

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

**Environmental Assessment
DOI-BLM-NV-S010-2013-0052-EA
DOE/EA-1960**

June 28, 2013

Townsite Solar Project Transmission Line

PREPARING OFFICE

U.S. Department of the Interior
Bureau of Land Management
Southern Nevada District Office
Las Vegas Field Office
4701 N. Torrey Pines Drive
Las Vegas, Nevada
702-515-5000 Office
702-515-5010 Fax

BLM



**Environmental Assessment
for the
Townsite Solar Project
DOE/EA-1960
DOI-BLM-NV-S010-2013-0052 EA
N-91290**



Prepared For



U.S. Department of the Interior
Bureau of Land Management
Southern Nevada District Office
Las Vegas Field Office
4701 N. Torrey Pines Drive
Las Vegas, NV



Prepared by:



8250 West Charleston Boulevard, Suite 100
Las Vegas, NV 89117

June 28, 2013

Contents

| | | |
|-------|---|----|
| 1 | Introduction..... | 1 |
| 1.1 | Background..... | 1 |
| 1.1.1 | Scope of Analysis..... | 1 |
| 1.1.2 | BLM’s Purpose and Need for the Action..... | 1 |
| 1.1.3 | BLM Decisions to be Made | 2 |
| 1.1.4 | Western’s Purpose and Need | 2 |
| 1.1.5 | Western’s Decisions to be Made..... | 2 |
| 1.2 | Relationship to Laws, Regulations, Policies, and Other Plans..... | 4 |
| 1.3 | Supplemental Authorities..... | 4 |
| 1.4 | Identifying Information..... | 6 |
| 2 | Proposed Project and Alternatives | 7 |
| 2.1 | Proposed Project | 7 |
| 2.2 | Non-federal Connected Action | 7 |
| 2.3 | Alternatives..... | 7 |
| 2.3.1 | Alternative A1..... | 10 |
| 2.3.2 | Alternative A2..... | 10 |
| 2.3.3 | Alternative A3..... | 10 |
| 2.3.4 | Alternative B..... | 10 |
| 2.3.5 | No Action Alternative..... | 11 |
| 2.3.6 | Alternatives Considered but not Analyzed in Detail..... | 11 |
| 2.4 | Proposed Project Facilities..... | 11 |
| 2.4.1 | Site Preparation and Mobilization Activities | 15 |
| 2.4.2 | Waste and Hazardous Materials Management..... | 15 |
| 2.4.3 | Surface Reclamation | 16 |
| 2.4.4 | Best Management Practices | 16 |
| 2.5 | Proposed Project Construction Schedule | 16 |
| 2.5.1 | Operations and Maintenance..... | 17 |
| 2.5.2 | Decommissioning..... | 17 |
| 3 | Affected Environment, Environmental Consequences, and Mitigation Measures | 19 |
| 3.1 | Proposed Project General Setting | 19 |
| 3.2 | Air Quality and Climate..... | 20 |
| 3.2.1 | Affected Environment..... | 20 |

| | | |
|--------|--------------------------------------|----|
| 3.2.2 | Environmental Consequences..... | 22 |
| 3.2.3 | Mitigation..... | 25 |
| 3.3 | Geology, Minerals, and Soils..... | 27 |
| 3.3.1 | Affected Environment..... | 27 |
| 3.3.2 | Environmental Consequences..... | 28 |
| 3.3.3 | Mitigation..... | 28 |
| 3.4 | Water Resources..... | 29 |
| 3.4.1 | Affected Environment..... | 29 |
| 3.4.2 | Environmental Consequences..... | 30 |
| 3.4.3 | Mitigation..... | 31 |
| 3.5 | Vegetation..... | 32 |
| 3.5.1 | Affected Environment..... | 32 |
| 3.5.2 | Environmental Consequences..... | 33 |
| 3.5.3 | Mitigation..... | 34 |
| 3.6 | Special Status Vegetation..... | 36 |
| 3.6.1 | Existing Condition..... | 36 |
| 3.6.2 | Environmental Consequences..... | 36 |
| 3.6.3 | Mitigation..... | 37 |
| 3.7 | Wildlife..... | 38 |
| 3.7.1 | Affected Environment..... | 38 |
| 3.7.2 | Environmental Consequences..... | 38 |
| 3.7.3 | Mitigation..... | 39 |
| 3.8 | Special Status Wildlife Species..... | 40 |
| 3.8.1 | Affected Environment..... | 40 |
| 3.8.2 | Environmental Consequences..... | 42 |
| 3.8.3 | Mitigation..... | 46 |
| 3.9 | Cultural Resources..... | 50 |
| 3.9.1 | Affected Environment..... | 50 |
| 3.9.2 | Environmental Consequences..... | 51 |
| 3.9.3 | Mitigation..... | 51 |
| 3.10 | Visual Resources..... | 52 |
| 3.10.1 | Affected Environment..... | 52 |
| 3.10.2 | Environmental Consequences..... | 52 |

| | | |
|--------|---|----|
| 3.10.3 | Mitigation..... | 53 |
| 3.11 | Recreation | 54 |
| 3.11.1 | Affected Environment..... | 54 |
| 3.11.2 | Environmental Consequences | 54 |
| 3.11.3 | Mitigation..... | 54 |
| 3.12 | Noise | 56 |
| 3.12.1 | Affected Environment..... | 56 |
| 3.12.2 | Environmental Consequences | 56 |
| 3.12.3 | Mitigation..... | 58 |
| 3.13 | Socioeconomics | 59 |
| 3.13.1 | Environmental Consequences | 59 |
| 3.13.2 | Connected Action..... | 59 |
| 3.13.3 | Mitigation..... | 60 |
| 3.14 | Human Health and Safety | 61 |
| 3.14.1 | Existing Environment | 61 |
| 3.14.2 | Environmental Consequences | 62 |
| 3.14.3 | Mitigation Measures | 64 |
| 3.15 | Intentional Destructive Acts..... | 65 |
| 3.15.1 | Affected Environment..... | 65 |
| 3.15.2 | Environmental Consequences | 65 |
| 4 | Cumulative Impacts | 67 |
| 4.1 | Past and Present Actions..... | 67 |
| 4.2 | Reasonably Foreseeable Projects..... | 67 |
| 4.2.1 | Air Quality and Climate..... | 68 |
| 4.2.2 | Geology, Minerals, and Soils..... | 68 |
| 4.2.3 | Water Resources | 68 |
| 4.2.4 | Vegetation and Special Status Plant Species | 69 |
| 4.2.5 | Invasive Species / Noxious Weeds | 69 |
| 4.2.6 | Wildlife and BLM sensitive species | 69 |
| 4.2.7 | Desert Tortoise..... | 70 |
| 4.2.8 | Migratory Birds..... | 70 |
| 4.2.9 | Cultural Resources | 70 |
| 4.2.10 | Land Use | 70 |

| | | |
|---|--|----|
| 4.2.11 | Visual Resources..... | 71 |
| 4.2.12 | Socioeconomics | 71 |
| 4.3 | Irreversible and Irretrievable Commitment of Resources and Unavoidable Adverse Impacts ... | 71 |
| 4.3.1 | Geology, Soils, and Minerals..... | 71 |
| 4.3.2 | Air Quality | 72 |
| 4.3.3 | Water Resources | 72 |
| 4.3.4 | Biological Resources..... | 72 |
| 4.3.5 | Cultural Resources | 72 |
| 4.3.6 | Recreation | 72 |
| 4.3.7 | Noise | 72 |
| 4.3.8 | Visual Resources..... | 72 |
| 4.3.9 | Socioeconomics | 72 |
| 4.3.10 | Human Health and Safety | 72 |
| 5 | Tribes, Individuals, or Agencies Consulted | 74 |
| 6 | List of Preparers..... | 75 |
| 7 | References..... | 76 |
| Appendix A: Alternative Descriptions and Master Title Plats..... | | A |
| Appendix B: Best Management Practices..... | | B |
| Appendix C: Append to the Programmatic Biological Opinion | | C |
| Appendix D: Eldorado Valley Transmission and Utility Corridor PEA Cumulative Impact Table and Figure..... | | D |

Tables

| | | |
|---------------|--|----|
| Table 1.3-1. | Supplemental Authorities | 4 |
| Table 2.3-1. | Comparison of Alternatives..... | 9 |
| Table 2.4-1. | Typical Design Characteristics for a 220, 230 and 500-kV Transmission Line..... | 11 |
| Table 2.5-1. | Transmission Line Construction Estimated Personnel and Equipment Required | 17 |
| Table 3.2-1. | National Ambient Air Quality Standards | 21 |
| Table 3.2-2. | Criteria Air Pollution Emissions (Tons/Year) Over the Construction Duration of the Transmission Line..... | 23 |
| Table 3.2-3. | Criteria Air Pollution Emissions (Tons/Year) Over the 18 Month Proposed Project Construction Duration..... | 24 |
| Table 3.2-4. | Criteria Air Pollutant Emissions (Tons/Year) During the Proposed Project O&M Duration of 12 Months | 25 |
| Table 3.7-1. | Species recorded by NDOW in the project area..... | 38 |
| Table 3.8-1. | BLM Sensitive Species..... | 40 |
| Table 3.12-1. | Noise Levels at Various Distances from Typical Construction Equipment | 57 |

Table 3.13-1. Selected Socioeconomic Indicators for the Region of Influence and State of Nevada 59
Table 3.14-1. AADT at NDOT Traffic Count Stations near the Proposed Project Area..... 61

Figures

Figure 1.1-1. Project Vicinity 3
Figure 2.3-1. Transmission Line Alternatives 8
Figure 2.4-1. Typical 220/230-kV Transmission Structure 12
Figure 2.4-2. Typical 500-kV Transmission Structure 13
Figure 2.4-3. Typical 220/230-kV Tangent Transmission Structure 14
Figure 3.10-1. Representative View in the Project Area 52

Acronyms and Abbreviations

| | |
|-------------------|--|
| BA | Biological Assessment |
| BO | Biological Opinion |
| BCCE | Boulder City Conservation Easement |
| BLM | Bureau of Land Management |
| BMP | Best Management Practices |
| CAA | Clean Air Act |
| CFR | Code of Federal Register |
| CO | Carbon monoxide |
| DAQ | Department of Air Quality |
| EA | Environmental Assessment |
| ESA | Endangered Species Act |
| EZ | Energy Zone designated by the City of Boulder City |
| FEMA | Federal Emergency Management Agency |
| FLPMA | Federal Land Policy and Management Act |
| GHG | Greenhouse gas emissions |
| KOAM | KOWEPO America LLC |
| LADWP | Los Angeles Department of Water and Power |
| MSL | Mean sea level |
| MW | Megawatt |
| NAAQS | National Ambient Air Quality Standards |
| NDOW | Nevada Department of Wildlife |
| NEPA | National Environmental Policy Act |
| NO ₂ | Nitrogen dioxide |
| O ₃ | Ozone |
| OHV | Off-Highway Vehicles |
| Pb | Lead |
| PM _{2.5} | Particulate matter equal to or less than 2.5 microns in diameter |
| PM ₁₀ | Particulate matter equal to or less than 10 microns in diameter |
| ROW | Right-of-way |
| USEPA | United States Environmental Protection Agency |
| USFWS | United States Fish and Wildlife Service |
| USC | United States Code |
| VOC | Volatile organic compounds |
| WEAP | Water Evaluation and Planning System |
| Western | Western Area Power Administration |

1 Introduction

1.1 Background

KOWEPO America LLC (hereafter “KOAM” or the “Applicant”) has submitted a right-of-way (ROW) application to and is seeking a ROW grant from the Bureau of Land Management (BLM) and an interconnection request from the Western Area Power Administration (Western) to construct a transmission line to connect KOAM’s Townsite Solar Project to one of the following substations: Eldorado, Marketplace, McCullough Switching Station, or Mead. See Section 2.3 for a detailed description of the proposed project alternatives. The transmission line would utilize designated federal utility corridors. The proposed project site is in Clark County, NV, approximately 4 miles southwest of the incorporated City of Boulder City (Figure 1.1-1).

KOAM is also proposing to construct a solar energy-generating facility of up to 180 megawatts (MWs) on 884 acres of land owned by the City of Boulder City and leased to KOAM, which is considered a connected action (see Section 2.2, Non-federal connected action). Boulder City has designated this area their “Solar Energy Zone.” Construction of the solar facility is dependent upon the BLM’s approval of the transmission line and Western’s approval of the transmission line and/or interconnection request to the Mead Substation, because electricity generated at the solar facility would not reach the power grid without utilizing the BLM-managed utility corridors and/or DOE-managed lands for all of the possible transmission line routes. Because the connected action can be prevented by the BLM and Western decisions, the effects of the connected action are properly considered indirect effects of the Proposed Action, and as such are analyzed as effects of the proposed project (40 CFR 1508.7 and 1508.25[c]). The “proposed project” refers to the transmission lines, geotechnical testing, associated spur roads, and interconnection request. .

1.1.1 Scope of Analysis

This Environmental Assessment (EA) presents and analyzes four alternative transmission line routes, which are discussed in detail in Section 2.3, Overview of Alternatives. The alternatives consist of transmission lines that would connect the Townsite Solar Project to one of the following: Los Angeles Department of Water and Power’s (LADWP) Marketplace Substation, Southern California Edison’s (SCE) Eldorado Substation, LADWP’s McCullough Switching Station, or to Western’s Mead Substation.

This EA is tiered in part to the Eldorado Valley Transmission and Utility Corridor Programmatic Environmental Assessment (PEA) (BLM-NV-S010-2012-0024-EA). That PEA addresses impacts to the BLM-managed utility corridor, but not the Mead Withdrawal Area; however, mitigation presented in the PEA is appropriate for either BLM- or Western-managed lands. Applicable mitigation has been summarized in the sections for each resource and disclosed in its entirety in Appendix B.

1.1.2 BLM’s Purpose and Need for the Action

In accordance with the Federal Land Policy and Management Act (FLPMA) (Section 103(c)), public lands are to be managed for multiple-use that takes into account the long-term needs of future generations for renewable and non-renewable resources. The Secretary of the Interior is authorized to grant 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 project is to respond to a FLPMA ROW application submitted by KOAM to construct, operate, maintain,

and decommission a transmission line on public lands administered by the BLM. Consideration of the ROW application would be in compliance with FLPMA, BLM right-of-way regulations, and other applicable Federal laws and policies. These actions would, if approved, assist the BLM in addressing the management objectives in the Energy Policy Act of 2005 (Title II, Section 211), which established a goal for the Secretary of the Interior to approve at least 10,000 MWs of electricity from non-hydropower renewable energy projects located on public lands. This proposed project, if approved, would also further the purpose of Secretarial Order 3285A1 (March 11, 2009) that established the development of environmentally responsible renewable energy as a priority for the Department of the Interior.

1.1.3 BLM Decisions to be Made

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

1.1.4 Western's Purpose and Need

The Interconnection Customer (KOAM) requests to interconnect its proposed project with Western's Mead Substation. Western's purpose and need is to consider and respond to the interconnection request in accordance with its Open Access Transmission Service Tariff (Tariff) and the Federal Power Act. Western's Tariff is filed with the Federal Energy Regulatory Commission (FERC) for approval.

Under the Tariff, Western offers capacity on its transmission system to deliver electricity when capacity is available. The Tariff also contains terms for processing requests for the interconnection of generation facilities to Western's transmission system. In reviewing interconnection requests, Western must ensure that existing reliability and service is not degraded. Western's Tariff provides for transmission and system studies to ensure that system reliability and service to existing customers are not adversely affected by new interconnections. These studies also identify system upgrades or additions necessary to accommodate the proposed project and address whether the upgrades/additions are within the project scope.

1.1.5 Western's Decisions to be Made

Because all alternatives would cross Western withdrawn lands, Western would issue a land right for the transmission line. Additionally, for the alternative connecting to the Mead Substation, Western needs to approve or deny the interconnection request.

1.2 Relationship to Laws, Regulations, Policies, and Other Plans

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

- National Environmental Policy Act (NEPA) of 1969, as amended (Public Law 91-190, 42 United States Code [USC] 4321 et seq.);
- 10 CFR 1021: Department of Energy: National Environmental Policy Act Implementing Procedures;
- 40 CFR 1500 et seq.: Regulations for Implementing the Procedural Provisions of NEPA;
- BLM NEPA Handbook (H-1790-1) (BLM 2008a);
- FLPMA, as amended, Sections 103(c) and 501(a)(4);
- Boulder City Master Plan (Boulder City 2003);
- Clark County Multiple Species Habitat Conservation Plan (MSHCP) (Clark County 2000);
- Eldorado Valley Transmission and Utility Corridor Programmatic EA (November 2012); and
- Las Vegas Resource Management Plan (RMP) and Final Environmental Impact Statement (BLM 1998).

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

1.3 Supplemental Authorities

To comply with NEPA, the BLM and Western require that compliance with other authorities is addressed in the NEPA document. Supplemental authorities may be executive orders or other federal and state laws that provide procedural or substantive responsibilities relevant to the NEPA process and may “help identify issues for analysis.” Table 1.3-1 presents a list of elements dictated by Supplemental Authorities and specifies if these elements are present in the proposed project area; and if they are present, if they potentially would or would not be affected by the proposed project and the rationale for that conclusion.

Table 1.3-1. Supplemental Authorities

| Supplemental Authority* | Not Present** | Present/ Not Affected | Present/ May Be Affected*** | Rationale |
|---|---------------|-----------------------|-----------------------------|--|
| Air Quality Clean Air Act | | | X | Air Quality might be affected during project construction activities; therefore, impacts to air quality are addressed in Section 3.1 |
| Cultural Resources National Historic Preservation Act | | | X | Cultural Resources may be found in the proposed project area; therefore this resource is addressed in Section 3.9. |

| Supplemental Authority * | Not Present ** | Present/ Not Affected | Present/ May Be Affected *** | Rationale |
|---|-----------------------|------------------------------|-------------------------------------|---|
| Fish Habitat Magnuson-Stevens Act Provision: Essential Fish Habitat | X | | | Resource is not present in the project study area. |
| Forests and Rangeland Health Forests Restoration Act of 2003 | X | | | Resource is not present in the study area. |
| Migratory Birds Migratory Bird Treaty Act of 1918 EO 131186 | | | X | Migratory birds may be affected by the construction of the proposed project; therefore, they are addressed in Section 3.8 |
| Native American Religious Concerns American Religious Freedom Act of 1978 | X | | | No sites associated with Native American Religious practices are found in the study area. |
| Threatened or Endangered Species Endangered Species Act of 1983 | | | X | Desert tortoise, listed as a threatened species under the Endangered Species Act (ESA), are found throughout the area and may be affected by the proposed project; therefore, impacts to desert tortoise are addressed in Section 3.8 |
| Wastes, Hazardous or Solid Resources Conservation and Recovery Act of 1976 Comprehensive Environmental Repose Compensation and Liability Act of 1980 | | | X | Hazardous or solid waste may affect the environment during proposed project activities; therefore, effects of hazardous wastes are addressed in Section 3.12 |
| Water Quality(Drinking/Ground) Safe Drinking Water Act Clean Water Act | | | X | Impacts to groundwater may occur during project construction; therefore, impacts to this resource is addressed in Section 3.4 |
| Wild and Scenic Rivers Wild and Scenic Rivers Act | X | | | Resource is not present in study area |
| Wilderness Federal Land Policy and Management Act | X | | | Resource is not present in study area |
| Environmental Justice Executive Order (EO) 12898, Environmental Justice | X | | | Resource is not present in study area |
| Floodplains EO 11988, Floodplain Management | X | | | Resource is not present in study area |
| Wetlands-Riparian Zones EO 11990, Protection of Wetlands | X | | | Resource is not present in study area. |
| * See H-1790 Appendix I: Supplemental Authorities to be Considered (BLM 2008) | | | | |
| ** Supplemental Authorities determined to be “Not Present” were not analyzed in this document | | | | |
| *** Supplemental Authorities determined to by “Present/May be Affected” are required to be carried forward for analysis in this document | | | | |

1.4 Identifying Information

Title: Townsite Solar Project

EA Number: DOI-BLM-NV- EA
DOE-EA-1960

Type of Project: Transmission Line

Location of Proposed Project: *Alternatives 1, 2, and 3*
T 23S R63E Sections 23, 26, 27, 33, and 34
T 24S R63E Sections 4, 5, 8, 17, 18, and 19
T 24S R62E Sections 24, 25, and 36
T 25S R62E Sections 1, 2, 11, and 12
Alternative B
T 23S R64E Sections 28, 29, and 30

Preparing BLM Office: Las Vegas Field Office
4701 N. Torrey Pines Drive
Las Vegas, NV 89130

Applicant Name: Michael (Kuecheol) Jo
Chief Operating Officer
KOWEPO America LLC (KOAM)
4801 Wilshire Blvd
Suite 232
Los Angeles, CA 90010
323-452-9210

Contact: Jack Dangelo
DMP Energy
2 Park Plaza Suite 1250
Irvine, CA 92614
949-529-1642

2 Proposed Project and Alternatives

2.1 Proposed Project

The “proposed project” refers to the transmission line, spur roads, geotechnical testing, and interconnection request for which KOAM has submitted a ROW application to the BLM, and an interconnection request to Western. (Refer to Section 2.3 for a complete description of Alternatives).

2.2 Non-federal Connected Action

KOAM also proposes to construct, operate, and maintain a solar energy-generating facility of up to 180 MWs on 884 acres of land owned by the City of Boulder City and leased by KOAM. At this time, KOAM is considering either fixed tilt or tracking solar photovoltaic (PV) solar arrays. All feasible transmission line routes from this facility would require utilizing BLM-managed utility corridors and/or DOE-managed land or a combination of both. As such, construction and operation of this facility cannot proceed without BLM and Western’s approval of the transmission line route to transport the electricity generated at the solar facility to the power grid. Because the connected action can be prevented by the BLM and Western decisions, the effects of the connected action are properly considered indirect effects of the proposed project, and as such are analyzed as effects of the proposed project (40 CFR 1508.7 and 1508.25[c]).

