, approximately five additional employees would be hired for on-site maintenance of the proposed facility. Occasionally, there would be up to ten workers on site employed by BSP to conduct periodic maintenance or repair activities. The addition of five permanent jobs associated with the

operation of the Boulder Solar Power Project would not represent a significant population increase. Because the potential long-term employment opportunities are relatively limited, the Proposed Action is not expected to directly or indirectly impact local housing market, schools, social services, or overall income and employment levels.

### **3.14.7 Mitigation**

Only beneficial impacts are anticipated to result from construction of the proposed transmission line; therefore, no mitigation measures are warranted.

### **3.15 Waste Management and Hazardous Materials**

#### **3.15.1 Existing Environment**

A Phase I Environmental Site Assessment was conducted of the project site in general accordance with ASTM E-1527-05 (Ninyo & Moore, 2012). That study included a review of the site history, historical aerial photographs, and review of environmental databases. The site is described as vacant desert land and transmission line corridors. A natural gas pipeline and associated access road transects the subject site near the western boundary. No hazardous substances were observed on the property during the site reconnaissance and no hazardous substances were historically used or stored on the property. No on-site recognized environmental conditions (RECs) or off-site RECs were identified during that study. Ninyo & Moore (2012) concluded that no further investigation is warranted at this site.

The City of Boulder City operates a Class I Municipal Landfill for municipal solid waste. Municipal solid waste is collected under contract from residences and businesses and disposed of at the landfill located at the end of Utah Street in the southeast portion of the city. In addition, Republic Services operates the Apex Class I Landfill that operates under contract to handle commercial and municipal wastes from incorporated and un-incorporated areas of the Las Vegas Valley.

#### **3.15.2 Environmental Consequences**

##### ***3.15.2.1 Alternative 1***

The construction of the proposed transmission line will generate solid waste in the form of soil and brush from limited clearing and grubbing, building materials from installation of the transmission line support structures, and the operation and maintenance of transmission lines. Solid waste generated during construction will be transported for disposal at a licensed waste management facility.

##### ***3.15.2.2 Alternative 2***

The impacts under Alternative 2 would be the same as those described in Alternative 1.

##### ***3.15.2.3 Alternative 3***

The impacts under Alternative 3 would be the same as those described in Alternative 1.

##### ***3.15.2.4 Alternative 4***

The impacts under Alternative 4 would be the same as those described in Alternative 1.

##### ***3.15.2.5 Connected Action***

Construction of the solar facility would generate solid waste in the form of soil and brush from clearing and grubbing (of the 1,550 acre site), building materials from installation of the solar generating facilities, the operation and maintenance facilities, and access road. Solid waste generated during construction will be transported for disposal at a licensed waste management facility.

The construction and operation of the proposed facility is not expected to require the transportation, use, or generation of hazardous materials or hazardous wastes that could create a significant hazard to the public or environment. The types of materials that would potentially be present during construction would be minimal volumes of vehicle fuels, lubricating oils, paints, adhesives, and sealants. Under ordinary use, none of these materials would result in the generation of hazardous wastes. As the

construction contractors would be required to comply with environmental and work-place safety laws and procedures, no significant risks to public health and safety would be expected from the Proposed Action.

### **3.15.3 Mitigation Measures**

A solid and hazardous waste management plan will be prepared and implemented for both construction and operation of the proposed project and connected action. Included in the solid and hazardous waste management plans will be stipulations and procedures regarding compliance with federal, state, and local regulations for waste minimization, storage, and disposal. The construction contractor shall prepare BMPs that describe the methods for working with hazardous materials during construction. Construction contractor will prepare a Spill Prevention, Control, and Countermeasure (SPCC) Plan that describes methods for working with hazardous materials during construction, measures for avoiding spills, and mitigation measures if a spill were to occur. Additionally, relevant BMPs from the Eldorado Valley Transmission and Utility PEA would be implemented (Appendix B):

## 4 Cumulative Impacts

In 40 CFR 1508.7, the Council on Environmental Quality defines cumulative impacts as “impacts on the environment which result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions.” Plainly stated, NEPA requires the consideration of cumulative impacts, which are the incremental impacts of an action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal).

This cumulative impacts analysis addresses the cumulative effects on air quality and climate, water resources, soils, vegetation (including special status plant species and invasive species/noxious weeds), wildlife (including migratory birds and special status species), visual resources, land use, and socioeconomics that the proposed project would have in conjunction with other past, present, and reasonably foreseeable actions in the project area. The proposed project would not impact the remainder of the resources evaluated in Chapter 3, and these resources are therefore not included in the cumulative analysis.

### 4.1 Past and Present Actions

Current land use activities in the project vicinity include energy production, energy transmission, and dispersed recreation. In the past, mining claims were active in the vicinity, but there are currently no active mining claims. Most of the land in the Eldorado Valley is owned by Boulder City and deemed the “Energy Zone” which is zoned for energy production. There are four solar energy generation facilities south of the project site: The 480 MW Eldorado facility, the 48 MW Copper Mountain Solar I facility, the 150 MW Copper Mountain II (under construction) (all operated by Sempra Generation), and Nevada Solar One, a 64 MW facility, operated by Acciona North America. Several electrical substations (including the Marketplace and Eldorado substations, and the McCullough Switching Station) exist in the area to facilitate energy transmission. Refer to the Eldorado Valley Programmatic EA for a detailed description of the existing facilities in the Boulder City Energy Zone.

### 4.2 Reasonably Foreseeable Projects

Reasonably foreseeable future actions are considered those actions that are known or could reasonably be anticipated to occur within the analysis area for each resource, within a time frame appropriate to the expected impacts from the Proposed Action. Refer to Table 5.1 in the Eldorado Valley Transmission and Utility Corridor PEA for a detailed description of the reasonably foreseeable future actions; a summary of those projects in the Boulder City’s Energy Zone is included below include the following:

- **Boulder City Solar Power Project** - Techren is proposing to develop a 2,200 acre solar facility that will generate up to 300 MW of energy; Under BLM policy, this is considered a “connected action.”
- **Copper Mountain Solar North Project** - Sempra Generation is proposing to develop 1,400 acres for a solar facility that will generate up to 220 MW. Additionally, Sempra is proposing to build a transmission line that would connect the solar facility to the McCullough and Marketplace Substations.
- **Townsite Solar Project** – This area has been leased by the City of Boulder City to Korean Western Power Company for solar facility development. It can be reasonably anticipated that the

entire 880-acre site will be developed. No further details are available at this time.

- **Nevada Solar Two** – Acciona is proposing a 95 MW facility of approximately 553 acres adjacent to the Nevada Solar One Facility
- **Nevada Solar Expansion** – Acciona is proposing an expansion to the west of the existing Solar One Facility on 133 acres. The MWs for the facility are not known at this time.
- **Transwest Express** – Transwest Express, LLC is proposing a 600 kV transmission line that would originate in Wyoming and would terminate at the McCullough Switching Station and Eldorado and Marketplace Substations.
- **Eldorado-Ivanpah Transmission Project** – Southern California Edison is proposing to reconductor an existing 35-mile 220-kV transmission line that terminates at the Eldorado Substation.

### 4.3 Air Quality and Climate

Construction of numerous solar facilities in the Boulder City Energy zone could have both short term and long term cumulative adverse effects on air quality. As stated in Section 5.4.9 of the Eldorado Valley Transmission and Utility Corridor PEA, future projects may have overlapping construction schedules and would contribute to temporary increases in ozone and PM<sub>10</sub>, as well as GHGs during construction. Removal of the vegetation that keeps soil in place would increase air-borne particulate matter in the Eldorado Valley. BMPs presented in Appendix B, would reduce impacts to temporary regional air quality.

Operation of the proposed solar facilities and any future solar facilities in the Boulder City Energy Zone would have a cumulative beneficial impact on air quality because operation of solar generation facilities results in a reduction in emissions compared to other kinds of electricity generation facilities as well as less long-term emission than recreational OHV use.

### 4.4 Geology, Minerals, and Soils

Some potential for soil erosion exists from the proposed solar field site and other future solar facilities due to soil disturbance and removal of vegetation. The proposed solar field site would utilize BMPs such as restoration and revegetation presented in Appendix B for soil protection thereby minimizing the contribution to cumulative impacts. In addition, a fugitive dust plan would be developed with mitigation measures to reduce the potential for fugitive dust.

### 4.5 Water Resources

Preparation of sites for solar energy facilities would typically include site grading and construction of channels, berms, or retention basins, resulting in potential impacts to area hydrology. Maintenance of historic drainage paths, as well as drywells to ensure percolation of water from retention basins would minimize the contribution to cumulative impacts from the proposed solar field project.

As discussed in Section 5.4.11 of the Eldorado Valley Transmission and Utility Corridor PEA, cumulative impacts on groundwater resources could be significant, depending upon the source of water required for construction and operations. For linear projects, water required during construction is generally used for dust suppression and negligible quantities of water are required during operation. All projects proposed within the project area would be solar projects. Although projects are expected to use

water from a local pipeline for dust suppression and other uses during construction, the exact quantity of water available through this pipeline is unknown. The potential projects in the Eldorado Valley may have overlapping schedules and could cumulatively use up to 600 acre feet of water per year during construction. This could be a cumulative impact if the acre feet of water required for construction exceeds available water supplies.

#### **4.6 Vegetation**

Past, present and future solar development in the valley would contribute incrementally to vegetation disturbance and removal. In total, approximately 6,670 acres of predominately dry lake and Mojave creosote bush scrub vegetation would be removed for solar energy development and associated transmission lines.

Construction of these projects may introduce weed species and/or would contribute to the spread of weed species in the Eldorado Valley. If projects in the region were not successfully re-vegetated after decommissioning, native vegetation communities would be lost, or native vegetation communities might be converted to communities that are dominated by invasive, nonnative species. Increased presence of invasive annual grass species could also promote unwanted wildland fires, which are very destructive to habitat and native vegetation. Infrastructure may become more at risk to wildland fire occurring on adjacent lands over time.

#### **4.7 Special Status Plant Species**

In total, up to approximately 6,670 acres of cacti, yucca, and rosy twotone beardtongue habitat would be removed; however this is not a significant amount of habitat giving the range of these species. Additionally, mitigation measures as described in Appendix B would reduce impacts on species found in the area.

#### **4.8 Invasive Species / Noxious Weeds**

The Proposed Action, in conjunction with other projects, would result in cumulative impacts on native vegetation communities, including the potential spread of noxious and/or invasive weeds with the potential to adversely affect the proposed project area and adjacent lands. The effects will be considered negligible if stipulations are met to identify, prevent, and treat the spread of noxious and or invasive species.

#### **4.9 Wildlife**

As discussed in Section 5.4.4 in the Eldorado Valley Transmission and Utility Corridor PEA, past, present and future solar development in the valley could continue to displace wildlife, and as described under cumulative effects under vegetation, wildlife habitat. Most likely all the solar facilities would be fenced, and therefore, wildlife would be excluded from approximately 6,670 acres of land. This may disrupt normal migratory patterns and fragment habitat. In addition, some of these projects and actions could increase traffic, conflicts with humans, and competition for available habitat. Some of these actions could also decrease forage quality and quantity as described under Section 4.6 Vegetation.

