

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

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March 2015

## Dry Lake Solar Energy Center at Harry Allen Project

### ENVIRONMENTAL ASSESSMENT

**File Number: N-93586**

APPLICANT

Nevada Power Company d/b/a NV Energy

GENERAL LOCATION

Near Apex, Nevada  
North of U.S. Route 93

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## **BLM Mission Statement**

*It is the mission of the Bureau of Land Management to sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations.*



# CONTENTS

Acronyms and Abbreviations ..... iii

**1.0 PURPOSE AND NEED ..... 1**

    1.1 Introduction..... 1

    1.2 Background..... 1

    1.3 Purpose and Need for Action and Decision to be Made ..... 3

    1.4 Resource Management Plan Conformance..... 4

    1.5 Relationship to Other Plans and Analyses..... 4

    1.6 Public Involvement and Identification of Issues..... 5

    1.7 Summary ..... 6

**2.0 PROPOSED ACTION AND ALTERNATIVES ..... 7**

    2.1 Introduction..... 7

    2.2 Proposed Action..... 7

        2.2.1 Overview ..... 7

        2.2.2 Project Location and Existing Land Use..... 8

        2.2.3 Dry Lake Solar Energy Center at Harry Allen Facilities ..... 8

        2.2.4 Preconstruction and Construction Activities..... 13

        2.2.5 Operations and Maintenance..... 17

        2.2.6 Decommissioning and Site Reclamation..... 18

        2.2.7 Permits and Approvals ..... 19

        2.2.8 Protective Measures ..... 20

    2.3 No Action Alternative..... 21

    2.4 Alternatives Considered But Eliminated from Detailed Analysis ..... 22

**3.0 AFFECTED ENVIRONMENT ..... 23**

    3.1 Introduction..... 23

    3.2 Cumulative Scenario..... 26

    3.3 Air Resources..... 30

        3.3.1 Affected Environment..... 30

        3.3.2 Proposed Design Features ..... 30

        3.3.3 Environmental Consequences ..... 30

    3.4 Wildlife Excluding Federally Listed Species..... 32

        3.4.1 Affected Environment..... 32

        3.4.2 Proposed Design Features ..... 32

        3.4.3 Environmental Consequences ..... 32

    3.5 Migratory Birds..... 34

        3.5.1 Affected Environment..... 34

        3.5.2 Proposed Design Features ..... 34

        3.5.3 Environmental Consequences ..... 35

    3.6 Threatened, Endangered, and Candidate Animal Species..... 36

        3.6.1 Affected Environment..... 36

        3.6.2 Proposed Design Features ..... 37

        3.6.3 Environmental Consequences ..... 37

    3.7 Vegetation Excluding Federally Listed Species ..... 39

        3.7.1 Affected Environment..... 39

3.7.2 Proposed Design Features ..... 39

3.7.3 Environmental Consequences ..... 39

3.8 Invasive Species and Noxious Weeds..... 41

    3.8.1 Affected Environment ..... 41

    3.8.2 Proposed Design Features ..... 42

    3.8.3 Environmental Consequences ..... 42

3.9 Soils ..... 43

    3.9.1 Affected Environment ..... 43

    3.9.2 Proposed Design Features ..... 43

    3.9.3 Environmental Consequences ..... 43

**4.0 COORDINATION ..... 45**

    4.1 Introduction..... 45

    4.2 Persons, Groups, and Agencies Consulted..... 45

    4.3 List of Preparers/Reviewers ..... 45

**5.0 LITERATURE CITED..... 47**

## Appendix

A. Applicant-Proposed Conservation Measures

### Figures

**Figure 1.** Project location map. .... 2

**Figure 2.** Project location. .... 9

**Figure 3.** Typical fixed-tilt bracket configuration..... 10

**Figure 4.** Example of 10 solar arrays adjacent to conventional natural gas generation plant. .... 11

### Tables

**Table 1.** Summary of Permanent and Temporary Disturbance for the Project ..... 8

**Table 2.** Construction Equipment Anticipated to be Used on the Project..... 16

**Table 3.** Permits, Certifications, and Authorizations ..... 19

**Table 4.** Supplemental Authorities and Other Relevant Resources ..... 23

**Table 5.** Resources Required For Consideration in Addition to Supplemental Authorities..... 25

**Table 6.** Past, Present, and Reasonably Foreseeable Future Actions Considered for Cumulative Impacts Analysis..... 26

**Table 7.** List of Preparers/Reviewers ..... 45

## ACRONYMS AND ABBREVIATIONS

%	percent
AC	alternating current
Applicant	Nevada Power Company dba NV Energy
BBCS	Bird and Bat Conservation Strategy
BLM	Bureau of Land Management
BMP	best management practice
CFR	Code of Federal Regulations
DATC	Duke American Transmission Co.
DC	direct current
DOE	U.S. Department of Energy
DR	Decision Record
EA	environmental assessment
EIS	environmental impact statement
FCR	Field Contract Representative
FLPMA	Federal Land Policy and Management Act of 1976
FONSI	Finding of No Significant Impact
gen-tie line	generation-tie transmission line
I-15	Interstate 15
IEC	International Electrotechnical Commission
IM	Instruction Memorandum
IPaC	Information, Planning, and Conservation System
km	kilometer(s)
kV	kilovolt(s)
MW	megawatt(s)
MWac	megawatt alternating current
NEPA	National Environmental Policy Act
NRS	Nevada Revised Statutes
O&M	operation and maintenance

PCS	photovoltaic conversion station
PEIS	programmatic environmental impact statement
PL	Public Law
PM	particulate matter
PM <sub>2.5</sub>	particulate matter 2.5 microns in diameter or smaller
PM <sub>10</sub>	particulate matter 10 microns in diameter or smaller
POD	plan of development
Project	Dry Lake Solar Energy Center at Harry Allen
PV	photovoltaic
RMP	Resource Management Plan
ROD	Record of Decision
ROW	right-of-way
SCADA	Supervisory Control and Data Acquisition
Sempra	Sempra U.S. Gas and Power
SEZ	Solar Energy Zone
SHPO	State Historic Preservation Office
SNWA	Southern Nevada Water Authority
Solar PEIS	<i>Final Programmatic Environmental Impact Statement for Solar Energy Development in Six Southwestern States</i>
SWCA	SWCA Environmental Consultants
SWPPP	Stormwater Pollution Prevention Plan
T&E	Threatened and Endangered
U.S. 93	U.S. Route 93
USC	United States Code
USFWS	U.S. Fish and Wildlife Service

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## 1.0 PURPOSE AND NEED

### 1.1 Introduction

The Las Vegas Field Office of the U. S. Bureau of Land Management (BLM) has prepared this environmental assessment (EA) to disclose and analyze the environmental effects of developing the Dry Lake Solar Energy Center at Harry Allen Project (Project), an up to 20-megawatt (MW) solar energy generation project located in Clark County, Nevada, as proposed by Nevada Power Company doing business as NV Energy (the Applicant). This EA assists the BLM in project planning and ensuring compliance with the National Environmental Policy Act (NEPA) of 1969 and the Federal Land Policy and Management Act (FLPMA) of 1976.

This EA is a site-specific analysis of potential impacts that could result from the implementation of the Proposed Action, which is sited wholly within the boundary of an underlying right-of-way (ROW) issued to the Applicant. This underlying ROW (N-12873) is already partially developed, previously disturbed, and contains existing electrical facilities that include a natural gas combined-cycle generation plant, substations, and associated appurtenances as authorized by BLM through prior NEPA analyses and FLPMA authorizations as listed below. These existing electrical facilities are within established fence line boundaries that are exclusionary of desert tortoise and desert tortoise resources, and have been in operation since the early 1990s. The Proposed Action presents a location and use of public land within a larger boundary of public land for which the Applicant already holds authorized rights for electrical generation facilities, and would therefore be a compatible use of this land.

### 1.2 Background

This EA incorporates by reference, and is tiered to, BLM's prior NEPA analyses conducted for the authorizations of the Applicant's underlying compatible ROW grant N-12873, including the *Department of the Interior Final Environmental Impact Statement on Allen-Warner Valley Energy System* (BLM 1981a) and Record of Decision (ROD) (BLM 1981b), the final *Environmental Assessment for the Harry Allen Combustion Turbine Generation Facility* (BLM 1993) and Decision Record (DR), and the *Harry Allen Combined Cycle Plant Project Environmental Assessment* (BLM 2008a) and DR. Through the preparation of this EA, the BLM shall determine if the individual action of the Project causes any new significant impacts not already analyzed in these prior NEPA analyses. Should no new significant impacts be identified, then the BLM could issue a Finding of No Significant Impact (FONSI). This EA, with the incorporation of prior BLM NEPA analyses, is intended to serve as the necessary NEPA documentation for the proposed Project and the identification of any mitigation measures.

The Applicant proposes to construct a new solar photovoltaic (PV) facility capable of generating up to 20 MW of solar energy near Apex, Nevada, approximately 23 miles (37 kilometers [km]) north of the Las Vegas Valley (Figure 1). The approximately 155-acre project area (all on federal land within an authorized compatible-use ROW held by the Applicant) lies within portions of Sections 25, 35, and 36, Township 17 South, Range 63 East, and Section 1, Township 18 South, Range 63 East; all Mount Diablo Meridian, Clark County, Nevada. Per Nevada Revised Statutes (NRS), the proposed Project is defined as a renewable energy generation project (NRS 701.080).

The proposed Project is located adjacent to a larger solar project (N-93337) proposed by the Applicant as part of the BLM's Western Solar Plan. The new solar modules of the proposed Project would connect into the substation at the adjacent proposed project.

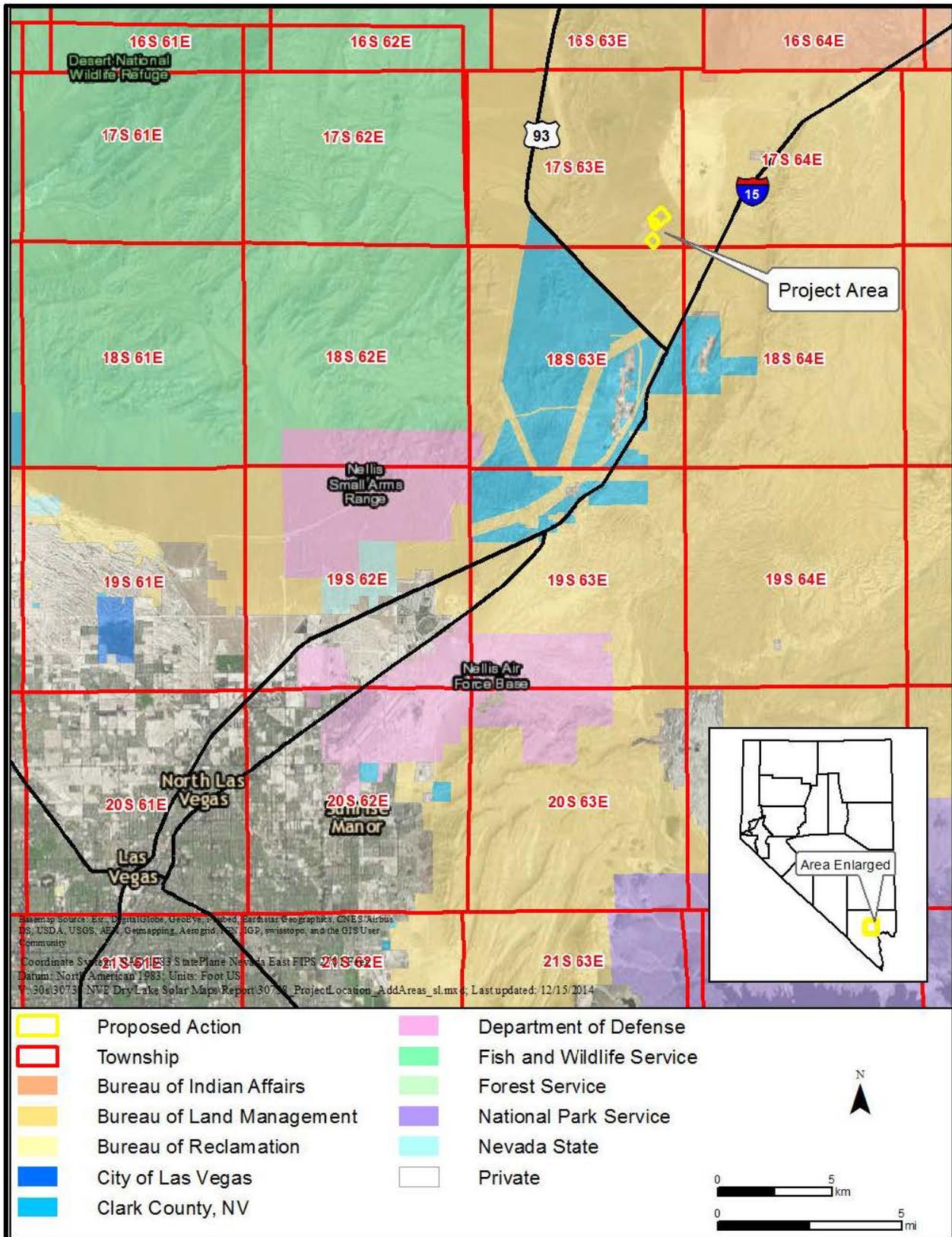


Figure 1. Project location map.

The Project was originally proposed as part of the Applicant's Dry Lake Solar Energy Zone (SEZ) project (i.e., Parcels 5 and 6), but was eliminated because the 155 acres was not part of the auction process for competitive solar development. The 155 acres is situated within the Dry Lake SEZ 'non-developable' area, designated as such due to potential conflicts with underlying authorized ROWs. In this particular case, the underlying authorized ROW is held by the Applicant and is a compatibly developed ROW for which new solar PV modules proposed by the Applicant would be a compatible use of the 155 acres.

### 1.3 Purpose and Need for Action and Decision to be Made

In accordance with Section 103(c) of the FLPMA, 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 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 purpose and need for the Proposed Action is to respond to a FLPMA ROW application submitted by the Applicant to construct, operate, maintain, and decommission an up to 20-MW solar photovoltaic facility and associated infrastructure on public lands administered by the BLM in compliance with FLPMA, BLM ROW regulations, applicable land-use plans, and other applicable federal laws and policies.

The Federal Energy Policy Act of 2005 encourages the study and development of renewable energy resources throughout the United States, particularly solar generation on federal lands in the western states. Development of this resource is beneficial to supply clean, reliable, and cost-effective power for domestic load centers and increase the contribution of renewable energy resources to the nation's energy supply.

The Applicant has submitted an application to BLM for a new long-term ROW to design, construct, operate, and maintain additional solar PV panel modules, and all associated facilities, on public land within the boundary of an underlying compatible-use ROW (N-12873) held by the Applicant, which would connect to the substation at the Applicant's adjacent proposed solar project (N-93337).

In addition to FLPMA, the BLM's applicable authorities include the following:

1. Executive Order 13212, dated May 18, 2001, which mandates that agencies act expediently and in a manner consistent with applicable laws to increase the "*production and transmission of energy in a safe and environmentally sound manner.*"
2. The Energy Policy Act of 2005, dated August 8, 2005 (Public Law 109-58). Section 211 of the Act states, "*It is the sense of the Congress that the Secretary of the Interior should, before the end of the 10-year period beginning on the date of enactment of this Act, seek to have approved non-hydropower renewable energy projects located on the public lands with a generation capacity of at least 10,000 megawatts of electricity.*"
3. Secretarial Order 3285A1, Renewable Energy Development by the Department of the Interior, dated February 22, 2010. This Secretarial Order establishes the development of renewable energy as a priority for the Department of the Interior and creates a Departmental Task Force on Energy and Climate Change. It also announced a policy goal of identifying and prioritizing specific locations (study areas) best suited for large-scale production of solar energy.
4. Instruction Memorandum (IM) 2011-59, National Environmental Policy Act Compliance for Utility-Scale Renewable Energy Right-of-Way Authorizations, dated February 7, 2011. This IM reiterates and clarifies existing BLM NEPA policy to assist offices that are analyzing externally generated, utility-scale renewable energy ROW applications. It includes examples and guidance applicable to such applications that supplement information in the BLM's NEPA Handbook (H-1790-1; BLM 2008b) that reflect that utility-scale renewable energy projects are distinct from

many other types of land and realty actions due to their size and potential for significant resource conflicts, as well as the priority that has been placed on them by the Department of the Interior.