2.3 Alternatives

The Townsite Solar Project would be located entirely on private land owned by the City of Boulder City, Nevada; however the electric transmission alternatives would be primarily located within existing utility corridors (Figure 1). This land is managed by the BLM, except for the Mead Withdrawal Corridor, which is managed by the Department of Energy. The BLM previously has issued several ROWs within the utility corridors. Project activities within utility corridors would require a ROW grant from BLM. Additionally, project activities within the Mead Withdrawal Corridor would need a land grant from from Western.

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

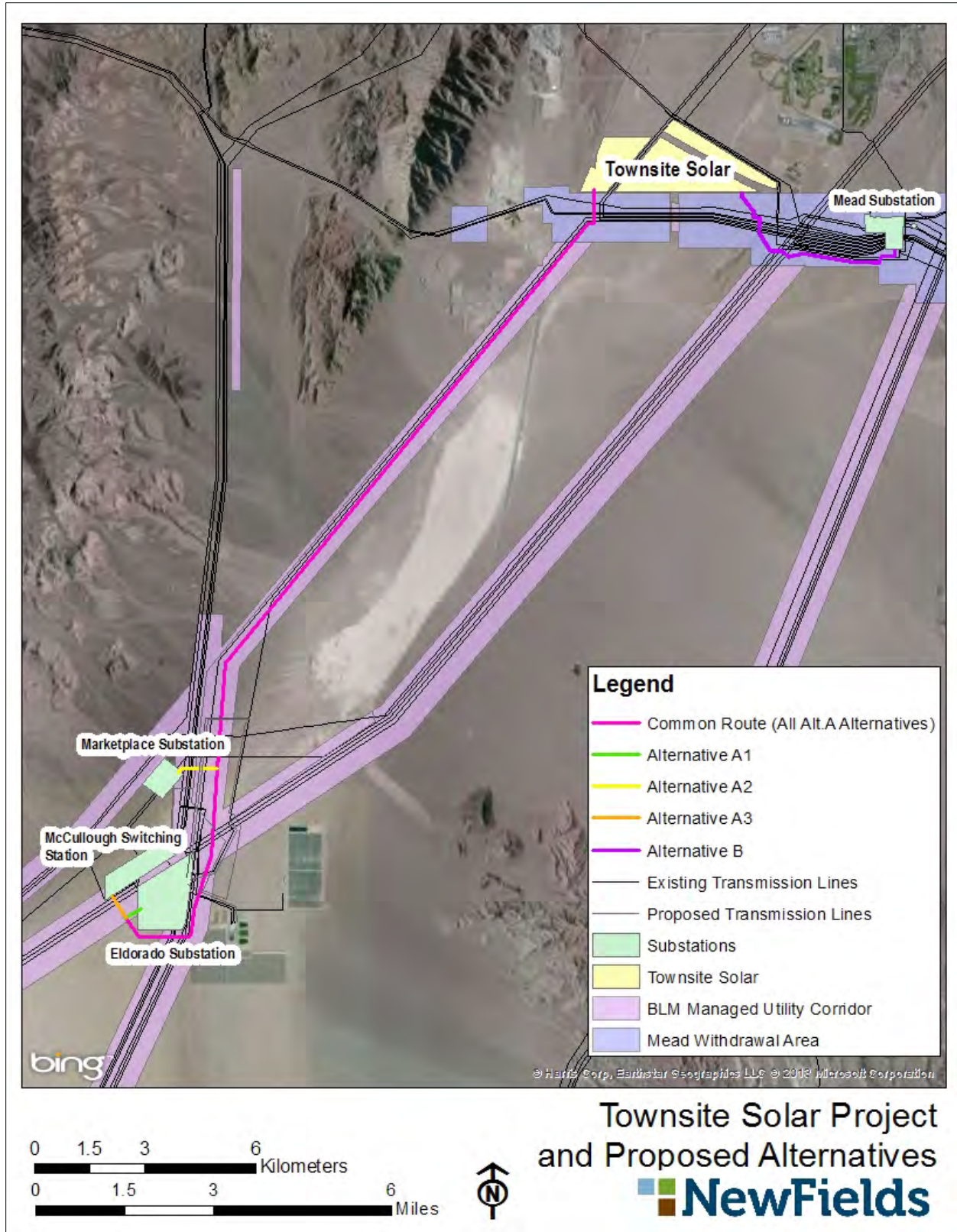


Figure 2.3-1. Transmission Line Alternatives

Table 2.3-1. Comparison of Alternatives

| | Alternative A1 Connecting to Eldorado Substation | Alternative A2 Connecting to Marketplace Substation | Alternative A3 Connecting to McCullough Switching Station | Alternative B Connecting to Mead Substation |
|---|---|--|--|--|
| Total Length of the transmission line | 13.4 miles | 10.8 miles | 13.5 miles | 2.75 miles |
| Total ROW request within BLM Utility Corridor and the Mead Withdrawal Area | | | | |
| Transmission Line Length | 12.8 miles | 10.8 miles | 12.9 miles | 2.75 miles |
| Transmission Line ROW Width | 200 feet | 200 feet | 200 feet | 200 feet |
| <i>Total ROW Acres Requested for the Transmission Line</i> | <i>311 acres</i> | <i>262 acres</i> | <i>313 acres</i> | <i>67 acres</i> |
| Temporary Disturbance within BLM Utility Corridor and Mead Withdrawal Area | | | | |
| Wire Pulling Sites | (12) 22 acres (~1.8 acres each) | (12) 22 acres (~1.8 acres each) | (12) 22 acres (~1.8 acres each) | (11) 9.38 acres (~0.8 acres each) |
| Transmission Line Poles (6,400 to 22,500 square feet of disturbance per pole) | 23 acres (1,000,000 square feet for 100 poles) | 16 acres (700,000 square feet for 70 poles) | 23 acres (980,000 square feet for 98 poles) | 8.8 acres (386,000 square feet for 25 poles) |
| Total Temporary Disturbance | 45 acres | 38 acres | 45 acres | 18 acres |
| Permanent Disturbance within the BLM Utility Corridor and Mead Withdrawal Area | | | | |
| Transmission Line Poles (~9 poles per miles, 15-360 square feet per pole) | 0.83 acre (36,000 square feet) | 0.58 acre (25,200 square feet) | 0.81 acre (35,280 square feet) | 0.009 acre (375 square feet) |
| Graded Spur Access Roads (200 feet long by 14-16 feet wide to each transmission pole) | 6.4 acres | 4.5 acres | 6.3 acres | 1.7 acres |
| Total Permanent Disturbance | 7.23 acres | 5.08 acres | 7.11 acres | 1.7 acres |
| Total Temporary and Permanent Disturbance | 52.23 | 43.08 | 52.11 | 19.7 |
| Within Land Managed by the U.S. Bureau of Land Management | | | | |
| BLM Utility Corridor | 12 miles | 10 miles | 12.1 miles | N/A |
| Mead Withdrawal Area | 0.8 mile | 0.8 mile | 0.8 mile | 2.75 miles |
| Total Length on BLM-managed Lands | 12.8 | 10.8 | 12.9 | 2.75 miles |
| Within Land Managed By the BLM (including the Mead Withdrawal Area) | | | | |
| Total Length on Boulder City Land | 0.6 mile | N/A | 0.6 mile | N/A |

2.3.1 Alternative A1

Alternative A1 would consist of a single circuit 220kV transmission line that would originate at the southwest corner of the solar facility and extend approximately 13.4 miles south to Southern California Edison's Eldorado Substation. For clarity, Table 2.3-1 provides a comparison of the alternatives. Approximately 12.8 miles of the transmission line would be within the BLM utility corridor and the Mead Withdrawal Area. The 0.6 miles of transmission line outside the BLM utility corridor would be on land owned by the City of Boulder City.

The 220 kV overhead transmission line would be comprised of self-supporting lattice steel towers or tubular steel pole structures. For any of the alternatives, H-frames or other tower configuration may be required for angle points or towers on either side where crossing over or under other lines. The specific type of tower will be based on the angle of the line because the standard suspension towers carry the load of the conductor in normal situations and are usually designed for small angular deviations of the line. The span length between structures could range from between 200 feet and 1,200 feet. Shorter distances between poles may be necessary where the proposed transmission line would cross under existing high voltage transmission lines within existing BLM ROWs. A primary telecommunication cable would be installed on the proposed new structures.

2.3.2 Alternative A2

Alternative A2 would consist of a 10.8-mile-long single circuit 500-kV transmission line that would originate at the southwest corner of the solar facility and terminate at the Marketplace Substation. It would be comprised of self-supporting lattice steel towers or tubular steel pole structures. Approximately 10.8 miles of the transmission line would be within the BLM utility corridor and the Mead Withdrawal Area. The span length between structures would range from between 200 feet and 1,200 feet. Shorter distances between poles may be necessary where the proposed transmission line would cross under existing high voltage transmission lines within existing BLM ROWs. The required primary telecommunication cable would be installed on the proposed new structures.

2.3.3 Alternative A3

Alternative A3 would consist of a 13.5-mile-long 230-kV transmission line that would originate at the southwest corner of the solar facility and terminate at the McCullough Switching Station. It would be comprised of self-supporting lattice steel towers or tubular steel pole structures. Approximately 12.9 miles of the transmission line would be within the BLM utility corridor and the Mead Withdrawal Area. The 0.6 mile of transmission line outside the BLM owned utility corridor would be on land owned by the City of Boulder City. The span length between structures would range from between 200 feet and 1,200 feet. Shorter distances between poles may be necessary where the proposed transmission line would cross under existing high voltage transmission lines within existing BLM ROWs. The required primary telecommunication cable would be installed on the proposed new structures.

2.3.4 Alternative B

Alternative B would consist of a 2.75-mile-long 230-kV transmission line that would originate at the southeast corner of the solar facility and terminate at the Mead Substation. It would be comprised of tubular steel pole structures (monopole) or 2 to 3 pole steel structures when necessary. All of the approximate 2.75 miles of transmission line would be within the Mead Withdrawal Area. The span length between structures would range from between 200 feet and 1,200 feet. Shorter distances between poles may be necessary where the proposed transmission line would cross under existing high voltage

transmission lines within existing Western ROWs. The required primary telecommunication cable would be installed on the proposed new structures.

2.3.5 No Action Alternative

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

2.3.6 Alternatives Considered but not Analyzed in Detail

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

2.4 Proposed Project Facilities

Typical design characteristics are listed in Table 2.4-1. Refer to Figure 2.4-1 to 2.4-3 below for a diagram with dimensions.

Table 2.4-1. Typical Design Characteristics for a 220, 230 and 500-kV Transmission Line

| Feature | Characteristics |
|-------------------------------|---|
| Type of structure | Single-pole wood or tubular steel structures or 2-3 pole steel structures |
| Structure height | Approximately 40 - 110 feet |
| Span length | Approximately 200 feet to 1,200 feet, except in areas where crossing other transmission lines, then the poles may be more closely spaced. |
| Number of structures per mile | ~9 |
| Base of structure | 15-360 square feet |
| Right-of-Way width | 200 feet |
| Access roads | Spur roads to each structure |
| Voltage | 220, 230 or 500-kV |
| Circuit configuration | Delta |
| Conductor size | 795 nominal amp rating |
| Ground clearance of conductor | 27 feet |
| Pole foundation depth | 10% of pole height + 4 feet |

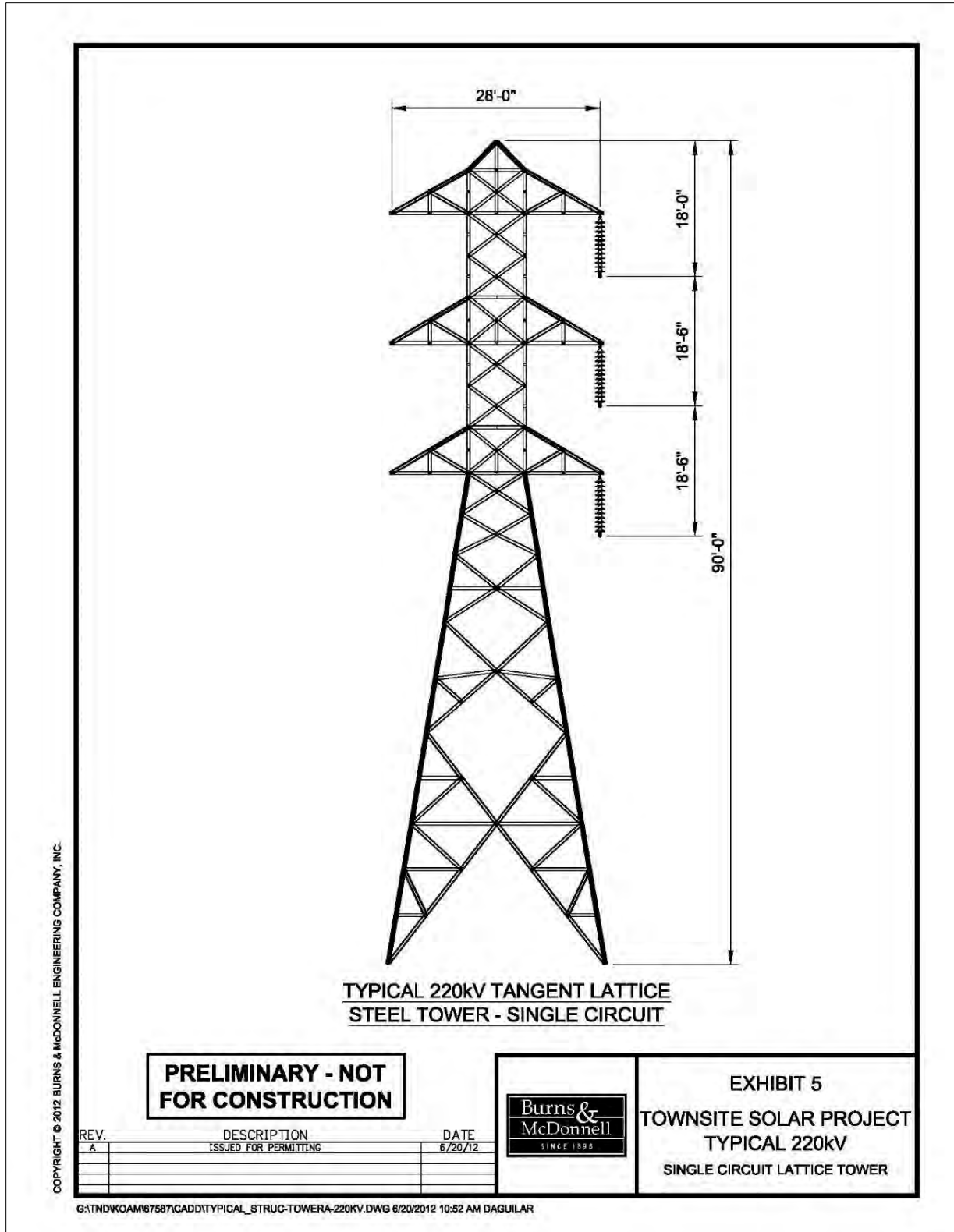


Figure 2.4-1. Typical 220/230-kV Transmission Structure

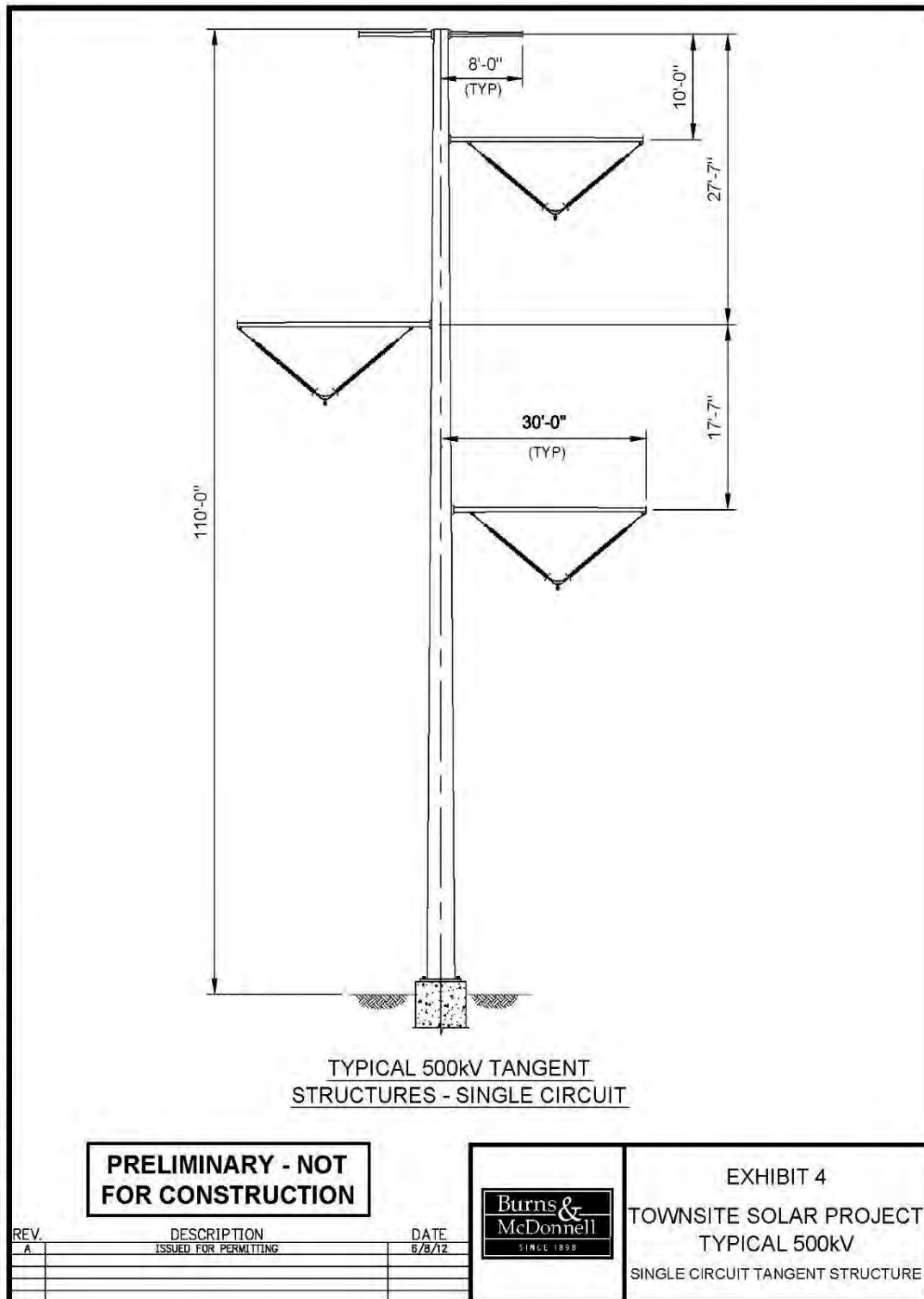


Figure 2.4-2. Typical 500-kV Transmission Structure

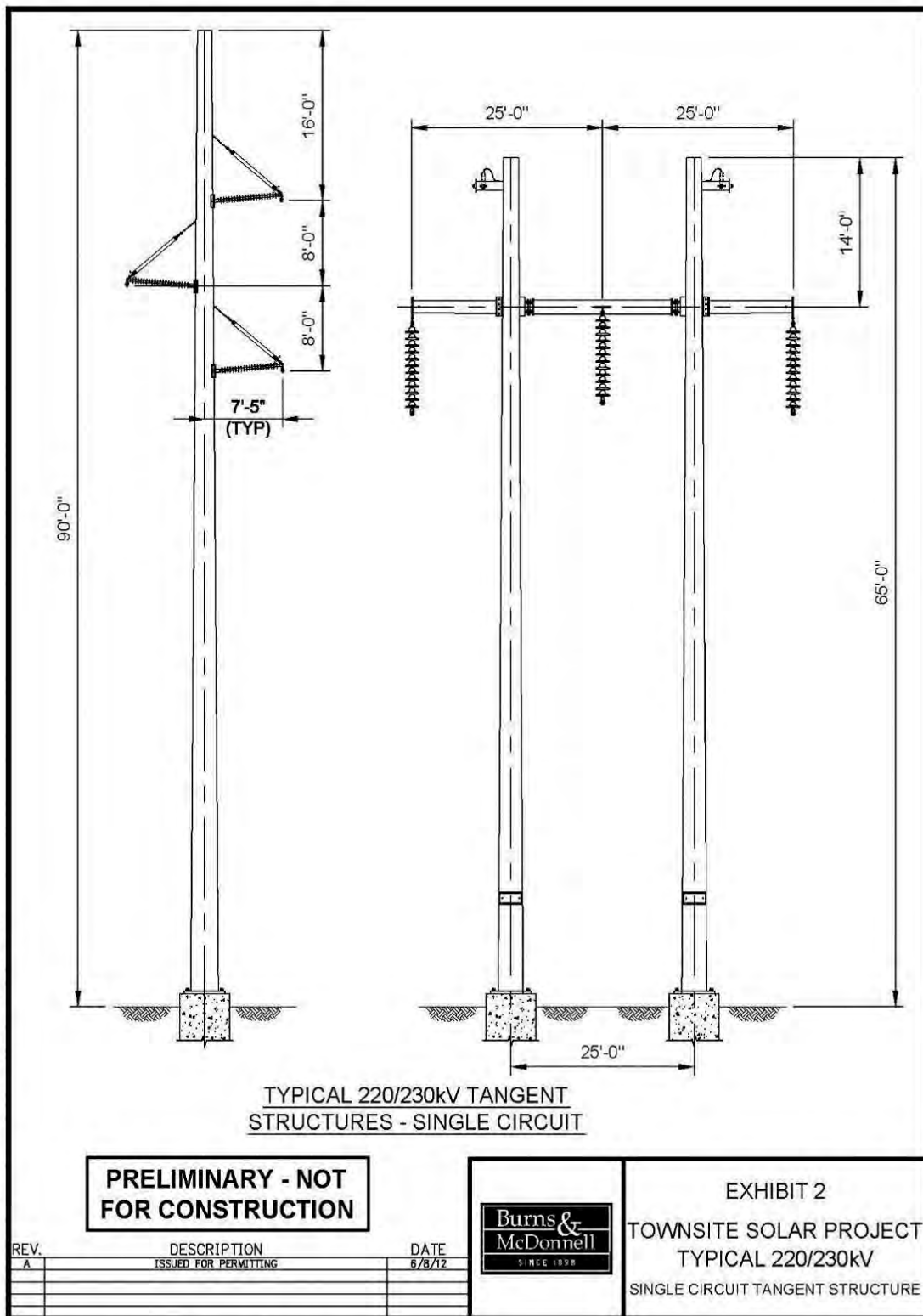


Figure 2.4-3. Typical 220/230-kV Tangent Transmission Structure

Design characteristics would be the same for all alternatives. Assembly and erection of each transmission line pole would require approximately 6,400-22,500 square feet of temporary disturbance around the base of each pole, 15-360 square feet of which would be permanent disturbance (see Table 2.3.1). Additionally, up to twelve approximately 1.8-acre wire pulling sites for the A alternatives or eleven 0.8-acre wire pulling sites for the B alternative would be needed to install the transmission line wire upon each pole. The disturbance in these areas would be temporary during construction.