#### **4.10 Special Status Species**

As discussed in Section 5.4.2 of the Eldorado Valley Transmission and Utility Corridor PEA, adverse

impacts include injury to and death of individuals during construction and long-term or permanent impacts on various species due to habitat loss and fragmentation. For example, current potential cumulative projects would convert 6,670 acres of potential habitat to industrial uses. Constructing new transmission or telecommunications lines would provide common ravens with perches, which would increase predation on desert tortoise and other species. The introduction of new buildings and structures related to energy development projects would also provide perches contributing to long-term impacts. However, Section 7 Consultation would be required for each of these reasonable foreseeable projects reducing the contribution to cumulative impacts during operation.

#### **4.11 Migratory Birds**

As presented in Section 5.4.3 of the Eldorado Valley Transmission and Utility Corridor PEA, adverse impacts on migratory bird species include injury to and death of individuals during construction and cumulative impacts on various species due to habitat loss and fragmentation. In particular, disturbing 6,670 acres of land to construct solar projects would destroy nesting and foraging habitat; crush nests; and harm, kill, or displace individuals during construction; these impacts would likely be unavoidable, even with the demonstration of mitigation required to acquire project-specific take permits. However, for Proposed Actions within BLM transmission and utility corridors and with the implementation of BMPs discussed in Appendix B, the contribution of projects within BLM corridors to cumulative impacts would be reduced.

#### **4.12 Cultural Resources**

Recreational use of the project area currently has moderate adverse impacts on archeological sites, mainly through soil erosion and unauthorized collection, and these are expected to continue in the future. Reasonably foreseeable future actions proposed in the region, such as development of additional solar facilities, are likely to have additional adverse cumulative impacts on cultural resources. While such impacts can be partially mitigated through excavation or other means, archaeology is a destructive process. Once sites have been excavated, any data that is not captured would be lost.

#### **4.13 Land Use**

As stated in Section 5.4.1 in the Eldorado Valley Transmission and Utility Corridor PEA, potential cumulative projects in the area would convert approximately 6,670 acres of land to industrial uses. Development of these cumulative projects would require connection to and possibly upgrades of transmission lines within BLM transmission and utility corridors. Upgrades or construction of new transmission lines within BLM transmission and utility corridors could result in further conversion of land uses in the area to industrial uses; however, impacts from linear infrastructure would be temporary during construction and would have minimal impacts during operation. Because the Proposed Action and reasonably foreseeable future projects, including any additional transmission lines in the Eldorado Valley currently proposed by other parties, would be required to comply with adopted land use plans and zoning requirements, these projects would be consistent with the overall land use policies of the city of Boulder City and would not result in any cumulative effects that would be incompatible with existing or long-term land use patterns. Additionally, implementation of BMPs presented in Appendix B would reduce impacts on surrounding land uses such as recreation.

#### **4.14 Visual Resources**

Development of the Boulder Solar Power Project and reasonably foreseeable solar facilities in Boulder City's Energy Zone would result in a change to the existing visual landscape through the introduction of additional solar generating equipment and associated transmission infrastructure. While the proposed and connected action would alter the visual character of the project area (including the viewshed from portions of the Sloan Canyon National Conservation Area), the cumulative projects described in this analysis have already changed the visual character of the area from rural, open space to a more industrial feel both at the generating facilities and along transmission line routes. However as stated in Section 5.4.7 of the Eldorado Valley Transmission and Utility Corridor PEA, projects within BLM transmission and utility corridors are not likely to introduce significant new features into the area and would not have a cumulatively considerable contribution to long-term visual cumulative impacts.

#### **4.15 Socioeconomics**

The Proposed Action would have a short-term beneficial cumulative effect from the creation of construction jobs during the construction periods. Operation of the proposed facilities and any future solar energy generating facilities in the Boulder City Energy Zone would have a minor beneficial cumulative effect through the number of jobs created. The project would also have a moderate beneficial cumulative effect through the revenue accrued by the City for lease of the land.

## 5 Tribes, Individuals, or Agencies Consulted

Name	Purpose & Authorities' Consultation	Findings and Conclusions
USFWS	Section 7 Consultation	Section 7 Consultation was covered under the Biological Opinion (BO) File No. 84320-2013-F-0100 append to the BLM Programmatic BO (84320-2010-F-0365). If another Alternative is selected further consultation is required with the U.S. Fish and Wildlife Service.
SHPO	Section 106 Consultation	SHPO concurs that the cultural resources are not eligible for NRHP under the Secretary's criteria (Appendix D).

## 6 List of Preparers

Name	Responsibility
<b>BLM</b>	
Bob Ross	Field Manager
Boris Poff	Soils and Water Resources
Marilyn Peterson	Recreation
John Evans	Social and Economic Conditions, Environmental Justice
George Varhalmi	Geology and Minerals,
Lisa Christensen	Air Quality
Amelia Savage	Biological Resources
Fred Edwards	Biological Resources
Lauren Brown	Invasive Weeds
Brenda Wilhight	Lands, Visual Resources
Vanessa Hice	Assistant Field Manager, Division of Lands
Greg Helseth	Project Manager, RECO
Nancy Christ	Environmental Coordinator
John Evans	Environmental Coordinator
<b>NewFields Team</b>	
Albert Ridley <sup>1</sup>	Geology, Soils, and Minerals, Air Quality
Randy Keyes <sup>1</sup>	Geology, Soils, and Minerals, Water Resources, Air Quality
Anne DuBarton	Paleontology, Cultural Resources, Native American Religious Concerns, Land Use, Recreation
Courtney Brooks <sup>1</sup>	Water Resources
Stephanie Locke	Project Manager, Biological Resources, Visual Resources
Sean Milne	Biological Resources
Randy Kyes <sup>1</sup>	Human Health and Safety

<sup>1</sup>Ninyo and Moore

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**Appendix A: Master Title Plats and Descriptions**







**North Access Road and Waterline (Common to All Alternatives)**

**MOUNT DIABLO MERIDIAN, NEVADA**

T. 24 S., R. 63 E.,  
    sec. 15, SW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> and SE<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub>;  
    sec. 16, SE<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub>.

**Alternative 1**

**MOUNT DIABLO MERIDIAN, NEVADA**

T. 24 S., R. 63 E.,  
    sec. 30, lot 6;  
T. 24 S., R. 62 E.,  
    sec. 25, SW<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub>, SE<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub>, SE<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub>, NE<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub>, and SE<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub>;  
    sec. 36, NE<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub>, SE<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub>, NE<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub>, SE<sup>1</sup>/<sub>4</sub>, and SW<sup>1</sup>/<sub>4</sub>;  
T. 25 S., R. 62 E.,  
    sec. 1, lot 8, and SW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub>.

**Alternative 2**

**MOUNT DIABLO MERIDIAN, NEVADA**

T. 24 S., R. 63 E.,  
    sec. 30, lot 6;  
T. 24 S., R. 62 E.,  
    sec. 25, SW<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub>, SE<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub>, SE<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub>, NE<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub>, and SE<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub>;  
    sec. 35, SE<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub>;  
    sec. 36, NE<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub>, SE<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub>, NE<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub>, SW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub>, and SE<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub>;  
T. 25 S., R. 62 E.,  
    sec. 2, lots 5 and 6.

**Alternative 3**

**MOUNT DIABLO MERIDIAN, NEVADA**

T. 24 S., R. 63 E.,  
    sec. 30, lot 6;  
T. 24 S., R. 62 E.,  
    sec. 25, SW<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub>, SE<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub>, SE<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub>, NE<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub>, SW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub>, and SE<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub>;  
    sec. 26, SE<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub>;  
    sec. 35, NE<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub>;  
    sec. 36, NW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub>.

**Alternative 4**

**MOUNT DIABLO MERIDIAN, NEVADA**

T. 24 S., R. 63 E.,  
    sec. 30, lot 6;  
T. 24 S., R. 62 E.,  
    sec. 25, SW<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub>, SE<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub>, SE<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub>, NE<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub>, SW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> and SE<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub>;  
    sec. 26, SE<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub>;  
    sec. 35, NE<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub>;

sec. 36, NE $\frac{1}{4}$ NW $\frac{1}{4}$ , NW $\frac{1}{4}$ NW  $\frac{1}{4}$ , SE $\frac{1}{4}$ NW $\frac{1}{4}$ , NE $\frac{1}{4}$ SW $\frac{1}{4}$ , SW $\frac{1}{4}$  and SE $\frac{1}{4}$ .  
T. 25 S., R. 62 E.,  
sec. 1, lot 8, SW $\frac{1}{4}$ NW $\frac{1}{4}$  and NW $\frac{1}{4}$ SW $\frac{1}{4}$ .

**Appendix B: Best Management Practices**

### Best Management Practices

In addition to the requirements and mitigation measures proposed in this document and in the project permits, the applicant has committed to implementing the BMPs as presented in the Programmatic Environmental Assessment (DOI-BLM-NV-S010-2012-0024-EA). For convenience, these BMPs are presented below.

**AIR-1: Compliance with Clark County DAQ Regulations.** Each ROW application shall include a local air quality management district determination of compliance or authority to construct. Ideally, for more timely review of applications include the draft determination of compliance.

**AIR-2: Air Quality Permits.** The applicant shall apply for, secure, and comply with all appropriate air quality permits for project construction and operations from the Clark County DAQ and from the U.S. EPA, if appropriate, prior to construction mobilization. The appropriate air quality permits should be valid and remain in force for the life of the project.

**AIR-12: Dust Control Plan.** The applicant shall prepare and comply with a dust control plan in cooperation that addresses emissions of fugitive dust during construction and operation of the project. Provisions for monitoring fugitive dust should be part of the dust control plan and follow protocols and requirements established by the Clark County DAQ. The following measures shall be implemented as part of the plan:

Frequent watering or stabilization of excavations, spoils, access roads, storage piles, and other sources of fugitive dust (parking areas, staging areas, other) if construction activity causes persistent visible emissions of fugitive dust beyond the work area.

Use of dust suppressant applications or other suppression techniques to control dust emissions from onsite unpaved roads and unpaved parking areas, as well as to mitigate fugitive dust emissions from wind erosion on areas disturbed by construction activities. When considering use of water or chemical dust suppressants take into account water supply and chemical dust suppressant issues.

- Pre-watering of soils prior to clearing and trenching.
- Pre-moistening of, prior to transport, import and export dirt, sand, or loose materials.
- Covering of all trucks hauling soil, sand, and other loose materials or require all such trucks to maintain at least two feet of freeboard.
- Inspection and cleaning, as necessary, of construction equipment vehicle tires so they are free of dirt prior to entering paved roadways.
- Traffic speed limits on all unpaved site areas to 10 miles per hour.
- Postage and enforcement of speed limits on the project site and all project access roads.
- Provision of gravel ramps of at least 20 feet in length at tire cleaning stations.