In accordance with the FLPMA, the regulations found at 43 Code of Federal Regulations (CFR) 2800, applicable land use plan(s), and other applicable federal laws and policies, the BLM will make a decision to approve or deny this ROW application, wholly or in part, as analyzed in this EA with incorporation of prior BLM NEPA analyses.

## 1.4 Resource Management Plan Conformance

The Proposed Action is located on federal lands managed by the BLM Southern Nevada District Office under the October 1998 Las Vegas Resource Management Plan (RMP)/Environmental Impact Statement (EIS) and ROD, as amended (BLM 1998).

The principles of multiple-use management for the BLM are established through FLPMA. The current BLM Las Vegas RMP is consistent with FLPMA and guides the decisions for the BLM.<sup>1</sup> The Proposed Action is in conformance with the following management objectives and directions of the 1998 BLM Las Vegas RMP/EIS as amended (BLM 1998):

**Objective LD-2.** “All public lands within the planning area, unless otherwise classified, segregated or withdrawn, and with the exception of Areas of Critical Environmental Concern and Wilderness Study Areas, are available at the discretion of the agency, for land use leases and permits under Section 302 of Federal Land Policy and Management Act...” (BLM 1998:18)

**Objective RW-1.** “Meet public demand and reduce impacts to sensitive resources by providing an orderly system of development for transportation, including legal access to private inholdings, communications, flood control, major utility transmission lines, and related facilities.” (BLM 1998:19)

**Management Direction RW-1-h.** “All public land within the planning area, except as stated in RW-1-c through RW-1-g, are available at the discretion of the agency for rights-of-way under the authority of the Federal Land Policy Management Act.” (BLM 1998:19)

In addition, the Project is located wholly within the boundary of a compatibly developed N-12873 issued to the Applicant (Including all other authorizations) , the authorized use for which is compatible with the Proposed Action.

## 1.5 Relationship to Other Plans and Analyses

This EA complies with the Council on Environmental Quality regulations for implementation of NEPA (40 CFR 1500–1508), the Department of the Interior’s Implementation of NEPA Regulations at 43 CFR 46, and BLM’s NEPA Handbook (H-1790-1) (BLM 2008b). In addition, the Proposed Action would be consistent with other officially approved federal, state, and local plans, policies, and programs and with applicable federal regulations, policies, and laws. The following documents and analyses as they relate to the Proposed Action have been reviewed and considered as the EA has been developed:

- The *Clark County, Nevada Comprehensive Plan* (Clark County Department of Comprehensive Planning 2014) supports multiple uses of public lands outside of special management areas which do not negatively impact the environment.

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<sup>1</sup> On Friday, October 10, 2014, the BLM issued a Notice of Availability of the Las Vegas and Pahrump Field Offices Draft RMP and Draft EIS, Nevada (79 *Federal Register* 61334-01). Following the conclusion of the public participation process for the proposed RMP revision and issuance of a Final EIS, the RMP revision will replace the existing Las Vegas RMP.

- The programmatic biological opinion for actions proposed by the BLM's Southern Nevada District Office (File No. 84320-2010-F-0365).
- The BLM's draft biological assessment for processing of a ROW application by NV Energy for the proposed Dry Lake Solar Energy Center Project located within the Dry Lake Solar Energy Zone (*in preparation*).
- The draft Desert Tortoise Translocation Plan for three solar projects within the Dry Lake Solar Energy Zone (*in preparation*).
- The Programmatic Agreement (BLM 2012a) regarding solar energy development on lands administered by the BLM was developed to establish the process the BLM will follow to comply with Section 106 of the National Historic Preservation Act. The Proposed Action will be consistent with the principles and procedures outlined in the Programmatic Agreement.
- The BLM's *Final Programmatic Environmental Impact Statement – Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States* (BLM 2007a) addresses human health and ecological risk for the proposed use of chemical herbicides on public lands within 17 western states, including Nevada, and provides a cumulative impact analysis addressing the use of chemical herbicides in conjunction with other treatment methods. The ROD (BLM 2007b) outlines the herbicides that are approved for use on public lands, and approves the continued use of 14 herbicides, including those with the active ingredient glyphosate.

## 1.6 Public Involvement and Identification of Issues

This EA incorporates by reference the public involvement with the following related NEPA analyses attendant to their respective development and approvals.

*Department of the Interior Final Environmental Impact Statement on Allen-Warner Valley Energy System and ROD* (BLM 1981a, 1981b). Analysis of the development by Nevada Power Company of over 6,000 acres of public land for a coal-fired generation facility in Dry Lake Valley.

*Environmental Assessment for the Harry Allen Combustion Turbine Generation Facility* (BLM 1993). Analysis to change Nevada Power Company's plan for a coal-fired generation facility in Dry Lake Valley instead to a natural gas-fired generation facility.

*Harry Allen Combined Cycle Plant Project Environmental Assessment* (BLM 2008a). Analysis of the development by Nevada Power Company of a natural gas combined-cycle generation facility to supplement the natural gas-fired peaking units constructed within its 6,000-acre ROW in Dry Lake Valley.

*Final Programmatic Environmental Impact Statement for Solar Energy Development in Six Southwestern States* (Solar PEIS; BLM and U.S. Department of Energy [DOE] 2012). Analysis to develop over 5,700 acres of public land within the Dry Lake Valley with utility-scale (i.e., >20-MW) solar generation facilities.

*Draft Environmental Assessment for the Dry Lake Solar Energy Center Project* (BLM *in preparation*). Analysis to develop 660 acres of public land by the Applicant within a designated SEZ as tiered to the Solar PEIS.

No new or significantly different impacts issues have been identified from the Proposed Action over what has previously been analyzed in the documents above. The entire 155-acre project area is located wholly within an authorized ROW, compatibly developed, by the Applicant. Approximately 100 acres of the total

155 acres of the Proposed Action are situated within the Applicant's already-existing, fenced natural-gas generation facility and is already developed and disturbed. There are no natural resources remaining on these 100 acres. The remaining 55 acres of the total 155 acres of the Proposed Action are situated adjacent to the proposed generation-tie transmission line (gen-tie line) for the Applicant's proposed SEZ project (N-93337), and wholly within the desert tortoise translocation planning area for the three adjacent proposed SEZ projects (N-93337, N-93321, and N-93306). While the Project presents a new use (i.e., solar PV generation) of these public lands not previously proposed by the Applicant, no new impacts or significant changes to impacts already analyzed in the documents listed above would result from implementation of the Project.

## **1.7 Summary**

This chapter has presented the purpose and need for action, as well as a description of other relevant NEPA analyses and authorizations completed by BLM for this project location. Chapter 2 provides a detailed description of the Proposed Action, including design features intended to avoid and minimize potential impacts. The affected environment and the potential environmental impacts resulting from the implementation of the Proposed Action and the No Action Alternative are discussed in Chapter 3. The information in Chapter 3 incorporates by reference other relevant NEPA analyses and authorizations to the extent practicable to reduce paperwork and redundant analyses in the NEPA process. Chapter 4 includes an overview of the coordination, consultation and involvement that took place as part of proposed Project.

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## 2.0 PROPOSED ACTION AND ALTERNATIVES

### 2.1 Introduction

The State of Nevada has established a Renewable Portfolio Standard (NRS 704.7821) for which NV Energy, as an electrical utility provider of the State, must meet specific solar electrical generation capacities every year through the year 2025. By calendar year 2025, not less than 25 percent (%) of the total amount of electricity sold by NV Energy to its retail customers in Nevada must be from renewable energy sources. The Renewable Portfolio Standard further requires that through 2015, 5% of all electricity generated by NV Energy in the state must come from solar power, with the requirement increasing to 6% from 2016 through 2025.

Additionally, the State of Nevada Senate Bill 123 was codified as *Reduction of Emissions From Coal-Fired Electric Generating Plants* (NRS 704.7311–7322) for which NV Energy must develop and comply with a comprehensive plan for the reduction of emissions from its coal-fired electric generating plants and increase capacity from renewable energy facilities (NRS 704.7314). NV Energy has developed this plan as its Emission Reduction and Capacity Replacement plan that includes, in part, the construction or acquisition of, or contracting for, 350 MW of electric generating capacity from renewable energy facilities (NRS 704.7316(2)(b)).

NV Energy has a three-part energy strategy to meet an overall goal of providing clean, safe, and reliable energy to its customers at reasonable and predictable prices. This strategy includes increasing energy efficiency and conservation programs, expanding renewable energy initiatives and investments, and also involves a diversified energy portfolio with a balanced mix of fuels for energy generation. This is in the best interest of its customers, shareholders, and the communities it serves.

One part of meeting this energy strategy is the need to meet the State of Nevada's Renewable Portfolio Standard for solar energy by investing in, and partnering with, commercial solar project developers to purchase solar-generated power, participate in turn-key projects, and/or co-develop solar projects. Additionally, NV Energy is actively investigating opportunities to develop company-owned solar projects utilizing viable technologies and seeking locations of adequate solar insolation. Such locations would be considered ideal if found to be in proximity to existing electrical infrastructure (i.e., already disturbed brownfield sites controlled by NV Energy, pending solar project authorizations to NV Energy, and existing or planned transmission connections) to optimize the value of harnessing this renewable resource for electric power generation.

### 2.2 Proposed Action

NV Energy's purpose for the Proposed Action is to submit its ROW application to, and secure the necessary authorization(s) from, the BLM for a new long-term ROW to design, construct, operate, and maintain additional solar PV panel modules, and all associated facilities, on public land within the boundary of an underlying compatible-use ROW (N-12873) held by the Applicant, which would connect to the substation at NV Energy's adjacent proposed solar project (N-93337) pending final BLM authorization in Spring 2015. The in-service date for the proposed Project is December 2016.

#### 2.2.1 Overview

The Applicant proposes to construct, operate, maintain, and decommission the Project, consisting of up to 20 MW of solar PV modules on approximately 155 acres of BLM-administered land, located wholly within a compatibly developed ROW held by the Applicant in Clark County, Nevada. The on-site

facilities comprise solar array PV modules which would connect to a substation on an adjacent proposed solar generation facility (N-93337) that is pending final authorization. Access already exists so no new roads would be required. No new transmission connection would be required as these new solar PV modules would connect to a substation on an adjacent proposed solar generation facility to be owned by NV Energy.

### **2.2.2 Project Location and Existing Land Use**

The Project is located approximately 23 miles (37 km) northeast of the city of Las Vegas in Dry Lake Valley, and approximately 8 miles (13 km) south and east of the Moapa River Indian Reservation in an unincorporated area of Clark County, Nevada. The nearest major roads accessing the Project are Interstate 15 (I-15) and its Frontage Road, and U.S. Route 93 (U.S. 93). The location of the proposed Project is sited wholly within a compatibly developed ROW held by NV Energy and is partially within the planning area for NV Energy's adjacent proposed solar generation facility (N-93337) (Figure 2).

All lands for the proposed facilities are federal lands administered by the BLM under the Las Vegas RMP (BLM 1998).

The Project site is located in portions of Section 25, 35, and 36, Township 17 South, Range 63 East, and Section 1, Township 18 South, Range 63 East; all Mount Diablo Meridian, Clark County, Nevada.

### **2.2.3 Dry Lake Solar Energy Center at Harry Allen Facilities**

Within the 155-acre project area boundary, the Project would have 55 acres of new long-term land disturbance effects during operations (Table 1). Note that of the 155 total proposed acres, approximately 100 acres are already permanently disturbed from current utility uses of the underlying compatible ROW. No new access roads would be required; access would utilize existing roads already in place and used by the Applicant. No new substation or gen-tie line would be required because the proposed Project would connect into the substation at the Applicant's adjacent proposed solar generation project. The Project would generate up to 20 MW of electricity using multiple arrays of fixed-tilt or single-axis tracking solar panels connected to electrical infrastructure at the substation. Solar panels generate electricity using the photoelectric effect, whereby the cells that compose the panel receive the sun's radiation in the form of photons and release electrons into the conduction band. The capture of these free electrons produces an electrical current that can be collected and supplied to the electrical power grid.

**Table 1.** Summary of Permanent and Temporary Disturbance for the Project

<b>Disturbance Type</b>	<b>Acres of New Disturbance</b>	<b>Comments</b>
<b>Long-Term Disturbance</b>		
Solar facility	55	20-MW PV solar facility (100 acres of existing disturbance)
Communication line	—	Installed along gen-tie line (associated with Project # N-93337)
<b>Total</b>	<b>55</b>	
<b>Short-Term Disturbance</b>		
Laydown area	0	Located inside solar facility
<b>Total</b>	<b>0</b>	

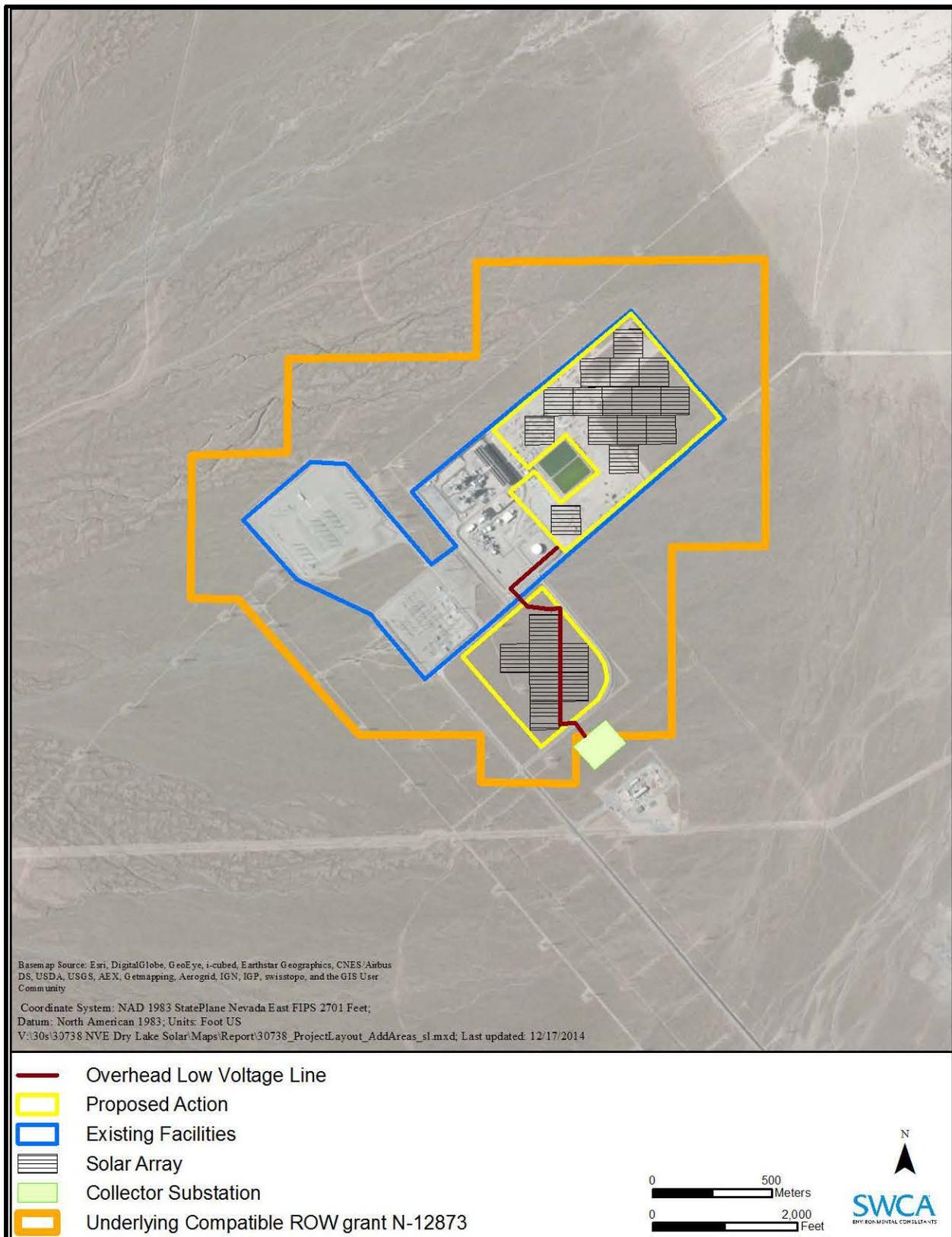


Figure 2. Project location.