Access to the transmission line during construction (temporary) and operation (permanent) would be via existing roads, including U.S. Highway 95 and existing paved and dirt roads. Spur roads less than 14-feet wide would be created to allow access to some tower locations. No equipment storage areas would be located within the transmission line ROW (the equipment storage areas would be on the solar site). No other transmission line components are anticipated.

2.4.1 Site Preparation and Mobilization Activities

Geotechnical testing and transmission line pole assembly will occur at each pole structure location. Specific structure locations will be determined during final design. A temporary disturbance area of approximately 6,400-22,500 square feet would be cleared (i.e. bladed) and utilized during assembly, but would be reclaimed post-construction. Within the temporary disturbance area, structure assembly and mounting of associated line hardware would take place inside the maximum 15-360 square foot permanent disturbance area at each structure location. The assembled structure would be raised and placed in the pre-dug holes. Any holes or other excavations would be covered overnight to comply with BMPs (BIO-5) for desert tortoise.

No turn-around pads will be constructed.

Additionally, up to twelve approximately 1.8 acre wire pulling sites for the A alternatives or eleven 0.8-acre wire pulling sites for Alternative B would be required to install the transmission lines. Tensioning and pulling sites would be specifically located on a map and provided to the BLM prior to construction. The tensioning site is an area approximately 200 feet by 400 feet. The tensioner, line truck, and wire trailer that are needed for stringing and anchoring the conductors are located at this site. The tensioner, along with the puller, maintains tension on the conductor. Maintaining tension ensures adequate ground clearance and is necessary to avoid damage to the conductor or any objects below them during the stringing operation. A puller and trucks are needed for the pulling and temporary anchoring of the ground wire and conductor.

2.4.2 Waste and Hazardous Materials Management

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

Construction sites, material storage yards, and access roads would be kept in an orderly condition throughout the construction period. Refuse and trash, including stakes and flags, would be removed from the sites and disposed of in an approved manner. No construction equipment oil or fuel would be drained on the ground. Oils or chemicals would be hauled to an approved site for disposal. No open burning of construction trash would occur on BLM-administered lands.

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

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

2.4.3 Surface Reclamation

Following construction and cleanup, temporary disturbance areas would be reclaimed within the ROW. The disturbed surfaces would be restored to the appropriate contour of the land surface. The Townsite Solar Project and Transmission Line Project are designed to function for a minimum of 40 years. If/when the project is decommissioned, the transmission line and poles would be removed. Stabilization and revegetation strategies would be developed in the Reclamation Plan six months prior to the decommissioning of the transmission line.

2.4.4 Best Management Practices

To minimize effects to environmental resources, the Applicant has committed to implementing the BMPs as adapted from the Eldorado Valley Transmission and Utility Corridor Programmatic Environmental Assessment (PEA) (DOI-BLM-NV-S010-2012-0024-EA). For convenience, these BMPs are presented in Appendix B.

2.5 Proposed Project Construction Schedule

KOAM anticipates that transmission line construction would begin in the third quarter of 2014 and last approximately 26 weeks. Construction of the solar facility would also begin in the third quarter of 2014 and continue for approximately 18 months. Typical construction work schedules are expected to be from 7:00 A.M. to 5:00 P.M., Monday through Friday, which complies with the local noise ordinance restrictions for construction activity of 7:00 AM to 7:00 PM, except Sundays and federal holidays. Anticipated workforce and equipment needed for construction of the transmission line is described in Table 2.5-1.

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

| Activity | Number of Workers | Type of Equipment |
|--|--------------------------|--|
| Land Survey | 6 | 2 pickup trucks |
| Access Road Installation | 4 | 1 pickup 1 road grader 1 water truck |
| Foundation Reinforcement Cage Assembly | 8 | 1 all-terrain forklift |
| Foundation Installation | 8 | 1 auger or low drill 1 pickup truck 1 crew truck 1 crane truck 1 water truck |
| Pole Haul | 4 | 1 flat bed 1 pickup (flagger) 1 water truck |
| Structure erection | 12 | 1 line truck 1 crane 1 bucket truck 1 pickup 1 water truck |
| Wire pulling | 24 | 2 drum puller 1 splicing truck 1 double-wheeled tensioner 2 wire reel trailer 1 line truck 1 sagging equipment 3 pickup trucks 1 helicopter (if cross over existing wires) 1 10-wheel truck w/ 40 ft. trailer 1 water truck |
| Clean-up | 8 | 2 pickup trucks 1 water truck |
| Rehabilitation | 4 | 1 pickup truck |
| TOTAL | 78* | |

* More personnel may be used in order to meet schedule

2.5.1 Operations and Maintenance

Required maintenance varies based on the power agency; however, it is anticipated that 3 inspections of transmission line per year will occur via ground maintenance trucks. Maintenance trucks will utilize designated right-of-ways and access roads. Routine maintenance and inspections work schedules are expected to be from 7:00 am to 5:00 pm. Emergency maintenance activities may take place outside of these normal hours. Routine maintenance would consist of inspecting the transmission lines for damage and replacing components.

2.5.2 Decommissioning

If the facility is decommissioned, transmission pole structures would be removed and disturbed area associated with each structure would be reclaimed. A Reclamation Plan will be developed six months

prior to decommissioning of the proposed project. At a minimum the land at each structure site would be re-contoured to match the surrounding environment.

3 Affected Environment, Environmental Consequences, and Mitigation Measures

3.1 Proposed Project General Setting

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

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

Resources analyzed in this EA include the following:

Air Quality and Climate, Section 3.2

Geology, Minerals and Soils, Section 3.3

Water Resources, Section 3.4

Vegetation, Section 3.5

Special Status Vegetation, Section 3.6

Wildlife, Section 3.7

Special Status Wildlife Species, Section 3.8

Cultural Resources, Section 3.9

Visual Resources, Section 3.10

Recreation, Section 3.11

Noise, Section 3.12

Socioeconomics, Section 3.13

Human Health and Safety, Section 3.14

Intentional Destructive Acts, Section 3.15

3.2 Air Quality and Climate

3.2.1 Affected Environment

For the analysis, air quality is characterized by the existing concentrations of various pollutants and those conditions that influence the quality of the ambient air surrounding the proposed project. The primary factors that determine the air quality of the region are the locations of air pollution sources, the type and magnitude of pollutant emissions, and the local meteorological conditions. This analysis takes into account these factors and provides a reliable and conservative prediction of the air impacts that would occur during construction and operation of the proposed project. The Federal Clean Air Act (CAA) and subsequent amendments have provided the authority and framework for United States Environmental Protection Agency (USEPA) regulation of air emission sources. The USEPA regulations serve to establish requirements for the monitoring, control, and documentation of activities that affect ambient concentrations of certain pollutants that may endanger public health or welfare.

As an enforcement tool, the CAA established National Ambient Air Quality Standards (NAAQS), which have historically applied to six criteria pollutants—sulfur dioxide (SO₂), carbon monoxide (CO), nitrogen dioxide (NO₂), particulate matter equal to or less than 10 microns in diameter (PM₁₀), ozone (O₃), and lead (Pb) (Table 3.2-1). These standards are defined in terms of threshold concentration (e.g., micrograms per cubic meter [$\mu\text{g}/\text{m}^3$]) measured as an average for specified periods of time (averaging times). Short-term standards (i.e., 1-hour, 8-hour, or 24-hour averaging times) were established for pollutants with acute health effects, while long-term standards (i.e., annual averaging times) were established for pollutants with chronic health effects. More recently, additional standards for 8-hour average O₃ concentrations and particulate matter equal to or less than 2.5 microns in diameter (PM_{2.5}) were added.

Table 3.2-1. National Ambient Air Quality Standards

| Pollutant | Primary Standards | | Secondary Standards | |
|---|---|--|---------------------|-----------------------|
| | Concentration | Averaging Time | Concentration | Averaging Time |
| Carbon monoxide | 9 ppm (10 mg/m ³) 35 ppm (40 mg/m ³) | 8-hour ⁽¹⁾ 1-hour ⁽¹⁾ | | None |
| Lead | 0.15 µg/m ³ ⁽²⁾ | Rolling 3-month average | Same as primary | |
| Nitrogen dioxide | 0.053 ppm | Annual (arithmetic mean) | Same as primary | |
| | 1 ppm | 1-hour | None | |
| Particulate matter (PM ₁₀) | 150 µg/m ³ | 24-hour ⁽³⁾ | Same as primary | |
| Particulate matter (PM _{2.5}) | 15.0 µg/m ³ | Annual ⁽⁴⁾ (arithmetic mean) | Same as primary | |
| | 35 µg/m ³ | 24-hour ⁽⁵⁾ | Same as primary | |
| Ozone | 0.075 ppm (2008 standard) | 8-hour ⁽⁶⁾ | Same as primary | |
| | 0.12 ppm | 1-hour ⁽⁸⁾ | Same as primary | |
| Sulfur Dioxide | 0.03 ppm | Annual (arithmetic mean) | 0.5 ppm | 3-hour ⁽¹⁾ |
| | 0.14 ppm | 24-hour ⁽¹⁾ | | |
| | 0.075 ppm | 1-hour ⁽⁹⁾ | | |

Source: EPA 2011

mg/m³ = milligrams per cubic meter, µg/m³ = micrograms per cubic meter, ppm = parts per million by volume

Assumptions/Notes:

⁽¹⁾ Not to be exceeded more than once per year.

⁽²⁾ Final rule signed October 15, 2008.

⁽³⁾ Not to be exceeded more than once per year on average over three years.

⁽⁴⁾ To attain this standard, the three-year average of the weighted annual mean PM_{2.5} concentrations from single or multiple community-oriented monitors must not exceed 15.0 µg/m³.

⁽⁵⁾ To attain this standard, the three-year average of the 98th percentile of 24-hour concentrations at each population-oriented monitor within an area must not exceed 35 µg/m³ (effective December 17, 2006).

⁽⁶⁾ To attain this standard, the three-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.075 ppm (effective May 27, 2008).

^{(7)(a)} To attain this standard, the three-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.08 ppm.

^{(7)(b)} The 1997 standard—and the implementation rules for that standard—will remain in place for implementation purposes as EPA undertakes rulemaking to address the transition from the 1997 ozone standard to the 2008 ozone standard.

^{(8)(a)} The standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is less than 1.

^{(8)(b)} As of June 15, 2005, EPA has revoked the 1-hour ozone standard in all areas except the fourteen 8-hour ozone nonattainment Early Action Compact (EAC) Areas. For one of the 14 EAC areas (Denver, Colorado), the 1-hour standard was revoked on November 20, 2008. For the other 13 EAC areas, the 1-hour standard was revoked on April 15, 2009.

⁽⁹⁾ Final rule signed June 2, 2010. To attain this standard, the 3-year average of the 99th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 75 parts per billion.

Geographic areas are designated as attainment, non-attainment, or unclassified for each of the six criteria pollutants with respect to the NAAQS. If sufficient monitoring data are available and air quality is shown to meet the NAAQS, the USEPA may designate an area as an attainment area. Areas in which air pollutant concentrations exceed the NAAQS are designated as non-attainment for specific pollutants and averaging times. Typically, non-attainment areas are urban regions and/or areas with higher-density

industrial development. Because an area's status is designated separately for each criteria pollutant, one geographic area may have more than one classification.

Currently, Clark County meets the PM_{2.5} and NO₂ and CO NAAQS, and is unclassifiable for Pb and SO₂. The County is developing a maintenance plan for PM₁₀. Clark County was re-designated to attainment for carbon monoxide in 2010 (Federal Register Vol. 75, No. 145, July 29, 2010), was re-designated to attainment for PM₁₀ in 2010 (Federal Register Vol. 75, No. 148, August 3, 2010), and was re-designated to attainment for ozone in 2011 (Federal Register Vol. 76, No. 60, March 29, 2011).

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

Currently there are no emission limits for so-called greenhouse gases (GHG), and no technically defensible methodology for predicting potential climate changes from GHG emissions. However, there are, and will continue to be, several efforts to address GHG emissions from federal activities, including BLM authorized uses.

Ongoing scientific research has identified the potential impacts on the global climate of anthropogenic (manmade) GHG emissions and changes in biological carbon sequestration due to land management activities. Through complex interactions on a regional and global scale, these GHG emissions and net losses of biological carbon sinks cause a net warming effect on the atmosphere, primarily by decreasing the amount of heat energy radiated by the earth back to space. Although GHG levels have varied for millennia, recent industrialization and burning of fossil carbon sources have caused carbon dioxide concentrations to increase dramatically, and are likely to contribute to overall global climatic changes.

3.2.2 Environmental Consequences

3.2.2.1 No Action Alternative

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

3.2.2.2 Alternative A1

For the construction of the 13.4-mile 220-kV transmission line from the solar facility (i.e. connected action) to the Eldorado Substation, criteria pollutant emissions would result from employee and construction vehicles, and heavy equipment moving along the ROW during construction of the high-voltage transmission line. Those emissions from worker travel to and from the project site have been included in this analysis. Exhaust from construction vehicles and heavy equipment would also result in de minimis localized, short-term increases in CO and NO_x emissions, but would remain in compliance with the NAAQS criteria pollutant standards. Construction of the entire transmission line facility is expected to take approximately 26 weeks. This analysis is based on an assumed transmission line constructed on steel poles. The potential emissions from transmission line construction would be *de minimis* short term, and in compliance with the NAAQS criteria pollutant standards is included in Table 3.2-2.

Table 3.2-2. Criteria Air Pollution Emissions (Tons/Year) Over the Construction Duration of the Transmission Line

| Source | CO | CO ₂ | NO _x | VOC | SO ₂ | PM ₁₀ | PM _{2.5} |
|--|------------|-----------------|-----------------|------------|-----------------|------------------|-------------------|
| Transmission line construction | 6.3 | 867 | 12.7 | 0.7 | 0.01 | 7.3 | 1.2 |
| General Conformity de minimis Thresholds | 100 | | 100 | 100 | | 70 | |

The project considered in this analysis is the construction of Alternative A-1, high-voltage transmission line, which is expected to take approximately 26 weeks. Alternative A-1 was analyzed because it is the longest alternative transmission line and therefore will have the estimated emissions that are greater than the other alternatives (Alternatives A-2, A-3, and B).

For operations and maintenance of the transmission line, it is expected that three times a year a truck would drive along the line to inspect it. Other heavy equipment may drive along the line to perform maintenance or replaced damaged components of the line. It is expected that this would be very few vehicles and the impacts to air quality would be negligible.

Impacts if the proposed project were to be decommissioned would be similar to those described under construction activities. Exhaust from construction vehicles and heavy equipment would also result in de minimis localized, short-term increases in CO and NO_x emissions, but would remain in compliance with the NAAQS criteria pollutant standards.

3.2.2.3 Alternative A2

The impacts to air quality for Alternative A2, which is a 10.8-mile 500-kV line from the solar facility to the Marketplace Substation, would be similar to those described for Alternative A1. Due to slightly less disturbance, emissions would be slightly less, but would not significantly change the figures presented in Table 3.2-2.

3.2.2.4 Alternative A3

The impacts to air quality for Alternative A3, which is a 13.5-mile 220-kV transmission line from the solar facility to the McCullough Switching Station, would be the same as those described for Alternative A1 as the disturbance acreage is comparable.

3.2.2.5 Alternative B

The impacts to air quality for Alternative B, which is a 2.75-mile 230-kV transmission line from the solar facility to the Mead Substation, would be similar to those described for Alternative A1. Due to less disturbance, emissions would be substantially less than presented in Table 3.2-2.

3.2.2.6 Connected Action

This section analyzes the air quality impacts of the solar facility as described in Section 2.2 Non-federal Connected Action. An air quality impact is caused by changes in the concentrations of ambient air pollutants as a result of specific actions. Construction of the proposed project is projected to take approximately 18 months. Construction traffic is estimated at 300 trips per day and 500 workers during peak construction. Truck traffic during construction is expected to average approximately 20 truck trips per day. The emissions for the paved road components were based upon maximum trucks per month and number of workers at peak construction.

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

1. The initial land disturbance that includes clearing, grading, grubbing, etc..
2. Construction of the solar field.
3. Operation and maintenance of the facility following construction.

During site development, the project would include grading the approximately 884-acre site resulting in localized, short-term increases in fugitive dust (PM₁₀ emissions). The increase in PM₁₀ would be primarily from soils disturbed during clearing and grubbing of vegetation and grading the site. The other criteria pollutants associated with site development would result in insignificant quantities of emission associated with the combustion of fuel from the various construction equipment.

Criteria pollutant emissions during construction activities would result from employee and construction vehicles, and heavy equipment moving across the site during construction of the solar array. Those emissions from worker travel to and from the project site have been included in this analysis. Exhaust from construction vehicles and heavy equipment would result in localized, short-term increases in CO and NO_x emissions. Construction of the entire solar field is expected to take approximately 18 months.

During operations, criteria pollutant emissions would result from vehicle traffic within the facility fence line during the operation and maintenance of the solar arrays. These emissions can be characterized as *de minimis* and would result in no long-term impact on the existing ambient air quality.

The methodologies and calculated criteria pollutant emissions data associated with the aforementioned phases are further discussed below. Each element of site development and its associated mass emissions were calculated as worst-case scenarios using USEPA and/or Clark County DAQEM-approved pollutant emission factors and methodologies.

Emission estimates were compiled for construction of the facility and routine ongoing operations and maintenance. Primary sources of criteria pollutant emissions for construction activities are related either to fuel use in internal combustion engines or to dust emitted into the air from various activities. Criteria pollutant emissions from both of these source types are described in detail below and are summarized in Table 3.2-3.

Table 3.2-3. Criteria Air Pollution Emissions (Tons/Year) Over the 18 Month Proposed Project Construction Duration

| Source | CO | CO ₂ | NO _x | VOC | SO ₂ | PM ₁₀ | PM _{2.5} |
|---|------------|-----------------|-----------------|------------|-----------------|------------------|-------------------|
| Solar Field construction | 136 | 1,435 | 12.9 | 7.8 | 0.04 | 62 | 8 |
| General Conformity <i>de minimis</i> Thresholds | 100 | | 100 | 100 | | 70 | |

CO = carbon monoxide; CO₂ = carbon dioxide; NO_x = nitrogen oxides; PM₁₀ = particulate matter with a mean aerodynamic diameter of 10 micrometers or less; PM_{2.5} = particulate matter with a mean aerodynamic diameter of 2.5 micrometers or less; SO₂ = sulfur dioxide; VOCs = volatile organic compounds

The PM₁₀ emission factor for construction (0.11 tons/acre-month) was obtained from the March 2001 Clark County PM₁₀ State Implementation Plan (SIP). Based on the emissions factors for unpaved roads (*Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Areas Sources* [AP-42], EPA 2008, Section 13.2.2), the PM_{2.5} emission factor is 10% of the PM₁₀ factor. For the purpose of this inventory, it was assumed that 884 acres would be disturbed by construction activities.

Emissions associated with constructing the solar panels and the transmission line are from heavy trucks delivering materials and employee vehicles. Emission sources include fugitive dust emissions for vehicle travel on paved and unpaved roads, motor vehicle exhaust, and wind erosion. Fugitive dust emissions from paved and unpaved roads were calculated using AP-42 emission factors, the estimated number of vehicles, vehicle parameters, paved and unpaved road travel distances, and an estimated 55 percent control factor for watering the unpaved roads during construction (AP-42 Section 13.2.1 and Section 13.2.2). Wind erosion emissions for the disturbed area were calculated, based on an AP-42 emission factor (Section 11.9), and an AP-42 particle size distribution for PM₁₀ and PM_{2.5} (Section 13.2.5).

Emissions associated with operating the facility are from employee vehicles and wind erosion. Emission sources include fugitive dust emissions for vehicle travel on paved and unpaved roads, motor vehicle exhaust, and wind erosion. Fugitive dust emissions from paved and unpaved roads were calculated using AP-42 emission factors, the estimated number of vehicles, vehicle parameters, paved and unpaved road travel distances, and an estimated 55 percent control factor for dust suppressants planned for the facility roads (AP-42 Section 13.2.1 and Section 13.2.2). Wind erosion emissions for the area were calculated, based on an AP-42 emission factor (Section 11.9), an AP-42 particle size distribution for PM₁₀ and PM_{2.5} (Section 13.2.5), and an estimated 90 percent control factor for the planned mitigation measures.

Vehicle exhaust emissions (NO_x, SO₂, CO, PM₁₀, PM_{2.5}, and VOC,) can come from on-road and non-road motor vehicles. On-road vehicles would include heavy trucks and employee vehicles. It was assumed that both the trucks and employee vehicles would travel 30 miles each way.

Based on the criteria pollutant emission data and the project not having triggered a federal action, the project is not required to carry out criteria pollutant dispersion modeling for a demonstration of compliance with the NAAQS.