- Use of gravel or treatment of unpaved exits from construction sites to prevent track-out to public roadways.
- Directions to all construction vehicles to enter the construction site through gravel or treated entrance roadways, unless alternative routes are approved by the air quality management district.
- Provision of sandbags or other measures in areas adjacent to paved roadways, as specified in the SWPPP, to prevent run-off to roadways.
- Sweeping of paved roads to prevent accumulation of dirt and debris.
- Dedication of water truck or high-capacity hose to any soil screening operations.
- Minimization of drop height of material through screening equipment.
- Reduction of the amount of disturbed area where possible.
- Planting of vegetative ground cover in disturbed areas after construction activities have ceased within a time period that is consistent with the Project's Reclamation Plan.

AIR-13: Wind Erosion Control. The applicant shall ensure wind erosion control techniques (e.g., windbreaks, water, and vegetation) are used on all access and maintenance routes and materials stockpiles that may be disturbed during project maintenance and operation. Use of chemical dust suppressants should be avoided in and around areas occupied by special status species. Any windbreaks used should remain in place until the soil is stabilized or permanently covered with vegetation.

GEO-1: Limit Biological Crust Disturbance. In order to minimize erosion, applicants shall limit biological crust disturbance.

GEO-2: Geotechnical Engineering and Engineering Geology Study, including Active Flood Zone Mapping. A geotechnical engineering and engineering geology study shall be required prior to final design to identify site-specific geologic conditions and potential geologic hazards in sufficient detail to support sound engineering practices. Map active flood zones and lobes of alluvial fans and channels adjacent to and within the BLM transmission and utility corridors.

GEO-3: Minimize Ground Disturbance from Grading for New Access Roads. New access roads, if required, shall be designed to minimize ground disturbance from grading. Roads shall follow natural ground contours as closely as possible, and shall include specific features for road drainage. Soil erosion protection measures shall be outlined in the SWPPP. Measures could include water bars, drainage dips, side ditches, slope drains, and velocity reducers.

W-1: Avoid Placement of Equipment in Intermittent Stream Channels. Applicant shall not keep construction equipment in intermittent stream channels during storm events.

W-2: Erosion Control Plan. Applicant shall create an erosion control plan, which shall be incorporated into the construction bidding specifications to ensure compliance.

W-8: Storm Water Pollution Prevention Plan. As a part of the SWPPP, soil disturbance at construction sites and access roads shall be the minimum necessary for construction and designed to prevent long-term erosion through the following activities: restoration of disturbed soil, revegetation, and/or construction of permanent erosion control structures. New access roads shall be designed to minimize ground disturbance from grading. They shall follow natural ground contours as closely as possible, and shall include specific features for road drainage. Measures could include water bars, drainage dips, side ditches, slope drains, and velocity reducers. Where temporary crossings shall be constructed, they shall be restored and repaired as soon as possible after completion of the discrete action associated with construction.

W-13: Avoid Use of Invasive Species for Soil Stabilization. The applicant shall avoid using invasive species for seeding or planting for erosion control and soil stabilization purposes.

BIO-1: Avoidance. Final tower, spur road, and pipeline trench locations shall be adjusted to avoid sensitive biological resources to the greatest extent feasible.

BIO-2: Preconstruction Surveys. The applicant shall conduct preconstruction surveys using USFWS-approved biologists according to the most current USFWS protocols, where available by species. These surveys shall include surveying brush clearing areas and ground disturbance areas within habitat deemed suitable for sensitive species by a qualified biologist. These surveys shall be conducted for the presence of special-status plants, and the presence of general and special status wildlife species to prevent direct loss of vegetation and wildlife.

BIO-3: Flagging. Biological monitors shall be assigned to construction zones containing sensitive biological resources. The monitors shall be responsible for ensuring that impacts on special-status species, native vegetation, wildlife habitat, or unique resources would be avoided to the fullest extent possible. Where appropriate, monitors shall flag the boundaries of areas where activities would need to be restricted in order to protect native plants and wildlife or special-status species. Those restricted areas shall be monitored to ensure their protection during construction. A minimum of one monitor per crew is needed for construction crews using heavy equipment (e.g., backhoes, large trucks). One roving monitor shall monitor multiple times per day in other active construction zones where heavy equipment is not in use.

BIO-4: Worker Environmental Awareness Program (WEAP). The applicant shall design a WEAP, and all construction crews and contractors shall participate in WEAP training prior to starting work on any project. The WEAP training shall include a review of the special-status species and other sensitive resources that could exist in the project area, the locations of sensitive biological resources and their legal status and protections, and measures to be implemented for avoidance of these sensitive resources. A record of all trained personnel shall be maintained.

BIO-5: Desert Tortoise Measures. The applicant or a qualified consultant shall provide for the following to reduce impacts on desert tortoise:

- The applicant cannot begin construction until issuance and acceptance of a Section 7 USFWS Biological Opinion and NDOW authorization. Additionally, compliance discussions with Clark County and Boulder City must occur prior to construction that resolve and outline the specific

compensation fees or additional mitigation measures needed for loss of desert tortoise habitat outside of BLM transmission and utility corridors within the BCCE. A copy of the USFWS Biological Opinion and documentation of any compliance discussions with Clark County and Boulder City should be provided to the BLM.

- Construction monitoring shall employ a designated field contact representative, approved by the BLM during the construction phase. A field contact representative is defined as a person designated by the project proponent who is responsible for overseeing compliance with desert tortoise protective measures and for coordination with agency compliance officer(s). The field contact representative shall also oversee all compliance documentation including daily observation reports, non-compliance and corrective action reports, and final reporting to any authorized agency upon project completion.
- Construction monitoring shall employ an authorized biologist(s) and qualified biologist(s) approved by the USFWS during the construction phase. At a minimum, qualified biologist(s) shall be present during all activities in which encounters with tortoises could occur. A qualified biologist is defined as a person with appropriate education, training, and experience to conduct tortoise surveys, monitor project activities, provide worker education programs, and supervise or perform other implementing actions. An authorized biologist is defined as a wildlife biologist who has been authorized to handle desert tortoises by the USFWS.
- Qualified and/or authorized biologists shall conduct preconstruction surveys according to the most current USFWS protocol at the time of construction.
- Qualified and/or authorized biologists shall monitor all construction activities year-round in desert tortoise habitat, regardless of the time of year or weather conditions, as tortoises are often active outside of their "active" season.
- Authorized biologists shall handle desert tortoises following the most current Desert Tortoise Council handling guidelines (2009 or newer).
- All work area boundaries associated with temporary and permanent disturbances shall be conspicuously staked, flagged, or otherwise marked to minimize surface disturbance activities. All workers shall strictly limit activities and vehicles to the designated work areas.
- Crushing/removal of perennial vegetation in work areas shall be avoided to the maximum extent practicable.
- All trash and food items generated by construction and maintenance activities shall be promptly contained and regularly removed from the project site(s) to reduce the attractiveness of the area to common ravens.
- Pets shall not be allowed in working areas unless restrained in a kennel.
- Where possible, motor vehicles shall be limited to maintained roads and designated routes.

Vehicle speed within the project area, along ROW maintenance routes, and along existing access roads shall not exceed 20 miles per hour. Speed limits shall be clearly marked and all workers shall be made aware of these limits.

- Preconstruction clearance surveys shall be conducted within 48 hours of initiation of site-specific project activities, following USFWS protocol (USFWS 2009). The goal of a clearance survey is to find all tortoises on the surface and in burrows that could be harmed by construction activities. Surveys shall cover 100 percent of the acreage to be disturbed. All potential tortoise burrows within 100 feet of construction activity shall be marked.
- Biological monitors shall clear ahead of construction crews in desert tortoise habitat during all clearing and grading activities, or during activity where undisturbed vegetation would be crushed. In addition, biological monitors shall clear ahead of larger, nonrubber-tired equipment when that equipment is being driven on access and spur roads.
- Biological monitors shall clear all active work sites located in desert tortoise habitat each morning before construction begins and throughout the day if crews move from construction site to construction site.
- Results of biological monitoring and status of construction shall be detailed in daily reports by biological monitors. These reports shall be submitted to the authorized biologist on a daily basis and to the field contact representative on a weekly basis (at minimum). The authorized biologist shall notify the field contact representative within 24 hours of any action that involves harm to a desert tortoise. The authorized biologist shall submit to the USFWS, NDOW, and the BLM a summary of all desert tortoises seen, injured, killed, excavated, and handled at the end of each project or within 2 working days of when desert tortoises are harmed. GPS locations of live tortoises shall be reported.
- Should any desert tortoise be injured or killed, all activities shall be halted, and the field contact representative and/or authorized biologist immediately contacted. The field contact representative and/or authorized biologist shall be responsible for reporting the incident to the authorizing agencies.
- Desert tortoise relocations shall only occur from an active construction zone to an area that is not under active construction. Any tortoise found on the surface shall be relocated to less than 1,000 feet away. Tortoises shall be handled carefully following the guidelines given in USFWS Desert Tortoise Field Manual (USFWS 2009). Tortoises shall be handled with new latex gloves each time to avoid transmission of disease, and handlers shall especially note guidelines for precautions to be taken during high-temperature periods.
- If a potential tortoise burrow were required to be excavated, the biologist shall proceed according to the guidelines given in USFWS Desert Tortoise Field Manual (USFWS 2009). Tortoises removed from burrows shall be relocated to a natural unoccupied burrow or an artificial burrow (USFWS 2009). The tortoise shall be block in the burrow in accordance to the guideline given in the USFWS Desert Tortoise Field Manual (USFWS 2009).

- For activities conducted between March 15 and November 1 in desert tortoise habitat, all activities in which encounters with tortoises might occur shall be monitored by a qualified or authorized biologist. The biologist shall be informed of tortoises relocated during preconstruction surveys so that he or she could watch for the relocated tortoises in case they attempted to return to the construction site. The qualified or authorized biologist shall watch for tortoises wandering into the construction areas, check under vehicles, examine excavations and other potential pitfalls for entrapped animals, examine exclusion fencing, and conduct other activities to ensure that death or injuries of tortoises were minimized.
- No overnight hazards to desert tortoises (e.g., auger holes, trenches, pits, or other steep-sided depressions) shall be left unfenced or uncovered; such hazards shall be eliminated each day prior to the work crew and biologist leaving the site. Large or long-term project areas shall be enclosed with tortoise-proof fencing. Fencing shall be removed when restoration of the site is completed.
- Any incident considered by the biological monitor to be in non-compliance with the mitigation plan shall be documented immediately by the biological monitor. The field contact representative shall ensure that appropriate corrective action was taken. Corrective actions shall be documented by the monitor. The following incidents shall require immediate cessation of the construction activities causing the incident, including (1) imminent threat of injury or death to a desert tortoise; (2) unauthorized handling of a desert tortoise, regardless of intent; (3) operation of construction equipment or vehicles outside a project area cleared of desert tortoise, except on designated roads; and (4) conducting any construction activity without a biological monitor where one was required. If the monitor and field contact representative do not agree, the federal agency's compliance officer shall be contacted for resolution. All parties could refer the resolution to the federal agency's authorized officer.
- All construction personnel, including subcontractors, shall complete a WEAP. This instruction shall include specific desert tortoise training on distribution, general behavior and ecology, identification, protection measures, reporting requirements, and protections afforded by state and federal endangered species acts.
- Parked vehicles shall be inspected prior to being moved. If a tortoise were found beneath a vehicle, the authorized biologist shall be contacted to move the animal from harm's way, or the vehicle shall not be moved until the desert tortoise left of its own accord. The authorized biologist shall be responsible for taking appropriate measures to ensure that any desert tortoise moved in this manner was not exposed to temperature extremes that could be harmful to the animal.
- No desert tortoise shall be captured, moved, transported, released, or purposefully caused to leave its burrow for whatever reason when the ambient air temperature is above 95 degrees Fahrenheit (35°C). If the ambient air temperature exceeds 95°F during handling or processing, desert tortoises shall be kept shaded in an environment which does not exceed 95°F, and the animals shall not be released until ambient air temperature declines to below 95°F. For relocation, captured tortoises may be held overnight and moved the following morning within these temperature constraints.