### 2.2.1.1 SOLAR PANEL ARRAYS

The proposed Project would use advanced and proven PV technology to convert sunlight directly into low-voltage direct current (DC) electricity, including the following major components: non-reflective PV modules mounted on fixed-tilt brackets, or single-axis trackers, and a racking system supported by embedded piers with associated combiner boxes, inverters, transformers, and switchgears. For a typical fixed-tilt PV module design, support piles are driven into the ground followed by the installation of fixed-tilt brackets with support beams and rails. The PV modules are then installed onto these fixed brackets (Figure 3). The Project may be designed with this type of configuration and/or a combination of PV module configurations as determined by final design. The PV modules, combiner boxes, inverters, and transformers would be grouped into individual blocks, or arrays, that would generate approximately 1 to 4 MW of alternating current (MWac) electricity per array. The number of arrays to be installed will be determined by final design to achieve the desired total plant output of up to 20 MW (Figure 4).

Within each array, the inverters would convert the DC power to alternating current (AC) power and the pad-mounted transformers would step-up the voltage to a higher voltage level (i.e., 12.5 kilovolts [kV] or 34.5 kV) by electrical switchgear. The output from the pad-mounted transformers would travel to the substation at the Applicant's adjacent proposed solar plant via an AC power collection system for delivery to NV Energy's electrical grid.

### 2.2.3.1 ELECTRICAL COLLECTION AND TRANSMISSION SYSTEM

The Project would have no new transmission system. The low-voltage power feeding into the collector substation from the arrays at the plant site would be stepped up to a higher voltage (i.e., 230 kV) by transformer(s) and transmitted to NV Energy's existing Harry Allen Substation via the Applicant's adjacent proposed overhead transmission line (the gen-tie line). NV Energy's interconnection application process and studies will coordinate and identify the final routing and voltage of the gen-tie line, and the connection position at the Harry Allen Substation.



**Figure 3.** Typical fixed-tilt bracket configuration.



**Figure 4.** Example of 10 solar arrays adjacent to conventional natural gas generation plant.

### 2.2.3.2 TELECOMMUNICATIONS

As part of the interconnection application process and studies, the exact pathway routes and mechanisms will be determined in the final design. The Project would connect to NV Energy's communications system at the existing Harry Allen Generation Station. During construction, the construction contractor and NV Energy would install communication lines via underground conduit to facilitate telemetering of data collected at the approximately 35-foot-tall meteorological station(s). The Project would use a Supervisory Control and Data Acquisition System (SCADA) via fiber-optic cable connected to the Applicant's adjacent proposed solar project to provide remote communication capability and production metering within each solar array. The SCADA system allows for controlling and monitoring the facility as a whole from a central host computer or a remote personal computer. The SCADA system transmits critical information from the facility to a central control server and to all other locations as required.

### 2.2.3.3 SITE SECURITY AND FENCING

The Project would be protected by a perimeter chain-link security fence with barbed wire along the top and tortoise-proof fencing along the bottom. Access would be controlled by electronic and or keyed gates with tortoise guards. The layout of the Project would allow vehicular travel between PV modules and around the perimeter of the plant for internal site access, operation, and maintenance. Note that 100 acres of the 155-acre project area is already secured within an operational natural gas-fired generation facility that is fenced and controlled by the Applicant.

### 2.2.3.4 OPERATION AND MAINTENANCE FACILITIES

All structures and facilities of the Project would be properly grounded for electrical protection, as required. There would be no new operation and maintenance (O&M) facilities on-site because the Project would utilize the O&M facilities on the Applicant's adjacent proposed solar project.

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All materials such as panels, fencing, concrete, pipe, wire and cable, fuels, portable generators, etc., would be delivered to the site by truck and off-loaded by forklifts, booms, and/or cranes.

#### **2.2.3.5 ROAD SYSTEM**

Existing paved and dirt access roads built and maintained by the Applicant for prior land use authorizations in this area would be used for access to the Project. Primary external site access would be from an existing paved access road to NV Energy's Harry Allen Generation Station. No new roads would be required.

#### **2.2.3.6 CONSTRUCTION WORKSPACE, YARDS, AND LAYDOWN AREAS**

All workspace needed for the Project would occur within the 155-acre project area, as well as any available space previously disturbed within the Applicant's other adjacent ROWs in this area (e.g., N-12873 and N-74510) and on the Applicant's adjacent proposed solar project (N-93337).

#### **2.2.3.7 LIGHTING**

All lighting would be designed to provide the minimum illumination needed to achieve safety and security objectives, and be directed downward and shielded to focus illumination on the desired areas. The Applicant would prepare a BLM-approved Lighting Management Plan.

#### **2.2.3.8 WASTE AND HAZARDOUS MATERIALS MANAGEMENT**

Construction wastes would be managed in accordance with applicable state and local regulations. Trash and food items would be placed in closed containers with lids. Limited quantities of hazardous wastes would be generated from construction activities, such as waste hydraulic fluids and lubricating oils and maintenance activities and the associated oil-soaked materials (e.g., rags, sorbents, and filters). Used hydraulic fluids and lubricating oils would be recycled when possible. The oil-containing solids would be managed as hazardous waste and sent to an approved off-site disposal facility in accordance with applicable policies.

A Spill Prevention and Containment for Construction Plan would be prepared and implemented during construction of the Project. Contractor personnel would be properly trained to control and clean up any spills. Industry best management practices (BMPs) would be used to prevent spills; however, if spills do occur they would be cleaned up completely, quickly, and safely and reported to authorities as necessary/required in accordance with the construction Stormwater Pollution Prevention Plan (SWPPP) and associated BMPs.

Fuel, oil, and hydraulic fluids used in on-site vehicles and equipment would be transferred directly from a service truck to construction equipment and would not otherwise be stored on-site. Service personnel and construction contractors would follow standard operating procedures for filling and servicing construction equipment and vehicles to reduce the potential for incidents involving hazardous materials.

#### **2.2.3.9 STORMWATER MANAGEMENT**

Site preparation for construction would include cut-and-fill grading and placement, and compaction of structural fill to serve as a sub-base. Drainage improvements such as channels, basins, riprap, and culverts would be constructed to maintain existing drainage flow patterns and allow for the safe operation and maintenance of the facilities.

A SWPPP would be prepared and submitted to the Nevada Department of Conservation and Natural Resources Division of Environmental Protection to obtain coverage by Stormwater General Permit (NVR

100000). The construction SWPPP would be prepared in accordance with standard engineering practices and would include a description of BMPs, good housekeeping, and structural controls to minimize impacts on water quality during construction. Structural controls implemented would meet the requirements of this permit and the design requirements of the Clark County Regional Flood Control District.

Site grading would be designed to maintain natural drainage patterns to the extent practical. Channel modifications, if necessary, would be designed to convey 100-year flood flows with the installation and use of culverts, riprap, and other structural methods as appropriate and where necessary.

### **2.2.3.10 VEGETATION MANAGEMENT**

Any new infestations of non-native, invasive plant species in the project area would be treated promptly per requirements of a BLM-approved Integrated Weed Management Plan. The Applicant proposes to reduce and control invasive plants within the project area by using herbicides in combination with manual methods to lessen the potential for the dispersal or increased abundance of existing and any new non-native, invasive plant species. Prior to any herbicide application, the Applicant would prepare a pesticide use proposal for submittal to the BLM using those herbicides as described in the BLM's programmatic environmental impact statement (PEIS) for vegetation treatments using herbicides on BLM lands (BLM 2007a). The PEIS addresses human health and ecological risk for the proposed use of chemical herbicides on public lands within 17 western states, including Nevada. It is anticipated that this would include the use of glyphosate (as found in Roundup PRO<sup>®</sup> and Aquamaster<sup>®</sup>).

During construction and O&M phases of the Project there is also the potential for undesirable invasive insect infestations within the Project site. The Applicant proposes to control undesirable insect infestations by using pesticides. Prior to any use of pesticides, the Applicant would submit a pesticide use proposal to the BLM proposing protocols and chemicals that can be used in the event that infestations arise during activities associated with the Project. It is anticipated that this would include the use of pesticides including Benzeneacetate and Bifenthrin. In addition, insecticides would not be stored at the facility and would be brought on-site during application periods only.

## **2.2.4 Preconstruction and Construction Activities**

### **2.2.4.1 OVERVIEW**

Construction would generally follow the sequence of staking/flagging the limits and boundaries of the proposed Project, plant and wildlife clearances/relocations, site grading, fence installation, assembly and installation of all facilities, demobilization, cleanup, and site reclamation.

Construction of the proposed Project, from site preparation and grading to commercial operation, would be expected to take 18 months or less to complete. Depending on ROW authorization and permit acquisitions, construction is anticipated to start in the second quarter of 2015, and proceed through December 2016, or earlier.

### **2.2.4.2 SITE PREPARATION**

Several activities must be completed prior to the commercial operation date. The majority of the activities relate to equipment-ordering lead time, as well as design and construction of the facility. Preconstruction, construction, and post-construction activities, some of which would occur concurrently, include:

- geotechnical analysis for proper foundation design and materials;
- finalize Project design;

- order all necessary components, including solar modules, inverters, and pad-mounted transformers;
- installation of rack foundations (vibratory or pile driving);
- installation of racks;
- installation and stringing of modules;
- installation of underground cables;
- construction of underground feeder lines;
- commissioning of modules and inverters; and
- commencement of commercial operation.

On-site communications during the construction phase would be accomplished with cellular telephones and two-way radios. Air horns may also be used for emergency communications as necessary.

#### **2.2.4.3 GEOTECHNICAL INVESTIGATION**

Prior to construction, geotechnical investigations would be completed throughout the project area to identify site-specific construction issues and to inform final design and necessary BMPs. Disturbance associated with vehicle travel and drilling activities in support of the geotechnical investigations would occur on land in the project area identified for long-term disturbance.

#### **2.2.4.4 SURVEYING AND STAKING**

Prior to construction commencement, a licensed professional land surveyor would conduct a land survey of the Project to stake/flag the ROW boundaries, cut-and-fill zones, and any offsets. Survey and staking would continue through the initial construction stages as the site is graded and prepared for facility installation, to mark locations of foundations, piers, and other site structures as necessary for construction. Staking/flagging would be maintained until final cleanup and/or reclamation is complete, after which all survey staking would be removed. Staking/flagging would include the use of wood lathe, colored flagging, steel nails with whiskers, capped rebar stakes, and/or other typical materials. No paint or permanent discoloring agents would be applied to rocks or vegetation to indicate survey or construction activity limits.

#### **2.2.4.5 CLEARANCE SURVEYS AND FENCING**

Tortoise exclusion fencing would be installed around the 55 acres of the Project that are not already fenced prior to pre-construction desert tortoise clearance surveys being conducted (note: 100 acres of the Project are already fenced and exclude desert tortoise). This will be after, and in addition to, a large-scale desert tortoise translocation effort in support of the three proposed large, utility-scale solar projects surrounding the Proposed Action. As part of that large-scale translocation effort, all desert tortoises, if any are found, will be relocated from the 55 acres as part of the Dry Lake Valley Solar Energy Zone Desert Tortoise Translocation Plan (Ironwood, *in preparation*). Following installation of the desert tortoise exclusion fence around the 55 acres, the Applicant will ensure that Authorized Biologists perform a full-clearance survey of the fenced area, in accordance with the most current U.S. Fish and Wildlife Service (USFWS) desert tortoise guidance. As a result, it is anticipated that no desert tortoises will be present within the 55 acres by the time the Proposed Action construction commences.

#### **2.2.4.6 VEGETATION REMOVAL AND TREATMENT**

There would be permanent disturbance to vegetation from construction on 55 acres of the Project (note: 100 acres of the Project are already disturbed and partially developed). This includes detailed construction surveys, mobilization of construction staff, and grading. Site preparation would include vegetation clearing, grubbing, and earth-contouring where necessary to allow for equipment access, stormwater management, and facility installations. Cactus and yucca present within the permanent project area would be salvaged and disposed with a forestry mitigation fee payment or otherwise relocated prior to construction commencement, according to the site prescriptions as determined and required in coordination with the BLM botanist.

#### **2.2.4.7 SITE CLEARING, GRADING, AND EXCAVATION**

More than half of the Project site has been previously grubbed, graded, and developed for other utility land uses on underlying compatibly developed ROWs. Additional site preparation of the undisturbed portion would involve vegetation clearing, grubbing and grading with the use of excavators, graders, scrapers, dump trucks, backhoes, compactors, and loaders, in addition to support from pick-up trucks, water pulls/trucks, and maintenance trucks. The majority of the efforts to grade the site would be completed within several months of commencement of construction activities. Minor grading would be ongoing in the form of excavation and backfill for foundations, underground wiring, duct banks, and other associated facilities for the duration of construction.

No clearing or grading would occur until the erosion-control measures have been installed. Excavations during construction would include trenching for the installation of the electrical collection systems, communication lines and, if used, for the pre-cast concrete vaults that the power conversion stations and switchgear sit upon. Clearing, grading, and excavations would be required for the perimeter fencing and gates. The site would ideally maintain a positive terrain slope. Existing slope varies and would be determined by the detailed grading design.

#### **2.2.4.8 GRAVEL, AGGREGATE, AND CONCRETE NEEDS AND SOURCES**

Concrete, mechanical, and electrical works would be performed with the aid of graders, rollers, front loaders, dump trucks, trenching machines, drillers, concrete mixer and pump trucks, forklifts, cranes, and pick-ups. The construction contractor would likely purchase concrete and aggregate from a local source and transport such materials to the Project.

The project area surface would likely be graded, compacted, and stabilized as determined by final design. Concrete, aggregate, and/or gravel would be utilized for foundations, pads, and fencing. Foundation pads for the medium-voltage transformers and the photovoltaic conversion stations (PCSs) and PCS enclosures are anticipated to be prefabricated and delivered to the Project site, as determined by final design and construction planning.

#### **2.2.4.9 CONSTRUCTION WATER USAGE AND AMOUNTS**

The construction contractor would be responsible for identifying and securing the rights to a permitted water source(s) for construction. Water would not be obtained from the Garnet Valley Basin or from any of the five over-appropriated nearby basins. Water would be brought in to the project site. The contractor may elect to install a temporary water stand(s), temporary lined pond, or other method of temporary on-site non-potable water storage for the duration of construction. Water would be utilized for site and access dust control, construction needs, and fire suppression, as necessary. The total amount of water needed during construction would be up to approximately 33 million gallons (100 acre-feet).

In addition to using water for dust control, the BLM has previously allowed the use of several chemical dust palliatives on other construction projects within the Southern Nevada District. If dust palliatives are used in place of, or in conjunction with, water for the Project, the total amount of water needed during construction would be reduced. The Applicant may opt to use such palliatives, as authorized by the BLM for the Project. The soil binder/dust palliatives that are proposed for the Project, and which the BLM has previously allowed, are:

- Road Bond 1000
- For roads and heavy traffic areas: Soil Cement
- For non-traffic areas on finer soils: Formulated Soil Binder FSB 1000
- For non-traffic areas on sandier/rockier soils: Plas-Tex

#### **2.2.4.10 SOLAR ARRAY ASSEMBLY AND CONSTRUCTION**

Solar array construction would begin with the installation of support structures and foundations. The final support structure design is unknown at this time and would be determined by results of the geotechnical survey, the solar technology, and construction contractor selected to complete construction.

Once foundations and support structures are in place, tracker assemblies would be constructed on-site and installed on the support structures. Final assembly of the trackers onto the support structures would require a variety of heavy equipment, including small cranes, tractors, welding machines, and forklifts. The PV modules would connect electrically into the substation at the adjacent proposed solar generation facility. No new road construction or buildings would be required.

#### **2.2.4.11 SITE STABILIZATION, PROTECTION, AND RECLAMATION**

The permanent site facility would be designed and constructed according to the civil engineering design to ensure the site is stabilized and protected by adequate slopes, cover, and drainage features. Survey stakes, flagging, and other temporary identification markers would be removed.