Table 3.2-4. Criteria Air Pollutant Emissions (Tons/Year) During the Proposed Project O&M Duration of 12 Months

| Source | CO | CO ₂ | NO _x | VOC | SO ₂ | PM ₁₀ | PM _{2.5} |
|---|------------|-----------------|-----------------|-------------|-----------------|------------------|-------------------|
| Emissions generated by maintenance and operation site traffic | 2.7 | 25 | 0.16 | 0.15 | 0.001 | 1 | 0.1 |
| Windblown dust from exposed ground | -- | -- | -- | -- | -- | 1 | 0.2 |
| TOTAL | 2.7 | 25 | 0.16 | 0.15 | 0.001 | 2 | 0.3 |
| General Conformity <i>de minimis</i> Thresholds | 100 | | 100 | 100 | | 70 | |

CO = carbon monoxide; CO₂ = carbon dioxide ; NO_x = nitrogen oxides; PM₁₀ = particulate matter with a mean aerodynamic diameter of 10 micrometers or less; PM_{2.5} = particulate matter with a mean aerodynamic diameter of 2.5 micrometers or less; SO₂ = sulfur dioxide; VOCs = volatile organic compounds

3.2.3 Mitigation

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

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

3.3 Geology, Minerals, and Soils

3.3.1 Affected Environment

The Eldorado Valley is within the southern portion of the Basin and Range Province characterized by north-south trending valleys, bounded by normal faults, with alluvial fill underlain by older bedrock units. The proposed facility will be located on alluvial soils in the Eldorado Valley. The Valley is situated on an alluvial fan and consists of alluvial, aeolian, and playa deposits which are surrounded by steeply sloping alluvial aprons of gravel and sand deposits (US Department of Agriculture, Natural Resources Conservation Service 2006). The thickness of the alluvium below the site is approximately 500 to 1,000 feet, where it is underlain by the Muddy Creek formation, a Pliocene and Miocene aged gravelly sandstone and siltstone.

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

The soil textures in the project area are very cobbly to gravelly sand, and gravelly loam. There is a potential for soils in the Eldorado valley to be corrosive and reactive to concrete. The soil slopes range from 0 to 8 percent. The soil erosion potential for the entire project area is low. The project area has a moderate wind erosion potential, soils with rapid permeability, and very deep soil depths.

Biological soil crusts are formed by living organisms and their by-products, creating a crust of soil particles bound together by organic material. They are commonly found in semiarid and arid environments. Crusts are well adapted to severe growing conditions, but poorly adapted to disturbance. Recovery of biological soil crusts may require hundreds of years. Preventing degradation by minimizing disturbance is an important consideration. The presence of biological soil crusts in the proposed project area has not been documented. Locations that may be disturbed would be examined for the presence of biological soil crusts prior to site development.

Desert pavement is a unique formation of a shallow surface layer of rock overlying fine soil that is commonly found in arid environments. Desert pavement may be created as a lag deposit of larger stones left behind by the wind which blows away the fine-grained material (Cooke and Warren, 1973). Desert pavements may also be developed by detachment and uplifting of clasts from bedrock surfaces as eolian fines accumulate in fractures (McFadden and Wells, et al, 1987). Studies of development of desert pavement on volcanic bedrock (Valentine and Harrington, 2005) has shown that desert pavement has developed by eolian processes of infiltration of fine material down into the larger rock fragments and accretion of fine sediments that lift and protect the pavement-forming clasts. The presence of desert pavement has not been documented in the project area. Disturbance of desert pavement may result in exposure of fine-grained material that would be subject to wind and water erosion. Locations that may be disturbed would be examined for the presence of desert pavement prior to site development.

According to the Supplemental Environmental Impact Statement for the Clark County Regional Flood Control District (Clark County Regional Flood Control District, 2004), the Quaternary alluvial deposits that cover most of the valley floors (Las Vegas Valley and Eldorado Valley), including the Project site, have little or no paleontological potential.

The BLM (1998) Resource Management Plan has identified the Eldorado Valley as an area of high mineral sale potential. An aggregate quarry is located approximately one mile west of the project site. That aggregate quarry is located on federal land (managed by the BLM) outside the limits of the City of Boulder City “Solar Enterprise Zone.” The project site is located within the City of Boulder City “Solar Enterprise Zone,” that has been designated for energy production, with land use restrictions that prohibit aggregate and mineral production. Therefore, the proposed project will not impact potential aggregate and mineral production.

3.3.2 Environmental Consequences

3.3.2.1 No Action Alternative

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

3.3.2.2 Alternative A1

The erosion susceptibility of the soils in Eldorado Valley ranges from low to moderate under Alternative A1 (BLM, 1992). Soils disturbed by grading and excavation will have a higher potential for erosion by wind and water. The presence of biological soil crusts along the transmission line has not been documented. Locations that may be disturbed would be examined for the presence of biological soil crusts prior to site development.

3.3.2.3 Alternative A2

The impacts to geologic resources for Alternative A2 would be the same as those described for Alternative A1.

3.3.2.4 Alternative A3

The impacts to geologic resources for Alternative A3 would be the same as those described for Alternative A1.

3.3.2.5 Alternative B

The impacts to geologic resources for Alternative B would be the similar as those described for Alternative A1.

3.3.2.6 Connected Action

The types of impacts associated with the connected action would be similar to those described under Alternative A1, but would occur over a larger area. In addition to the BMPs described in Appendix B, all required permits would be obtained and an Enhanced Fugitive Dust Plan with mitigation measures would be developed to minimize impacts.

3.3.3 Mitigation

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

3.4 Water Resources

Water resources include groundwater, surface water, and wetlands. Under the authority granted in Nevada Revised Statutes 533 and 534, the State Engineer oversees groundwater quality and issues permits for the use of both surface water and groundwater. The US Army Corps of Engineers (USACE) has authority and responsibility for wetlands.

3.4.1 Affected Environment

3.4.1.1 Groundwater

Eldorado Valley is a designated groundwater basin. The depth to groundwater in Eldorado Valley is believed to be highly variable. Nevada Division of Water Resources (<http://water.nv.gov>) on-line records list a borehole, Well Driller's Report Number 62794, approximately 2 miles south of the site, adjacent to the U.S. Highway 95. The depth to static groundwater in the borehole was measured at 230 feet below land surface in January, 1997. The elevation of the well is approximately 1730 feet AMSL, which is approximately 200 feet lower in elevation than the southern portion of the site. In October and November of 2012, Ninyo & Moore advanced a soil borings to 25 feet below land surface during preliminary geotechnical studies at the proposed site. No perched groundwater was encountered. No registered groundwater wells are located on the proposed transmission alignment.

Groundwater in Eldorado Valley is predominantly a sodium-bicarbonate type with high concentrations of total dissolved solids and a medium to high salinity hazard (Rush and Huxel, 1966). Historic analyses of the groundwater in some areas of Eldorado Valley indicate that concentrations of total dissolved solids, sulfate, and chloride exceed drinking water standards. The presence of historic mining districts suggests that soluble metals and other trace constituents may be present in portions of the aquifer, most probably originating in the mountains that define the southwest boundary of Eldorado Valley.

3.4.1.2 Surface Water

The surface water resources of Eldorado Valley are very limited. Although not known, the annual runoff within the basin has been estimated at less than 100 acre-feet/year (Scott et al., 1971). Surface runoff is very infrequent, occurring as ephemeral flow in the streambeds and, even less often, as ponded water on the playa lake bed south of the site. In the site vicinity, surface water drainage flows generally from elevated areas north of the site southward to the Eldorado Dry Lake. Flooding characteristics are probably similar to those in adjacent basins; i.e., shallow flash flooding over large areas.

Eldorado Valley is a closed basin; surface water runoff from the surrounding mountains is directed to the Eldorado Dry Lake. There are no permanent surface water sources or wetlands in the project area. Several narrow and shallow ephemeral drainage swales or washes cross the site, predominantly in a north to south direction toward the Eldorado Dry Lake. The flow of water in these small drainage systems occurs only during infrequent storm events and has no nexus to the Colorado River system, and therefore would not be regulated by the USACE under Section 404 of the Clean Water Act. A request for a jurisdictional determination has been submitted to the USACE for this project. On November 8, 2012, the USACE concurred with the jurisdictional determination report submitted by NewFields on September 18, 2012. Additionally, the USACE issued a letter on January 14, 2013 stating that the project is located on or near the El Dorado Dry Lake Playa, which has previously been determined to be a closed, intrastate basin; therefore, no USACE permit is required for the proposed project.

Drinking water for the nearby City of Boulder City and Las Vegas is provided by Lake Mead, which is approximately 7 miles east of the proposed project area.

3.4.1.3 Floodplains

Floodplains are land areas adjacent to rivers and streams that are subject to recurring flooding. Floodplains help moderate flood flow, recharge ground water, spread silt to replenish soils and provide habitat for plant and animal species. Executive Order 11988, Floodplain Management, requires federal agencies to ensure their actions minimize the impacts of floods on human health and safety and restore the natural and beneficial values of floodplains. According to the Federal Emergency Management Agency (FEMA) National Flood Maps, no floodplains exist in the proposed project area; therefore, floodplains will not be addressed further in this EA (FEMA 2011).

3.4.2 Environmental Consequences

3.4.2.1 No Action Alternative

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

3.4.2.2 Alternative A1

Groundwater

The Project will obtain approximately 100 acre feet of water from the existing Boulder City Public Works Department main, which runs north to south along US 93 to the west of the site for construction activities such as dust abatement on access roads or grading of spur roads. Boulder City Public Works Department obtains its public water supply from intakes at Lake Mead, not from underground sources. Excavations during construction of support structures or geotechnical investigations are not expected to be deep enough to intercept groundwater as they would be less than 30 feet. The potential adverse impacts to surface water from increased erosion and sedimentation will be less for the solar facility and would be short term.

Minimal water, obtained from the Boulder City Public Works Department main, may be used during operation, maintenance, and decommissioning activities for dust abatement.

Surface Water

The proposed project would not divert flows from areas of perennial flow or ephemeral washes, nor would the project divert water from downstream habitat dependent on that water. During construction and decommissioning (if the project is decommissioned) increased surface disturbance could result in an increased level of erosion. Lake Mead is too far east of the proposed project area to be affected by project activities; therefore, no impacts to drinking water for the area would occur. No impacts to surface water are expected during operation and maintenance of the transmission line.

3.4.2.3 Alternative A2

The impacts described under Alternative A1 would be the same under Alternative A2.

3.4.2.4 Alternative A3

The impacts described under Alternative A1 would be the same under Alternative A3.

3.4.2.5 Alternative B

The impacts described under Alternative A1 would be the same under Alternative B.

3.4.2.6 Connected Action

The types of impacts associated with the connected action would be similar to those described under Alternative A1, but would occur over a larger area. The project will obtain water from the existing Boulder City Public Works Department main, which runs north to south along US 93 to the west of the site. Boulder City Public Works Department obtains its public water supply from intakes at Lake Mead, not from underground sources. During the 18 month solar field construction period, water would be primarily utilized for dust suppression along the access road. Total construction water usage will be approximately 1,000 acre-feet during construction of the solar field. Water from one of these sources would be trucked or piped to tanks or a temporary lined pond. During construction activities, water would be used mainly for grading and dust control. As most of the grading is expected in the first 6-9 month of construction, approximately 700 acre feet of water would be used. For the remaining construction period, water would be used dust control. It is anticipated that 300 acre feet would be utilized for the remaining 6-9 months of construction. The amount of water required for personnel use will be approximately 1,200 gallons per day during the peak construction period. Excavations during construction are not expected to be deep enough to intercept groundwater. During operations and maintenance of the solar field, it is estimated that module washing would occur twice per year and use 10 acre feet per wash.

3.4.3 Mitigation

3.4.3.1 Groundwater

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

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

3.4.3.2 Surface Water

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

3.5 Vegetation

3.5.1 Affected Environment

Mojave Creosote Bush Scrub is the main vegetation community in the transmission line area. This vegetation community forms the matrix throughout Eldorado Valley. This community typically is dominated by creosote bush (*Larrea tridentata*) and white bursage (*Ambrosia dumosa*) with some other species such as four-winged salt brush (*Atriplex canescens*), cheesebush (*Hymenoclea salsola*), and broom snakeweed (*Gutierrezia sarothrae*). During field surveys, only a few cactus plants were observed in the proposed project area including silver cholla (*Cylindropuntia echinocarpa*) and pencil cholla (*Cylindropuntis ramosissima*). No yucca was observed within the proposed project area. Also, Sahara mustard (*Brassica tournefortii*), a plant species designated by the Nevada Department of Agriculture as a Category B weed species, was found within the area. Category B species are defined as “weeds established in scattered populations in some counties of the state; actively excluded where possible, and actively eradicated from nursery stock dealer premises; control required by the state in areas where populations are not well established or previously unknown to occur.”

Invasive Weed and Noxious Weed Species

Vegetation within the proposed project area previously has been disturbed by various activities including Off-Highway Vehicle recreation and construction of existing power lines. These disturbed areas possess urban and construction related trash and display high rates of erosion.

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

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

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

species to colonize the site after disturbance. A complete list of State of Nevada Noxious Weeds can be obtained from the BLM District Weed Management Specialist.

3.5.2 Environmental Consequences

3.5.2.1 No Action Alternative

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

3.5.2.2 Alternative A1

Vegetation may be crushed temporarily during construction activities at the twelve 1.8-acre wire pulling sites and around each transmission line pole (approximately 10,000 square feet per pole), which is approximately 45 acres in total. Approximately 7.23 acres of vegetation would be permanently removed and replaced with transmission tower structures.

Additionally, construction activities could facilitate the introduction or spread of noxious or invasive weed that species can displace native vegetation, increase fire frequency, and reduce the quality of wildlife habitat.

The proposed project will create up to approximately 52 acres of new surface disturbance (45 temporary and 7.23 permanent), which has the potential to permanently impact the project area as well as adjacent lands by introducing and/or exacerbating current weed populations.

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

If the project is decommissioned, impacts to vegetation would be similar as those described during construction activities.

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

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

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

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

3.5.2.3 Alternative A2

Impacts to vegetation would be similar under Alternative A2 as those described under Alternative A1, except the amount of temporary vegetation disturbance and permanent vegetation removed would be less; approximately 35 acres and 5.08 acres respectively.

3.5.2.4 Alternative A3

Impacts to vegetation would be similar under Alternative A3 as those described under Alternative A1. The amount of temporary vegetation disturbance and permanent vegetation removed would be less; approximately 45 acres and 7.11 acres respectively.

3.5.2.5 Alternative B

Impacts to vegetation would be similar under Alternative B as those described under alternative A1, except the amount of temporary vegetation disturbance and permanent vegetation removed would be less; approximately 18 acres and 1.7 acres respectively.

3.5.2.6 Connected Action

The entire 884-acre solar facility would be graded causing direct removal of vegetation including cactus plants.

3.5.3 Mitigation

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

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

Additionally, cactus and yucca, which are protected under NRS 527.260-300, would be avoided to the extent possible. To further reduce impacts to cacti, if these species are unable to be avoided, all cactus and yucca within permanent and temporary impact areas must be salvaged and replanted in temporary impact areas or undisturbed portions of the project area. Unless otherwise directed by the BLM botanist, all replanted cactus and yucca must be watered and otherwise maintained for a period of one year. To

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

3.6 Special Status Vegetation

The USFWS requested that a list of At-Risk Plant and Animal Species be obtained from the State of Nevada Natural Heritage Program (NNHP). NewFields submitted the request and on June 13, 2012, the NNHP replied to the request. The NNHP identified Las Vegas bear poppy (*Arctomecon californica*), a BLM Sensitive Species and protected by the state of Nevada under Nevada Revised Statute (NRS) 527.260-300, and Rosy Twotone Beardtongue, (*Penstemon bicolor* ssp. *roseus*), a Nevada Bureau of Land Management (BLM) Sensitive Species. These species are addressed in this section. According to BLM rare plant survey protocols, a rare plant survey should be conducted before NEPA documents are completed so that impacts can be adequately described; however, a rare plant survey was not completed for this project because the Eldorado Valley Transmission and Utility Corridor PEA has assessed potential impacts to this species and identifies mitigation and best management practices, which are incorporated into this EA. A habitat assessment of the general area was completed by BLM as part of the Eldorado Valley Transmission and Utility Corridor Programmatic Environmental Assessment. Adam Hamburg and Sean Milne from NewFields completed a habitat assessment on the site in April and May of 2013.

3.6.1 Existing Condition

Las Vegas bear poppy

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

Rosy Twotone Beardtongue

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

3.6.2 Environmental Consequences

3.6.2.1 No Action Alternative

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

3.6.2.2 Alternative A1

A small amount of potential Rosy Twotone Beardtongue habitat would be disturbed (45 acres) or permanently removed (7.23 acres) during construction activities. Additionally, construction and maintenance of the proposed project may cause the proliferation or introduction of invasive weed species decreasing the habitat quality.

3.6.2.3 Alternative A2

A small amount of potential Rosy Twotone Beardtongue habitat would be disturbed (38 acres) or permanently removed (5.08 acres) during construction activities. Additionally, construction and

maintenance of the proposed project may cause the proliferation or introduction of invasive weed species decreasing the habitat quality.

3.6.2.4 *Alternative A3*

A small amount of potential Rosy Twotone Beardtongue habitat would be disturbed (45 acres) or permanently removed (7.11 acres) during construction activities. Additionally, construction and maintenance of the proposed project may cause the proliferation or introduction of invasive weed species decreasing the habitat quality.

3.6.2.5 *Alternative B*

A small amount of potential Rosy Twotone Beardtongue habitat would be disturbed (18 acres) or permanently removed (1.7 acres) during construction activities. Additionally, construction and maintenance of the proposed project may cause the proliferation or introduction of invasive weed species decreasing the habitat quality.

3.6.2.6 *Connected Action*

The entire 884 acre solar facility would be graded causing direct removal of a few cactus plants below the threshold of requiring notification under NRS.570.070.

3.6.3 *Mitigation*

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

3.7 Wildlife

3.7.1 Affected Environment

The proposed project area supports wildlife characteristic of the north-eastern Mojave Desert. Common wildlife observed during surveys are described below. Special status species (i.e. species protected under federal and/or state law) are addressed in Section 3.8-Special Status Wildlife Species.

Several reptile species were observed during the 2011 desert tortoise field surveys including the Great Basin whiptail (*Cnemidophorus tigris*), and desert horned lizard (*Phrynosoma platyrhinos*). Migratory birds observed were recorded during desert tortoise surveys and it is assumed that the action area contains potential nesting and foraging habitat for a wide range of migratory birds including the burrowing owl. Bird species observed included the common nighthawk (*Chordeiles minor*), and the common raven (*Corvus corax*). The only mammal species observed was the black-tailed jack rabbit (*Lepus californicus*), but evidence of kit fox (*Vulpes macrotis*), coyote (*Canis latrans*) and various rodents were observed. The presence of burrows and droppings suggests the presence of common Mojave Desert rodent inhabitants such as cactus mice (*Peromyscus* spp.), and kangaroo rats (*Dipodomys* spp.). Although not observed during field surveys, additional species have been observed in the project area by Nevada Department of Wildlife (NDOW). Please see below for a species list.

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

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

Additional reptiles and birds may also frequent the project vicinity as residents or seasonal migrants, but have not been observed. Therefore, they are not included in resident databases.

3.7.2 Environmental Consequences

3.7.2.1 No Action Alternative

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

3.7.2.2 Alternative A1

A small amount of wildlife habitat would be disturbed (45 acres) or permanently removed (7.23 acres) during construction activities. During transmission line construction, ground-disturbing activities could directly result in mortality to various wildlife species. Some species that are particularly mobile might be able to avoid injury or mortality by leaving the area. However, some wildlife, such as nocturnal species or species that use burrows, might be more susceptible to injury or mortality.

Although temporary in nature, noise and activity associated with construction could cause animals to avoid the area, thus altering their normal behavior patterns.

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

If the project is decommissioned, impacts to wildlife would be similar as those described during construction activities.

3.7.2.3 *Alternative A2*

Under Alternative A2 impacts to wildlife would be the similar as discussed under Alternative A1. A small amount of wildlife habitat would be disturbed (38 acres) or permanently removed (7.11 acres) during construction activities.

3.7.2.4 *Alternative A3*

Under Alternative A3 impacts to wildlife would be the similar as discussed under Alternative A1. A small amount of wildlife habitat would be disturbed (45 acres) or permanently removed (7.11 acres) during construction activities.

3.7.2.5 *Alternative B*

Under Alternative 2 impacts to wildlife would be the similar as discussed under Alternative 1. A small amount of wildlife habitat would be disturbed (18 acres) or permanently removed (1.7 acres) during construction activities.

3.7.2.6 *Connected Action*

The types of impacts associated with the connected action would be similar to those described under Alternative A1, but would occur over a larger area, approximately 884 acres of private land. This entire solar facility site would be graded and fenced to exclude wildlife.

3.7.3 *Mitigation*

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

3.8 Special Status Wildlife Species

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

Table 3.8-1. BLM Sensitive Species.

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

3.8.1 Affected Environment

3.8.1.1 Desert Tortoise

If basic habitat requirements are met, the desert tortoise can survive and reproduce within the varied vegetation communities of the Mojave region (USFWS 1994). These requirements include sufficient suitable plants for forage and cover, suitable substrates for burrow and nest sites, and freedom from disturbance. Throughout most of the Mojave region, the desert tortoise occur primarily on flats and bajadas with soils ranging from sand to sandy-gravel characterized by scattered shrubs and abundant inter-shrub space for herbaceous plant growth. They are also found on rocky terrain and slopes.

During April 2012 and May 2013 (and May 2012 for the connected action), regionally experienced biologists conducted pre-project tortoise surveys within the entire action area in accordance with 2010 USFWS protocols (USFWS 2010). The survey area was located using topographical maps, aerial photographs, and global positioning system (GPS) coordinates. Physical landmarks such as roads, surveyor markers, existing transmission lines, solar power plants and substations were also used for orientation.

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

No live tortoises were found within the proposed project area; therefore, relative tortoise abundance could not be estimated using the USFWS model. Four tortoise burrows were found within the action area. Three burrows were in good condition and possibly utilized by desert tortoise (i.e. Condition Class 4). One Condition Class 2 burrow was found, meaning it was in good condition, definitely desert tortoise; no evidence of recent use. Scat was present in this burrow.

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

Although no tortoise and limited tortoise sign were found in the proposed project area, the entire action area is within desert tortoise habitat; therefore, a tortoise may be affected by the proposed project.

3.8.1.2 BLM Sensitive Reptile Species

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

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

3.8.1.3 Migratory Birds

Executive Order (January 11, 2001) defines the responsibilities of the Federal Agencies to protect migratory birds; under the MBTA of 1918 and subsequent amendments (16 U.S.C. 703–711) state that it is unlawful to take, kill, or possess migratory birds. Birds protected under the MBTA, including eagles and hawks, are also State protected under NAC 503.050. Numerous bird species travel through Nevada during spring and fall migrations. A complete list is published at the USFWS web site (USFWS 2006).