- During all handling procedures, desert tortoises shall be treated in a manner to ensure that they do not overheat, exhibit signs of overheating (e.g., gaping, foaming at the mouth, hyperactivity, etc.), or are placed in a situation where they cannot maintain surface and core temperatures necessary to their well-being. Desert tortoises shall be kept shaded at all times until it is safe to release them. Ambient air temperature shall be measured in the shade, protected from wind, and at a height of 2 inches above the ground surface.
- If a desert tortoise voids its bladder as a result of being handled, the animal shall be rehydrated. The process of rehydrating a desert tortoise shall take place at the location where the animal was captured (or to be released, for translocated tortoises), and consist of placing the desert tortoise in a tub with a clean plastic disposable liner. The amount of water that is placed in the lined tub shall not be higher than the lower jaw of the animal. Each desert tortoise shall be rehydrated for a minimum of 10 to 20 minutes. During the period when the desert tortoise is in the tub, the tub shall be placed in a quiet protected area. Desert tortoises shall be soaked individually.
- If a desert tortoise is injured as a result of project-related activities, it shall be immediately taken to an approved wildlife rehabilitation or veterinary facility. The applicant shall identify the facility prior to the start of ground- or vegetation-disturbing activities. The applicant shall bear any costs associated with the care or treatment of such injured covered species. The applicant shall notify NDOW of the injury immediately unless the incident occurs outside of normal business hours. In that event NDOW shall be notified no later than noon on the next business day. Notification to NDOW shall be via telephone or email, followed by a written incident report. Notification shall include the date, time, location, and circumstances of the incident, and the name of the facility where the animal was taken.
- The applicant shall produce a Raven Management Plan that is acceptable to the BLM. Details in the plan shall include information on procedures, frequency, and recommended season for conducting raven nest surveys, procedures and responsibilities for raven nest removal, USFWS/NDOW authorization and/or permitting requirements for conducting raven control, and compensation measures for raven reduction programs in Nevada. The plan shall be submitted to the BLM at least 60 days prior to construction for review and approval.

BIO-6: Water Usage. Water used for fugitive dust control shall not be allowed to pool on access roads or other project areas, as this can attract desert tortoises. Similarly, leaks on water trucks and water tanks shall be repaired to prevent pooling water.

BIO-7: Desert Bighorn Sheep. Construction within mountain passes, especially when the use of helicopters are required, shall requires the applicant to consult with the BLM, USFWS, and NDOW regarding conservation measures to avoid impacts on desert bighorn sheep. Possible seasonal restrictions (lambing season, hunting season) may be required.

BIO-8: Western Burrowing Owl. To reduce impacts on burrowing owl, the following measures shall be taken:

- A qualified biologist shall conduct preconstruction surveys within 30 days prior to construction

for burrowing owl within suitable habitat prior to breeding season (February 1 through August 31). All areas within 50 m (approximately 150 feet) of a project area shall be surveyed.

- All inactive burrows, holes, crevices, or other cavities in suitable habitat, within the limits of proposed ground disturbance, shall be thoroughly inspected by a qualified biologist before being collapsed. This would discourage owls from breeding on the construction site. Other species using burrows shall be relocated prior to collapsing burrows.
- If an active nest is identified, there shall be no construction activities within 50 m (approximately 150 feet) of the nest location to prevent disturbance until the chicks have fledged, as determined by a qualified biologist.
- The occurrence and location of any burrowing owl shall be documented by biological monitors in daily reports and submitted to the authorized biologist on a daily basis. The authorized biologist shall report all incidents of disturbance or harm to burrowing owls within 24 hours to the appropriate resource agencies (USFWS, BLM, and NDOW).
- If construction were to be initiated after the commencement of the breeding season and burrowing owls could be seen within areas to be affected by ground construction activities, a qualified biologist shall observe behavior to determine their breeding status. If breeding is observed, the nest area shall be avoided, with an appropriately sized buffer sufficient to prevent disturbance during construction activities until the chicks fledged.

BIO-9: Gila Monster and Chuckwalla Measures. The following measures are the current NDOW construction site protocols for the Gila monster (NDOW 2007). To reduce impacts on Gila monster, all locations of Gila monster found within a project area during surveys and construction work shall be reported to NDOW. In addition, the following measures shall be taken:

- Through the WEAP, workers and other project personnel should (at a minimum) know how to (1) identify Gila monsters and distinguish them from other lizards such as chuckwallas and banded geckos, (2) report any observations of Gila monsters to the biological monitor for NDOW, (3) be alerted to the consequences of a bite resulting from carelessness or unnecessary harassment, and (4) be aware of protective measures provided under state law.
- Live Gila monsters found in harm's way on the construction site shall be captured and then detained in a cool, shaded environment (<85°F) by the project biologist or equivalent personnel until an NDOW biologist arrives for documentation purposes. Although a Gila monster is venomous and can deliver a serious bite, its relatively slow gait allows for it to be easily coaxed or lifted into an open bucket or box, carefully using a long handled instrument such as a shovel or snake hook (note: it is not the intent of NDOW to request unreasonable action to facilitate captures; additional coordination with NDOW will clarify logistical points). A clean 5-gallon plastic bucket with a secure, vented lid; an 18-inch x 18-inch x 4-inch plastic sweater box with a secure, vented lid; or a tape-sealed cardboard box of similar dimension may be used for safe containment. Additionally, written information identifying the mapped capture location (e.g., GPS record), date, time, and circumstances (e.g., biological survey or construction) and habitat

description (vegetation, slope, aspect, and substrate) shall also be provided to NDOW.

- Injuries to Gila monsters may occur during excavation, blasting, road grading, or other construction activities. If a Gila monster is injured, it shall be transferred to a veterinarian proficient in reptile medicine for evaluation of appropriate treatment. Rehabilitation or euthanasia expenses would not be covered by NDOW. However, NDOW shall be immediately notified during normal business hours. If an animal is killed or found dead, the carcass shall be immediately frozen and transferred to NDOW with a complete written description of the discovery and circumstances, habitat, and mapped location.
- Should NDOW's assistance be delayed, biologists or equivalent acting personnel on site may be requested to remove and release the Gila monster out of harm's way. Should NDOW not be immediately available to respond for photo-documentation, a 35- millimeter camera or equivalent (5 mega-pixel digital minimum preferred) shall be used to take good quality images of the Gila monster in situ at the location of live encounter or dead salvage. The pictures, preferably on slide film (.tif or .jpg digital format) shall be provided to NDOW. Pictures shall include the following information: (1) Encounter location (landscape with Gila monster in clear view); (2) a clear overhead shot of the entire body with a ruler next to it for scale (Gila monster should fill camera's field of view and be in sharp focus); (3) a clear, overhead close-up of the head (head should fill camera's field of view and be in sharp focus).

BIO-10: Special-Status Plants Restoration and Compensation. The applicant shall mitigate for the loss of special-status plant species following the completion of all construction activities at a particular site and within 1 year of post-construction according to the requirements of resource agency authorizations. Special-status plants shall be restored by relocation of plants and/or reseeded, replacing topsoil with existing topsoil that was removed, and re-grading to pre-existing soil contours. Measures to restore special-status plants shall be implemented through the Reclamation Plan (see BIO-22). Additionally, the plan shall provide a matrix showing how the applicant shall address each species considered sensitive or special-status in terms of mitigation type (e.g., seed collection, transplanting, fencing certain population, and compensation measures). If special-status plant communities cannot be restored, the applicant shall provide compensation if required, in consultation with appropriate agencies (USFWS, BLM, and NDOW). In order to ensure enforceability, documentation of consultations with all appropriate agencies shall be provided to the BLM.

BIO-11: Breeding Season Preconstruction Surveys. If a project that may alter any breeding habitat has to occur during the breeding season, then a qualified avian biologist must survey the area for nests prior to commencement of construction activities. This shall include burrowing and ground nesting species in addition to those nesting in vegetation or on existing manmade structures. The applicant shall conduct project-wide raptor and nesting bird surveys according to the most current USFWS protocols, in consultation with the USFWS, BLM, and NDOW.

BIO-12: Schedule Construction Outside of Breeding Season. To prevent undue harm, habitat altering projects or portions of projects should be scheduled outside of bird breeding season (generally late February to July in this region). In upland desert habitats and ephemeral washes containing upland species, the season generally occurs between March 15th and July 30th.

BIO-13: Vegetation Removal During Nesting Season. The applicant shall remove trees or other vegetation, if necessary; outside of the nesting season (nesting season in the study area is late February to early July). If vegetation or existing structures containing a raptor nest or other active nest needed to be removed during the nesting season, or if work was scheduled to take place in close proximity to an active nest on an existing transmission tower or pole, the applicant shall coordinate with the USFWS and NDOW as appropriate to obtain written verification prior to moving the nest.

BIO-15: Additional Best Management Practices for Migratory Birds and Raptors. To reduce impacts on migratory birds and raptors, the applicant shall implement the following practices:

- Active bird nests shall not be moved during breeding season, unless the project is expressly permitted to do so by the USFWS, BLM, or NDOW depending on the location of the nest.
- All active nests and disturbance or harm to active nests shall be reported within 24 hours to the USFWS, BLM, and NDOW upon detection.
- The biological monitor shall halt work if it is determined that active nests would be disturbed by construction activities, until further direction or approval to work is obtained from the appropriate agencies.
- Seasonal work stoppages may be required by NDOW for project areas that pass near wilderness areas if construction activities occur within the breeding season. The applicant shall consult with NDOW prior to construction.
- As outlined by the Suggested Practices for Avian Protection on Power Lines (APLIC 2006), the following avian safe practices shall be employed during construction of transmission lines: cover phase conductors with manufactured covers, include perch discouragers on crossarms and on top of poles, exceed the minimal distance between phase conductors to prevent electrocution by perched birds and their wingspan, utilize longer horizontal insulators, suspend phase conductors on pole top and cross arms, install horizontal jumper support to increase the phase-to-ground separation, replace tension members with fiberglass or non-conducting materials, cover tension members with dielectric material, utilize fiberglass poles or switches, and install standard nest discouragers. All transmission and subtransmission towers and poles shall be designed to be avian-safe in accordance with the Suggested Practices for Avian Protection on Power Lines: the State of the Art in 2006 (APLIC 2006).