The Applicant will prepare a SWPPP as required and will include standard sediment-control devices to minimize soil erosion during construction and during O&M.

#### **2.2.4.12 WORKFORCE, SCHEDULE, AND EQUIPMENT AND MATERIALS**

Construction would involve a peak workforce of approximately 400 personnel including laborers, craftsmen, supervisory personnel, support personnel, construction management, and delivery drivers. Construction would also require additional support staff including construction inspectors, surveyors, project managers, and environmental monitors. Construction would take approximately 12 to 24 months and would generally occur during daylight hours, Monday through Friday; however, additional days/hours may be necessary to make up schedule deficiencies or to complete critical construction activities. For instance, during hot weather, it may be necessary to start work earlier to increase worker productivity and/or to avoid pouring concrete during high ambient temperatures. Anticipated construction equipment for the Project is provided in Table 2.

**Table 2.** Construction Equipment Anticipated to be Used on the Project

<b>Equipment</b>	<b>Use</b>
¾-ton and 1-ton pick-up trucks	Transporting construction personnel
Flatbed trucks; flatbed boom trucks	Hauling and unloading materials

**Table 2.** Construction Equipment Anticipated to be Used on the Project (Continued)

<b>Equipment</b>	<b>Use</b>
Backhoes	Excavating and loading
Bulldozers	Excavating, grading, and reclaiming
Compactors	Site leveling
Concrete trucks/pumps	Delivering and pouring concrete
Cranes	Loading, unloading, and lifting materials and erecting structures
Diesel generator	For on-site construction power (temporary)
Drum rollers	Smooth-rolling graded surfaces
Dump trucks	Hauling excavated materials and importing backfill
Excavators	Excavating trenches and foundations
Forklifts	Transporting and lifting materials
Foundation drills	Drilling concrete foundations
Fuel and equipment fluid trucks	Refueling and maintaining vehicles
Graders	Grading facility and roads
Lifts	Elevating personnel and equipment
Loaders	Excavating and loading soil
Scrapers	Grading
Tractors	Earthmoving
Water pulls	Moisture conditioning and dust control
Water trucks	Moisture conditioning and dust control
Welding machines	Welding structures

#### **2.2.4.13 CONSTRUCTION TRAFFIC**

No more than 200 employee vehicles are anticipated at the project area at one time. During construction, several types of light and medium construction vehicles would travel to and from the site. The Applicant estimates that there would be approximately 100 truck trips per day in the area during peak construction periods. The highest traffic volume would occur during the peak construction periods when the rack foundation posts, rack, and module assembly are taking place concurrently. Oversize and overweight loads are not expected.

#### **2.2.4.14 CONSTRUCTION POWER**

Until the Project becomes operational, construction activities would utilize a temporary power source such as portable generators, and/or local distribution utility service that might be available at the Applicant's existing Harry Allen Generation Station.

### **2.2.5 Operations and Maintenance**

The Project would have full-time staff at the site to conduct monitoring and inspection of all systems, scheduled preventative maintenance, corrective maintenance, and ongoing inspections. The Applicant would conduct periodic patrols and inspections of the facilities, and conduct any maintenance and repairs as needed. A complete schedule of O&M needs would be established before the start of commercial operations. All O&M activities would be conducted within the same regulatory requirements of all

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permits and authorizations as those for construction activities, including environmental compliance measures as managed by the Applicant's environmental professionals.

#### **2.2.5.1 MAINTENANCE ACTIVITIES, INCLUDING MIRROR WASHING AND ROAD MAINTENANCE**

On-site maintenance activities would include inspections, planned and unplanned maintenance, and panel washing as determined by final operation and maintenance design planning. The equipment is modular and can be easily removed and replaced if necessary. Given the relatively small size, modules can be easily picked up with a small loader and placed on a flatbed truck. Panel washings would occur as necessary to increase the average optical transmittance of the flat panel surface. The annual demand for water to wash the panels would be approximately 70,000 gallons (less than 1 acre-foot). It is anticipated this water would be trucked to the site as needed. Some minor road work and weed control would be performed as needed.

#### **2.2.5.2 FIRE PROTECTION**

With full development of the site, vegetation would be removed so the risk of wildfire is relatively low. The solar modules are designed to be resistant to fire and the racks are constructed of non-combustible steel and aluminum. The solar panels and other electrical equipment would meet applicable Underwriters Laboratories and International Electrotechnical Commission (IEC) ratings for their resistance to fire. Specifically, the modules are IEC 61730 certified, which requires tests to assess the potential fire hazard due to operation of a module or failure of its components. Tests are conducted associated with temperature, hot spots, fire resistance bypass diode thermal, and reverse current overload in order to certify the panels.

A Fire Management Plan would be prepared to minimize the occurrence of unwanted human-caused and naturally caused fires. The plan would describe an emergency notification procedure, site evacuation process, and fire prevention procedures. Fire extinguishers would be available at strategic locations throughout the Project. Access to and within the project area would be more than adequate to allow rescue vehicles access.

#### **2.2.5.3 HEALTH AND SAFETY PROGRAM**

Potential safety issues for the Project include safe work practices, site security, emergency response procedures, fire control, heavy equipment use and transportation, traffic control, and others. A detailed and complete health and safety program that meets all requirements under the federal Occupational Safety and Health Administration regulations would be developed for the protection of both workers and the general public during the construction and operational phases of the Project. The health and safety program would be developed, implemented, and administered by the contractors during construction and by the owner during operations.

### **2.2.6 Decommissioning and Site Reclamation**

The Applicant anticipates that the Project would have a usable lifespan after which continued operation would not be cost-effective. This is expected to occur after approximately 30 years of operation. At that time, the Project would either be decommissioned and all equipment would be removed or new technology would be proposed for installation. Once the usable lifespan of the Project has been reached and no further use of the land is required by the Applicant, the site would be restored to as close to preconstruction conditions as possible, unless otherwise directed or required at that time. The primary activities necessary for decommissioning would consist of:

- removal of all equipment, fencing, drainage features, structures, wires, foundations, concrete, steel, etc., to be disposed of properly;

- decompaction and recontouring of the ground to original slopes and contours; and
- revegetation of the project area and long-term monitoring to ensure successful revegetation and restoration.

A final Decommissioning and Site Reclamation Plan would be developed consistent with BLM policy and objectives at that time, as approved by the BLM. The BMPs and stipulations that have been developed for construction activities would be applied to similar activities during decommissioning, as necessary.

### 2.2.7 Permits and Approvals

Table 3 provides a list of federal, state, and local permits, authorizations, or consultations that may be required for the Proposed Action.

**Table 3.** Permits, Certifications, and Authorizations

Authorization	Status	Statutory Reference	Permit or Authorization Trigger
<b>Federal</b>			
BLM ROW	Submitted ROW application in July 2014.	FLPMA (Public Law [PL] 94-579; 43 United States Code [USC] 1761–1771; 43 CFR 2800); NEPA (PL 91-190, 42 USC 4321–4347, January 1, 1970, as amended by PL 94-52, July 3, 1975; PL 94-83, August 9, 1975; and PL 97-258, 4[b], September 13, 1982)	Federal land, federal permit
BLM National Historic Preservation Act Compliance	Completed as part of the Solar PEIS.	National Historic Preservation Act (36 CFR 800)	Cultural resources on federal land that are eligible for listing on the National Register of Historic Places
Endangered Species Act	Desert tortoise is present; surveys will be conducted during the fall survey period.	Endangered Species Act (PL 93-205, as amended by PL 100-478 [16 USC 1531, <i>et seq.</i> ])	Section 7 consultation
<b>State</b>			
Nevada State Historic Preservation Office (SHPO)	SHPO concurrence has been already been obtained during completion of the Solar PEIS and no additional SHPO concurrence will be required.	National Historic Preservation Act (36 CFR 800)	Consultation required under 36 CFR 800
Utility Environmental Protection Act, Permit to Construct	Permit will be obtained prior to commencement of construction.	NRS 704.820 to 704.900	Construction of energy-generating facility with nameplate capacity >70 MW, and/or transmission lines >200 kV

**Table 3.** Permits, Certifications, and Authorizations (Continued)

Authorization	Status	Statutory Reference	Permit or Authorization Trigger
<b>County</b>			
Dust Control Permit	Permit will be obtained prior to commencement of construction.	Clark County Air Quality Regulations; Clean Air Act of 1977 and amendments (NRS 321.001, 40 CFR Subpart C, 42 USC 7408–7409)	Construction activities impacting greater than 0.25 acre
Grading Permit	Permit will be obtained prior to commencement of construction.	Clark County Title 30.32.040	Grading activities in Clark County
Building Permit	Permit will be obtained prior to commencement of construction.	Clark County Title 30.32.030	Construction of a building in Clark County

### 2.2.8 Protective Measures

The Applicant would adhere to specific design features to avoid, minimize, and mitigate adverse environmental impacts (Appendix A).

#### 2.2.8.1 RESOURCE SURVEYS

The following resource surveys have been completed in support of the Project and other adjacent and/or compatibly sited projects, which cover the resources within the proposed Project:

- Pre-project desert tortoise 100% presence/absence surveys of the project area, including visual health assessments, blood draws, and telemetry
- Cactus/yucca density estimates
- Cultural resources Class III inventory

#### 2.2.8.2 REGULATORY-REQUIRED PLANS

Detailed structure access and location drawings would be developed in the final plan of development (POD) pending final design. The BLM requires a final POD for the development and implementation of the Project. The final POD details the methods and procedures that would be used in construction of the Project. The POD includes instructions to construction contractors, agency personnel, resource inspectors, and monitors for construction, operation, and maintenance of the Project. The POD also contains a project description, resource protection, mitigation measures, and environmental compliance field activities.

In addition, the following plans would be appendices to the POD and describe the mitigation measures and environmental protection measures that would be followed during construction, operation, and maintenance of all elements of the Project.

- Project-specific Biological Opinion
- Desert Tortoise Translocation Plan
- Bird and Bat Conservation Strategy
- Worker Environmental Awareness Plan
- Traffic Management Plan

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- Stormwater Pollution Prevention Plan
  - Spill Response Plan
  - Site Drainage Plan
  - Site Rehabilitation Plan
  - Emergency Response Plan
  - Health and Safety Program
  - Fire Management Plan
  - Hazardous Materials Management Plan
  - Integrated Weed Management Plan
  - Facility Decommissioning Plan
  - Lighting Management Plan

### **2.2.8.3 REGIONAL MITIGATION STRATEGY**

The BLM prepared the Solar Regional Mitigation Strategy (SRMS) for the Dry Lake SEZ, which it issued on March 17, 2014 (BLM 2014c). The SRMS takes into account the resource conditions of the land and regional trends informed by the BLM's recent Rapid Ecoregional Assessments, and was developed in collaboration with stakeholders to address key issues such as offsite mitigation and the costs associated with implementation of mitigation. To compensate for unavoidable adverse impacts identified in the EA, the BLM will collect a per-acre fee to be paid by the Applicant. The amount of the fee will be \$1,836 per acre disturbed by development which will apply only to the 55 acres of new disturbance under the Proposed Action. The fee will be collected prior to BLM issuing a notice to proceed. Regional mitigation actions funded to offset those impacts may include but would not necessarily be limited to:

- Restoration of native vegetation and site protection activities. Because wildlife habitat is an ecosystem service provided by native vegetation, mitigation for vegetation would benefit general and special-status wildlife species.
- Locate and pull hollow mine markers in the district to help offset potential impacts to migratory birds.
- Provide for increased resource monitoring and law enforcement patrols to prevent soil degradation and enable early detection and restoration activities that would prevent further declines, and the development of BMPs and techniques for restoring cryptobiotic crusts.

## **2.3 No Action Alternative**

Under the No Action Alternative, NV Energy's ROW application to develop the Proposed Action would not be approved and there would be no direct, indirect, or cumulative impacts from the Project. Although the Project would not be developed, because the project area is wholly within a compatibly developed ROW held by NV Energy, other electrical utility uses for this land by NV Energy would likely be implemented. These impacts, if they were to occur, would vary depending on the type of energy development pursued, project size, and project schedule.

## **2.4 Alternatives Considered But Eliminated from Detailed Analysis**

The Project was originally proposed as part of the Applicant's Dry Lake SEZ project (i.e., Parcels 5 and 6), but was eliminated because the 155 acres was not part of the auction process for competitive solar development. The 155 acres is situated within the Dry Lake SEZ 'non-developable' area, designated as such due to potential conflicts with underlying authorized ROWs. In this particular case, the underlying authorized ROW is held by the Applicant and is a compatibly developed ROW for which new solar PV modules proposed by the Applicant would be a compatible use of the 155 acres.

## 3.0 AFFECTED ENVIRONMENT

### 3.1 Introduction

This chapter presents the potentially affected existing environment (i.e., the physical, biological, social, and economic values and resources) of the impact area. While many issues may arise during the process, not all of the issues raised warrant detailed analysis. Issues raised during the process are analyzed if:

- the issue is significant (an issue associated with a significant direct, indirect, or cumulative impact, or where necessary to determine the significance of impacts); or
- there is a disagreement about the best way to use a resource or resolve an unwanted resource condition or potentially significant effects of a Proposed Action or alternative.

Potential impacts to the following resources/concerns were evaluated in accordance with criteria listed above to determine whether detailed analysis was required in the EA. This analysis was done using the best available information, known resource values, and current site-specific data collected during biological and cultural resource inventories. Tables 4 and 5 document the evaluation of each resource/concern and rationale for inclusion or dismissal from detailed analysis in the EA.

Impacts are defined as modifications to the existing environment brought about by implementing an action. Impacts can be beneficial or adverse, can result from the action directly or indirectly, and can be long-term, short-term, or cumulative in nature. Direct impacts are attributable to implementation of an action that affects a specific resource and generally occur at the same time and place. Indirect impacts can result from one resource affecting another or can occur later in time or removed in location but can be reasonably expected to occur. Long-term impacts are those that would substantially remain for many years or for the life of the project. Short-term impacts result in changes to the environment that are stabilized or mitigated rapidly and without long-term effects.

**Table 4.** Supplemental Authorities and Other Relevant Resources

Supplemental Authority*	Not Present <sup>†</sup>	Present/ Not Affected <sup>†</sup>	Present/ May Be Affected <sup>‡</sup>	Rationale
Air Quality			X	Ensure dust control permit is obtained from the Clark County Department of Air Quality for all soil-disturbing activities of 0.25 acre or greater, in the aggregate and all permit stipulations are in compliance for the duration of the Project.
Area of Critical Environmental Concern	X			There are no Areas of Critical Environmental Concern present within or impacted by the Project. However, the Project proposes to displace desert tortoises in accordance with an approved translocation plan. A portion of the translocation area selected by the BLM and USFWS is within the Coyote Springs Area of Critical Environmental Concern.
Cultural Resources		X		Multiple Class III surveys have been performed for other projects that cover the project area. No resources eligible for the National Register of Historic Places are known to be present.  There would be indirect impacts to the National Register of Historic Places—eligible section of the Old Spanish Trail/Mormon Road.
Environmental Justice		X		The Moapa River Indian Reservation is considered a minority population. The Project would not result in disproportionate impacts to the identified low-income areas.