A list of those that are protected birds is in 50 CFR 10.13. The list of birds protected under this regulation is extensive and the project area has potential to support many of these species. Typically, the breeding season is when these species are most sensitive to disturbance, which generally occurs from March 1 through August 31.

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

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

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

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

Although only one burrowing owl was observed during the May 2011 field surveys, the proposed project contains burrowing owl habitat. Therefore, burrowing owls may be affected by the proposed project.

3.8.1.4 Bats

As previously listed in Table 3.8-1, the BLM has identified a number of BLM sensitive bat species that may utilize the study area, including the greater western mastiff bat, Allen's big-eared bat, western red bat, California leafed-nosed bat, cave myotis, Yuma myotis, and big free-tailed bat. It is unlikely that bats would utilize the area for roosting as these bats tend to roost in a variety of other habitats including riparian areas, forests, buildings, crevices, and cliff faces, none of which are present in the study area. However, it is likely that bats would forage in this area.

3.8.2 Environmental Consequences

3.8.2.1 Desert Tortoise

No Action Alternative

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

Alternative A1

Tortoises may be injured or killed during construction activities. Biological monitors would be present at all active construction locations to locate tortoises and, if necessary, direct the contractor to cease construction activities until the tortoise moves out of harm's way. 10,000 square feet of disturbance is associated with each transmission pole installation site. Approximately 45 acres of desert tortoise habitat would be temporarily disturbed and 7.23 acres would be permanently removed during transmission line construction. This area is readily surveyed for the presents of tortoises and burrows. If a tortoise in a

burrow is encountered, the transmission line poles may be able to be shifted to avoid tortoises in burrows. This will limit the handling of tortoises. If avoidance is not possible, an authorized biologist would relocate tortoises. Capturing, handling and relocating desert tortoises from transmission line installation locations may result in harassment and possibly injury or death (Blythe et al. 2003). Additionally, if capture and relocation methods are performed improperly, the tortoise could void its bladder, which would lower its chances of survival (Averill-Murray 2001). Another risk is that if multiple tortoises are improperly handled by the same biologist, pathogens for upper respiratory disease could be spread amongst the tortoise.

During construction, operation, maintenance, and decommissioning activities (if the project is decommissioned), increased human activity and construction vehicle traffic may also result in tortoise/vehicle collisions that result in tortoise injury or death. Tortoise may take shelter under parked vehicles and be killed, injured, or harassed. Minimization measures such as the Workers Environmental Awareness Program (WEAP) and speed limits on roads would reduce or eliminate these effects.

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

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

During routine operations and maintenance inspections, vehicles could run over tortoise resulting in injury or death.

During decommissioning activities, impacts to tortoise could be similar to those described for construction, operation, and maintenance.

Section 7 Consultation was not conducted for this alternative. If this alternative were to be selected in the future, Section 7 Consultation would be required.

Alternative A2

Effects to desert tortoise under Alternative A2 would be the same as those described under Alternative A1, except temporary disturbance would total approximately 38 acres, and permanent habitat removal would total 5.08 acres. Section 7 Consultation was not conducted for this alternative. If this alternative were to be selected in the future, Section 7 Consultation would be required.

Alternative A3

Effects to desert tortoise under Alternative A3 would be the same as those described under Alternative A2, except temporary disturbance would total approximately 45 acres, and permanent habitat removal would total 7.11 acres. Section 7 Consultation was not conducted for this alternative. If this alternative were to be selected in the future, Section 7 Consultation would be required.

Alternative B

Effects to desert tortoise under Alternative B would be the same as those described under Alternative A1, except temporary disturbance would total approximately 18 acres, and permanent habitat removal would total 1.7 acres. BLM's Section 7 Consultation for this alternative has been authorized under the Southern Nevada District Office's Programmatic Biological Opinion. Refer to Section 3.8.3.1 and Appendix C of this EA for details.

Connected Action

The types of impacts to desert tortoise associated with the connected action would be similar to those described under Alternative A1, but would occur over a larger area, approximately 884 acres of private land. However, during surveys conducted in May 2011, no tortoise or tortoise sign was found in the solar facility site. Development of the solar facility is on private lands (i.e. those owned by the City of Boulder City) and therefore would utilize the existing Clark County MSHCP Section 10 permit for potential take of desert tortoise and limit disturbance to desert tortoise habitat to the minimum extent possible.

3.8.2.2 Other Reptiles

No Action Alternative

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

Alternative A1

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

Gila monsters and snake species could be injured or killed during construction, operation, maintenance, or decommissioning (if the project is decommissioned) activities. Indirect effects may include habitat fragmentation and disruption of normal activity patterns. Gila monsters and snakes also may be disturbed by noise from construction. The proposed project would result in the permanent loss of approximately 7.23 acres of habitat and the temporary disturbance of 45 acres of habitat.

Alternative A2

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

Effects to Gila monsters and snakes under Alternative A2 would be the similar as those described under Alternative A1, except that 5.08 acres of habitat would be permanently removed and 38 acres of habitat would be temporarily disturbed.

Alternative A3

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

Effects to Gila monsters and snakes under Alternative A3 would be the similar as those described under Alternative A1 except that 7.11 acres of habitat would be permanently removed and 45 acres would be temporarily disturbed.

Alternative B

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

Effects to Gila monsters and snakes under Alternative B would be the same as those described under Alternative A1, except that 1.7 acres of habitat would be permanently removed and 18 acres would be temporarily disturbed.

Connected Action

The types of impacts associated with the connected action would be similar to those described under Alternative 1, but would occur over a larger area, approximately 884 acres of private land.

3.8.2.3 Migratory Birds

No Action Alternative

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

Alternative A1

Migratory birds could be injured or killed during construction activities such as vegetation removal and grading activities. Adult birds may be able to flee the area; however, during migratory bird nesting season, eggs and juvenile birds that are confined to nests may be killed. During operation of the facility birds may be injured, electrocuted, or killed from collisions with power lines or construction vehicles. During decommissioning, impacts to birds would be similar as those described for construction. Birds may be injured or killed during transmission line pole removal.

Only a small amount of native plant communities that provide habitat to nesting migratory birds would be temporarily disturbed (45 acres) or eliminated (7.23 acres) as a result of the proposed project.

Alternative A2

Effects to migratory birds under Alternative A2 would be the similar as those described under Alternative A1; a small amount of native plant communities that provide habitat to nesting migratory birds would be temporarily disturbed (38 acres) or eliminated (5.08 acres) as a result of the proposed project.

Alternative A3

Effects to migratory birds under Alternative A3 would be the similar as those described under Alternative A1; a small amount of native plant communities that provide habitat to nesting migratory birds would be temporarily disturbed (45 acres) or eliminated (7.11 acres) as a result of the proposed project.

Alternative B

Effects to migratory birds under Alternative B would be the similar as those described under Alternative A1; a small amount of native plant communities that provide habitat to nesting migratory birds would be temporarily disturbed (18 acres) or eliminated (1.7 acres) as a result of the proposed project.

Connected Action

The types of impacts associated with the connected action would be similar to those described under Alternative A1, but would occur over a larger area, approximately 884 acres of private land.

3.8.2.4 Bats

Alternative A1

Since BLM sensitive bat species are unlikely to roost in the project area, impacts to bats would be limited to loss of desert foraging habitat. For Alternative A1 only a small amount of native plant communities that provide foraging habitat to BLM sensitive bat species would be temporarily disturbed (45 acres) or eliminated (7.23 acres) as a result of the proposed project.

Alternative A2

Effects to bats under Alternative A2 would be the similar as those described under Alternative A1; a small amount of native plant communities that provide foraging habitat to BLM sensitive bat species would be temporarily disturbed (38 acres) or eliminated (5.08 acres) as a result of the proposed project.

Alternative A3

Effects to bats under Alternative A3 would be the similar as those described under Alternative A1; a small amount of native plant communities that provide foraging habitat for BLM sensitive bat species would be temporarily disturbed (45 acres) or eliminated (7.11 acres) as a result of the proposed project.

Alternative B

Effects to bats under Alternative B would be the similar as those described under Alternative A1; a small amount of native plant communities that provide foraging habitat for BLM sensitive bat species would be temporarily disturbed (18 acres) or eliminated (1.7 acres) as a result of the proposed project.

Connected Action

The types of impacts associated with the connected action would be similar to those described under Alternative A1, but would occur over a larger area, approximately 884 acres of private land.

3.8.3 Mitigation

3.8.3.1 Desert Tortoise

On January 2, 2013, the BLM and the USFWS issued a Programmatic Biological Opinion (PBO) File No. 84320-2013-F-0100 under Section 7 of the Endangered Species Act for the effects to threatened and endangered species and their critical habitat that may occur as a result of actions proposed by the BLM Southern Nevada District Office. Under this PBO, federal actions that affect less than 20 acres can be permitted under the PBO by the BLM. Actions that affect more than 20 acres require an action to append the PBO.

Alternative B will affect under 20 acres of federal land; however, the BLM had previously submitted an action to append the BLM's Southern Nevada District PBO for Alternative A1; therefore, even though Alternative B is under 20 acres, the USFWS amended the original Action to Append the PBO (Refer to Appendix C for the Action Appended to the BLM's Southern Nevada's District Office Biological Opinion (BO) File No. 84320-2013-F-0105 and amendment letter). If another Alternative is selected, further consultation may be required with the BLM and/or US Fish and Wildlife Service.

In order for Western to complete the Section 7 consultation process, Western will review the Action to Append the BA that was submitted by BLM to the USFWS and the resulting Action Appended. Western will notify the BLM and USFWS service if they concur. If Western does not concur, they will complete their own Section 7 Consultation.

Final desert tortoise mitigation measures have been determined by the USFWS in the response to the action to append the PBO (Appendix C). Mitigation measures will be implemented as part of the project to avoid, or reduce environmental impacts associated with the proposed project to federal or state protected species. Mitigation measures and actions are to comply with the USFWS guidelines, the Clark County Multi-Species Habitat Conservation, and NDOW standards.

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

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

- **1.a. Field Contact Representative (FCR)**

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

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

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

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

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

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

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

- **1.f. Vehicle travel**

Project personnel shall exercise vigilance when commuting to the project area to minimize risk for inadvertent injury or mortality to desert tortoises encountered on paved and unpaved roads leading to and from the project site.

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

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

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

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

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

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

- **1.k. Penning**

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

- **1.o. Dust control**

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

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

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

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

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

- **2.a. Litter control**

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

- **2.b. Deterrence**

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

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

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

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

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

- **3.b. Restoration plan**

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

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

Cross-country travel outside designated areas shall be prohibited.

- **3.d. Weed prevention**

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

- **3.e. Chemical spills**

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

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

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

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

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

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

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

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

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

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

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

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

- **7.f. Restoration monitoring**

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

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

3.8.3.2 Other Reptile Species

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

3.8.3.3 Migratory Birds

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

3.8.3.4 Bats

No additional mitigation is proposed for the loss of bat foraging habitat beyond those identified in Appendix B.

3.9 Cultural Resources

3.9.1 Affected Environment

Regulatory Framework

Section 106 of the National Historic Preservation Act, as amended (16 USC 470 *et seq.*), requires federal agencies to take into account the effects of their actions on properties listed or eligible for listing on the National Register of Historic Places (NRHP). The quality of significance in American history, architecture, archeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:

- A. That are associated with events that have made a significant contribution to the broad patterns of our history; or
- B. That are associated with the lives of persons significant in our past; or
- C. That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- D. That have yielded, or may be likely to yield, information important in prehistory or history.

The National Park Service defines archaeological and historic resources as “the physical evidences of past human activity, including evidences of the effects of that activity on the environment. What makes a cultural resource significant is its identity, age, location, and context in conjunction with its capacity to reveal information through the investigatory research designs, methods, and techniques used by archeologists.” Ethnographic resources are defined as any “site, structure, object, landscape, or natural resource feature assigned traditional legendary, religious, subsistence, or other significance in the cultural system of a group traditionally associated with it” (National Park Service 1998).

The BLM’s proposed project is subject to compliance with Section 106 of the NHPA (16 USC 470 *et seq.*) as it is considered a federal undertaking. Section 106 requires federal agencies to consider the effects of their actions on historic properties and to consult with the State Historic Preservation Office (SHPO). NewFields prepared a Class III Cultural Resources Reconnaissance Report, which was reviewed and approved by the BLM. The BLM has submitted this report to the SHPO for review and concurrence. Concurrence from the SHPO is pending.

Area of Potential Effects

The area of potential effects (APE) is defined in 36 CFR 800.16(d) as the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. The APE is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking. The APE for the project includes 2.75-13.4 miles of transmission line and infrastructure from the four alternatives, as well as the solar facility area. The majority of the proposed transmission line for Alternatives A1, A2, and A3 are located within a BLM designated utility corridor and most has been surveyed previously numerous times from 1975 to 2008. Only one of these surveys located a site within the proposed right-of-way, and the site was collected (i.e. removed) during survey. It is therefore considered to no longer exist. For the portions of the proposed transmission lines that were not previously survey including the portions of Alternatives A1, A2, and A3 that are within the Mead Withdraw Area and Alternative B, NewFields conducted the archaeological survey in accordance with Nevada BLM *Cultural Resource Inventory General Guidelines*

(BLM 1990, as revised). Although, a few sites were recorded, none of the sites were considered eligible for listing on the NRHP.

3.9.2 Environmental Consequences

3.9.2.1 No Action Alternative

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

3.9.2.2 Alternative A1

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

3.9.2.3 Alternative A2

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

3.9.2.4 Alternative A3

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

3.9.2.5 Alternative B

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

3.9.2.6 Connected Action

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

3.9.3 Mitigation

No mitigation measures would be necessary for the proposed transmission line alternatives. Applicable BMPs from the Eldorado Valley Transmission and Utility Corridor PEA for cultural resources are listed in Appendix B including CUL-13: Treatment of Human Remains on BLM Land and CUL-14: Treatment of Human Remains on State or Private Land. These measures are precautionary and applicable should cultural resources be discovered.

3.10 Visual Resources

3.10.1 Affected Environment

The landscape character of Eldorado Valley is typical of the Great Basin. Regional topography consists of mountain ranges arranged in a north-south orientation, separated by broad valleys. The Eldorado Valley extends south of Henderson and the River Mountains between the McCullough Mountain Range and the Eldorado Mountain Range. These mountain ranges are dominant visual features. Another interesting feature near the proposed project area is the Dry Lake Bed located 5 miles south of the project area, which is an area clear of vegetation, flat, and has a contrasting white color from the rest of the Valley.

Visible manmade features in the area include U.S. Highway 95, two existing solar facilities, over 10 transmission lines, gravel quarries, and 4 electrical substations. Because of the amount of manmade cultural modifications, the scenic quality has been altered. An existing solar array south of the proposed project area is clearly visible from US 95 from the junction of US 93 and south toward Laughlin. Unimproved and dirt roads cross the area.



Figure 3.10-1. Representative View in the Project Area

3.10.2 Environmental Consequences

3.10.2.1 No Action Alternative

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

3.10.2.2 Alternative A1

The RMP Visual Resource Management classification for utility corridors is Class III, the objective of this management classification is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. As this project would be within an existing utility corridor, the proposed transmission line would parallel existing transmission lines within the BLM-managed utility corridor and Mead Withdrawal Area. Therefore, no substantive change in visual characteristics would occur as a result of the proposed project.

The proposed transmission line would parallel existing transmission lines within the BLM-managed utility corridor. Therefore, no substantive change in visual characteristics would occur as a result of the proposed project.

3.10.2.3 Alternative A2

The impacts from Alternative A2 would be the same as those described under Alternative A1.

3.10.2.4 Alternative A3

The impacts from Alternative A3 would be the same as those described under Alternative A1.

3.10.2.5 Alternative B

Western does not use the VRM classifications system; however, for consistency purposes, this land has been assigned VRM Class III as it is consistent with surrounding land use VRM classifications. The impacts from Alternative B would be the same as described for Alternative A1.

3.10.2.6 Connected Action

The proposed project would alter the appearance of the area from vacant land to developed land; however, the solar facility would be located near existing solar facilities and substations. Additionally, this solar facility would be constructed in the City of Boulder City's solar energy zone; therefore, consistent with the City of Boulder City's land-use. No private residences, schools, or other community facilities are near the proposed project area so the visual impacts from the solar facility would be minimal.

3.10.3 Mitigation

Applicable BMPs from the Eldorado Valley Transmission and Utility PEA for visual are presented in Appendix B. These include VIS-1: Restore Areas of Ground Disturbance to an Appearance Similar to Pre-project Conditions after Construction, VIS-2: Consult with the BLM Regarding Appearance of New Roads, VIS-3: Design Transmission Project to be Similar in Design to Existing Structures, VIS-4: Consult with BLM Regarding Appearance of New Transmission Lines; and VIS-5: Dust Suppression Measures.

3.11 Recreation

3.11.1 Affected Environment

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

The project area is located within NDOW Hunt Unit 266 (NDOW 2012). Big game hunting in this Hunt Unit consists of desert bighorn sheep (*Ovis canadensis nelsoni*), which are predominantly in Boy Scout Canyon and Burrow Wash. Most of the bighorn sheep habitat is within the Lake Mead National Recreation Area. Only a small portion of this habitat is outside the recreation area on land managed by the BLM.

3.11.2 Environmental Consequences

3.11.2.1 Alternative A1

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

Construction of the transmission line would not affect OHV recreation in the area because only small areas would be utilized for construction activities. These areas would be limited to 6,400-22,500 square feet for installation of each transmission line pole and multiple 0.8-2 acre wire-pulling sites. Each of the areas would be flagged and marked to alert recreationists to possible dangers.

In the short-term, recreationalists may be minimally affected during construction and decommissioning activities due to the presence of heavy equipment, construction workers and associated noise. However, as many other transmission lines exist throughout these designated utility corridors, construction, operation and decommissioning of the proposed project would not substantially affect recreation activities.

3.11.2.2 Alternative A2

Under Alternative A2, impacts would be the same as those described under Alternative A1.

3.11.2.3 Alternative A3

Under Alternative A3, impacts would be the same as those described under Alternative A1.

3.11.2.4 Alternative B

Under Alternative B, impacts would be the same as those described under Alternative A1.

3.11.2.5 Connected Action

Though the solar field site would be fenced, OHV users could continue to access most of the existing roads and other OHV routes throughout the area; therefore, the solar facility would not inhibit access or recreational opportunities.

3.11.3 Mitigation

Because the proposed transmission lines would not impact other land uses within the BLM-managed utility corridor, no mitigation measures are necessary. Applicable BMPs from the Eldorado Valley Transmission and Utility PEA for land-use are presented in Appendix B including LAND-1: Minimize

Restricted Access to Existing Land Uses, LAND-2: Comply with Land Use Restrictions in the Study Area, and LAND-3: Obtain Approval for Appropriate Jurisdictions for Activities Outside of BLM Transmission and Utility Corridors in the Study Area.

3.12 Noise

3.12.1 Affected Environment

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

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

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

State of Nevada

Nevada has a nuisance type noise standard that limits unnecessary or intrusive sounds that disturb the peace and quiet of a neighborhood. No state numerical performance standard exists.

Clark County

The Clark County Unified Development Code (UDC) establishes maximum permitted sound levels within residential districts. The Clark County Noise Ordinance (Sec. 30.68.020) establishes permissible sound pressure levels (SPLs) of any continuous, regular, or frequency source of sound produced by any activities by time period and type of zoning district (Table 30.68-1 in the Clark County UDC Section 30.68.020). Likewise, impulsive type noises are subject to the maximum permitted sound level standards by time and type of zoning district (Table 30.68-2 in the Clark County UDC Section 30.68.020). Relative to the proposed project, sound level limits do not apply to construction and/or demolition activities when conducted during daytime hours.

The Clark County ordinance was developed on an octave band basis, meaning each octave band was given a separate sound level limit as opposed to an overall limit. The most restrictive limitations are for residential districts during nighttime hours. For informational purposes, if the individual octave bands are combined into a single dBA number, this would result in a limit at a residential property line of 43 dBA.

City of Boulder City

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

3.12.2 Environmental Consequences

3.12.2.1 Alternative A1

Construction

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

The primary effect on the existing environment would be attributed to noise generated during construction activities. Typical construction equipment noise levels are presented in Table 3.12-1.

Table 3.12-1. Noise Levels at Various Distances from Typical Construction Equipment

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

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

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

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

^b To convert feet to meters, multiply by 0.3048.

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

Operation

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

Transmission line corona noise is the noise generated from the strong electric field at the surface of a high-voltage power line conductor ionizing the nearby air, resulting in an audible, continuous, low-level noise or “buzz” during operation of transmission lines and substation equipment. The amount of corona produced by a transmission line is a function of the voltage of the line, the diameter of the conductor, the elevation of the line above sea level, the condition of the conductor and hardware, and the local weather conditions. Corona noise levels for 220-kV to 230-kV transmission lines, under conditions favorable to the development of corona noise (rain/high humidity) and with the line under maximum loading, are typically less than 40 dBA at a distance of 50 feet. As corona noise is reduced by approximately 4 dBA with the doubling of distance, noise produced from the transmission line would not be audible at the closest sensitive receptor, which is greater than 1 mile from the proposed project.

3.12.2.2 Alternative A2

Under Alternative A2, impacts resulting from noise would similar as those described under Alternative A1. Corona noise levels for a 500-kV transmission line would be approximately 44 dBA at a distance of 50 feet. As corona noise is reduced by approximately 4 dBA, noise produced from the transmission line would not be audible at the closest sensitive receptor, which is greater than 1 mile from the proposed project.

3.12.2.3 Alternative A3

Under Alternative A3, impacts resulting from noise would be the same as those described under Alternative A1.

3.12.2.4 Alternative B

Under Alternative B, impacts resulting from noise would be the same as those described under Alternative A1.

3.12.2.5 Connected Action

Construction-related noise impacts at the solar field site would be similar to those experienced during construction of the transmission lines but in a more concentrated area. Refer to Table 3.12-1 for typical construction equipment noise levels at varying distances.