BIO-16: Night Lighting Reduction. Night lighting shall be reduced in all natural areas to avoid unnecessary visual disturbance to wildlife. Night lighting during construction, operations, and maintenance shall be reduced in natural areas using directed lighting, shielding methods, and/or reduced lumen intensity.

BIO-17: Wildlife Entrapment Prevention. To prevent entrapment of wildlife, all steep-walled trenches, auger holes, or other excavations shall be covered at the end of each day. Fencing shall be maintained around the covered excavations at night. For open trenches, earthen escape ramps shall be maintained at intervals of no greater than 0.25 miles. A biological monitor shall inspect all trenches, auger holes, or

other excavations a minimum of twice per day during non-summer months and a minimum of three times per day during the summer (hotter) months, and also immediately prior to back-filling. Any wildlife species found shall be safely removed and relocated out of harm's way, using suitable tools such as a pool net when applicable. For safety reasons, biological monitors shall under no circumstance enter open excavations.

**BIO-18: Preconstruction Surveys for Vegetation.** The applicant shall conduct preconstruction surveys to determine the composition of the vegetation community to establish baseline conditions prior to construction for post-construction restoration efforts. These surveys shall also document the presence of invasive weeds. For the invasive weeds survey, the level of effort and extent of the surveys shall be outlined by the Invasive Plant Management Plan (BIO-21).

**BIO-19: Minimize Vegetation Removal.** Applicants shall make every effort to minimize vegetation removal and permanent loss at construction sites. If necessary, native vegetation shall be flagged for avoidance.

**BIO-20: Minimize Soil Disturbance.** Applicants shall make every effort to minimize soil disturbance to the extent practical, consistent with project objectives.

**BIO-21: Invasive Plant Management Plan.** The applicant shall develop an Invasive Plant Management Plan, which shall be modeled on the BLM Las Vegas Office Draft Weed Plan. The plan shall include operation and maintenance activities, as well as construction activities. The content of the plan shall include results of the invasive weed inventory, identification and mapping of problem areas (i.e., infestations), preventative measures, treatment methods and prioritization, agency-specific requirements, monitoring requirements, and herbicide treatment protocol (as allowable by BLM in this area). The plan shall include BMPs that require that any biological material brought on-site (e.g., hay bales that may be used for controlling stormwater and native mixes for vegetation) shall be certified weed-free. The plan shall clearly outline the responsibility by party for present and future weed monitoring and weed abatement activities on the project. The plan shall be submitted to the BLM and NDOW for approval prior to construction authorization.

**BIO-22: Reclamation, Restoration, and Revegetation Plan (RRRP).** The applicant shall develop a RRRP that shall guide restoration and revegetation activities for all disturbed lands associated with construction and the eventual termination and decommissioning of a Proposed Action. The RRRP shall be part of the applicant's final Plan of Development for each Proposed Action and should address all federal and private land disturbances, including areas where restoration activities have been funded by the Clark County MSHCP and initiated by resource agencies. The RRRP shall be developed in consultation with appropriate agencies (BLM, NDOW, USFWS, and Clark County DCP) and be provided to these agencies for review and approval. NDOW and the BLM Las Vegas Field Office shall be consulted for restoration efforts concerning Nevada State protected cacti and yucca species, which may include preparation of a separate Cactus and Yucca Reclamation Plan. The RRRP shall also provide details including but not limited to topsoil segregation and conservation, vegetation treatment and removal, salvage of succulent species, revegetation methods including seed mixes, rates and transplants, and criteria to monitor and evaluate revegetation success. Post-construction monitoring shall be performed for 1 to 5 years, depending on the disturbance level and restoration level as outlined in the BLM's 2001 Restoration Plan

for Energy Projects in the Las Vegas Field Office.

BIO-23: BLM Guidance Documents for Treatments and Herbicides. The applicant's RRMP and Invasive Plant Management Plan shall comply with requirements within Vegetation Treatments on BLM Lands in 17 Western States (2007) and Vegetation Treatments Using Herbicides on BLM Lands in 17 Western States Programmatic EIS (2007).

BIO-24: Avoid Areas with Nonnative or Noxious Weed Species. The applicant shall begin project operations in areas without nonnative or noxious weed species, and locate and use weed-free project staging areas. Additionally, applicants shall avoid or minimize all types of travel through weed-infested areas (e.g. periods of high winds or rainfall) or restrict travel to periods when the spread of seed or propagules is least likely.

BIO-25: Pretreatment. The applicant shall pretreat high risk sites for weed establishment and spread before implementing projects.

BIO-26: Clean Vehicles and Equipment. The applicant shall clean vehicles and equipment (remove soil and plant parts) before entering public land, and clean all equipment before leaving the site if operating in areas infested with weeds. The applicant shall employ standard contract provisions to ensure that contractors adhere to this guideline.

BIO-27: Use of Herbicides. Using herbicides within the BCCE must be approved by the USFWS.

CUL-13: Treatment of Human Remains on BLM Land. The provisions of the Native American Grave Protection and Repatriation Act are applicable when Native American human remains are found on federal land (BLM land). The discovery of human remains shall be treated as defined in the Construction Monitoring and Unanticipated Cultural Resources Discovery Plan.

CUL-14: Treatment of Human Remains on State or Private Land. Any human remains discovered on state or private land as part of a connected action (e.g., construction of an energy generating facility) during project activities shall be protected in accordance with current state law, specifically NRS Section 383.160. If human remains determined to be Native American, the individual identified as responsible in the Construction Monitoring and Unanticipated Cultural Resources Discovery Plan shall notify the Nevada Historic Preservation Division who shall, in turn consult with the Nevada Indian Commission. The Commission shall notify the appropriate tribe. The tribe may, with permission, inspect the site, and make recommendations as to disposition of the remains. If recommendations are not provided within 48 hours, or in the event that the land owner rejects the recommendation and any subsequent mediation, the landowner must, at his expense, reinter the remains. If human remains are determined not to be Native American, they shall be treated under the appropriate State of Nevada statutes, including but not limited to NRS Chapter 440 and the regulations of the applicable land management agency. In the event that human remains are recovered on private lands, the landholder shall have the right to designate the repository for the remains if they are determined not to be Native American and if their family affiliation cannot be determined.

LAND-1: Minimize Restricted Access to Existing Land Uses. To the extent possible, applicants shall not restrict access to existing land uses in or near the study area during construction or operation.

LAND-2: Comply with Land Use Restrictions in the Study Area. Applicants shall comply with all land use restrictions in the study area, such as speed limits, and shall fully comply with the Amendment to the Interlocal Agreement between Clark County and Boulder City, including Exhibit D, regarding the BCCE.

LAND-3: Obtain Approval from Appropriate Jurisdiction for Activities Outside of BLM Transmission and Utility Corridors in the Study Area. Applicants shall obtain approval from Clark County and the City of Boulder City for activities outside of BLM's transmission and utility corridors in the study area.

VIS-1: Restore Areas of Ground Disturbance to an Appearance Similar to Pre-project Conditions after Construction. If grading or other ground disturbance is determined by the BLM to be necessary for access, it shall be the minimum required and the applicant shall consult with the BLM to identify and implement feasible methods to restore the area to an appearance that would blend with the overall landscape character. Any widening or grading of access roads that must be constructed shall be the minimum required for access by construction equipment.

VIS-2: Consult with the BLM Regarding Appearance of New Roads. If new roads are required for construction or permanent access to new or existing infrastructure, the applicant shall consult with the BLM to identify and implement feasible methods to restore the area to an appearance that would blend with the overall landscape character. Treatments shall include seeding and/or inter-planting into the disturbed areas.

VIS-3: Design Transmission Projects to be Similar in Design to Existing Structures. For transmission projects, new or redesigned transmission structures must be similar in design to existing structures. The finish on transmission structures shall be a non-reflective finish, such as steel that has been galvanized and treated to create a dulled finish that reduces light reflection and helps blend the structures into the landscape setting. Any new transmission conductors shall be non-specular to minimize conductor reflectivity and help blend them into the landscape setting.

VIS-4: Consult with the BLM Regarding Appearance of New Transmission Lines. Clearing and ground disturbance required for construction shall be the minimum required, and the applicant must consult with the BLM to identify and implement feasible methods to restore the area to an appearance that would blend with the overall landscape character. Areas around new or rebuilt transmission structures that must be cleared during the construction process or other areas of ground disturbance shall be regraded and revegetated to restore these areas to an appearance that would help blend them into the overall landscape character.

VIS-5: Dust Suppression Measures. During the construction period, dust suppression measures shall be used to minimize the creation of dust clouds potentially associated with ground disturbance activities and the use of the access roads.

NOI-1: Compliance with Local Noise Ordinances. Construction shall comply with Clark County and Boulder City noise ordinances. When there may be a need to work outside the aforementioned local ordinances to take advantage of low electrical draw periods during the nighttime hours, the applicant shall comply with variance procedures requested by local authorities if required.

NOI-2: Conduct Construction Activities during Daytime Hours. The applicant shall conduct construction

activities only during daytime hours while in the vicinity of residential receptors, particularly for Proposed Actions that extend outside of the study area and traverse areas that contain more residences, such as Boulder City.

NOI-3: Construction Equipment Working Order and Maintenance. Construction equipment shall be in good working order and maintained per manufacturer's recommendations.

HEALTH 1: Compliance with General Design and Construction Standards. Applicants shall design projects in accordance with federal and industrial standards including the American Society of Mechanical Engineers, National Electrical Safety Code, International Energy Conservation Code, International Building Code, Uniform Plumbing Code, Uniform Mechanical Code, the National Fire Protection Association standards, and OSHA regulations. For construction activities, applicants shall also comply with the federal regulations and industrial standards mentioned above, as well as with applicable state and local codes. Local Clark County codes to be considered include Title 13 – Fire and Fire Prevention, Title 22 – Buildings and Construction, Title 24 – Water, Sewage, and Other Utilities, and Title 25 – Plumbing and Electrical Regulations.

HEALTH-2: Storm Water Pollution Prevention Plan. A project-specific construction SWPPP shall be prepared and implemented prior to the start of construction of the linear utility projects and auxiliary facilities. The SWPPP shall use BMPs to address the storage and handling of hazardous materials and sediment runoff during construction activities.

HEALTH 3: Spill Prevention, Control, and Countermeasure Plan. In accordance with Title 40 of the CFR, Part 112, applicants shall prepare an SPCC Plan for proposed or expanded facilities involving operation and storage of petroleum products and dielectric fluid for transformers. The plan shall include engineered and operational methods for preventing, containing, and controlling potential releases, and provisions for quick and safe cleanup.