**Table 4.** Supplemental Authorities and Other Relevant Resources (Continued)

Supplemental Authority*	Not Present <sup>†</sup>	Present/ Not Affected <sup>†</sup>	Present/ May Be Affected <sup>‡</sup>	Rationale
Farmlands, Prime or Unique	X			There are no prime or unique farmlands in the project area.
Floodplains	X			The project area is located outside of Federal Emergency Management Agency–designated floodplains.
Woodlands/Forestry		X		Cactus and yucca are present in a portion of the project area. Cactus and yucca are considered government property and are regulated under the BLM Nevada forestry program. Cactus and yucca will need to be salvaged by a contractor using BLM salvage protocols to the BLM stockpile at Ann Road, or other arrangements made with BLM botanist may be made. Unless otherwise directed by the BLM botanist, all replanted cactus and yucca must be watered and otherwise maintained for a period of 1 year.
Migratory Birds			X	Migratory birds may be present on or otherwise utilize and pass through the project area.
Native American Religious Concerns	X			Prior consultations have already been completed with the Moapa Band of Paiutes, the Las Vegas Paiute Tribe, the Chemehuevi Indian Tribe, and the Paiute Indian Tribe of Utah for other large-scale solar projects adjacent to the project area.
Noxious Weeds/Invasive Non-native Species			X	The Project may potentially introduce risk of spreading infestations or establishing new invasive species/noxious weeds.
Threatened, Endangered, and Special-status Species			X	There are no such species present within 100 acres of the Project within the Applicant's existing generation facility; but there is desert tortoise and habitat presence within 55 acres of the project area.
Waste—Hazardous/Solid		X		Hazardous material waste, nonhazardous substances and solid wastes must be handled and disposed of in accordance with the applicable federal, state, and local regulations and BLM policy.
Water Resources/Quality (drinking/surface/ground)		X		Water would be brought in from off-site and there would be no additional drawdown of groundwater supplies in the hydrographic basin.
Wetland/Riparian Zones	X			Not present.
Wild and Scenic Rivers	X			Not present.
Wilderness	X			Not present.

\* See H-1790-1 (BLM 2008b), Appendix 1, Supplemental Authorities to Be Considered.

<sup>†</sup> Resources determined to be Not Present or Present/Not Affected need not be carried forward for analysis or discussed further in the document.

<sup>‡</sup> Resources determined to be Present/May Be Affected must be carried forward for analysis in the document.

**Table 5.** Resources Required For Consideration in Addition to Supplemental Authorities

Other Resources	Not Present*	Present/ Not Affected*	Present/ May Be Affected†	Rationale
Greenhouse Gas Emissions		X		Greenhouse gas emission levels during construction and operation would not reach a level that warrants additional analysis in this EA.
Hydrologic Conditions		X		Project design will maintain existing flows of off-site ephemeral stream channels.
Fuels/Fire Management		X		Compliance with fire restrictions current at time of Project implementation will mitigate any risks introduced by the Project.
Lands/Access		X		BLM has notified adjacent ROW holders per 43 CFR 2807.14, and the underlying land is a compatibly developed ROW held by the Applicant.
Geology/Mineral Resources/Energy Production		X		There are no mining claims or mining operations present in the project area.
Paleontological Resources	X			In the event of a discovery, the BLM archaeologist will be notified prior to continuing any work.
Rangeland and Livestock Grazing	X			Not present in the project area.
Recreation		X		Most of the project area is within a developed ROW for electrical generation that excludes the general public. There are minimal dispersed recreation opportunities on the remaining project area due to the presence of developed electrical utility infrastructure.
Socioeconomics		X		The Project would not disproportionately impact social or economic values.
Soils			X	Soils are likely to be impacted from build-out of the entire 155-acre Project. One hundred acres is already disturbed and partially developed.
Vegetation			X	The BLM sensitive species rosy two-tone penstemon ( <i>Penstemon bicolor</i> ssp. <i>roseus</i> ) is known to occur in the region. The Project would result in the direct loss of vegetation within 55 acres of the total 155-acre project footprint.
Visual Resources		X		The Project would result in no discernable change to the characteristic landscape, as the Project is already surrounded by existing electrical infrastructure and planned utility-scale solar generation facilities.
Fish and Wildlife Excluding Federally Listed Species			X	The Project would result in the direct loss of wildlife habitat.
Wild Horses and Burros	X			The Project is not located within an active herd management area.

\* Supplemental Authorities determined to be Not Present or Present/Not Affected need not be carried forward for analysis or discussed further in the document.

† Supplemental Authorities determined to be Present/May Be Affected must be carried forward for analysis in the document.

## 3.2 Cumulative Scenario

Council on Environmental Quality regulations for implementing NEPA define cumulative impacts as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable actions (RFA) regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time” (40 CFR 1508.7).

The BLM NEPA Handbook states that the purpose of the cumulative effects analysis is to ensure that decision-makers consider the full range of the consequences of the Proposed Action and No Action Alternative (BLM 2008b). Those resources identified for detailed analysis that would be directly or indirectly affected by the Proposed Action are analyzed below. If the actions under the Proposed Action and No Action Alternative have no direct or indirect effect on a resource, then the cumulative impacts on that resource are not addressed below.

The geographic area of cumulative impacts analysis is generally based on the natural boundaries of the resource affected and is described below in each resource section. Table 6 summarizes past, present, and reasonably foreseeable future actions within 50 miles (80 km) of the Project. Past actions are considered those that have occurred within the past 50 years. Present actions are considered those occurring at the time of this evaluation. Future actions are those that are in planning stages with a reasonable expectation of occurring over the next 20 years.

In any NEPA analysis, it is preferable to quantify the assessment of impacts on each affected resource. This is true for direct, indirect, and cumulative impacts. Where possible, the following analysis is quantified. Because the reasonably foreseeable figure projects are in the early stages of planning, there is generally insufficient information to fully describe potential impacts from those projects. Where there is insufficient information, and quantification is not available, a meaningful and qualified judgment of cumulative effects will be included to inform the public and the decision-maker.

**Table 6.** Past, Present, and Reasonably Foreseeable Future Actions Considered for Cumulative Impacts Analysis

	<b>Project Name / Owner</b>	<b>Description</b>	<b>Status</b>	<b>Primary Impact Location</b>
1	Mountain View Solar (NVN 90989) / NextEra	20-MW PV on 146 acres of private land; 3.75 miles (6.0 km) of 34.5-kV transmission line on BLM-administered land (BLM 2012b; NextEra Energy Resources 2014)	Existing	2 miles (3.2 km) southwest of project area
2	Apex Solar Power (NVN 88313) / Fotowatio Nevada Solar, LLC	20-MW PV on 154 acres of private land; 1.52 acres of ROW on BLM-administered land for 69-kV gen-tie line (BLM 2010a)	Existing	Near Apex, Nevada; 2 miles (3.2 km) southwest of project area
3	Copper Mountain Solar 1 / Sempra U.S. Gas and Power (Sempra)	48-MW expansion of original 10-MW PV plant; 380 acres	Existing	Southwest of Boulder City, Nevada; 45 miles (72 km) south of project area
4	ON Line Project (NVN 085210) / Great Basin Transmission South LLC & NV Energy	New Robinson Summit Substation and a 230-mile (370-km) 500-kV transmission and fiber-optic line to existing Harry Allen Substation	Existing	Passes near project area
5	El Dorado Solar / Sempra	10-MW PV on 80 acres	Existing	45 miles (72 km) south of project area

**Table 6.** Past, Present, and Reasonably Foreseeable Future Actions Considered for Cumulative Impacts Analysis (Continued)

	<b>Project Name / Owner</b>	<b>Description</b>	<b>Status</b>	<b>Primary Impact Location</b>
6	Nellis Air Force Base Solar	13.5-MW PV on 140 acres	Existing	Nellis Air Force Base, 10 miles (16 km) south of project area
7	Nevada Solar One/ Acciona	64-MW solar thermal parabolic concentrators on 2,380 acres	Existing	40 miles (64 km) south of project area
8	Apex Generating Station / Mirant	600-MW combined-cycle natural gas plant at I-15 and U.S. 93	Existing	On private land adjacent to project area
9	Chuck Lenzie Generating Station / NV Energy	1,102-MW combined-cycle natural gas plant	Existing	On private land adjacent to project area
10	El Dorado Energy Generating Station / Sempra	480-MW combined-cycle natural gas plant	Existing	45 miles (72 km) south of project area
11	Edward W. Clark Generating Station / NV Energy	1,102-MW combined-cycle/peaking natural gas plant	Existing	On private land 25 miles (40 km) southwest of project area
12	Goodsprings Waste Heat Recovery Generation Facility / NV Energy	7.5-MW waste heat recovery plant on 5 acres	Existing	50 miles (80 km) southwest of project area
13	Harry Allen Generating Station and Substations / NV Energy	628-MW combined-cycle natural gas plant with 500-/345-/230-kV substation facilities	Existing	On 906 acres of BLM-administered land encompassing and underlying the project area, as held by the Applicant
14	Saguaro Power Company	93+ MW natural gas and heat recovery plant	Existing	20 miles (32 km) south of project area
15	Silverhawk Generating Station / NV Energy	520-MW combined-cycle natural gas plant	Existing	On private land southwest of project area
16	Sunpeak Generating Station	Three 73-MW natural gas peaker plants	Existing	On private land 20 miles (32 km) south of project area
17	Kern River Gas Transmission System	Two natural gas pipelines from Wyoming to Las Vegas / San Bernardino	Existing	Pipeline passes near the project area
18	Communication Sites/ Arizona Nevada Tower Corporation	Seven cellular telephone signal relay towers, 125- to 195-foot height (BLM 2007c)	Existing (Arizona Nevada Tower Corporation 2014)	Lincoln County along the U.S. 93 corridor between Coyote Springs Valley and the town of Pioche
19	Meadow Valley Gypsum Project	Open-pit mine, processing plant, and ancillary facilities, a 1.5-mile (2.4-km) access road, and a low-water crossing across Meadow Valley Wash; 47 acres of public land	Existing	35 miles (56 km) northeast of project area
20	Lincoln County Land Act Groundwater Development and Utility ROW (NVN 79734) / Lincoln County Water District	75 miles (120 km) of water collection and transmission pipeline, 30 wells, five storage tanks, four booster stations, 24 miles (39 km) of 138-kV power transmission lines, substation, and a natural gas pipeline	ROD issued in 2010; under construction (BLM 2010b)	45 miles (72 km) northeast of the project area

**Table 6.** Past, Present, and Reasonably Foreseeable Future Actions Considered for Cumulative Impacts Analysis (Continued)

	<b>Project Name / Owner</b>	<b>Description</b>	<b>Status</b>	<b>Primary Impact Location</b>
21	Reid Gardner Generating Station / NV Energy	557-MW coal plant, 240-acre fly ash landfill, and 315-acre evaporation pond	In process of decommissioning; the 2013 Nevada Senate Bill 123* accelerated the retirement of Reid Gardner Station; three of the plant's four units will close in 2014, and the remaining unit will close in 2017	On private and BLM-administered land 20 miles (32 km) northeast of the project area
22	Copper Mountain Solar 2 / Sempra	150-MW PV on 1,100 acres of private land	Under construction, expected complete in 2015 (Sempra 2014)	South of Boulder City, Nevada; 40 miles (64 km) south of project area
23	Moapa Solar Project (NVN 89176) / First Solar	250 MW, 2,000 acres on the Moapa River Indian Reservation plus 153 acres for gen-tie line and access road/pipeline	Construction began March 2014, expected to be completed by end of 2015 (First Solar 2013)	5 miles (8 km) east of the project area
24	Moapa Solar Energy Center (NVN 88870) / RES Americas	200-MW PV solar project on 850 acres on the Moapa River Indian Reservation, with a 7.5-mile (12.1-km) 230-kV transmission line on BLM-administered lands connecting to Harry Allen Substation	ROD issued in May 2014, construction expected to begin in early 2015 (Bureau of Indian Affairs 2014)	Transmission line passes near the project area
25	Nellis Air Force Base Area II Solar / NV Energy	15-MW PV on 160 acres	Construction expected to start early 2015	Nellis Air Force Base, 10 miles (16 km) south of project area
26	UNEV Pipeline Project / Holly Energy	425-mile (684-km), 12-inch-diameter common carrier refined products pipeline from Salt Lake City to Las Vegas	Scheduled to be completed in 2014 (Holly Energy 2014)	Corridor passes near project area
27	Coyote Springs Investment Development Project	New master-planned community on 21,000 to 43,000 acres; 111,000 to 159,000 residential units and additional amenities/facilities	USFWS issued a ROD in 2008; the golf course has been constructed, but no other construction has occurred; land has been transferred among holding companies; there appear to be no immediate plans to continue construction	Junction of U.S. 93 and State Route 168, 15 miles (24 km) north of project area
28	Mohave County Wind Farm (AZA 032315) / BP Wind Energy	500 MW, 335 wind turbines and ancillary facilities on 31,388 acres of public land; 169 acres of permanent disturbance; 507 acres of temporary disturbance; construction 100–200 workers; operations 10–20 workers (BLM 2013)	ROD signed June 2013	Arizona, 40 miles (64 km) south of project area
29	One Nevada Transmission Line Project (NVN 82076) / NV Energy	236-mile (380-km) single-circuit 500-kV transmission line between Harry Allen and Robinson Summit Substations	ROD issued March 2011; ROW in abeyance	In Southwest Intertie Project utility corridor passing near project area

**Table 6.** Past, Present, and Reasonably Foreseeable Future Actions Considered for Cumulative Impacts Analysis (Continued)

	<b>Project Name / Owner</b>	<b>Description</b>	<b>Status</b>	<b>Primary Impact Location</b>
30	Clark, Lincoln, and White Pine Counties Groundwater Development Project / Southern Nevada Water Authority (SNWA)	Transport approximately 124,988 acre-feet per year of groundwater; production wells, 263 miles (423 km) of buried water pipelines, three pumping stations, five regulating tanks, three pressure-reducing stations, a buried storage reservoir, a water treatment facility, and about 272 miles (437 km) of 230-kV overhead power lines, two primary, and four secondary substations	ROD signed December 2012, ROW issued May 2013; construction expected to be complete by 2022	SNWA plans to develop 91,988 acre-feet per year of its existing water rights in Spring, Delamar, Dry Lake, and Cave valleys as part of the project. For the Delamar and Dry Lake valleys specifically, the Nevada State Engineer issued water right rulings to SNWA on March 22, 2012, for 6,042 acre-feet per year and 11,584 acre-feet per year, respectively.
31	Toquop Energy Project / EWP Renewable Corporation	1,100-MW combined-cycle natural gas plant on up to 640 acres	Notice to Proceed issued; ROW for water development expected in 2014 (BLM 2014a)	50 miles (80 km) northeast of project area
32	TransWest Transmission Project (WYW 177893, COC 72929, UTU 87238, NVN 86732) / TransWest Express	725-mile (1,167-km) single-circuit 600-kV line with terminals in Sinclair, Wyoming, and south of Las Vegas, Nevada (BLM 2014b)	Draft EIS published in July 2013	Passes near the southern boundary of project area
33	Zephyr Transmission Lines Project / Duke American Transmission Co. (DATC)	500-kV transmission lines from Wyoming to El Dorado Valley	Acquired by DATC in 2011, in early NEPA review; target construction 2017–2020 (DATC 2014)	Passes near project area
34	Southern Nevada Intertie Project (NVN 86359) / Great Basin Transmission South LLC	60-mile (97-km) 500-kV line in Clark County, Nevada, from Harry Allen Substation to Eldorado Substation	Pending; EA published in May 2012; decision expected in late 2014	Passes near project area
35	Harry Allen Solar Energy Center Project (NVN 93321) / Invenergy	130-MW PV on up to 715 acres of BLM-administered land	Pending	Parcel 1 of the Dry Lake Solar Energy Zone
36	Playa Solar Energy Center (NVN 93306) / First Solar	200-MW PV on approximately 1,700 acres of BLM-administered land	Pending	Parcels 2, 3, and 4 of the Dry Lake Solar Energy Zone
37	Dry Lake Solar Energy Center (NVN 93337)/NV Energy	130-MW PV on up to 661 acres of BLM-administered land	Pending	Parcels 5 and 6 of the Dry Lake Solar Energy Zone
38	Centennial II Project (NVN 90148) / NV Energy	56 miles (90 km) of 500-kV line between Harry Allen Substation and Eldorado Substation in Clark County, Nevada	Application in process; target construction 2019–2020 (Western Electricity Coordinating Council 2014)	Passes near the project area
39	NVN 83914 / Bright Source Energy	10,000-acre, 500-MW concentrated solar power	Pending	25 miles (40 km) northeast of project area
40	NVN 84232 / First Solar	5,500-acre, 400-MW PV	Pending	Near project area
41	NVN 84631/ Bright Source Energy Solar	2,000-acre, 1,200-MW concentrated solar power	Pending	5 miles (8 km) northeast of project area
42	NVN 87907/ Pacific Wind Development	2,200-acre wind testing	Pending	40 miles (64 km) northeast of project area
43	NVN 87970/ Pacific Wind Development	5,089-acre wind testing	Pending	40 miles (64 km) northeast of project area

**Table 6.** Past, Present, and Reasonably Foreseeable Future Actions Considered for Cumulative Impacts Analysis (Continued)

	<b>Project Name / Owner</b>	<b>Description</b>	<b>Status</b>	<b>Primary Impact Location</b>
44	NVN 89219/ Pioneer Green Energy	20,680-acre wind testing	Pending	5 miles (8 km) southeast of project area
45	NVN 83041/ Table Mountain Wind	11,570-acre wind testing	Pending	50 miles (80 km) southwest of project area
46	NVN 73726 / Table Mountain Wind	8,320-acre wind development	Pending	50 miles (80 km) southwest of project area
47	NVN 90476 / BrightSource	750-MW concentrated solar power on 16,617 acres	Pending (BLM 2012b)	50 miles (80 km) southwest of project area
48	NVN 90788 / Boulevard Assoc. (Sandy Valley Solar)	250-MW PV on 3,217 acres	Pending (BLM 2012b)	50 miles (80 km) southwest of project area

Source: BLM and DOE (2012:Table 11.3.22.2-1 [p. 11.3-98], Table 11.3.22.2-2 [p. 11.3-101 *et seq.*], and Table B-2 [p. B-4]); also as indicated.