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

3.12.3 Mitigation

Noise generated from construction and operation of the transmission line would not be audible at the nearest sensitive receptor; therefore, no mitigation is required. However, applicant will adhere to the BMPs from the Eldorado Valley Transmission and Utility Corridor PEA including NOI-1: Compliance with Local Noise Ordinances, NOI-2: Conduct Construction Activities during Daytime Hours, and NOI-3: Construction Equipment Working Order and Maintenance (Appendix B).

3.13 Socioeconomics

The region of influence (ROI) for the proposed project is Clark County, Nevada. Selected socioeconomic indicators for the ROI and comparative data for the state are presented in Table 3.17-1.

Table 3.13-1. Selected Socioeconomic Indicators for the Region of Influence and State of Nevada

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

Source: US Census Bureau 2000, 2009

3.13.1 Environmental Consequences

3.13.1.1 No Action Alternative

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

3.13.1.2 Alternative A1

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

3.13.1.3 Alternative A2

The impacts under Alternative A2 would be the same as those described in Alternative A1.

3.13.1.4 Alternative A3

The impacts under Alternative A3 would be the same as those described in Alternative A1.

3.13.1.5 Alternative B

The impacts under Alternative B would be the same as those described in Alternative A1.

3.13.2 Connected Action

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

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

Project would not represent a significant population increase. Because the potential long-term employment is relatively limited, the proposed project is not expected to directly or indirectly impact local housing market, schools, social services, or overall income and employment levels.

3.13.3 Mitigation

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

3.14 Human Health and Safety

3.14.1 Existing Environment

3.14.1.1 Hazardous Waste Sites

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

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

3.14.1.2 Fire Risk

As discussed in Section 3.14 of the Eldorado Valley Transmission and Utility Corridor PEA, The BLM transmission and utility corridors within the Eldorado Valley are situated primarily in open desert characterized by minimal vegetation and vacant land with sparse development areas in Clark County, Nevada. According to the Nevada Community Wildfire Risk/Hazard Assessment Project (RCI 2005), Boulder City is classified as a low hazard community with respect to fire. The vegetative fuel density in the Boulder City area is Mojave Desert scrub, generally light, dominated by widely spaced creosote bush, cholla cactus, and Mojave prickly pear cactus. Boulder City and its surrounding areas have a low wildfire ignition risk potential, with no significant wildfire history reported and very few incidents of ignition history (RCI 2005).

3.14.1.3 Transportation

The proposed project site is located in a largely undeveloped area between Henderson and the City of Boulder City. Major transportation routes are limited to US-93, which is located north of the project area and US-95, which is directly west of the project area. Table 3.14-1 illustrate the Annual Average Daily Traffic at the nearest Nevada Division of Transportation traffic count stations.

Table 3.14-1. AADT at NDOT Traffic Count Stations near the Proposed Project Area

| Station Number | Location | 2007 | 2008 | 2009 | 2010 | 2011 |
|----------------|--|---------|--------|-------|---------|-------|
| 0031014 | US95, Maine St, .1 mi S of the RxR Pass Intch 'Exit 56 | 12,000* | 10,000 | 9,900 | 10,000* | 7,700 |
| 0030698 | US95, off-ramp from US-93 N | 640* | 540* | 520 | 430 | 490 |
| 0030695 | US95, S/B off-ramp of the RxR Pass Intch | 5,500 | 4,700 | 4,400 | 3,900 | 3,300 |
| 0030696 | US95, S/B on-ramp of the RxR Pass Intch | 630 | 530 | 460 | 380 | 420 |
| 0030699 | US95, N/B on-ramp of the RxR Pass Intch | 5,600 | 5,000 | 4,800 | 4,000 | 3,800 |

Source: Nevada Department of Transportation 2011

* Data Adjusted or Estimated

Additional access to the project area may be provided from Veterans Memorial Highway Drive and Quail Drive located to the east of the project site. These roads are maintained by the City of Boulder City.

Several unimproved dirt, improved unpaved, and paved access routes within the proposed project area provide access for recreation activities. Vehicle volume is low due to the rural nature of the area. The primary users of the unimproved routes are hunters, OHV users, recreationists, and utility maintenance and land managers.

There are several utility lines in the vicinity typically associated with an improved unpaved access road. These roads provide access for periodic routine inspections, maintenance, and repairs. These roads are typically in good to very good condition and provide primary access for recreational travel as well as utility service.

3.14.2 Environmental Consequences

3.14.2.1 No Action Alternative

Under the no action alternative the project would not be constructed; therefore, no project-related effects to Human Health and Safety would occur.

3.14.2.2 Hazardous Materials and Waste Alternative A1

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

Hazardous construction materials would be delivered to the site by truck and temporarily stored in designated staging areas. Additionally, some hazardous materials such as vehicle fuel, oils, and other fluids for vehicle maintenance would be used and stored in construction vehicles. Construction equipment would be well maintained at all times to minimize leaks of motor oils, hydraulic fluids, and fuels. All vehicle maintenance would be performed off site at an appropriate facility.

Construction activities could temporarily expose workers to direct or indirect contact with hazardous materials at levels in excess of those permitted by the OSHA (29 CFR, Part 1910). Workers who work with hazardous materials are required under OSHA regulations to have a certain level of training to properly handle hazardous materials.

Alternative A2

The impacts under Alternative A2 would be the same as those described in Alternative A1.

Alternative A3

The impacts under Alternative A3 would be the same as those described in Alternative A1.

Alternative B

The impacts under Alternative B would be the same as those described in Alternative A1.

Connected Action

Construction of the solar facility would generate solid waste in the form of soil and brush from clearing and grubbing (of the 884 acre site), and building materials associated with installation of the solar generating facilities, the operation and maintenance facilities, and interior access road. Solid waste generated during construction will be transported for disposal at a licensed waste management facility.

The construction and operation of the proposed facility is not expected to require the transportation, use, or generation of hazardous materials or hazardous wastes that could create a significant hazard to the public or environment. The types of materials that would potentially be present during construction would be minimal volumes of vehicle fuels, lubricating oils, paints, adhesives, and sealants. Under ordinary use, none of these materials would result in the generation of hazardous wastes. As the construction contractors would be required to comply with environmental and work-place safety laws and procedures, no significant risks to public health and safety would be expected from the proposed project.

3.14.2.3 Fire Risks

Alternative A 1

Although historically, wildlife fires have seldom occurred throughout the Eldorado Valley, construction activities including traffic and earthwork could result in the spread of invasive and noxious weed species, which may result in an increased risk of fire ignition and spread.

During construction, the proposed project activities and related equipment could expose people to an increased risk of electrocution or exposure to wildland fires, including wildlands adjacent to urbanized areas in the City of Boulder City and occasional recreational visitors within the project vicinity.

Alternative A2

The impacts under Alternative A2 would be the same as those described in Alternative A1.

Alternative A3

The impacts under Alternative A3 would be the same as those described in Alternative A1.

Alternative B

The impacts under Alternative B would be the same as those described in Alternative A1.

Connected Action

The impacts under the Connected Actions would be the similar to those described under Alternative 1.

3.14.2.4 Transportation

Alternative A1

Construction of the transmission line would result in a short-term increase in traffic volume. As the staging and delivery sites would be located on the solar facility, construction traffic is better assessed under the connected action. However, during routine operations and maintenance a pick-up vehicle would monitor the transmission line approximately 4 times per year.

Alternative A2

The impacts under Alternative A2 would be the same as those described in Alternative A1.

Alternative A3

The impacts under Alternative A3 would be the same as those described in Alternative A1.

Alternative B

The impacts under Alternative B would be the same as those described in Alternative A1.

Connected Action

All materials and staging areas would be located on the proposed solar facility site via US-95 located directly west of the project area or via US 93, Veterans Memorial Drive, and Quail Drive. It is estimated that 300 trips per day will occur during the construction phase of the project. This would cause a short-

term increase in traffic volume. During operations and maintenance activities, the increase in traffic would be negligible.

3.14.3 Mitigation Measures

3.14.3.1 Hazardous Materials

BMPs from the Eldorado Valley Transmission and Utility Corridor PEA, including HEALTH 7: A Hazardous Material Handling Program, will be prepared and implemented for both construction and operation of the proposed project and connected action. Included in the solid and hazardous waste management plans will be stipulations and procedures regarding compliance with federal, state, and local regulations for waste minimization, storage, and disposal. The construction contractor shall prepare BMPs that describe the methods for working with hazardous materials during construction. Construction contractor will prepare a Spill Prevention, Control, and Countermeasure (HEALTH 3) Plan that describes methods for working with hazardous materials during construction, measures for avoiding spills, and mitigation measures if a spill were to occur. Additionally, relevant BMPs from the Eldorado Valley Transmission and Utility PEA would be implemented including the following (Refer to Appendix B for a complete description):

- HEALTH 1: Compliance with General Design and Construction Standards
- HEALTH 2: Storm Water Pollution Prevention Plan
- HEALTH 4: Spill Control at Substations
- HEALTH 5: Underground Alert Service
- HEALTH 6: Health and Safety Program
- HEALTH 8: Emergency Response Plan
- HEALTH 9: Soil Management Plan
- HEALTH 11: Waste Management Plan

3.14.3.2 Fire Risk

To reduce fire hazards, relevant BMPs from the Eldorado Valley Transmission and Utility PEA would be implemented including the following (Refer to Appendix B for a complete description):

- HEALTH 12: Weed Management Plan
- HEALTH 13: Fire Prevention Measures

3.14.3.3 Transportation

A traffic management plan would be prepared and submitted in compliance with NDOT and City of Boulder City regulations.

3.15 Intentional Destructive Acts

The U.S. Court of Appeals for the Ninth Circuit decided that NEPA documents issued by the DOE should explicitly address the potential environmental consequences of intentional destruction (DOE 2006). This transmission line project may be the subject of intentional destructive acts including vandalism, theft, sabotage, and acts of terrorism intended to disable a line or project. Accidents, disasters, and intentional destructive acts at nearby solar facilities and other transmission lines are beyond the scope of this analysis. Since neither the possibility nor the probability of an attack is truly known, the risk of terrorism or sabotage and consequent environmental impact cannot be reliably estimated.

3.15.1 Affected Environment

As the proposed project area is located adjacent near U.S. 95 and the City of Boulder City, the transmission line project would be subjected to vandalism and theft. During field visits, numerous spent shotgun ammunition were observed in the project area. Components on transmission line towers could be possible targets.

3.15.2 Environmental Consequences

3.15.2.1 No Action Alternative

Under the No Action Alternative the proposed project would not be built; therefore, no effects from intentional destructive acts would occur.

3.15.2.2 Alternative A1

As the power generated from the Townsite Solar Project would be a very small portion of that serving southern California, no effects to power supplies (such as brown-outs or black-outs) would occur if damage were to occur to the transmission line. However, destructive acts to the facilities could cause environmental effects. Severed transmission lines could result in wildfires or release chemical or hazardous materials into the environment.

The proposed project would not constitute an attractive target for vandalism, sabotage or terrorism, as the facilities would be difficult to damage and the impact from any successful act would be negligible both from a practical and political perspective.

The highest risk of damage to the proposed project would be from casual vandalism and targeted metal theft. Vandalism could take many forms, and would be very difficult to entirely prevent, as these acts are often spontaneous and opportunistic in nature. Examples would include damage to towers due to attempts to gain access, or damage to Project components from shooting or vehicular impact. Metal theft is an increasing problem for utilities, as the industry uses large amounts of copper and aluminum. Theft of these metals can be extremely hazardous to the thieves because of electrocution risk. Standard security measures would limit access and deter many potential intruders, as would landowner and maintenance monitoring.

Environmental impacts from attacks to the transmission line are most likely to cause local effects resulting from damage /destruction of towers and efforts to mitigate the impact by repair and reconstruction of the damaged infrastructure. Large scale regional impacts could result, for example, from wildfire should the act result in a secondary effect, such as wildfire ignition during particularly dry periods.

Intentional destructive acts would potentially impact service to the power grid. However, the redundant nature of the power grid would prevent service interruptions. Interrupted electrical service by itself would not likely have any effects on the environment.

The proposed project would present an unlikely target for an act of terrorism and would have an extremely low probability of attack.

3.15.2.3 Alternative A2

The effects of intentional destructive under Alternative A2 would be the same as those described under Alternative 1.

3.15.2.4 Alternative A3

The effects of intentional destructive acts under alternative A3 would be the same as those described under Alternative 1.

3.15.2.5 Alternative B

The effects of intentional destructive acts under Alternative B would be the same as those described under Alternative 1.

3.15.2.6 Connected Action

Intentional destructive acts on the solar facility would result in damaged to solar panels and a decrease in energy output. As described under Alternative 1, the Townsite solar facility would only provide a small portion of the available power to southern California; therefore, no effects to power supplies (such as brown-outs or black-outs) would occur.

Fences, gates, or barriers, coupled with the use of keying systems, access card systems, or security personnel at entry points, would restrict access to the facility. Use of these physical obstructions and warning signage effectively deter and delay intruders. Personnel identification and control measures such as photo IDs, visitor passes, and contractor IDs help quickly identify unauthorized persons within the facility. In addition to physical security, the proposed project would be protected against cyber threats (i.e. hackers attacking computer control systems and information). Access to control systems would be managed to protect critical assets and information as well as maintain the reliability of the electric infrastructure. This includes logical access (user password protection) to computers and networks and physical access to computer rooms. Policies and procedures would be established to manage authorization and authentication as well as monitor both logical and physical access. Firewalls would be implemented and proactively maintained. Intrusion detection systems would be implemented and cyber risks regularly evaluated.

4 Cumulative Impacts

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

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

4.1 Past and Present Actions

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

4.2 Reasonably Foreseeable Projects

Reasonably foreseeable future actions are considered those actions that are known or could reasonably be anticipated to occur within the analysis area for each resource, within a time frame appropriate to the expected impacts from the proposed project. Refer to Appendix D, which contains a copy of Figure 5-1 and Table 5.1 from the Eldorado Valley Transmission and Utility Corridor PEA for a detailed description of the reasonably foreseeable future actions; a summary of projects in Boulder City’s Energy Zone is included below:

- **Techren Boulder City Solar Project** - Techren is proposing a 2,200 acre solar facility that will generate up to 300 MW. Additionally, Techren is proposing to build a transmission line that would connect the solar facility to the Eldorado and Marketplace Substations.
- **Copper Mountain Solar North Project** - Sempra Generation is proposing to develop 1,400 acres for a solar facility that generates up to 220 MW. Additionally, Sempra is proposing to build a transmission line that would connect the solar facility to the McCullough and Marketplace Substations.

- **Boulder Solar Project** – This area has been leased to Korean Midland Power Company for solar facility development. It can be reasonable anticipated that the entire 1,500-acre site will be developed. No further details are available at this time.
- **Townsite** – As described in Chapter 2, KOAM is also proposing an 884 acre solar facility that will generate up to 180 MW of energy, under BLM policy this is a connected action. This connected action is included in the subsequent cumulative analysis section.
- **Nevada Solar Two** – Acciona is proposing a 95 MW facility of approximately 553 acres adjacent to the Nevada Solar One Facility.
- **Nevada Solar Expansion** – Acciona is proposing an expansion to the west of the existing Solar One Facility on 133 acres. The capacity of the facility is not known at this time.
- **Transwest Express** – Transwest Express, LLC is proposing a 600-kV transmission line that would originate in Wyoming and would terminate at the McCullough Switching Station and Eldorado and Marketplace Substations.
- **Eldorado-Ivanpah Transmission Project** – Southern California Edison is proposing to reconductor an existing 35-mile 220-kV transmission line that terminates at the Eldorado Substation.
- **Boulder City Bypass Phase 2** - NDOT and the Regional Transportation Commission are proposing to construct a 4-lane limited access freeway that will reduce traffic congestion along US 93 and intersecting streets in Boulder City, Nevada Phase 2 is approximately 12 miles long and will extend from US 95 to the recently completed Nevada Interchange at SR 172 (the road to Hoover Dam).

4.2.1 Air Quality and Climate

Construction of numerous solar facilities in the Boulder City Energy zone could have both short term and long term cumulative adverse effects on air quality. Removal of the vegetation that keeps soil in place would increase air-borne particulate matter in the Eldorado Valley. As stated in Section 5.4.9 of the Eldorado Valley Transmission and Utility Corridor PEA, future projects may have overlapping construction schedules and would contribute to temporary increases in ozone and PM₁₀, as well as GHGs during construction. BMPs presented in Appendix B, would reduce impacts to temporary regional air quality.

Operation of the proposed solar facilities and any future solar facilities in the Boulder City Energy Zone would have a cumulative overall beneficial impact on air quality because operation of solar generation facilities results in a reduction in emissions compared to other kinds of electricity generation facilities.

4.2.2 Geology, Minerals, and Soils

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

4.2.3 Water Resources

Preparation of sites for solar energy facilities would typically include site grading and construction of channels, berms, or retention basins, resulting in potential impacts to area hydrology. Maintenance of

historic drainage paths, as well as drywells to ensure percolation of water from retention basins, would minimize the contribution to cumulative impacts from the proposed solar field project.

As discussed in Section 5.4.11 of the Eldorado Valley Transmission and Utility Corridor PEA, cumulative impacts on groundwater resources could be significant, depending upon the source of water required for construction and operations. For linear projects, water required during construction is generally used for dust suppression and negligible quantities of water are required during operation. All projects proposed within the project area would be solar projects. Although projects are expected to use water from a local pipeline for dust suppression and other uses during construction, the exact quantity of water available through this pipeline is unknown. The potential projects in the Eldorado Valley may have overlapping schedules and could cumulatively use up to 600 acre feet of water per year during construction. This could be a cumulative impact if the acre-feet of water required for construction exceeds available water supplies.

4.2.4 Vegetation and Special Status Plant Species

Past, present and future solar development in the valley would contribute incrementally to vegetation disturbance and removal. In total, approximately 6,670 acres of Mojave creosote bush scrub vegetation and habitat for cacti, yucca, and rosy twotone beardtongue would be removed for solar energy development and associated transmission lines. However, this is not a significant amount of habitat for this vegetation type given the ranges of these species.

4.2.5 Invasive Species / Noxious Weeds

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

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

4.2.6 Wildlife and BLM sensitive species

As discussed in Section 5.4.4 in the Eldorado Valley Transmission and Utility Corridor PEA, past, present and future solar development in the valley could continue to displace wildlife (including BLM sensitive reptiles and bats), and as described under cumulative effects under vegetation, wildlife habitat (i.e. Mojave creosote bush scrub). Most likely all the solar facilities would be fenced, and therefore, larger wildlife would be excluded from approximately 6,670 acres of land. This may disrupt normal migratory patterns and fragment habitat. In addition, some of these projects and actions could increase traffic, conflicts with humans, and competition for available habitat. Some of these actions could also decrease forage quality and quantity as described under Section 3.5 Vegetation.

4.2.7 Desert Tortoise

As discussed in Section 5.4.2 of the Eldorado Valley Transmission and Utility Corridor PEA, adverse impacts include injury to and death of individual tortoise during construction and long-term or permanent impacts on various species due to habitat loss and fragmentation. For example, current potential cumulative projects would convert 6,670 acres of potential habitat to industrial uses. Constructing new transmission or telecommunications lines would provide common ravens with perches, which would increase predation on desert tortoise and other species. The introduction of new buildings and structures related to energy development projects would also provide perches contributing to long-term impacts. However, Section 7 Consultation would be required for each of these reasonable foreseeable projects reducing the contribution to cumulative impacts during operation.

4.2.8 Migratory Birds

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

4.2.9 Cultural Resources

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

4.2.10 Land Use

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

4.2.11 Visual Resources

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

4.2.12 Socioeconomics

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

4.3 Irreversible and Irretrievable Commitment of Resources and Unavoidable Adverse Impacts

The Council on Environmental Quality regulations in 40 CFR 1502.16 and the BLM NEPA Handbook (H-1790-1, Sec. 9.2.9) require a discussion of unavoidable adverse impacts that would remain after all reasonable and effective mitigation is applied, as well as disclosure of irreversible and irretrievable commitments of resources if the proposed project is approved. A resource commitment is considered irreversible when direct and indirect impacts from its use limit future use options. Irreversible commitments apply primarily to nonrenewable resources, such as cultural resources, and also to those resources that are renewable only over long periods of time, such as soil productivity. A resource commitment is considered irretrievable when the use or consumption of the resource is neither renewable nor recoverable for future use. Irretrievable commitments apply to loss of production, harvest, or use of natural resources. The following section describes irreversible and irretrievable commitments that would occur in the proposed project area and may be affected by construction, operation, maintenance, and decommissioning activities.

4.3.1 Geology, Soils, and Minerals

Soil lost to increased erosion and vegetation production lost to conversion of land uses would be irretrievable losses. There would be an irreversible commitment of resources on land associated with the ROW and aboveground facilities.

Soil impacts could occur from spills of petroleum products or other construction equipment fluids. If a spill were to occur, the affected area would be cleaned according to the approved SPCCP. Affected soils would be irretrievably and irreversibly lost, which would be a negligible-to-minor unavoidable adverse impact.

4.3.2 Air Quality

Project emissions would not exceed federal or state air quality standards. Air quality would return to existing conditions after completion of the project.

Desert soils have a carbon storage capacity that would be lost due to construction of the proposed project. Considering the relative proportions of ground disturbance associated with the proposed project area and the extent of the air basin, potential impacts on existing carbon storage capacity would be considered a negligible irreversible and irretrievable commitment.

4.3.3 Water Resources

The proposed project would not use surface water, but water provided by the City of Boulder City, which is a permitted municipal water source. Therefore, the proposed project would not cause an irreversible or irretrievable commitment of surface water in the area.

4.3.4 Biological Resources

Construction of the proposed project would result in long-term residual effects to wildlife. Approximately 2-7 acres of wildlife habitat (884 acres for the connected action) would be removed resulting in the loss of shelter and foraging opportunities for wildlife in the proposed project area. Vegetation growth and recovery would take such a long time that, from a human viewpoint, this could be considered an irreversible or irretrievable commitment of the resource.

4.3.5 Cultural Resources

No NRHP-cultural resources were found in the proposed project area; therefore, no irreversible or irretrievable commitment to cultural resources would occur.

4.3.6 Recreation

Recreation may be affected by project activities. However, upon completion of construction activities, those effects would disappear. Therefore, it is not anticipated to be an irreversible or irretrievable commitment of recreational resources.