HEALTH 4: Spill Control at Substations. At substations, transformers shall contain dielectric fluid (mineral oil), and shall be located on a concrete pad surrounded by an earthen or concrete containment berm or curb. Mineral oil is not considered a hazardous material; however, during operation, leaks or spills of mineral insulating oil could occur in cases of damage to the transformers due to a seismic event, fire, or other unforeseen incident. Applicants shall implement an SPCC plan to prevent spills associated with these transformers.

HEALTH 5: Underground Alert Service. Before any grading and trenching activities, applicants shall be required to utilize the appropriate Underground Service Alert organization to identify the location of existing underground utilities and pipelines. In addition, the applicant shall not use mechanical equipment within 3 feet of high-pressure pipelines, and a representative for the pipelines shall be present to observe excavation activities around buried pipelines during construction. In Nevada, the NDEP BCA Spill Hotline (888-331- 6337) shall be contacted if the quantity of impacted material is greater than 3 cubic yards.

HEALTH 6: Health and Safety Program. Applicants shall ensure that all health and safety and emergency plans to be required for employees and contractors during construction, operations, and decommissioning

shall comply with the Occupational Safety and Health Standards provided in federal regulation 29 CFR, Part 1910, as well as with applicable state and local occupational health and safety regulations. All construction and operation contractors shall be required to operate under a health and safety program that meets industry standards. All contractors shall be required to maintain and carry health and safety materials including the Material Safety Data Sheets of hazardous materials used on site.

HEALTH 7: Hazardous Materials Management. Applicants shall implement a Hazardous Materials Management Program. Hazardous materials used and stored onsite shall be managed according to the specifications outlined below as follows:

- Hazardous Materials Handling Program. A project-specific hazardous materials management program shall be developed prior to initiation of construction. The program shall outline proper hazardous materials use, storage, and disposal requirements. The program shall identify types of hazardous materials to be used during construction activities. All personnel shall be provided with project-specific training. This program shall be developed to ensure that all hazardous materials are handled in a safe and environmentally sound manner. Employees shall receive hazardous materials training and shall be trained in: hazardous waste procedures; spill contingencies; waste minimization procedures; and TSD facility training in accordance with OSHA Hazard Communication.
- Transport of Hazardous Materials. Hazardous materials that shall be transported by truck include fuel (diesel fuel and gasoline), and oils and lubricants for equipment. Containers used to store hazardous materials shall be properly labeled and kept in good condition. Written procedures for the transport of hazardous materials used shall be established in accordance with U.S. Department of Transportation and Nevada Department of Transportation regulations. A qualified transporter shall be selected to comply with federal and state transportation regulations.
- Fueling and Maintenance of Construction Equipment. Written procedures for fueling and maintenance of construction equipment shall be prepared prior to construction. Vehicles and equipment shall be refueled on site or by tanker trucks. Procedures shall include the use of drop cloths made of plastic, drip pans, and trays to be placed under refilling areas to ensure that chemicals do not come into contact with the ground. Refueling stations shall be located in designated areas where absorbent pads and trays shall be available. The fuel tanks shall also contain a lined area to ensure that accidental spills do not occur. Drip pans or other collection devices shall be placed under the equipment at night to capture drips or spills. Equipment shall be inspected daily for potential leakage or failures. Hazardous materials such as paints, adhesives and solvents, shall be kept in an approved locker or storage cabinet.

HEALTH-8: Emergency Response Plan. An Emergency Response Plan detailing responses to releases of hazardous materials shall be developed prior to construction activities. It shall prescribe hazardous materials handling procedures for reducing the potential for a spill during construction, and shall include an emergency response program to ensure quick and safe cleanup of accidental spills. All hazardous materials spills or threatened release, including petroleum products such as gasoline, diesel, and hydraulic fluid, regardless of the quantity spilled, shall be immediately reported if the spill has entered a water body or storm drain if the spill impacted any sensitive area, including

conservation areas and wildlife preserved, or if the spill causes injury to a person or threatens injury to public health. All construction personnel, including environmental monitors, shall be aware of state and federal emergency response reporting guidelines.

HEALTH-9: Soil Management Plan. A Soil Management Plan shall be developed and implemented during construction. The objective of the Soil Management Plan is to provide guidance for the proper handling, on-site management, and disposal of impacted soil that might be encountered during construction activities. The plan shall include practices that are consistent with OSHA regulations, as well as appropriate remediation standards that are protective of the planned use. Appropriately trained professionals shall be on-site during preparation, grading, and related earthwork activities to monitor soil conditions encountered. In the event that potentially contaminated soils were encountered within the footprint of construction, soils shall be tested and stockpiled. The Soil Management Plan shall provide guidelines for the following:

- Identifying impacted soil
- Assessing impacted soil
- Soil excavation
- Impact soil storage
- Verification sampling
- Impacted soil characterization and disposal.

HEALTH-11: Waste Management Plan. Applicants shall prepare a Waste Management Plan describing the storage, transportation, and handling procedures for wastes and emphasizing the recycling of construction wastes where possible. The plan shall also identify the specific landfills that would receive construction wastes that could not be recycled. Applicants shall manage construction wastes in accordance with RCRA (42 USC. 6901, et seq. and RCRA's implementing regulations at 40 CFR 260, et seq.) and other applicable state and local regulations.

HEALTH-12: Weed Management Plan. Under the guidance of BLM staff, applicants shall prepare and submit for BLM approval a Weed Management Plan. The plan shall follow the Las Vegas RMP (BLM 1998), Weed Management Plan, and the BLM's interagency guidance Partners Against Weeds for an active integrated weed management program using weed control BMPs. This plan shall include an herbicide use proposal, which establishes the coordination responsibilities for weed control activities, particularly regarding proposed herbicide treatments.

HEALTH-13: Fire Prevention Measures. The following fire prevention measures shall be implemented by applicants or their contractors during construction and operation:

- Maintain a list of all relevant firefighting authorities. The closest resources to respond to a wildland fire within the study area would come from Boulder City Fire Department. Coordination with the LVICC shall also be considered as part of the fire prevention plan.

- Have and maintain available fire suppression equipment in all construction areas, including but not limited to: water trucks, potable water pumps, and chemical fire extinguishers. Ensure an adequate supply of fire extinguishers for welding and brushing crews;
  - Include mechanisms for fire suppression in all heavy equipment, including fire extinguishers and spark arresters or turbo-charging (which eliminates sparks in exhaust);
  - Remove any flammable wastes generated during construction on a regular basis; - Vegetation clearing shall be accomplished in a manner that reduces vegetation and does not create a fire hazard;
  - Store all flammable materials used at the construction site;
  - Allow smoking only in designated smoking areas; and
  - Require all work crews to park vehicles away from flammable vegetation, such as dry grass and brush. At the end of each workday, heavy equipment should be parked over mineral soil, asphalt, or concrete, where available, to reduce the chance of fire.

**Appendix C: Append to the Programmatic Biological Opinion**

**ACTION APPENDED TO THE BLM'S SOUTHERN NEVADA DISTRICT  
PROGRAMMATIC BIOLOGICAL OPINION (File No. 84320-2010-F-0365)**

This consultation consists of the programmatic biological opinion (PBO), BLM's request to append the proposed action to the PBO with project-specific information (Part A, provided by BLM), and the Fish and Wildlife Service's response (Part B, below).

Fish and Wildlife Service File No. for Proposed Action: 84320-2013-F-0100  
Bolder Solar Project

**Part A: Information provided by the BLM**

**Part B: Fish and Wildlife Service Response**

Date received: February 4, 2013  
Date of response: February 4, 2013

1. Environmental baseline

- a. The status of the species and factors affecting the species in the action area are described in Section 6.2.1 of the PBO and information provided by the BLM (Part A).
- b. Factors affecting the species in the action area are described in Section 6.2.2 of the PBO and information provided by the BLM (Part A). Table 3 in the PBO provides the maximum habitat disturbance thresholds for each program and sub-program; and Table 14 in the PBO provides the incidental take exemption limits. No additional factors are known that are affecting the status of the desert tortoise in the action area since the previous consultations were completed. The action area occurs within a major network of electrical transmission line corridors.

Previous appended actions are identified in Table 1.

2. Effects of proposed action

Programmatic-level effects are described in Sections 7.1.1-7.1.3; 7.1.5-7.1.7; and 7.1.13 in the PBO. The proposed action may result in the following effects:

- a. Up to 2 desert tortoises may be adversely affected by the project as a result of being captured and moved from harm's way; no desert tortoises will be killed or injured and no desert tortoise nests with eggs will be destroyed.
- b. 38.2 acres of non-critical habitat would be disturbed which consists of 31.75 acres for the 500kV transmission line; 1.45 acres for the waterline; and 5 acres for the road improvements.

- c. The 1,554-acre solar field on Boulder City land, an interdependent and interrelated action, falls under purview of the Clark County Multiple Species Plan and incidental take permit.

3. Conclusion

After reviewing the status, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is our biological opinion that the proposed appended action is not likely to jeopardize the continued existence of the desert tortoise.

4. Incidental Take Statement (desert tortoise)

- a. Amount or Extent of Take Exempted:

Based on the analysis of effects provided above, minimization measures, and anticipated project duration, implementation of the proposed project is anticipated to result in the following take of desert tortoise:

Exempted - Mortality, Injury, and Destruction (eggs)			Exempted - Capture	Anticipated Habitat Loss (acres)	
Adult/subadult	Juvenile	Egg	2	Critical	Non-critical
0	0	0			0

In addition to the incidental take above, incidental take may occur as a result of indirect effects (*e.g.*, tortoises taken by ravens attracted to the project site or tortoises disturbed by noise and general project activities).

- b. Project-specific Terms and Conditions are provided in Attachment A.

Based on the information provided by the BLM and our analysis above, it is the Service’s biological opinion that the proposed activity is within the scope of the PBO and is hereby appended.

**Signature:** \_\_\_\_\_  
 Assistant Field Supervisor  
 Nevada Fish and Wildlife Office  
 Las Vegas, Nevada

\_\_\_\_\_ Date

cc: Supervisory Biologist- Habitat, Nevada Department of Wildlife, Las Vegas, Nevada

## Attachment A. Terms and Conditions (numbers correspond to those in the PBO)

- 1.a. *Field Contact Representative*—BLM shall ensure a Field Contact Representative (FCR) (also called a Compliance Inspection Contractor) is generally designated for each contiguous stretch of construction activity or isolated work areas. The FCR will serve as an agent of BLM and the Service to ensure that all instances of non-compliance or incidental take are reported. BLM has discretion over approval of potential FCRs; however, those who also may be acting as authorized desert tortoise biologists, and must also be approved by the Service (see Term and Condition 1.c). All FCRs will report **directly** to BLM and the Service.

The FCR, authorized desert tortoise biologist, and monitors (see Term and Condition 1.c.) shall have a copy of all stipulations when work is being conducted on the site and will be responsible for overseeing compliance with terms and conditions of the ROW grant, including those for listed species. BLM shall ensure the FCR and authorized desert tortoise biologists have authority to halt any activity that is in violation of the stipulations. The FCR shall be on site year-round during all project activities.

Within 3 days of employment or assignment, the project proponent and BLM shall provide the Service with the names of the FCR.