\* The text of Senate Bill 123 is available at: [https://www.leg.state.nv.us/Session/77th2013/Bills/SB/SB123\\_EN.pdf](https://www.leg.state.nv.us/Session/77th2013/Bills/SB/SB123_EN.pdf).

### 3.3 Air Resources

#### 3.3.1 Affected Environment

Air quality is determined primarily by the type and amount of contaminants emitted into the atmosphere, the size and topography of the air basin, and the meteorological conditions. The Project is located in the Apex Valley Area in Hydrographic Basin 216. The project area is in attainment for all criteria pollutants except for 8-hour ozone. Although the project area is in attainment for particulate matter 10 microns in diameter or smaller (PM<sub>10</sub>) and particulate matter 2.5 microns in diameter or smaller (PM<sub>2.5</sub>), they are still considered pollutants of concern. Existing sources of PM<sub>10</sub> and PM<sub>2.5</sub> in Apex Valley include motorized travel across the dry lake, dirt surface roads and trails, wind blowing across sparsely vegetated areas, road work, and other construction activities. The project area is currently impacted by emissions from vehicles traveling on I-15 and U.S. 93, the Apex landfill, the mines and mills operating on the south end of the Dry Lake Valley, and the natural gas-fired power plants operating on and around the project area.

#### 3.3.2 Proposed Design Features

Limiting dust (i.e., particulate matter [PM]) during construction and operation activities is a design feature of the Project. The fugitive dust control measures, including the potential application of dust palliatives previously approved by the BLM, would keep off-site PM levels reduced. In addition, a dust control permit from the Clark County Department of Air Quality for all soil-disturbing activities would be required and enforced during construction of the Project.

#### 3.3.3 Environmental Consequences

##### 3.3.3.1 PROPOSED ACTION

During construction activities, there would be an increase in particulate levels, but this would be limited to the immediate area and would decrease quickly with distance. Emissions from construction-related equipment and vehicles would be temporary and may result in unavoidable but short-term impacts. Because decommissioning and reclamation activities would be short-term, their potential air impacts would be minor and temporary.

The Proposed Action has the potential to impact a total of approximately 155 acres during ground-disturbing activities; however, 100 acres are already disturbed, leaving 55 acres of new ground-disturbing

activities. The impacts to air quality associated with the disturbance of the project area would be low. Increases in particulate levels would be further reduced by the implementation of the proposed design features, and by compliance with the terms and conditions of the required dust permit.

The Proposed Action would have a maximum of 400 workers during construction activities. Additional impacts as a result of construction equipment and employee vehicles at the Project site are expected to be temporary and are not expected to result in noncompliance with National Ambient Air Quality Standards (BLM 2014c:49). The Project would have full-time staff during operations. Long-term emissions associated with the operation of the Project would be minor.

The potential impacts to air quality that may result from the construction and operations of a typical solar PV facility in the Dry Lake SEZ are described in Section 11.3.13.2 of the Final Solar PEIS and the impacts from this Project would be consistent with those detailed. The impacts and design features analyzed and described in the PEIS are incorporated into this document.

Air quality impacts for the Final PEIS were modeled based on the assumption that a maximum of 3,000 acres would be disturbed at any one time in the SEZ (BLM and DOE 2012:11.3-61). During construction activities, there would be an increase in particulate levels that could exceed standard levels used for comparison, but would be limited to the immediate area and would decrease quickly with distance. Emissions from construction-related equipment and vehicles would be temporary and may result in unavoidable but short-term impacts. Because decommissioning and reclamation activities would be short-term, their potential air impacts would be minor and temporary.

#### **3.3.3.1.1 Mitigation Measures**

Following the implementation of design features identified in Section 3.3.2, no additional mitigation measures to address impacts to air quality are recommended. There would be no difference between the Project's impacts described above and residual impacts.

#### **3.3.3.1.2 Cumulative Effects**

The cumulative impacts area of analysis for air quality is Hydrographic Basin 216. The Project, in combination with other past, present, and reasonably foreseeable future actions in Hydrographic Basin 216, would contribute to cumulative increases in particulate levels and other criteria pollutants in the basin.

It is assumed that the other developments in the area would be subject to the same design features and mitigation measures which reduce the potential cumulative increases in particulate levels. In addition, other reasonably foreseeable future actions in the basin that would result in soil-disturbing activities of greater than 0.25 acre would be required to obtain a dust permit from the Clark County Department of Air Quality and to comply with the all permit stipulations.

#### **3.3.3.2 NO ACTION**

Under the No Action Alternative, the Project ROW would be denied and air quality in the area would continue to be subject to existing conditions. Because the project area is located wholly within a compatibly developed ROW held by the Applicant, other electrical utility uses for this land would likely be implemented, which would result in impacts to air quality similar to those described under the Proposed Action.

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## **3.4 Wildlife Excluding Federally Listed Species**

### **3.4.1 Affected Environment**

#### **3.4.1.1 GENERAL WILDLIFE**

A portion (55 acres) of the 155-acre project area occurs within typical habitat for desert wildlife species in Nevada; however, these 55 acres are surrounded by existing access roads and electrical utility infrastructure owned and operated by the Applicant. The remaining 100 acres are already disturbed, partially developed, and removed from native wildlife habitat, being within the Applicant's existing fenced Harry Allen Generation Station. Wildlife species in the general area include small mammals, birds, and reptiles. No habitat for fish and amphibians occurs in or near the project area. These general wildlife species and their habitats are common and widely distributed throughout the Dry Lake Valley. Desert ecosystems typically exhibit a low diversity of wildlife species relative to mountain or forest ecosystems.

#### **3.4.1.2 SPECIAL-STATUS SPECIES**

Special-status wildlife species include BLM Sensitive species and State-listed species protected under NRS 501.110. Federally listed species are discussed under Section 3.6 of this EA. According to these species lists, there is potential for 45 special-status wildlife species to be present and/or utilize a portion of the project area (BLM and DOE 2010:11.3-142–11.3-159; BLM and DOE 2012:11.3-35–11.3-40).

### **3.4.2 Proposed Design Features**

#### **3.4.2.1 GENERAL WILDLIFE**

A specific design feature for the protection of large mammals includes: the fencing around the solar energy development should not block the free movement of mammals, particularly big-game species.

#### **3.4.2.2 SPECIAL-STATUS SPECIES**

Specific design features for the protection of special-status species include preconstruction surveys for special-status species. Additionally, any design features identified for the protection of federally listed species will provide beneficial protections to special-status and general wildlife species.

### **3.4.3 Environmental Consequences**

#### **3.4.3.1 GENERAL WILDLIFE**

##### **3.4.3.1.1 Proposed Action**

Development of the Project is expected to impact up to 55 acres of wildlife habitat (note: 100 acres is already disturbed and within the Applicant's existing Harry Allen Generation facility). The low number of acres of wildlife habitat that would be newly impacted is a result of proposing mostly (100 acres) already disturbed BLM-administered land authorized for other utility-scale uses by the Applicant, for the overall Project. Resultant impact levels for any of the representative mammal species that could be present would be small.

Impacts on wildlife would result from habitat disturbance, direct injury or mortality, and displacement of individual small mammals, birds, and reptiles. Those impacts on small mammals, birds, and reptile species would be small, due to the small area of new habitat disturbance (i.e., 55 acres). Other impacts on general wildlife could result from collision with vehicles and infrastructure (e.g., fences, PV panels),

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surface water and sediment runoff from disturbed areas, fugitive dust generated by Project activities, noise, lighting, spread of invasive species, accidental spills, and harassment.

Specific to the Proposed Action, only 55 acres of the overall 155-acre project area would have a long-term permanent disturbance impact to general wildlife habitat. To compensate for these unavoidable impacts, the SRMS per-acre fee collected by the BLM would be used to complete off-site restoration of native vegetation which would provide a benefit to wildlife and wildlife habitat.

#### *3.4.3.1.1.1 Mitigation Measures*

The Applicant would comply with all local, state, and federal laws that require or otherwise contain mitigation measures that afford protection for general wildlife, special-status species, and federally listed species. Because there are no additional on-site mitigation measures being proposed, impacts would remain unchanged from the direct/indirect impacts described above.

#### *3.4.3.1.1.2 Cumulative Effects*

The cumulative impacts area of analysis for general wildlife is defined as a 50-mile (80-km) radius around the project area. The Proposed Action, in conjunction with other projects, would result in cumulative impacts to general wildlife, including the potential loss of habitat. The combined effects of the reasonably foreseeable future actions have the potential to remove suitable wildlife habitat and to increase risk of mortality of individual animals within the cumulative impacts area.

It is assumed that all reasonable foreseeable future development on BLM lands in the area and cumulative impacts area of analysis would be subject to the same design features and mitigation measures which reduce the potential cumulative impacts to general wildlife.

#### **3.4.3.1.2 No Action**

Under the No Action Alternative, the Project ROW would be denied and wildlife individuals and habitat would not be directly or indirectly impacted by the Project. Because the project area is located wholly within a compatibly developed ROW held by the Applicant, other electrical utility uses of this land by the Applicant would likely be implemented, which would result in impacts similar to those described under the Proposed Action.

#### **3.4.3.2 SPECIAL-STATUS SPECIES**

##### **3.4.3.2.1 Proposed Action**

Development of the Project is expected to impact up to 55 acres of wildlife habitat (note: 100 acres is already disturbed and within the Applicant's existing Harry Allen Generation facility). The low number of acres of wildlife habitat that would be newly impacted is a result of proposing mostly (100 acres) already disturbed BLM-administered land authorized for other utility-scale uses by the Applicant, for the overall Project. Resultant impact levels for any of the representative special-status species that potentially could be present would be small. Such impacts on special-status wildlife species could occur during all phases of development (construction, operation, and decommissioning and reclamation) of the Project. Direct impacts would result from habitat destruction or modification. Indirect impacts could result from surface water and sediment runoff from disturbed areas, fugitive dust generated by Project activities, accidental spills, harassment, and lighting.

Specific to the Proposed Action, only 55 acres of the overall 155-acre project area would have a long-term permanent disturbance impact to wildlife habitat. To compensate for these unavoidable impacts, the

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SRMS per-acre fee collected by the BLM would be used to complete off-site restoration of native vegetation which would provide a benefit to special-status species.

#### *3.4.3.2.1.1 Mitigation Measures*

The Applicant would comply with all local, state, and federal laws that require or otherwise contain mitigation measures that afford protection for general wildlife, special-status species, and federally listed species.

Any remaining impacts to special-status bird and bat species would be addressed through a Project-specific Bird and Bat Conservation Strategy (BBCS) and Monitoring Plan that includes a robust systematic monitoring and adaptive management plan to assist in avoiding and minimizing impacts.

#### *3.4.3.2.1.2 Cumulative Effects*

The cumulative impacts area of analysis for special-status species is defined as the project area and a 50-mile (80-km) radius around the Project. The Proposed Action, in conjunction with other projects, would result in cumulative impacts to special-status wildlife species, including the potential loss of habitat. The combined effects of the reasonably foreseeable future actions have the potential to remove suitable habitat and to increase risk of mortality of individual animals within the cumulative impacts area.

It is assumed that all reasonable foreseeable future development on BLM lands in the area and cumulative impacts area of analysis would be subject to the same design features and mitigation measures which reduce the potential cumulative impacts to special-status wildlife.

#### **3.4.3.3 NO ACTION**

Under the No Action Alternative, the Project ROW would be denied and special-status wildlife and habitat would not be directly or indirectly impacted by the Project. Because the project area is located wholly within a compatibly developed ROW held by the Applicant, other electrical utility uses for this land by the Applicant would likely be implemented, which would result in impacts similar to those described under the Proposed Action.

## **3.5 Migratory Birds**

### ***3.5.1 Affected Environment***

Almost all the birds that have potential to occur within or pass through the project area are considered to be migratory birds, as per the federal Migratory Bird Treaty Act of 1918. The USFWS defines a migratory bird as any species or family of birds that live, reproduce, or migrate within or across international borders at some point during their annual life cycle.

### ***3.5.2 Proposed Design Features***

To prevent undue harm to migratory birds, habitat-altering projects or portions of projects should be scheduled outside bird breeding season. In upland desert habitats and ephemeral washes containing upland species, the season generally occurs between February 15 and August 31, but is dependent on many environmental factors. If a project that may alter any breeding habitat has to occur during the breeding season, then a qualified biologist must survey the area for nests prior to commencement of construction activities. This shall include burrowing and ground-nesting bird species in addition to those nesting in vegetation. If any active nests (containing eggs or young) are found, an appropriately sized

exclusionary buffer area must be avoided until the young birds fledge. As the above dates are a general guideline, if active nests area observed outside this time frame they are to be avoided as described above.

Migratory birds are known to collide with lighted structures. Any lighting on facilities and associated infrastructure should be down-shielded to keep light within the boundaries of the site and of the minimum amount and intensity allowable.

A Project-specific BBCS and Monitoring Plan would be prepared that includes a robust systematic monitoring and adaptive management plan to assist in avoiding and minimizing impacts to migratory birds.

### **3.5.3 Environmental Consequences**

#### **3.5.3.1 PROPOSED ACTION**

Because the Proposed Action involves only a small portion of the overall available habitat for the representative migratory bird species potentially within or passing through the project area, the impacts to migratory birds would be small.

The Proposed Action has the potential to impact 55 acres in new, long-term ground disturbance and impact a total of 155 acres within which could potentially be used by migratory and/or ground-nesting bird species, mostly during the construction phase. Construction activities associated with the Proposed Action would result in an increased risk of injury and mortality to individual migratory birds in the project area from collisions. Birds are highly mobile and are assumed to be able to avoid vehicle traffic, clearing, grading, and excavation activities that would occur during the construction period. Construction activities would be restricted during nesting season as described in Section 3.5.2, to further reduce the risk of injury or direct mortality of nesting migratory birds.

The increased noise associated with construction of the Proposed Action would be audible throughout the project area over the course of the construction phase. Increased noise could result in adjacent habitat avoidance and changes to breeding behavior of migratory birds in the project area.

The presence of a 155-acre solar PV facility would contribute to increased risk of collision with solar panels. Implementation of the BBCS would reduce the risk of collision and include a plan for monitoring and adaptive management of impacts.

In general, the risks of migratory injury or mortality from collisions with solar panels and associated appurtenances would be small.

To compensate for these unavoidable impacts, the SRMS per-acre fee collected by the BLM would be used to locate and pull hollow mine markers across the BLM Southern Nevada District which would provide a benefit to migratory birds.

##### **3.5.3.1.1 Mitigation Measures**

Although application of the proposed design features would reduce impacts to migratory birds, disturbance of 55 acres of habitat as a result of the Proposed Action would remain in the long term, in addition to the remaining 100 acres already disturbed and partially developed. Because there are no additional on-site mitigation measures being proposed, impacts would remain unchanged from the direct/indirect impacts described above.

Implementation of adaptive management in compliance with the Project BBCS may result in the identification of future mitigation measures that would further compensate for any unacceptable mortality levels of migratory birds identified during monitoring.