- 1.b. *Authorized desert tortoise biologist*—All authorized desert tortoise biologists (and monitors) are agents of BLM and the Service and shall report directed to BLM and the proponent concurrently regarding all compliance issues and take of desert tortoises; this includes all draft and final reports of non-compliance or take. The initial draft report shall be provided to BLM and Service within 24 hours of the observation of take or non-compliance.

An authorized desert tortoise biologist will be assigned to each piece/group of large equipment engaged in activities that may result in take of desert tortoise and other work areas that pose a risk to tortoises. BLM may use their discretion to require a monitor instead of an authorized desert tortoise biologist to monitor equipment that is low risk to tortoises.

- 1.c. Authorized desert tortoise biologists, monitors, and the FCR (see Term and Condition 1.a.) shall be responsible for ensuring compliance with all conservation measures for the project. This responsibility includes: (1) enforcing the litter-control program; (2) ensuring that desert tortoise habitat disturbance is restricted to authorized areas; (3) ensuring that all equipment and materials are stored within the boundaries of the construction zone or within the boundaries of previously-disturbed areas or designated areas; (4) ensuring that all vehicles associated with construction activities remain within the proposed construction zones; (5) ensuring that no tortoises are underneath project vehicles and equipment prior to use or movement; (6) ensuring that all monitors (including the authorized desert tortoise biologist) have a copy of the required measures in their possession, have read them, and they are readily available to the monitor when on the project site.

An authorized desert tortoise biologist will serve as a mentor to train desert tortoise monitors and will approve monitors if required. An authorized desert tortoise biologist is responsible for errors committed by desert tortoise monitors.

An authorized desert tortoise biologist shall record each observation of desert tortoise handled in the tortoise monitoring reports. Information will include the following: location (GPS), date and time of observation, whether the desert tortoise was handled, general health and whether it voided its bladder, location desert tortoise was moved from and location moved to, unique physical characteristics of each tortoise, and effectiveness and compliance with the desert tortoise protection measures. This information will be provided **directly** to BLM and the Service.

Potential authorized desert tortoise biologists must submit their statement of qualifications to the Service's Nevada Fish and Wildlife Office in Las Vegas for approval, allowing a minimum of 30 days for Service response. The statement form is available on the internet at:

[http://www.fws.gov/nevada/desert\\_tortoise/auth\\_dt\\_form.htm](http://www.fws.gov/nevada/desert_tortoise/auth_dt_form.htm).

Prior to final approval to begin work on the project, the authorized desert tortoise biologists will have read the required measures (terms and conditions and other stipulations) and have a copy of the measures available at all times while on the project site. BLM shall provide the appropriate agency contact for the project to the Service and the Service will include the forms with approval letters. Biologists and monitors should be visibly identifiable on the project site, which may include use of a uniquely designated hardhat or safety vest color.

- 1.d. *Desert tortoise monitor*—Desert tortoise monitors assist an authorized desert tortoise biologist during surveys and serve as apprentices to acquire experience. Desert tortoise monitors ensure proper implementation of protective measures, and record and report desert tortoises and sign observations in accordance with Term and Condition 1.c. They will report incidents of noncompliance to the authorized desert tortoise biologist or FCR. No monitors shall be on the project site unless supervised by an authorized desert tortoise biologist or approved by the BLM.

If a desert tortoise is immediately in harm's way (*e.g.*, certain to immediately be crushed by equipment), desert tortoise monitors may move the desert tortoise then place it in a designated safe area until an authorized desert tortoise biologist assumes care of the animal.

Desert tortoise monitors may not conduct field or clearance surveys or other specialized duties of an authorized desert tortoise biologist unless directly supervised by an authorized desert tortoise biologist or approved to do so by the Service; "directly supervised" means an authorized desert tortoise biologist has direct sight and voice contact with the desert tortoise monitor (*i.e.*, within approximately 200 ft of each other).

Within 3 days of employment or assignment, the project proponent and BLM shall provide the Service with the names of desert tortoise monitors who would assist an authorized desert tortoise biologist.

- 1.e. *Desert tortoise education program*—A desert tortoise education program shall be presented to all personnel on site during construction activities by an agency or authorized desert tortoise biologist. The Service, BLM, and appropriate state agencies shall approve the program. At a minimum, the program shall cover desert-specific Leave-No-Trace guidelines, the distribution of desert tortoises, general behavior and ecology of this species, sensitivity to human activities, threats including introduction of exotic plants and animals, legal protection, penalties for violation of State and Federal laws, reporting requirements, and project measures in this biological opinion. All field workers shall be instructed that activities must be confined to locations within the approved areas and their obligation to walk around and check underneath and vehicles and equipment before moving them (or be cleared by an authorized desert tortoise biologist). In addition, the program shall include fire prevention measures to be implemented by employees during project activities. The program shall instruct participants to report all observations of desert tortoise and their sign during construction activities to the FCR and authorized desert tortoise biologist.
- 1.f. *Vehicle travel*— Project personnel shall exercise vigilance when commuting to the project area to minimize risk for inadvertent injury or mortality of all wildlife species encountered on paved and unpaved roads leading to and from the project site. Speed limits will be clearly marked, and all workers will be made aware of these limits. On-site, personnel shall carpool to the greatest extent possible.

During the desert tortoise less-active season (generally November through February), vehicle speed on project-related access roads and in the work area will not exceed 25 mph. All vehicles and construction equipment will be tightly grouped.

During the more-active season (generally March through October), and if temperatures are above 60 but below 95 °F for more than 7 consecutive days, vehicle speed on project-related access roads and in the work area will not exceed 15 mph. All vehicles and construction equipment will operate in groups of no more than three vehicles. An authorized desert tortoise biologist and desert tortoise monitor will escort or clear ahead of vehicles and equipment for ROW travel. The escort will be on foot and clear the area of tortoises in front of each traveling construction equipment group (see *Desert tortoise clearance*). The escort will use a recreational vehicle with ground visibility (e.g., UTV); however, at least one authorized desert tortoise biologist and one desert tortoise monitor must ride together and survey both sides of the vehicle. The speed/pace will be determined by an authorized desert tortoise biologist and shall be slow enough to ensure adequate inspection.

New access and spur road locations will be sited to avoid potentially active tortoise burrows to the maximum extent practicable.

- 1.h. *Desert tortoise clearance*—Prior to surface-disturbing activities, authorized desert tortoise biologists potentially assisted by desert tortoise monitors, shall conduct a clearance survey to locate and remove all desert tortoises from harm's way including areas to be disturbed using techniques that provide full coverage of all areas (Service 2009). During the more-active season, clearance surveys will be conducted either the day prior to, or the day of, any surface-disturbing activity. During the less-active season, clearance surveys will be conducted within 7 days prior to any surface-disturbing activity. No surface-disturbing activities shall begin until two consecutive surveys yield no individuals.

An authorized biologist shall excavate all burrows that have characteristics of potentially containing desert tortoises in the area to be disturbed with the goal of locating and removing all desert tortoises and desert tortoise eggs. During clearance surveys, all handling of desert tortoises and their eggs and excavation of burrows shall be conducted solely by an authorized desert tortoise biologist in accordance with the most current Service-approved guidance (currently Service 2009). If any tortoise active nests are encountered, the Service must be contacted immediately, prior to removal of any tortoises or eggs from those burrows, to determine the most appropriate course of action. Unoccupied burrows shall be collapsed or blocked to prevent desert tortoise entry. Outside construction work areas, all potential desert tortoise burrows and pallets within 50 ft of the edge of the construction work area shall be flagged. If the burrow is occupied by a desert tortoise during the less-active season, the tortoise shall be temporarily penned (see Term and Condition 1.k.). No stakes or flagging shall be placed on the berm or in the opening of a desert tortoise burrow. Desert tortoise burrows shall not be marked in a manner that facilitates poaching. Avoidance flagging shall be designed to be easily distinguished from access route or other flagging, and shall be designed in consultation with experienced construction personnel and authorized biologists. All flagging shall be removed following construction activities.

An authorized desert tortoise biologist will inspect areas to be backfilled immediately prior to backfilling.

- 1.i. *Desert tortoise in harm's way*—Any project-related activity that may endanger a desert tortoise shall cease if a desert tortoise is found on the project site. Project activities may resume after an authorized desert tortoise biologist or desert tortoise monitor (see restrictions in Term and Condition 1.d.) removes the desert tortoise from danger or after the desert tortoise has moved to a safe area on its own.

During the more-active season and if temperatures are above 60 but below 95 °F for more than 7 consecutive days, at least 1 monitor shall be assigned to observe spoil piles prior to excavation and covering.

- 1.j. *Handling of desert tortoises*—Desert tortoises shall only be moved by an authorized desert tortoise biologist or desert tortoise monitor (see restrictions in Term and Condition 1.d.) solely for the purpose of moving the tortoises out of harm's way. During construction, operation, and maintenance, an authorized desert tortoise biologist shall pen, capture, handle, and relocate desert tortoises from harm's way as appropriate and in

accordance with the most current Service-approved guidance. No tortoise shall be handled by more than one person. Each tortoise handled will be given a unique number, photographed, and the biologist will record all relevant data on the Desert Tortoise Handling and Take Report (Appendix E) to be provided to BLM in accordance with the project reporting requirements.

Desert tortoises that occur aboveground and need to be moved from harm's way shall be placed in the shade of a shrub, 150 to 1,640 ft from the point of encounter. In situations where desert tortoises must be moved more than 1,640 ft (500 m), translocation procedures may be required. Translocation would likely result in a level of effect to the desert tortoise that would require the appended procedures.

If desert tortoises need to be moved at a time of day when ambient temperatures could harm them (less than 40 ° F or greater than 95° F), they shall be held overnight in a clean cardboard box. These desert tortoises shall be kept in the care of an authorized biologist under appropriate controlled temperatures and released the following day when temperatures are favorable. All cardboard boxes shall be discarded after one use and never hold more than one tortoise. If any tortoise active nests are encountered, the Service must be contacted immediately, prior to removal of any tortoises or eggs from those burrows, to determine the most appropriate course of action.

Desert tortoises located in the project area sheltering in a burrow during the less-active season may be temporarily penned in accordance with Term and Condition 1.k. at the discretion of an authorized desert tortoise biologist. Desert tortoises should not be penned in areas of moderate to heavy public use, rather they should be moved from harm's way in accordance with the most current Service-approved guidance (currently Service 2009).

Desert tortoises shall be handled in accordance with the Desert Tortoise Field Manual (Service 2009). Equipment or materials that contact desert tortoises (including shirts and pants) shall be sterilized, disposed of, or changed before contacting another tortoise to prevent the spread of disease. All tortoises shall be handled using disposable surgical gloves and the gloves shall be disposed of after handling each tortoise. An authorized desert tortoise biologist shall document each tortoise handling by completing the Desert Tortoise Handling and Take Report (Appendix E of the PBO).

- 1.k. *Penning*—Penning shall be accomplished by installing a circular fence, approximately 20 ft in diameter to enclose and surround the tortoise burrow. The pen should be constructed with 1-inch horizontal by 2-in vertical, galvanized welded wire. Steel T-posts or rebar should be placed every 5 to 6 ft to support the pen material. Pen material will extend 18 to 24 in aboveground. The bottom of the enclosure will be buried 6 to 12 in or bent towards the burrow, have soil mounded along the base, and other measures implemented to ensure zero ground clearance. Care shall be taken to minimize visibility of the pen by the public. An authorized desert tortoise biologist or desert tortoise monitor shall check the pen at a frequency to ensure that the desert tortoise is secure and not stressed. No desert tortoise shall be penned for more than 48 hours without written approval by the

Service. Because this is a new technique, all instances of penning or issues associated with penning shall be reported to the Service within 3 days (see Appendix E of the PBO).

- 1.o. *Dust control*—Water applied to for dust control shall not be allowed to pool outside desert-tortoise fenced areas, as this can attract desert tortoises. Similarly, leaks on water trucks and water tanks will be repaired to prevent pooling water. An authorized desert tortoise biologist will be assigned to patrol each area being watered immediately after the water is applied and at approximate 60-minute intervals until the ground is no longer wet enough to attract tortoises if conditions favor tortoise activity.
- 1.p. *Blasting*—If blasting is required in desert tortoise habitat, detonation shall only occur after the area has been surveyed and cleared by an authorized desert tortoise biologist. A 200-ft radius area around the blasting site shall be surveyed and all desert tortoises aboveground within this 200-ft radius of the blasting site shall be moved 500 ft from the blasting site, placed in unoccupied burrow, and temporarily penned (see Term and Condition 1.k.) to prevent tortoises that have been temporarily relocated from returning to the site. Tortoises in burrows would be left in their burrows. All burrows, regardless of occupied status, will be stuffed with newspapers, flagged, and location recorded using a GPS unit. Immediately after blasting, newspaper and flagging will be removed. If a burrow or coversite has collapsed which could be occupied, it shall be excavated to ensure that no tortoises have been buried and are in danger of suffocation.
- 1.q. *Ravens and Raptors*— Transmission line support structures and other facility structures shall be designed to discourage their use by ravens and raptors for perching or nesting (e.g., by use of anti-perching devices) in accordance with the most current Avian Power Line Interaction Committee guidelines (see terms and conditions 2.b and 2.c.).
- 1.r. *Timing of construction*—The BLM shall ensure that when possible, the project proponent schedules and conducts construction, operation, and maintenance activities within desert tortoise habitat during the less-active season (generally October 31 to March 1) and during periods of reduced desert tortoise activity (typically when ambient temperatures are less than 60 or greater than 95 °F).

All vehicles and equipment that are not in areas enclosed by desert tortoise exclusion fencing will stop activities in desert tortoise habitat during rainfall events in the more-active season (generally March 1 to October 31), and if temperatures are above 60 but below 95 °F for more than 7 consecutive days. The Field Contact Representative (FCR) or designee will determine, in coordination with the BLM and Service, when it is appropriate for project activities to continue.

- 2.a. *Litter control*—A litter control program shall be implemented to reduce the attractiveness of the area to opportunistic predators such as desert kit foxes, coyotes, and common ravens. Trash and food items will be disposed of properly in predator-proof containers with predator-proof lids. Trash containers will be emptied and construction waste will be removed daily from the project area and disposed of in an approved landfill.

- 2.b. *Deterrence*—The project proponent will implement measures to discourage the presence of predators on site (coyotes, ravens, etc.), including elimination of available water sources, designing structures to discourage potential nest sites, and use of hazing to discourage raven presence.
- 2.c. *Monitoring and predator control*— The project proponent will monitor for the increased presence of ravens and other potential human-subsidized predators in the vicinity of the project area. A qualified biologist (not necessarily an authorized desert tortoise biologist) shall conduct monthly nest surveys of potential nest sites (e.g., power transmission towers/poles) during the raven breeding season (generally February 1 to April 30) and document the presence of all nests and the species using them. During these monthly surveys, an authorized biologist will also document any sign of predation of desert tortoises below the nest and in the vicinity of the transmission line. If sign of predation is found under a nest, control measures will be implemented in coordination with the Service. The frequency of these nest surveys may be modified as agreed upon by BLM and the Service.
- 3.a. *Habitat protection plans*—BLM shall ensure that the applicants develop and implement a weed management plan approved by BLM prior to surface disturbance.
- 3.b. *Restoration plan*—BLM shall ensure that the applicant develop and implement a restoration/reclamation plan. The plan will describe objectives and methods to be used, species of native plants and/or seed mixture to be used, time of planting, success standards, actions to take if restoration efforts fail to achieve the success standards, and follow-up monitoring. The plan will be prepared and approved prior to the surface disturbance phase of the project.
- 3.c. *Minimizing new disturbance*—Cross-country travel outside designated areas shall be prohibited. All equipment, vehicles, and construction materials shall be restricted to the designated areas and new disturbance will be restricted to the minimum necessary to complete the task. All work area boundaries shall be conspicuously staked, flagged, or otherwise marked to minimize surface disturbance activities.
- 3.d. *Weed prevention*—Vehicles and equipment shall be cleaned with a high pressure washer prior to arrival in desert tortoise habitat and prior to departure from areas of known invasive weed and nonnative grass infestations to prevent or at least minimize the introduction or spread these species.
- 3.e. *Chemical spills*—Hazardous and toxic materials such as fuels, solvents, lubricants, and acids used during construction will be controlled to prevent accidental spills. Any leak or accidental release of hazardous and toxic materials will be stopped immediately and cleaned up at the time of occurrence. Contaminated soils will be removed and disposed at an approved landfill site.
- 3.f. *Residual impacts from disturbance*—BLM shall collect remuneration fees to offset residual impacts to desert tortoises from project-related disturbance to desert tortoise habitat.

Remuneration fees will be used for management actions expected to promote recovery of the desert tortoise over time, including management and recovery of desert tortoise in Nevada. Actions may involve habitat acquisition, population or habitat enhancement, increasing knowledge of the species' biological requirements, reducing loss of individual animals, documenting the species status and trend, and preserving distinct population attributes. Fees will be used to fund the highest priority recovery actions for desert tortoises in Nevada

The current base rate is \$810 per ac of disturbance, as indexed for inflation, effective March 1, 2012. The next adjustment will become effective March 1, 2013. The fee rate will be indexed for inflation based on the Bureau of Labor Statistics Consumer Price Index for All Urban Consumers (CPI-U) on January 31st of each year, becoming effective March 1st. Fees assessed or collected for projects covered under this biological opinion will be adjusted based on the current CPI-U for the year they are collected. Information on the CPI-U can be found on the internet at:

<http://stats.bls.gov/news.release/cpi.nws.htm>.

- 7.a. *Desert tortoise deaths*—The deaths and injuries of desert tortoises shall be investigated as thoroughly as possible to determine the cause. The Service and Nevada Department of Wildlife must be verbally informed immediately and within 5 business days in writing (electronic mail is sufficient). The Authorized Desert Tortoise Biologist shall complete the Desert Tortoise Handling and Take Report (Appendix E of the PBO).
- 7.b. *Non-compliance*—Any incident occurring during project activities that was considered by the FCR, authorized desert tortoise biologist, or biological monitor to be in non-compliance with this biological opinion shall be immediately documented by an authorized desert tortoise biologist. Documentation shall include photos, GPS coordinates, and details on the circumstances of the event. The incident will be included in the annual report and post-project report.
- 7.d. *Project reporting requirements*—Quarter (non-appended actions), annual, and comprehensive final project reports will be submitted to BLM and the Service's Nevada Fish and Wildlife Office in Las Vegas. Annual reports are required for all appended actions (except those completed and provided in a prior annual report). Annual reports will cover the calendar year and are due April 1<sup>st</sup> of the following year (*e.g.*, the annual report for calendar year 2013 is due April 1, 2014). Quarterly reports for non-appended actions are due 15 calendar days following the quarter. Final project reports are due within 60 days following completion of the project or each phase of the project.

The Programmatic Biological Opinion Report to the Fish and Wildlife Service provided in Appendix G of the PBO will be used for quarterly, annual, and final project reports, and shall include all Desert Tortoise Handling and Take Reports (Appendix E of the PBO). If available, GIS shape files will be included.

- 7.e. *Operation and maintenance*—A written assessment report shall be submitted annually to the Service outlining the operation and maintenance activities that occurred over the past year.

**Report to include:** It will include frequency of implementation of minimization measures, biological observations, general success of each of the minimization measures. All deaths, injuries, and illnesses of endangered or threatened species within the project area, whether associated with project activities or not, will be summarized in the annual report. The report is due April 1 of each year.

- 7.f. *Restoration monitoring*—Vegetation restoration success shall be monitored by project proponent and reported to BLM and the Service. Monitoring will include both qualitative and quantitative data collection and analysis. Monitoring frequency and parameters for restoration success will be described in the required restoration/reclamation plan.

**Appendix D: SHPO Concurrence Letter**

LEO M. DROZDOFF, P.E.  
Director  
Department of Conservation and  
Natural Resources

RONALD M. JAMES  
State Historic Preservation Officer

BRIAN SANDOVAL  
Governor

STATE OF NEVADA



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DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES  
STATE HISTORIC PRESERVATION OFFICE

April 12, 2013

Robert B. Ross, Jr.  
Southern Nevada District Field Office Manager  
Bureau of Land Management  
Las Vegas Field Office  
4701 N. Torrey Pines Drive  
Las Vegas, NV 89130

2013 APR 17 AM 11:24  
RECEIVED BLM  
SOUTHERN NEVADA  
DISTRICT OFFICE

RE: *Cultural Resources Overview and Archaeological Investigations for the KOMIPO Boulder Solar Project, Clark County, Nevada.*  
BLM Report: 8100 (NVS0-0300) 5-2690/ Undertaking #2013-2607.

Dear Mr. Ross:

The Nevada State Historic Preservation Office (SHPO) has reviewed the subject undertaking in compliance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended.

The SHPO concurs with the Bureau of Land Management's (BLM) determination that the following cultural resources are not eligible for the National Register of Historic Places under any of the Secretary's criteria:

26CK5090	26CK5091	26CK5092	26CK5093
26CK5094	26CK5095	26CK5096	26CK5097
26CK5098	26CK5102	26CK5103	26CK5104
26CK9588	26CK9589	26CK9590	26CK9591.

The SHPO notes that consultation with the affected Native American representatives has been initiated. If this consultation results in the identification of properties of religious or cultural significance that could be affected by the undertaking, the BLM must consult with this office concerning the National Register eligibility and possible effects of the undertaking. Regardless of the results of this consultation, the SHPO requests that the BLM submit a summary statement after its completion per IM No. NV-2011-073.

Robert B. Ross, Jr.

Page 2 of 2

April 12, 2013

If you have any questions concerning this correspondence, please contact Jessica Axsom by phone at (775) 684-3445 or by e-mail at [jaxsom@shpo.nv.gov](mailto:jaxsom@shpo.nv.gov).

Sincerely,



Jessica Axsom

Review and Compliance Archaeologist