#### **3.5.3.1.2 Cumulative Effects**

The cumulative impacts area of analysis for migratory birds is defined as the project area and a 50-mile (80-km) radius around the Project. The Proposed Action, in conjunction with other projects, would result in cumulative impacts on migratory birds, including the potential loss of habitat. The combined effects of the reasonably foreseeable future actions have the potential to remove suitable migratory bird habitat and to increase risk of mortality of individual animals within the cumulative impacts area.

It is assumed that all reasonable foreseeable future development on BLM lands in the area and cumulative impacts area of analysis would be subject to the same design features and mitigation measures, which reduce the potential cumulative impacts to migratory birds. In addition, other reasonably foreseeable future renewable energy actions would be required to prepare and implement a BBCS.

#### **3.5.3.2 NO ACTION**

Under the No Action Alternative, the Project ROW would be denied and migratory birds would continue to be subject to existing conditions. Because the project area is located wholly within a compatibly developed ROW held by the Applicant, other electrical utility uses for this land by the Applicant would likely be implemented, and impacts to wildlife would be similar to those described under the Proposed Action.

## **3.6 Threatened, Endangered, and Candidate Animal Species**

### **3.6.1 Affected Environment**

Threatened and endangered (T&E) species are placed on a federal list by the USFWS and receive protection under the Endangered Species Act of 1973, as amended. According to the Information, Planning and Conservation System (IPaC) support tool created by the USFWS, four T&E species (three birds and one reptile) have potential to occur in the vicinity of the project area: the endangered southwestern willow flycatcher (*Empidonax traillii extimus*), the endangered Yuma clapper rail (*Rallus longirostris yumanensis*), the threatened yellow-billed cuckoo (*Coccyzus americanus*), and the threatened Mojave desert tortoise (*Gopherus agassizii*). The southwestern willow flycatcher, the Yuma clapper rail, and the yellow-billed cuckoo are riparian birds that require surface water and riparian vegetation species for successful population survival. No riparian habitat exists in or near the project area. In addition, the project area is not within any path that would connect aquatic features. The closest documented records for these species are 20 and 25 miles away (32 and 40 km away), respectively (personal communication, Susan Cooper, USFWS Las Vegas, and Melanie Cota, BLM Southern Nevada District, September 29, 2014). Suitable habitat for the desert tortoise does occur within 55 acres of the total 155-acre project area.

In the fall of 2014, the Applicant conducted a desert tortoise presence/absence survey for a larger, utility-scale solar project proposed adjacent to the Proposed Action. A total of 945 acres was surveyed as part of that effort, which included the 55 acres of open, undisturbed land of the current Proposed Action. No live desert tortoises were observed within these 55 acres, but one Class 5 carcass, one Class 1 burrow, and several Class 2–4 burrows were observed. No survey was conducted on the remaining 100 acres of the project area because that portion of the Project was already previously disturbed, partially developed, and had desert tortoise exclusionary fencing.

### **3.6.2 Proposed Design Features**

The Applicant will survey and clear of desert tortoise the 55 acres of the Proposed Action that contain desert tortoise habitat, as part of the Applicant's larger desert tortoise translocation effort and two other, proposed larger utility-scale solar projects located adjacent to the Proposed Action. It is anticipated that by the time the Proposed Action would be implemented, all desert tortoises present, if any, within these 55 acres would have already been translocated. Even so, the Applicant would conduct an additional clearance survey of these 55 acres prior to Project commencement to ensure no additional desert tortoises have entered the project area.

### **3.6.3 Environmental Consequences**

In addition, the Proposed Action will be designed to have desert tortoise exclusionary fencing and tortoise guards around the perimeter of the Project footprint to prevent tortoises from entering the project area where potential harm could occur (note: of the total 155-acre project area, 100 acres is already tortoise-fenced and protected from tortoise entry).

#### **3.6.3.1 PROPOSED ACTION**

Overall impacts to desert tortoise are expected to be negligible because most (i.e., 100 acres) of the project area is no longer tortoise habitat and already excludes desert tortoise, and desert tortoises within the remaining project area (i.e., 55 acres) will be relocated as part of the translocation efforts of the larger adjacent proposed solar projects. In addition, the Proposed Action would result in a loss of <0.5% of desert tortoise habitat available in the region.

Overall impacts to the southwestern willow flycatcher, Yuma clapper rail, and yellow-billed cuckoo or their habitats are not likely to occur because suitable habitats do not exist in the project area. The Proposed Action would permanently impact 55 acres of desert tortoise habitat; however, these 55 acres are completely surrounded by existing access roads and utility infrastructure owned and operated by the Applicant.

Direct impacts include the possibility of tortoises being crushed by vehicles or equipment, and increased local predation rates due to increased human activity. The amount of traffic, use of unfenced access roads, and presence of small tortoises create the possibility that tortoises could be accidentally crushed by Project activity. This risk would be minimized by performing clearance surveys, installation of tortoise-proof fencing, and having tortoise biologists present during construction activities that have the potential to injure or kill a tortoise. It is known that trash and litter may attract opportunistic predators such as coyotes (*Canis latrans*) and ravens (*Corvus corax*), and this may lead to increased tortoise predation (Berry 1985; Esque et al. 2010). Predator subsidization would be addressed in an environmental awareness program and enforced by on-site monitors to mitigate this risk.

Typically, indirect effects from noise and vibration associated with construction activities could cause some tortoises to abandon their burrows and seek other existing cover sites, which would temporarily expose them to an increased risk of predation as they seek other burrows within their home range. However, in this case the public land surrounding the project area—including the 55 acres of the Project—will have already been cleared of all desert tortoises as part of the large-scale desert tortoise translocation for the three adjacent proposed solar projects. Desert tortoise mortality may also result from increased human presence and construction-related traffic.

In addition, there is the potential for herbicides (used properly or improperly) to adversely impact desert tortoise. Possible adverse direct effects from direct contact or ingestion of treated vegetation to individual animals include death, damage to vital organs, decrease in body weight, decrease in healthy offspring, and

increased susceptibility to predation depending on exposure length and amounts (Syracuse Environmental Research Associates, Inc. 2003). Adverse indirect effects include a reduction in plant species diversity and consequent availability of preferred food, habitat, and breeding areas for desert tortoise; decrease in wildlife population densities within the first year following application as a result of limited reproduction; habitat and range disruption (as wildlife may avoid sprayed areas following treatment), resulting in changes to territorial boundaries and breeding and nesting behaviors; and increase in predation of small mammals due to loss of ground cover (BLM 2007a). However, in this case the public land surrounding the project area will have already been cleared of all desert tortoises, including from the 55 acres of the Project, as part of the large-scale desert tortoise translocation for the three adjacent proposed solar projects.

Suitable habitat for southwestern willow flycatcher, the Yuma clapper rail, and the yellow-billed cuckoo does not occur within or near the project area. No southwestern willow flycatcher mortalities have been recorded at existing solar facilities in the desert Southwest, but the lack of habitat and long distance from any known occurrence suggests low potential for direct mortality related to the Proposed Action. Two Yuma clapper rails have been recorded as mortalities at existing solar facilities in California; however, those facilities were much closer to suitable habitat and had observations within less than 5 miles (8 km) (personal communication, Susan Cooper, USFWS Las Vegas, and Melanie Cota, BLM Southern Nevada District, September 29, 2014). One yellow-billed cuckoo mortality has been recorded at a solar facility in Ivanpah in San Bernardino County, California. For Yuma clapper rail and yellow-billed cuckoo, the low number of recorded mortalities, the lack of required habitat on site, and the long distance from any known occurrence suggests low potential for direct mortality related to the Proposed Action. No water pumping would occur from the Project so indirect impacts are not anticipated from the Proposed Action to either species.

To compensate for these unavoidable impacts, the SRMS per-acre fee collected by the BLM would be used to complete off-site restoration of native vegetation which would provide a benefit to threatened, endangered, and candidate species.

#### **3.6.3.1.1 Mitigation Measures**

Mitigation for desert tortoise would be addressed through measures outlined in the biological opinion and would be supported by the desert tortoise remuneration fees paid to the BLM.

#### **3.6.3.1.2 Cumulative Effects**

The cumulative impacts area of analysis for T&E species is defined as the project area and a 50-mile (80-km) radius around the project area. Desert tortoises, if any present, found within the 55 acres of desert tortoise habitat in the project area will be translocated from the project area as part of the Applicant's desert tortoise translocation effort of the larger proposed solar project adjacent to the Proposed Action. The cumulative effects to desert tortoise as a result of that translocation effort are described in other BLM analyses.

#### **3.6.3.2 NO ACTION**

Under the No Action Alternative, the Project ROW would be denied and desert tortoise individuals and tortoise habitat would not be directly or indirectly impacted by the Project. Because the project area is located wholly within a compatibly developed ROW held by the Applicant, other electrical utility uses for this land by the Applicant would likely be implemented, which would result in impacts similar to those described under the Proposed Action.

## 3.7 Vegetation Excluding Federally Listed Species

### 3.7.1 Affected Environment

#### 3.7.1.1 GENERAL VEGETATION

Vegetation cover within the project area is 55 acres of Sonora-Mojave creosote-white bursage desert scrub with scattered Mojave yucca (*Yucca schidigera*), and 100 acres of already disturbed and partially developed land with little vegetation. The 55 acres are surrounded by already existing site-type ROWs for electrical utility facilities including a natural gas-fired generation plant with electrical substations, a natural gas compressor station with associated underground pipeline, numerous overhead electrical power lines, and if approved in Spring 2015 as expected, three large-scale solar generation plants totaling 3,000 acres of new permanently disturbed land.

#### 3.7.1.2 SPECIAL-STATUS SPECIES

There are no federally listed plant species that occur in the project area. The rosy two-tone penstemon (*Penstemon bicolor* ssp. *roseus*) is a BLM sensitive plant species that is known to occur within the Dry Lake Valley. Approximately 55 acres of the project area contain potentially suitable habitat for this species. There are also known nearby populations of three-corner milkvetch (*Astragalus geyeri* var. *triquetrus*) and Beaver Dam breadroot (*Pediomelum castoreum*), which are also BLM sensitive plant species, but there are no present or historical records of these species within the project area.

### 3.7.2 Proposed Design Features

Prior to ground-disturbing activities on 55 acres of the Proposed Action, the Applicant would implement mitigation action(s) for the removal of all cactus and yucca species within this portion of the project area as determined by the BLM botanist. In addition, the following plans would be prepared and implemented that would mitigate permanent impacts to vegetation:

- Fire Protection Plan
- Integrated Weed Management Plan
- Facility Decommissioning and Site Reclamation Plan

### 3.7.3 Environmental Consequences

#### 3.7.3.1 GENERAL VEGETATION

##### 3.7.3.1.1 Proposed Action

The construction of solar energy facilities within 55 acres of the project area would result in the removal of vegetation during land-clearing activities and would result in a negligible loss of the Sonora-Mojave creosote-white bursage desert scrub cover type from the region.

The construction of solar energy facilities within 55 acres of the proposed project area would result in direct impacts on one native vegetation community because of the removal of vegetation within the facility footprint during land-clearing and land-grading operations. There would be 55 acres of direct long-term impact to this vegetation cover type in the project area. To compensate for these unavoidable impacts, the SRMS per-acre fee collected by the BLM would be used to complete off-site restoration of native vegetation which would provide a benefit to native vegetation.

### 3.7.3.1.2 Mitigation Measures

Although application of the proposed design features would reduce impacts to vegetation, disturbance of 55 acres of vegetation as a result of the Proposed Action would remain in the long term.

Because there are no additional on-site mitigation measures being proposed, impacts would remain unchanged from the direct/indirect impacts described above.

### 3.7.3.1.3 Cumulative Effects

The cumulative impacts area of analysis for vegetation is defined as lands administered by the Las Vegas and Pahrump Field Offices. The project area is located within the creosote bush-dominated basins ecoregion, which is characterized by sparse creosote bush (*Larrea tridentata*), white bursage (*Ambrosia dumosa*), and big galleta grass (*Pleuraphis rigida*), with cacti, yucca, ephedra, and Indian ricegrass (*Achnatherum hymenoides*) also common. Sonora-Mojave creosote–white bursage desert scrub is the predominant cover type within the Dry Lake Valley. The cumulative loss of vegetation for the immediate area, as a result of the Proposed Action and the three adjacent proposed large-scale solar projects, would be up to 3,140 acres of long-term disturbance, in addition to the several hundred acres already developed nearby with operational mining, electrical, and gas pipeline facilities. Areas surrounding the project area include the creosote bush-dominated basins and arid foot slopes ecoregions. The dominant cover type in the 5-mile (8-km) area of indirect effects is also Sonora-Mojave creosote–white bursage desert scrub. Construction of the Proposed Action would remove nearly all vegetation within the footprint of the facility during land-clearing and land-grading operations. The fugitive dust generated during the construction of the solar facilities could increase the dust loading in habitats outside the project area, in combination with that from other construction, recreation, and transportation. The cumulative dust loading could result in reduced productivity or changes in plant community composition. Similarly, surface runoff from project areas after heavy rains could increase sedimentation and siltation in areas downstream. Design features would be used to reduce the impacts from solar energy projects and thus reduce the overall cumulative impacts on plant communities and habitats. In combination with other ongoing and reasonably foreseeable future actions, the Proposed Action would result in an incremental addition to current declines in the quality and quantity of native vegetation in the analysis area.

### 3.7.3.1.4 No Action

Under the No Action Alternative, the Project ROW would be denied and vegetation would continue to be managed consistent with the objectives of the BLM Las Vegas RMP. Because the project area is located wholly within a compatibly developed ROW held by the Applicant, other electrical utility uses for this land proposed by the Applicant would likely be implemented, which would result in impacts similar to those described under the Proposed Action.

## 3.7.3.2 SPECIAL-STATUS SPECIES

### 3.7.3.2.1 Proposed Action

The potential impacts to special-status plants with potential to occur within 55 acres of the project area that may result from the construction and operations of the Proposed Action would be non-existent to negligible, as such species may not be present within the project area.

The Project may result in the direct loss of individual plants and potentially suitable habitat for rosy two-tone penstemon within 55 acres of the project area. Nearby populations of other BLM sensitive plant species, including three-corner milkvetch and Beaver Dam breadroot, may also be indirectly impacted if the Proposed Action leads to the introduction and spread of invasive species. To compensate for these

unavoidable impacts, the SRMS per-acre fee collected by the BLM would be used to complete off-site restoration of native vegetation and site protection measures which would provide a benefit to special-status plant species.

#### **3.7.3.2.2 Mitigation Measures**

As a result of the Proposed Action, disturbance of 55 acres of ground, including potentially suitable habitat for rosy two-tone penstemon, would remain in the long term. Because there are no additional on-site mitigation measures being proposed, impacts would remain unchanged from the direct/indirect impacts described above.

#### **3.7.3.2.3 Cumulative Effects**

The cumulative impacts area of analysis for special-status plant species is defined as lands administered by the Las Vegas and Pahrump Field Offices. Special-status plant species that are protected in the state of Nevada or listed as a sensitive species by the BLM are known to occur on or in the vicinity of the Dry Lake Valley surrounding the project area. Minimization of erosion, sedimentation, spread of noxious weeds, and dust deposition are all design features that would reduce or eliminate the potential for these species to be indirectly affected by the construction and operation of the Proposed Action. Special-status species are also affected by ongoing actions within the geographic extent of effects; these include impacts from urban areas, roads, mining, transmission lines, underground pipelines, and power plants in the area. Future developments, including as many as five large-scale solar facilities under development, 13 potential facilities with applications covering over 75,000 acres on public land, several proposed transmission line and pipeline projects, the proposed 21,454-acre (33.5-square mile, or 87-km<sup>2</sup>) Coyote Springs Investment residential development, and a proposed new community airport, would add incremental impacts. Potential developments cover large areas and long linear distances and are likely to affect special-status species. Total cumulative impacts could be moderate to large. However, contributions to cumulative impacts from solar development with the Dry Lake Valley would be relatively small. Actual impacts would depend on the number, location, and technologies of projects that are built. Future projects would also employ design features and mitigation measures as determined by BLM and other authorizing entities to avoid or limit effects.

#### **3.7.3.2.4 No Action**

Under the No Action Alternative, the Project ROW would be denied and special-status plants would continue to be managed consistent with the objectives of the BLM Las Vegas RMP and BLM Manual 6840 (BLM 2008c). Because the project area is located wholly within a compatibly developed ROW held by the Applicant, other electrical utility uses for this land proposed by the Applicant would likely be implemented, which would result in impacts similar to those described under the Proposed Action.

## **3.8 Invasive Species and Noxious Weeds**

### **3.8.1 Affected Environment**

Southern Nevada lands are impacted by the presence of noxious and invasive, non-native vegetation. The Dry Lake Valley was inventoried for weeds in 2014, and populations of red brome (*Bromus rubens*) were observed along roadsides and in water collection areas. Existing ROW corridors in the Dry Lake Valley are known to have populations of both Malta star-thistle (*Centaurea melitensis*) and Sahara mustard (*Brassica tournefortii*), which are listed as noxious weeds in Nevada.

Other weed species of concern include camelthorn (*Alhagi maurorum*), perennial pepperweed (*Lepidium latifolium*), Russian knapweed (*Acroptilon repens*), yellow star-thistle (*Centaurea solstitialis*),

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Johnsongrass (*Sorghum halepense*), Scotch thistle (*Onopordum acanthium*), Canada thistle (*Cirsium arvense*), fountaingrass (*Pennisetum setaceum*), puncturevine (*Tribulus terrestris*), tamarisk (*Tamarix ramosissima*), and halogeton (*Halogeton glomeratus*).

### **3.8.2 Proposed Design Features**

The Applicant proposes to implement a weed management plan to manage and control the potential for invasive plants within the project area. Various techniques would be employed including vehicle/equipment inspections and cleaning, use of certified weed-free BMPs, authorized use of herbicides, as applicable, in combination with manual methods to lessen the potential for the dispersal or increased abundance of existing and any new non-native, invasive plant species.

### **3.8.3 Environmental Consequences**

#### **3.8.3.1 PROPOSED ACTION**

Disturbance as a result of construction and operation activities within 55 acres of the project area could potentially result in the establishment and/or expansion of noxious weeds and invasive species populations despite design features to prevent the spread of noxious weeds. Existing disturbance of other developed facilities within the Dry Lake Valley may contribute to the establishment of noxious weeds and invasive species; however, those facilities are also subject to BLM-required weed management actions.

The Proposed Action would impact 55 acres of long-term ground disturbance, which would have the potential to introduce and/or exacerbate current weed populations, if present. Construction associated with the Proposed Action would involve activities such as clearing and grading which would result in a decrease in native plant cover and increased soil disturbance. Vegetation removal would potentially provide an opportunity for non-native weed species, if already present and established, to colonize the project area. Noxious and/or invasive weeds effectively compete with native species for sunlight, soil, water, nutrients, and space, reducing forage productivity.

Increased vehicle traffic during all phases of the Proposed Action would also contribute to the potential for the spread of noxious and/or invasive weeds. Vehicles are effective at introducing and/or spreading weeds by dispersing seeds along roadways.

Increased vehicle activity also 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 1998). 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. The increase of fine fuels may result in ignitions and ultimately increase the number of wildfires in the area. Aggressively managing invasive or noxious species would 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, or complete removal of all vegetation.

#### **3.8.3.1.1 Mitigation Measures**

Implementation of standard BMPs and project stipulations would help identify, prevent, and treat the spread of noxious and/or invasive species. No additional mitigation measures have been identified and the remaining impacts from noxious weeds and invasive species would be negligible.

### **3.8.3.1.2 Cumulative Effects**

The cumulative impacts area of analysis for noxious weeds and invasive species is the project area and a 50-mile (80-km) buffer. The Proposed Action, in conjunction with other projects, would result in cumulative impacts on native vegetation communities, including the potential to spread noxious and/or invasive weeds. The combined effects of the reasonably foreseeable future actions have the potential to increase the rate at which the noxious and invasive weeds colonize lands within the cumulative impacts area.

It is assumed that all reasonable foreseeable future development on BLM lands in the Dry Lake Valley and cumulative impacts area of analysis would be subject to the same design features and mitigation measures which reduce the potential cumulative increases in noxious weeds and invasive species. In addition, other reasonably foreseeable future actions that would result in ground-disturbing activities would be required to comply with the Las Vegas Field Office *Noxious Weed Plan* (BLM 2003).

### **3.8.3.2 NO ACTION**

Under the No Action Alternative, the Project ROW would be denied and invasive species and noxious weeds would continue to exist under current conditions. Because the project area is located wholly within a compatibly developed ROW held by the Applicant, other electrical utility uses for this land proposed by the Applicant would likely be implemented, which would result in impacts similar to those described under the Proposed Action.

## **3.9 Soils**

### **3.9.1 Affected Environment**

Soils within the project area are very gravelly and stony loams of the Colorock–Tonopah and the Bard-Tonopah association. These gently to moderately sloping soils are derived alluvium from sedimentary rocks (mainly carbonates); some soils (particularly those of the Colorock series) have well developed pavements. They are characterized as deep and well to excessively drained. Most of the soils on the site have a high surface runoff potential and moderate permeability.

In addition, biological soil crusts and desert pavement exist throughout the Mojave Desert and are present in the project area. Biological soil crusts are matrices of soil particles on the surface of the soil that comprise cyanobacteria, mosses, lichens, and bacteria (Williams et al. 2013). Desert pavement is a soil feature that refers to the interlocking rock fragments on the surface of the soil with sparse plant cover (Williams et al. 2013).

### **3.9.2 Proposed Design Features**

On the basis of impact analyses for total disturbance of 55 acres of the project area, no specific design features for soil resource impacts have been identified for the Proposed Action.

### **3.9.3 Environmental Consequences**

#### **3.9.3.1 PROPOSED ACTION**

Impacts on soil resources would occur mainly as a result of ground-disturbing activities (e.g., grading, excavating, and drilling), especially during the construction phase of the Proposed Action. Because impacts on soil resources result from ground-disturbing activities in the project area, soil impacts would be roughly proportional to the size of a given solar facility, with larger areas of disturbed soil having a greater potential for impacts than smaller areas.

Activities in the Dry Lake Valley have the potential to directly impact soil resources through compaction and erosion. Soil loss may occur through sediment transport. Indirect impacts include increased runoff to the Dry Lake Basin, increased wind erosion due to construction grading, and soil contamination due to spills. The Proposed Action has the potential to permanently impact 55 acres from new ground-disturbing activities.

The development of the Proposed Action has the potential to cause loss of biological soil crusts and desert pavement on 55 acres of the project area. Biological soil crusts increase water holding capacity and nutrient availability of surface soils and cause dust accumulation which prevents wind erosion of surface soils (Williams et al. 2013). Loss of the biological soil crusts would increase erosion potential of surface soils and decrease available water and nutrients to nearby plant communities. Loss of desert pavement would decrease surface soil stability and increase wind erosion potential.

To compensate for these unavoidable impacts, the SRMS per-acre fee collected by the BLM would be used to allow increased resource monitoring and law enforcement patrols to prevent soil degradation and allow early detection and restoration to prevent further declines. In addition, funds would be used to support the development of BMPs and techniques for restoring cryptobiotic crusts. This would provide a benefit to soils and to cryptobiotic soil crusts.

#### **3.9.3.1.1 Mitigation Measures**

Disturbance of 55 acres of soils as a result of the Proposed Action would remain in place over the long term. Mitigation measures to reduce impacts would include application of dust suppressant during construction activities to reduce fugitive dust, implementation of stormwater BMPs during construction and operation phases to reduce runoff impacts, and placement of stormwater drainage features to maintain the natural flow patterns of stormwater across the Dry Lake Valley.

#### **3.9.3.1.2 Cumulative Effects**

The Proposed Action would contribute to the cumulative impacts on soil resources in the Dry Lake Valley. The cumulative loss of soils in the near term from the Proposed Action and other proposed large-scale solar projects adjacent to the project area would be approximately 3,140 acres, in addition to the several hundred acres already developed with operational mining, electrical, and gas pipeline facilities nearby.

#### **3.9.3.1.3 No Action**

Under the No Action Alternative, the Project ROW would be denied and soil resources would not be directly or indirectly impacted. Because the project area is located wholly within a compatibly developed ROW held by the Applicant, other electrical utility uses for this land proposed by the Applicant would likely be implemented, which would result in impacts similar to those described under the Proposed Action.

## 4.0 COORDINATION

### 4.1 Introduction

As described in Section 1.6, extensive coordination, consultation, and public involvement specific to electric utility facilities in general, and solar energy development in particular, within the Dry Lake Valley has occurred. The BLM will use this input to inform future proposals for development within the RMP planning area. This EA for the development of solar PV facilities located wholly within a compatibly developed electrical utility ROW held by the Applicant incorporates by reference the coordination, consultation, and public involvement completed to date as described above.

### 4.2 Persons, Groups, and Agencies Consulted

The persons, groups, and agencies consulted on this and other analyses are as listed in those documents in Section 1.6. Public Involvement and Identification of Issues.

The process used to involve the public about electrical infrastructure development of the project area included the direct mail of letters to Tribes; federal, state, and local agencies; private landowners; and other interested parties as recorded in the documents described in Section 1.6.

### 4.3 List of Preparers/Reviewers

The BLM staff and environmental resource specialists of the BLM's consultant (SWCA Environmental Consultants [SWCA]) who participated in the development of this EA are identified in Table 7 below.

**Table 7.** List of Preparers/Reviewers

<b>Name</b>	<b>Title</b>	<b>Affiliation</b>	<b>Responsibility</b>
Nancy Christ	Planning and Environmental Coordinator	BLM	All sections
Lisa Christianson	Environmental Protection Specialist	BLM	Air Resources Climate Hazards and Hazardous Materials
Melanie Cota	Wildlife Biologist	BLM	Biological Resources – Wildlife and Aquatic Biota
Stan Plum	Archaeologist	BLM	Cultural Resources and Native American Concerns
Greg Helseth	Project Manager	BLM	All sections
Sean McEldery	Fire Management Specialist	BLM	Biological Resources – Vegetation and Wildland Fire Ecology
Boris Poff	Hydrologist	BLM	Soil Resources Water Resources
Ben Klink	Range Specialist	BLM	Biological Resources – Vegetation and Wildland Fire Ecology
Kathryn Foster	Realty Specialist	BLM	Lands and Realty Transportation
Chris Linehan	Recreation Planner	BLM	Recreation
Fred Edwards	Botanist	BLM	Biological Resources – Vegetation and Wildland Fire Ecology

**Table 7.** List of Preparers/Reviewers (Continued)

<b>Name</b>	<b>Title</b>	<b>Affiliation</b>	<b>Responsibility</b>
John Schumacher	Recreation Planner	BLM	Visual Resources
Steve Leslie	Project Manager	SWCA	All sections
Eric Koster	Project Director	SWCA	All sections
Adrian Hogel	Environmental Specialist	SWCA	Biological Resources
Blake Fox	Environmental Specialist	SWCA	Soil Resources, Biological Resources
Victor Villagran	Archaeologist	SWCA	Cultural Resources and Native American Concerns

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## **APPENDIX A**

### **Applicant-Proposed Conservation Measures**

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Following are conservation measures proposed by the Applicant to avoid and/or minimize the potential impacts of the Proposed Action on federally listed species. These measures will also serve to ensure that all project activities (construction, operation and maintenance, and decommissioning) are implemented in compliance with local, state and federal laws, guidelines, and protocols.

1. The Applicant's Environmental Services Team will manage and oversee all environmental compliance measures over the life of the project during construction, operation and maintenance, and decommissioning activities through the use of Environmental Scientists on staff as well as qualified third-party contractors, as necessary.
2. The Applicant's Environmental Services Team will serve as the Field Contract Representative (FCR) for the life of this non-linear project during construction, operation and maintenance, and decommissioning activities. The Applicant may choose to utilize a qualified third-party contractor to perform FCR duties during the construction phase.
3. The Applicant's Environmental Services Team will ensure that all required compliance measures are implemented and enforced during the life of the project during construction, operation and maintenance, and decommissioning activities. The Applicant may choose to utilize a qualified third-party contractor(s) to support these efforts.
4. The Applicant's Project Team will ensure that the Applicant, its contractors, and/or its subcontractors meet the compliance requirements of all local, state, and federal permits, laws, guidelines, and protocols for the protection of natural resources as a result of implementation of the project. The Applicant will determine through its contracting processes which entity will be responsible for which permit(s) along with the implementation, monitoring, and enforcement thereof.
5. The Applicant's Environmental Services Team will develop environmental awareness training materials that describe the listed species, resource concerns, compliance measures, and requirements of the final permits and authorizations for the project as issued by the applicable local, state, and federal agencies issuing such permits and authorizations.
6. The Applicant's Environmental Services Team will ensure that all workers during the construction phase receive environmental awareness training prior to commencing construction work on the project. Likewise, the Applicant's Environmental Services Team will ensure that all operation and maintenance personnel who serve or perform any duty/function on site over the life of the project receive environmental awareness training.
7. The Applicant's Environmental Services Team will ensure that all third-party environmental monitors it contracts with and utilizes on-site over the life of the project during construction, operation and maintenance, and decommissioning activities are properly qualified, authorized, and/or permitted for the specific and general requirements necessary, such as, but not limited to: desert tortoise, migratory birds, noxious weeds, cultural resources, fugitive dust, and general environmental compliance.
8. The Applicant's Environmental Services Team will determine the timing, quantity, and utilization of qualified desert tortoise biologists and monitors to support activities over the life of the project, as deemed necessary or otherwise required to maintain compliance with the Biological Opinion issued for the project.
9. The Applicant's Environmental Services Team will ensure the utilization of desert tortoise biologists who are authorized by the U.S. Fish and Wildlife Service and permitted by the Nevada Department of Wildlife, in accordance with the Biological Opinion issued for the project. Desert tortoise monitors may also be used, as deemed appropriate and qualified by the Applicant's Environmental Services Team.

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10. The Applicant's Environmental Services Team will ensure that desert tortoise protection and exclusionary measures are incorporated into the planning, design, and construction of the project and maintained over the life of the project during operation and maintenance, and decommissioning activities such that the access road(s) and facilities maintain 100% exclusion from entry by desert tortoise. Such measures include: permanent desert tortoise exclusionary fencing, per USFWS specifications, along the project perimeter security fencing, with shade shelters as necessary; permanent desert tortoise guards installed at all vehicular gates; and, permanent exclusionary devices (e.g., concrete threshold, steel plates, exclusionary fencing) at all non-vehicular (e.g., personnel emergency exit) gates.
  11. The Applicant's Environmental Services Team will determine the quantity and type of resource monitors (e.g., Authorized Biologists, tortoise monitors, avian biologists, botanists, archaeologists, etc.) to contract and utilize over the life of the project during construction, operation and maintenance, and decommissioning activities. This determination will be relative to the scope and extent of the activity needing coverage, compliance requirements of all permits, time of year, seasonal weather patterns, observed and anticipated wildlife activity levels (e.g., desert tortoise, migratory birds), and other factors as deemed appropriate by the Applicant to ensure permit compliance.
  12. The Applicant's Environmental Services Team will ensure that all environmental compliance measures implemented over the life of the project during construction, operation and maintenance, and decommissioning activities are in accordance with all project permit compliance requirements and the most current agency protocols.
  13. The Applicant's Environmental Services Team will be responsible for the oversight, tracking, management, and report submittals of project biological data collected over the life of the project during construction, operation and maintenance, and decommissioning activities in accordance with the reporting requirements of the Biological Opinion and any other authorizing documents.
  14. The Applicant's Environmental Services and Property Services Teams will be the main points of contact between the BLM and the Applicant for all oversight and coordination of the project, as authorized by BLM, over the life of the project during construction, operation and maintenance, and decommissioning activities.
  15. The Applicant's Environmental Services Teams will be the main points of contact for Adaptive Management coordination with BLM, and other pertinent regulatory agency(s) as necessary, relative to the mitigation and protective measures for listed and protected species (i.e., desert tortoise, migratory birds) within the authorized limits of the project over the life of the project during construction, operation and maintenance, and decommissioning activities.