4.3.7 Noise

Construction, operation, maintenance, and decommissioning activities would cause increased noise levels. This would be localized and temporary; therefore, there would not be an irretrievable or irreversible commitment.

4.3.8 Visual Resources

If the project is decommissioned, the transmission lines and spur roads would be removed and visual impacts associated with them would disappear; however, land scars would be visible long after the structures were removed.

4.3.9 Socioeconomics

The anticipated beneficial socioeconomic effects would cease following completion of decommissioning; therefore, there would be no irreversible and irretrievable commitments of economic resources.

4.3.10 Human Health and Safety

The generation of solid wastes (that is, construction/demolition debris, plastics, papers, cartons, steel waste, pipes, cables, metal containers, and inorganic wastes) would occur during the construction phase.

The Applicant and their contractors/workers would handle all wastes in accordance with applicable regulations, and would implement BMPs including pollution prevention and waste minimization programs. Therefore, the proposed project would not cause an irreversible and irretrievable commitment of the resources.

Should a fire occur as a result of development within BLM transmission and utility corridors, adverse impacts to fuel and fire resources in the study area would be dependent on pre-fire conditions. If a large fire occurs due to continuous annual grass fuels, the effects may be long-term with potential large scale increase of invasive and noxious weedy species. This condition may lead to increased fire frequency. Otherwise effects would be isolated to small burned areas. Short-term effects in small burned areas are likely to increase invasive and noxious weed species.

During construction, there would be short-term increases in traffic volume and decreases in access to local roadways: however, upon completion of construction those effects would disappear so there would be no irreversible and irretrievable commitments of transportation.

5 Tribes, Individuals, or Agencies Consulted

| Name | Purpose & Authorities' Consultation | Findings and Conclusions |
|--------------------------------------|-------------------------------------|--|
| USFWS | Section 7 Consultation | Section 7 Consultation will be covered under an action to append the Programmatic Biological Opinion (PBO) File No. 84320-2013-F-0100 for Alternative B. If another Alternative is selected further consultation is required with the U.S. Fish and Wildlife Service. Refer to Appendix C for a copy of the Action Appended to the BLM's Southern Nevada District Programmatic Biological Opinion. |
| SHPO | Section 106 Consultation | BLM has recommended to SHPO that the cultural resources are not eligible for NRHP listing under the Secretary's criteria. SHPO response is pending. |
| U.S. Army Corps of Engineers (USACE) | Waters of the U.S. | The USACE determined that the proposed work does not involve work in navigable waters of the United States and no permit under Section 404 Clean Water Act is required. |

6 List of Preparers

| Name | Responsibility |
|--|--|
| BLM | |
| Bob Ross | Field Manager |
| Mark Chandler | Project Manager |
| Boris Poff | Soils and Water Resources |
| Marilyn Peterson | Recreation |
| John Evans | Social and Economic Conditions, Environmental Justice |
| George Varhalmi | Geology and Minerals, |
| Lisa Christensen | Air Quality |
| Amelia Savage | Biological Resources |
| Fred Edwards | Biological Resources |
| Lauren Brown | Invasive Weeds |
| Brenda Wilhight | Lands, Visual Resources |
| Vanessa Hice | Assistant Field Manager, Division of Lands |
| Greg Helseth | Project Manager, RECO |
| Nancy Christ | Environmental Coordinator |
| John Evans | Environmental Coordinator |
| Western Area Power Administration | |
| Liana Reilly | Project Manager |
| Misti Sporer | Biologist |
| Johnida Dockens | Biologist |
| Lisa Meyer | Archeologist |
| NewFields Team | |
| Albert Ridley ¹ | Geology, Soils, and Minerals, Air Quality |
| Randy Keyes ¹ | Geology, Soils, and Minerals, Water Resources, Air Quality |
| Anne DuBarton | Paleontology, Cultural Resources, Native American Religious Concerns, Land Use, Recreation |
| Courtney Brooks ¹ | Water Resources |
| Stephanie Locke | Project Manager, Biological Resources, Visual Resources |
| Sean Milne | Biological Resources |
| Randy Kyes ¹ | Human Health and Safety |

¹Ninyo and Moore

7 References

- Avian Power Line Interaction Committee. (2006). *Suggested practices for avian protection on power lines: The state of the art in 2006*. Washington, D.C. and Sacramento, CA: Edison Electric Institute, APLIC, and the California Energy Commission.
- Bureau of Land Management (BLM), 1992, Draft Stateline Resource Management Plan and Environmental Impact Statement, U.S. Department of Interior, Las Vegas, NV, 1992.
- BLM. 1998. Las Vegas Resource Management Plan (RMP) and Final Environmental Impact Statement. Las Vegas Field Office, Las Vegas, Nevada. May 1998.
- BLM. 2008. BLM National Environmental Policy Act Handbook H-1790-1. Washington D.C.
- BLM. 2011. Environmental Assessment for the NVN089424 Copper Mnt Solar III. Prepared by the Las Vegas Field Office.
- Buqo, T.S, and M.E. Giampaoli, 1988. Hydrologic Study and Water Supply Evaluation, Searchlight, Nevada, Final Report, Las Vegas Valley Water District, Las Vegas, NV.
- Clark County Regional Flood Control District, 2004. Supplemental Programmatic Environmental Impact Statement, Clark County Regional Flood Control District, 2002 Master Plan Update, September 2004, Las Vegas, Nevada.
- Clark County State Implementation Plan, PM-10. nonroad engine emissions, vehicle emissions (2001), Carbon Monoxide, (2000 and 2005).
- Cook, R.U., and A. Warren. 1973. *Geomorphology in deserts*. London: B.T. Bratsford Ltd., p. 120.
- Federal Emergency Management Agency (FEMA). 2011. National Flood Hazard Layer for GIS. www.msc.fema.gov.
- Harrill, J.R., J.S. Gates, and J.M. Thomas, 1988. Major Ground-Water Flow Systems in the Great Basin Region of Nevada, Utah and Adjacent States, Hydrological Investigations Atlas HA-694-C Scale 1:1,000,000, U.S. Geological Survey, Denver, CO.
- Longwell, C.R., E.H. Pampeyan, Ben Brower, and R.J. Roberts, 1965, *Geology and Mineral Deposits of Clark County, Nevada*, Nevada Bureau of Mines and Geology Bulletin 62, United States Geological Survey.
- McFadden, L.D., S.G. Wells, and M.J. Jercinovich. 1987. Influences of eolian and pedogenic processes on the origin and evolution of desert pavements. *Geology*, v 15, pp. 504-508.
- Nevada Department of Wildlife (NDOW). 2012. Gila monster status, identification and reporting protocol for observations. NDOW Southern Region. September 7.
- Nevada Department of Wildlife (NDOW). No date. Hunter information sheet: Desert Bighorn Unit 266. Accessed online on December 10, 2012 at <http://www.ndow.org/hunt/resources/infosheets/dbh/south/266dbh.pdf>

- Nevada Division of Water Resources, 1994. Well Driller's Report Number 44207, March 3, 1994, Carson City, Nevada.
- Ninyo & Moore. 2012. Phase I Environmental Site Assessment Report, Townsite South West Solar Project, Boulder City, Nevada, dated July 20, 2012, prepared by Ninyo & Moore, Las Vegas, Nevada.
- Rush, F.E., and C.J. Huxel, Jr., 1966. Ground-Water Appraisal of the Eldorado - Pahute Valley Area, Nevada and California, Department of Conservation and Natural Resources, Water Resources - Reconnaissance Series Report 36, State of Nevada, Carson City, NV.
- Scott, B.R., T.J. Smales, F.E. Rush, and A.S. Van Denburgh, 1971. Water for Nevada, Water Planning Report 3, Nevada Department of Conservation and Natural Resources, Division of Water Resources, State of Nevada, Carson City, NV.
- Taney Engineering, Conceptual Drainage Study for Solar Energy Zone 1,000+ Acres, July, 2009. Final Environmental Assessment and Finding of No Significant Impact, University of Nevada, Las Vegas Research Foundation, Solar Technology Center, January 2009, DOE/EA-1622
- The Toquop Energy Draft Environmental Impact Statement, 2007, Bureau of Land Management, Ely, Nevada.
- US Department of Agriculture (USDA), 2012, Web soil survey, on-line service from the U.S. Department of Agriculture, <http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>
- US Department of the Interior. 2009. Order No. 3289, Addressing the Impacts of Climate Change on America's Water, Land, and Other Natural and Cultural Resources, issued September 14, 2009.
- US Environmental Protection Agency (USEPA). 1978. Protective Noise Levels. Condensed Version of EPA Levels Document. EPA 550/9-79-100. US Environmental Protection Agency. Office of Noise Abatement & Control. Washington, DC.
- USEPA, 2008. Compilation of Air Pollutant Emission Factors, Volume I: Stationary Point and Area Sources, AP-42, 2008, Office of Air Quality and Standards, Office of Air and Radiation.
- USEPA. 2011. Approval and Promulgation of Implementation Plans; Nevada; Determination of Attainment for the Clark County 8-Hour Ozone Nonattainment Area, 40 CFR Part 52, Federal Register Vol. 76, No. 60/ Tuesday, March 29, 2011/ Rules and Regulations.
- US Fish and Wildlife Service (USFWS). 2010. Preparing for any action that may occur within the range of the Mojave desert tortoise (*Gopherus agassizii*)
- US Geologic Survey (USGS), 1977, Geologic Map of the Boulder City 15-Minute Quadrangle, Clark County, Nevada, by R. Earnest Andersen, 1977, Map GQ-1395
- US Geological Survey (USGS), 2012, USGS Earthquake Hazards Program, Quaternary fault and fold database of the United States, U.S. Geological Survey website, <http://earthquakes.usgs.gov/regional/qfaults>
- Utah Department of Environmental Quality (UDEQ). 2005. Division of Air Quality (DAQ) Mobile Source Emission Factors (Mobile 6) for Washington County.

- Valentine and Harrington. 2005. Desert pavements and soils on basaltic pyroclastic deposits at Lathrop Wells and Red Cone volcanoes, southern Nevada, Greg A. Valentine and Charles D. Harrington, Los Alamos National Laboratory, LA-UR-05-6005, submitted to *Geology*, October 10, 2005.

Appendix A: Alternative Descriptions and Master Title Plats

Alternative A-1 Description

THE PROPOSED TRANSMISSION LINE RIGHT OF WAY IS LOCATED WITHIN THE FOLLOWING:

MOUNT DIABLO MERIDIAN, CITY OF BOULDER CITY, CLARK COUNTY, NEVADA

T. 23 S., R. 63 E.,

Sec. 23, SE $\frac{1}{4}$ NE $\frac{1}{4}$; NE $\frac{1}{4}$ SE $\frac{1}{4}$; SE $\frac{1}{4}$ SE $\frac{1}{4}$; SW $\frac{1}{4}$ SE $\frac{1}{4}$;

Sec. 26, NW $\frac{1}{4}$ NE $\frac{1}{4}$; NE $\frac{1}{4}$ NW $\frac{1}{4}$; SE $\frac{1}{4}$ NW $\frac{1}{4}$; SW $\frac{1}{4}$ NW $\frac{1}{4}$; NE $\frac{1}{4}$ SW $\frac{1}{4}$; NW $\frac{1}{4}$ SW $\frac{1}{4}$;
SW $\frac{1}{4}$ SW $\frac{1}{4}$;

Sec. 27, SE $\frac{1}{4}$ SE $\frac{1}{4}$;

Sec. 33, SE $\frac{1}{4}$ SE $\frac{1}{4}$;

Sec. 34, NE $\frac{1}{4}$ NE $\frac{1}{4}$; NW $\frac{1}{4}$ NE $\frac{1}{4}$; SW $\frac{1}{4}$ NE $\frac{1}{4}$; SE $\frac{1}{4}$ NW $\frac{1}{4}$; NE $\frac{1}{4}$ SW $\frac{1}{4}$; NW $\frac{1}{4}$ SW $\frac{1}{4}$;
SW $\frac{1}{4}$ SW $\frac{1}{4}$;

T. 24 S., R. 63 E.,

Sec. 04, NE $\frac{1}{4}$ NE $\frac{1}{4}$; NW $\frac{1}{4}$ NE $\frac{1}{4}$; SW $\frac{1}{4}$ NE $\frac{1}{4}$; SE $\frac{1}{4}$ NW $\frac{1}{4}$; NE $\frac{1}{4}$ SW $\frac{1}{4}$; NW $\frac{1}{4}$ SW $\frac{1}{4}$; SW $\frac{1}{4}$ SW $\frac{1}{4}$;

Sec. 05, SE $\frac{1}{4}$ SE $\frac{1}{4}$;

Sec. 08, NE $\frac{1}{4}$ NE $\frac{1}{4}$; NW $\frac{1}{4}$ NE $\frac{1}{4}$; SW $\frac{1}{4}$ NE $\frac{1}{4}$; NW $\frac{1}{4}$ SE $\frac{1}{4}$; SE $\frac{1}{4}$ NW $\frac{1}{4}$; NE $\frac{1}{4}$ SW $\frac{1}{4}$; SE $\frac{1}{4}$ SW $\frac{1}{4}$; SW $\frac{1}{4}$ SW $\frac{1}{4}$;

Sec. 17, NW $\frac{1}{4}$ NW $\frac{1}{4}$;

Sec. 18, NE $\frac{1}{4}$ NE $\frac{1}{4}$; SE $\frac{1}{4}$ NE $\frac{1}{4}$; SW $\frac{1}{4}$ NE $\frac{1}{4}$; NW $\frac{1}{4}$ SE $\frac{1}{4}$; NE $\frac{1}{4}$ SW $\frac{1}{4}$; SE $\frac{1}{4}$ SW $\frac{1}{4}$; SW $\frac{1}{4}$ SW $\frac{1}{4}$;

Sec. 19, NE $\frac{1}{4}$ NW $\frac{1}{4}$; NW $\frac{1}{4}$ NW $\frac{1}{4}$; SW $\frac{1}{4}$ NW $\frac{1}{4}$;

T. 24 S., R. 62 E.,

Sec. 24, SE $\frac{1}{4}$ NE $\frac{1}{4}$; NE $\frac{1}{4}$ SE $\frac{1}{4}$; NW $\frac{1}{4}$ SE $\frac{1}{4}$; SW $\frac{1}{4}$ SE $\frac{1}{4}$;

Sec. 25, NW $\frac{1}{4}$ NE $\frac{1}{4}$; SW $\frac{1}{4}$ NE $\frac{1}{4}$; NW $\frac{1}{4}$ SE $\frac{1}{4}$; SW $\frac{1}{4}$ SE $\frac{1}{4}$;

Sec. 36, NW $\frac{1}{4}$ NE $\frac{1}{4}$; SW $\frac{1}{4}$ NE $\frac{1}{4}$; NW $\frac{1}{4}$ SE $\frac{1}{4}$; SW $\frac{1}{4}$ SE $\frac{1}{4}$;

T. 25 S., R. 62 E.,

Sec. 01, NE $\frac{1}{4}$ NW $\frac{1}{4}$; SE $\frac{1}{4}$ NW $\frac{1}{4}$; NE $\frac{1}{4}$ SW $\frac{1}{4}$; SE $\frac{1}{4}$ SW $\frac{1}{4}$; SW $\frac{1}{4}$ SW $\frac{1}{4}$;

Sec. 02, SE $\frac{1}{4}$ SW $\frac{1}{4}$;

Sec. 11, SE $\frac{1}{4}$ NE $\frac{1}{4}$; SW $\frac{1}{4}$ NE $\frac{1}{4}$; NE $\frac{1}{4}$ NW $\frac{1}{4}$; SE $\frac{1}{4}$ NW $\frac{1}{4}$;

Sec. 12, NW $\frac{1}{4}$ NW $\frac{1}{4}$; SW $\frac{1}{4}$ NW $\frac{1}{4}$;

Alternative A-2 Description

THE PROPOSED TRANSMISSION LINE RIGHT OF WAY IS LOCATED WITHIN THE FOLLOWING:

MOUNT DIABLO MERIDIAN, CITY OF BOULDER CITY, CLARK COUNTY, NEVADA

T. 23 S., R. 63 E.,

Sec. 23, SE $\frac{1}{4}$ NE $\frac{1}{4}$; NE $\frac{1}{4}$ SE $\frac{1}{4}$; SE $\frac{1}{4}$ SE $\frac{1}{4}$; SW $\frac{1}{4}$ SE $\frac{1}{4}$;

Sec. 26, NW $\frac{1}{4}$ NE $\frac{1}{4}$; NE $\frac{1}{4}$ NW $\frac{1}{4}$; SE $\frac{1}{4}$ NW $\frac{1}{4}$; SW $\frac{1}{4}$ NW $\frac{1}{4}$; NE $\frac{1}{4}$ SW $\frac{1}{4}$; NW $\frac{1}{4}$ SW $\frac{1}{4}$;
SW $\frac{1}{4}$ SW $\frac{1}{4}$;

Sec. 27, SE $\frac{1}{4}$ SE $\frac{1}{4}$;

Sec. 33, SE $\frac{1}{4}$ SE $\frac{1}{4}$;

- Sec. 34, NE $\frac{1}{4}$ NE $\frac{1}{4}$; NW $\frac{1}{4}$ NE $\frac{1}{4}$; SW $\frac{1}{4}$ NE $\frac{1}{4}$; SE $\frac{1}{4}$ NW $\frac{1}{4}$; NE $\frac{1}{4}$ SW $\frac{1}{4}$; NW $\frac{1}{4}$ SW $\frac{1}{4}$; SW $\frac{1}{4}$ SW $\frac{1}{4}$;
- T. 24 S., R. 63 E.,
- Sec. 04, NE $\frac{1}{4}$ NE $\frac{1}{4}$; NW $\frac{1}{4}$ NE $\frac{1}{4}$; SW $\frac{1}{4}$ NE $\frac{1}{4}$; SE $\frac{1}{4}$ NW $\frac{1}{4}$; NE $\frac{1}{4}$ SW $\frac{1}{4}$; NW $\frac{1}{4}$ SW $\frac{1}{4}$; SW $\frac{1}{4}$ SW $\frac{1}{4}$;
- Sec. 05, SE $\frac{1}{4}$ SE $\frac{1}{4}$;
- Sec. 08, NE $\frac{1}{4}$ NE $\frac{1}{4}$; NW $\frac{1}{4}$ NE $\frac{1}{4}$; SW $\frac{1}{4}$ NE $\frac{1}{4}$; NW $\frac{1}{4}$ SE $\frac{1}{4}$; SE $\frac{1}{4}$ NW $\frac{1}{4}$; NE $\frac{1}{4}$ SW $\frac{1}{4}$; SE $\frac{1}{4}$ SW $\frac{1}{4}$; SW $\frac{1}{4}$ SW $\frac{1}{4}$;
- Sec. 17, NW $\frac{1}{4}$ NW $\frac{1}{4}$;
- Sec. 18, NE $\frac{1}{4}$ NE $\frac{1}{4}$; SE $\frac{1}{4}$ NE $\frac{1}{4}$; SW $\frac{1}{4}$ NE $\frac{1}{4}$; NW $\frac{1}{4}$ SE $\frac{1}{4}$; NE $\frac{1}{4}$ SW $\frac{1}{4}$; SE $\frac{1}{4}$ SW $\frac{1}{4}$; SW $\frac{1}{4}$ SW $\frac{1}{4}$;
- Sec. 19, NE $\frac{1}{4}$ NW $\frac{1}{4}$; NW $\frac{1}{4}$ NW $\frac{1}{4}$; SW $\frac{1}{4}$ NW $\frac{1}{4}$;
- T. 24 S., R. 62 E.,
- Sec. 24, SE $\frac{1}{4}$ NE $\frac{1}{4}$; NE $\frac{1}{4}$ SE $\frac{1}{4}$; NW $\frac{1}{4}$ SE $\frac{1}{4}$; SW $\frac{1}{4}$ SE $\frac{1}{4}$;
- Sec. 25, NW $\frac{1}{4}$ NE $\frac{1}{4}$; SW $\frac{1}{4}$ NE $\frac{1}{4}$; NW $\frac{1}{4}$ SE $\frac{1}{4}$; SW $\frac{1}{4}$ SE $\frac{1}{4}$;
- Sec. 36, NW $\frac{1}{4}$ NE $\frac{1}{4}$; SW $\frac{1}{4}$ NE $\frac{1}{4}$; NW $\frac{1}{4}$ SE $\frac{1}{4}$; SW $\frac{1}{4}$ SE $\frac{1}{4}$; NE $\frac{1}{4}$ NW $\frac{1}{4}$; NW $\frac{1}{4}$ NW $\frac{1}{4}$;

Alternative A-3 Description

THE PROPOSED TRANSMISSION LINE RIGHT OF WAY IS LOCATED WITHIN THE FOLLOWING:

MOUNT DIABLO MERIDIAN, CITY OF BOULDER CITY, CLARK COUNTY, NEVADA

- T. 23 S., R. 63 E.,
- Sec. 23, SE $\frac{1}{4}$ NE $\frac{1}{4}$; NE $\frac{1}{4}$ SE $\frac{1}{4}$; SE $\frac{1}{4}$ SE $\frac{1}{4}$; SW $\frac{1}{4}$ SE $\frac{1}{4}$;
- Sec. 26, NW $\frac{1}{4}$ NE $\frac{1}{4}$; NE $\frac{1}{4}$ NW $\frac{1}{4}$; SE $\frac{1}{4}$ NW $\frac{1}{4}$; SW $\frac{1}{4}$ NW $\frac{1}{4}$; NE $\frac{1}{4}$ SW $\frac{1}{4}$; NW $\frac{1}{4}$ SW $\frac{1}{4}$; SW $\frac{1}{4}$ SW $\frac{1}{4}$;
- Sec. 27, SE $\frac{1}{4}$ SE $\frac{1}{4}$;
- Sec. 33, SE $\frac{1}{4}$ SE $\frac{1}{4}$;
- Sec. 34, NE $\frac{1}{4}$ NE $\frac{1}{4}$; NW $\frac{1}{4}$ NE $\frac{1}{4}$; SW $\frac{1}{4}$ NE $\frac{1}{4}$; SE $\frac{1}{4}$ NW $\frac{1}{4}$; NE $\frac{1}{4}$ SW $\frac{1}{4}$; NW $\frac{1}{4}$ SW $\frac{1}{4}$; SW $\frac{1}{4}$ SW $\frac{1}{4}$;
- T. 24 S., R. 63 E.,
- Sec. 04, NE $\frac{1}{4}$ NE $\frac{1}{4}$; NW $\frac{1}{4}$ NE $\frac{1}{4}$; SW $\frac{1}{4}$ NE $\frac{1}{4}$; SE $\frac{1}{4}$ NW $\frac{1}{4}$; NE $\frac{1}{4}$ SW $\frac{1}{4}$; NW $\frac{1}{4}$ SW $\frac{1}{4}$; SW $\frac{1}{4}$ SW $\frac{1}{4}$;
- Sec. 05, SE $\frac{1}{4}$ SE $\frac{1}{4}$;
- Sec. 08, NE $\frac{1}{4}$ NE $\frac{1}{4}$; NW $\frac{1}{4}$ NE $\frac{1}{4}$; SW $\frac{1}{4}$ NE $\frac{1}{4}$; NW $\frac{1}{4}$ SE $\frac{1}{4}$; SE $\frac{1}{4}$ NW $\frac{1}{4}$; NE $\frac{1}{4}$ SW $\frac{1}{4}$; SE $\frac{1}{4}$ SW $\frac{1}{4}$; SW $\frac{1}{4}$ SW $\frac{1}{4}$;
- Sec. 17, NW $\frac{1}{4}$ NW $\frac{1}{4}$;
- Sec. 18, NE $\frac{1}{4}$ NE $\frac{1}{4}$; SE $\frac{1}{4}$ NE $\frac{1}{4}$; SW $\frac{1}{4}$ NE $\frac{1}{4}$; NW $\frac{1}{4}$ SE $\frac{1}{4}$; NE $\frac{1}{4}$ SW $\frac{1}{4}$; SE $\frac{1}{4}$ SW $\frac{1}{4}$; SW $\frac{1}{4}$ SW $\frac{1}{4}$;
- Sec. 19, NE $\frac{1}{4}$ NW $\frac{1}{4}$; NW $\frac{1}{4}$ NW $\frac{1}{4}$; SW $\frac{1}{4}$ NW $\frac{1}{4}$;
- T. 24 S., R. 62 E.,
- Sec. 24, SE $\frac{1}{4}$ NE $\frac{1}{4}$; NE $\frac{1}{4}$ SE $\frac{1}{4}$; NW $\frac{1}{4}$ SE $\frac{1}{4}$; SW $\frac{1}{4}$ SE $\frac{1}{4}$;
- Sec. 25, NW $\frac{1}{4}$ NE $\frac{1}{4}$; SW $\frac{1}{4}$ NE $\frac{1}{4}$; NW $\frac{1}{4}$ SE $\frac{1}{4}$; SW $\frac{1}{4}$ SE $\frac{1}{4}$;
- Sec. 36, NW $\frac{1}{4}$ NE $\frac{1}{4}$; SW $\frac{1}{4}$ NE $\frac{1}{4}$; NW $\frac{1}{4}$ SE $\frac{1}{4}$; SW $\frac{1}{4}$ SE $\frac{1}{4}$;

T. 25 S., R. 62 E.,

Sec. 01, NE $\frac{1}{4}$ NW $\frac{1}{4}$; SE $\frac{1}{4}$ NW $\frac{1}{4}$; NE $\frac{1}{4}$ SW $\frac{1}{4}$; SE $\frac{1}{4}$ SW $\frac{1}{4}$; SW $\frac{1}{4}$ SW $\frac{1}{4}$;

Sec. 02, SW $\frac{1}{4}$ SW $\frac{1}{4}$;

Sec. 11, SE $\frac{1}{4}$ NE $\frac{1}{4}$; SW $\frac{1}{4}$ NE $\frac{1}{4}$; NE $\frac{1}{4}$ NW $\frac{1}{4}$; SE $\frac{1}{4}$ NW $\frac{1}{4}$; NW $\frac{1}{4}$ NW $\frac{1}{4}$;

Sec. 12, NW $\frac{1}{4}$ NW $\frac{1}{4}$; SW $\frac{1}{4}$ NW $\frac{1}{4}$;

Alternative B

THE PROPOSED TRANSMISSION LINE RIGHT OF WAY IS LOCATED WITHIN THE
FOLLOWING:

MOUNT DIABLO MERIDIAN, CITY OF BOULDER CITY, CLARK COUNTY, NEVADA

T. 23 S., R. 64 E.,

Sec. 28, SE $\frac{1}{4}$ SW $\frac{1}{4}$; SW $\frac{1}{4}$ SW $\frac{1}{4}$;

Sec. 29, SW $\frac{1}{4}$ SW $\frac{1}{4}$; SE $\frac{1}{4}$ SW $\frac{1}{4}$; SW $\frac{1}{4}$ SE $\frac{1}{4}$; SE $\frac{1}{4}$ SE $\frac{1}{4}$;

Sec. 30, NE $\frac{1}{4}$ NW $\frac{1}{4}$; NW $\frac{1}{4}$ NE $\frac{1}{4}$; SW $\frac{1}{4}$ NE $\frac{1}{4}$; NW $\frac{1}{4}$ SE $\frac{1}{4}$; SW $\frac{1}{4}$ SE $\frac{1}{4}$; SE $\frac{1}{4}$ SE $\frac{1}{4}$;

Appendix B: Best Management Practices

Best Management Practices

In addition to the requirements and mitigation measures proposed in this document and in the project permits, the applicant has committed to implementing the BMPs as adapted from the Programmatic Environmental Assessment (DOI-BLM-NV-S010-2012-0024-EA). Depending on the alternative selected, BLM-managed lands and/or Western lands; coordination and/or compliance will be required with the appropriate land management agency. For example, if any of the A Alternatives are selected, the applicant would be required to coordinate and get approval from the BLM and Western with respect to all BMPs. If Alternative B is chosen, the Applicant would be required to coordinate and get approval from Western on all BMPs.

For convenience, these BMPs are presented below.

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

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

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

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

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

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

- Postage and enforcement of speed limits on the project site and all project access roads.
- Provision of gravel ramps of at least 20 feet in length at tire cleaning stations.
- Use of gravel or treatment of unpaved exits from construction sites to prevent track-out to public roadways.
- Directions to all construction vehicles to enter the construction site through gravel or treated entrance roadways, unless alternative routes are approved by the air quality management district.
- Provision of sandbags or other measures in areas adjacent to paved roadways, as specified in the SWPPP, to prevent run-off to roadways.
- Sweeping of paved roads to prevent accumulation of dirt and debris.
- Dedication of water truck or high-capacity hose to any soil screening operations.
- Minimization of drop height of material through screening equipment.
- Reduction of the amount of disturbed area where possible.
- Planting of vegetative ground cover in disturbed areas after construction activities have ceased within a time period that is consistent with the Project's Reclamation Plan.

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

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

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

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

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

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

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

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

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

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

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

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

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

- The applicant cannot begin construction until issuance and acceptance of a Section 7 USFWS Biological Opinion and NDOW authorization. Additionally, compliance discussions with Clark County and Boulder City must occur prior to construction that resolve and outline the specific compensation fees or additional mitigation measures needed for loss of desert tortoise habitat

outside of BLM transmission and utility corridors within the BCCE. A copy of the USFWS Biological Opinion and documentation of any compliance discussions with Clark County and Boulder City should be provided to the BLM.

- Construction monitoring shall employ a designated field contact representative, approved by the BLM and/or Western during the construction phase. A field contact representative is defined as a person designated by the project proponent who is responsible for overseeing compliance with desert tortoise protective measures and for coordination with agency compliance officer(s). The field contact representative shall also oversee all compliance documentation including daily observation reports, non-compliance and corrective action reports, and final reporting to any authorized agency upon project completion.
- Construction monitoring shall employ an authorized biologist(s) and qualified biologist(s) approved by the USFWS during the construction phase. At a minimum, qualified biologist(s) shall be present during all activities in which encounters with tortoises could occur. A qualified biologist is defined as a person with appropriate education, training, and experience to conduct tortoise surveys, monitor project activities, provide worker education programs, and supervise or perform other implementing actions. An authorized biologist is defined as a wildlife biologist who has been authorized to handle desert tortoises by the USFWS.
- In the event any tortoises are to be moved out of harm's way, a Special Use Permit must also be obtained in advance from the Department. Applications and instructions can be found online at <http://www.ndow.org/Formsandresources/SpecialPermits/>.
- Qualified and/or authorized biologists shall conduct preconstruction surveys according to the most current USFWS protocol at the time of construction.
- Qualified and/or authorized biologists shall monitor all construction activities year-round in desert tortoise habitat, regardless of the time of year or weather conditions, as tortoises are often active outside of their "active" season.
- Authorized biologists shall handle desert tortoises following the most current Desert Tortoise Council handling guidelines (2009 or newer).
- All work area boundaries associated with temporary and permanent disturbances shall be conspicuously staked, flagged, or otherwise marked to minimize surface disturbance activities. All workers shall strictly limit activities and vehicles to the designated work areas.
- Crushing/removal of perennial vegetation in work areas shall be avoided to the maximum extent practicable.
- All trash and food items generated by construction and maintenance activities shall be promptly contained and regularly removed from the project site(s) to reduce the attractiveness of the area to common ravens.

- Pets shall not be allowed in working areas unless restrained in a kennel.
- Where possible, motor vehicles shall be limited to maintained roads and designated routes. Vehicle speed within the project area, along ROW maintenance routes, and along existing access roads shall not exceed 20 miles per hour. Speed limits shall be clearly marked and all workers shall be made aware of these limits.
- Preconstruction clearance surveys shall be conducted within 48 hours of initiation of site-specific project activities, following USFWS protocol (USFWS 2009). The goal of a clearance survey is to find all tortoises on the surface and in burrows that could be harmed by construction activities. Surveys shall cover 100 percent of the acreage to be disturbed. All potential tortoise burrows within 100 feet of construction activity shall be marked.
- Biological monitors shall clear ahead of construction crews in desert tortoise habitat during all clearing and grading activities, or during activity where undisturbed vegetation would be crushed. In addition, biological monitors shall clear ahead of larger, nonrubber-tired equipment when that equipment is being driven on access and spur roads.
- Biological monitors shall clear all active work sites located in desert tortoise habitat each morning before construction begins and throughout the day if crews move from construction site to construction site.
- Results of biological monitoring and status of construction shall be detailed in daily reports by biological monitors. These reports shall be submitted to the authorized biologist on a daily basis and to the field contact representative on a weekly basis (at minimum). The authorized biologist shall notify the field contact representative within 24 hours of any action that involves harm to a desert tortoise. The authorized biologist shall submit to the USFWS, NDOW, BLM and Western a summary of all desert tortoises seen, injured, killed, excavated, and handled at the end of each project or within 2 working days of when desert tortoises are harmed. GPS locations of live tortoises shall be reported.
- Should any desert tortoise be injured or killed, all activities shall be halted, and the field contact representative and/or authorized biologist immediately contacted. The field contact representative and/or authorized biologist shall be responsible for reporting the incident to the authorizing agencies.
- Desert tortoise relocations shall only occur from an active construction zone to an area that is not under active construction. Any tortoise found on the surface shall be relocated to less than 1,000 feet away. Tortoises shall be handled carefully following the guidelines given in USFWS Desert Tortoise Field Manual (USFWS 2009). Tortoises shall be handled with new latex gloves each time to avoid transmission of disease, and handlers shall especially note guidelines for precautions to be taken during high-temperature periods.
- If a potential tortoise burrow were required to be excavated, the biologist shall proceed according to the guidelines given in USFWS Desert Tortoise Field Manual (USFWS 2009). Tortoises

removed from burrows shall be relocated to a natural unoccupied burrow or an artificial burrow (USFWS 2009). The tortoise shall be block in the burrow in accordance to the guideline given in the USFWS Desert Tortoise Field Manual (USFWS 2009).

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

shall not be released until ambient air temperature declines to below 95°F. For relocation, captured tortoises may be held overnight and moved the following morning within these temperature constraints.

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

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

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

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

- A qualified biologist shall conduct preconstruction surveys within 30 days prior to construction for burrowing owl within suitable habitat prior to breeding season (February 1 through August 31). All areas within 50 m (approximately 150 feet) of a project area shall be surveyed.
- All inactive burrows, holes, crevices, or other cavities in suitable habitat, within the limits of proposed ground disturbance, shall be thoroughly inspected by a qualified biologist before being collapsed. This would discourage owls from breeding on the construction site. Other species using burrows shall be relocated prior to collapsing burrows.
- If an active nest is identified, there shall be no construction activities within 50 m (approximately 150 feet) of the nest location to prevent disturbance until the chicks have fledged, as determined by a qualified biologist.
- The occurrence and location of any burrowing owl shall be documented by biological monitors in daily reports and submitted to the authorized biologist on a daily basis. The authorized biologist shall report all incidents of disturbance or harm to burrowing owls within 24 hours to the appropriate resource agencies (USFWS, NDOW, the BLM and/or Western.).
- If construction were to be initiated after the commencement of the breeding season and burrowing owls could be seen within areas to be affected by ground construction activities, a qualified biologist shall observe behavior to determine their breeding status. If breeding is observed, the nest area shall be avoided, with an appropriately sized buffer sufficient to prevent disturbance during construction activities until the chicks fledged.

BIO-9: Gila Monster and Chuckwalla Measures. The following measures are the current NDOW construction site protocols for the Gila monster (NDOW 2012). To reduce impacts on Gila monster, all locations of Gila monster found within a project area during surveys and construction work shall be reported to NDOW. In addition, the following measures shall be taken:

- Through the WEAP, workers and other project personnel should (at a minimum) know how to (1) identify Gila monsters and distinguish them from other lizards such as chuckwallas and banded geckos, (2) report any observations of Gila monsters to the biological monitor for NDOW, (3) be alerted to the consequences of a bite resulting from carelessness or unnecessary harassment, and (4) be aware of protective measures provided under state law.
- Live Gila monsters found in harm's way on the construction site shall be captured and then detained in a cool, shaded environment (<85°F) by the project biologist or equivalent personnel until an NDOW biologist can arrive for documentation, marking and obtaining biological measurements and samples prior to releasing. Despite that a Gila monster is venomous and can deliver a serious bite, its relatively slow gate allows for it to be easily coaxed or lifted into an open bucket or box carefully using a long handled instrument such as a shovel or snake hook (Note: it is not the intent of NDOW to request unreasonable action to facilitate captures; additional coordination with NDOW will clarify logistical points). A clean 5-gallon plastic bucket

with a secure, vented lid; an 18"x 18"x 4" plastic sweater box with a secure, vented lid; or, a tape-sealed cardboard box of similar dimension may be used for safe containment. Additionally, written information identifying the mapped capture location, Global Positioning System (GPS) coordinates in Universal Transverse Mercator (UTM) using the North American Datum (NAD) 83 zone 11. Date, time, and circumstances (e.g. biological survey or construction) and habitat description (vegetation, slope, aspect, substrate) will also be provided to NDOW.

- Injuries to Gila monsters may occur during excavation, blasting, road grading, or other construction activities. In the event a Gila monster is injured, it should be transferred to a veterinarian proficient in reptile medicine for evaluation of appropriate treatment. Rehabilitation or euthanasia expenses will not be covered by NDOW. However, NDOW will be immediately notified of any injury to a Gila monster and which veterinarian is providing care for the animal. If an animal is killed or found dead, the carcass will be immediately frozen and transferred to NDOW with a complete written description of the discovery and circumstances, date, time, habitat, and mapped location (GPS coordinates in UTM using NAD 83 Z 11).
- Should NDOW's assistance be delayed, biological or equivalent acting personnel on site should detain the Gila monster out of harms way until NDOW personnel can respond. The Gila monster should be detained until NDOW biologists have responded. Should NDOW not be immediately available to respond for photo-documentation, a digital (5 mega-pixel or higher) or 35mm camera will be used to take good quality images of the Gila monster in situ at the location of live encounter or dead salvage. The pictures will be provided to NDOW at the address above or the email address below along with specific location information including GPS coordinates in UTM using NAD 83 Z 11, date, time and habitat description. Pictures will show the following information: (1) Encounter location (landscape with Gila monster in clear view); (2) a clear overhead shot of the entire body with a ruler next to it for scale (Gila monster should fill camera's field of view and be in sharp focus); (3) a clear, overhead close-up of the head (head should fill camera's field of view and be in sharp focus).

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

BIO-11: Breeding Season Preconstruction Surveys. If a project that may alter any breeding habitat has to occur during the breeding season, then a qualified avian biologist must survey the area for nests prior to commencement of construction activities. This shall include burrowing and ground nesting species in

addition to those nesting in vegetation or on existing manmade structures. The applicant shall conduct project-wide raptor and nesting bird surveys according to the most current USFWS protocols, in consultation with the USFWS, NDOW, BLM and/or Western..

BIO-12: Schedule Construction Outside of Breeding Season. To prevent undue harm, habitat altering projects or portions of projects should be scheduled outside of bird breeding season (generally late February to July in this region). In upland desert habitats and ephemeral washes containing upland species, the season generally occurs between March 15th and August 31th.

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

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

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

-

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

BIO-17: Wildlife Entrapment Prevention. To prevent entrapment of wildlife, all steep-walled trenches, auger holes, or other excavations shall be covered at the end of each day. Fencing shall be maintained around the covered excavations at night. For open trenches, earthen escape ramps shall be maintained at intervals of no greater than 0.25 miles. A biological monitor shall inspect all trenches, auger holes, or other excavations a minimum of twice per day during non-summer months and a minimum of three times per day during the summer (hotter) months, and also immediately prior to back-filling. Any wildlife species found shall be safely removed and relocated out of harm's way, using suitable tools such as a pool net when applicable. For safety reasons, biological monitors shall under no circumstance enter open excavations.

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

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

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

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

BIO-22: Reclamation, Restoration, and Revegetation Plan (RRRP). The applicant shall develop a RRRP that shall guide restoration and revegetation activities for all disturbed lands associated with construction and the eventual termination and decommissioning of a proposed project. The RRRP shall be part of the applicant's final Plan of Development for each proposed project and should address all federal and private land disturbances, including areas where restoration activities have been funded by the Clark County MSHCP and initiated by resource agencies. The RRRP shall be developed in consultation with appropriate agencies (BLM and/or Western, NDOW, USFWS, and Clark County DCP) and be provided to these agencies for review and approval. NDOW, BLM Las Vegas Field Office, and/or Western shall be

consulted for restoration efforts concerning Nevada State protected cacti and yucca species, which may include preparation of a separate Cactus and Yucca Reclamation Plan. The RRRP shall also provide details including but not limited to topsoil segregation and conservation, vegetation treatment and removal, salvage of succulent species, revegetation methods including seed mixes, rates and transplants, and criteria to monitor and evaluate revegetation success. Post-construction monitoring shall be performed for 1 to 5 years, as determined to be appropriate by BLM and/or Western

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

NOI-2: Conduct Construction Activities during Daytime Hours. The applicant shall conduct construction activities only during daytime hours while in the vicinity of residential receptors, particularly for proposed projects that extend outside of the study area and traverse areas that contain more residences, such as Boulder City.

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

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

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

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

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

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

HEALTH 6: Health and Safety Program. Applicants shall ensure that all health and safety and emergency plans to be required for employees and contractors during construction, operations, and decommissioning shall comply with the Occupational Safety and Health Standards provided in federal regulation 29 CFR, Part 1910, as well as with applicable state and local occupational health and safety regulations. All

construction and operation contractors shall be required to operate under a health and safety program that meets industry standards. All contractors shall be required to maintain and carry health and safety materials including the Material Safety Data Sheets of hazardous materials used on site.

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

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

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

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

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

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

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

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

- Maintain a list of all relevant firefighting authorities. The closest resources to respond to a wildland fire within the study area would come from Boulder City Fire Department. Coordination with the LVICC shall also be considered as part of the fire prevention plan.
- Have and maintain available fire suppression equipment in all construction areas, including but not limited to: water trucks, potable water pumps, and chemical fire extinguishers. Ensure an adequate supply of fire extinguishers for welding and brushing crews;

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

Appendix C: Append to the Programmatic Biological Opinion



United States Department of the Interior



FISH AND WILDLIFE SERVICE

Nevada Fish and Wildlife Office

4701 North Torrey Pines Drive

Las Vegas, Nevada 89130

Ph: (702) 515-5230 ~ Fax: (702) 515-5231

June 25, 2013

File No. 84320-2013-F-0105.AMD1

Memorandum

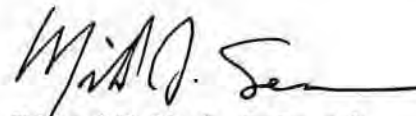
To: Assistant Field Manager, Las Vegas Field Office, Bureau of Land Management, Las Vegas, Nevada

From: State Supervisor, Nevada Fish and Wildlife Office, Reno, Nevada

Subject: Amendment to Townsite Solar Project Power Transmission Right-of-way Appended to the Southern Nevada District Programmatic Biological Opinion (PBO), Clark County, Nevada

This responds to your June 13, 2013, memorandum requesting an amendment to the appended action (File No. 84320-2013-F-0105) for the Townsite Solar Project right-of-way grant. The project was appended to the PBO (File No. 84320-2010-F-0365) on March 1, 2013. The purpose of the amendment is to reduce the anticipated acreage of disturbance associated with the project from 52.23 acres to 18.7 acres. The reduced acreage reflects 2.75 miles of right-of-way opposed to the previous 12.8 miles. Figure 1 included with your June 13, 2013, request replaces the previous Figure 1 for the appended action. The current remuneration fee rate is \$824 per acre effective March 1, 2013 – February 28, 2014. All other aspects of the project are unchanged including the incidental take and minimization measures.

This document hereby amends the appended action as described above and your June 13, 2013, memorandum which is incorporated by reference into this amendment. If we can be of any further assistance, please contact Michael Burroughs in the Nevada Fish and Wildlife Office in Las Vegas at (702) 515-5230.


Edward D. Koch (FOR)

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





United States Department of the Interior

BUREAU OF LAND MANAGEMENT

Las Vegas Field Office
4701 North Torrey Pines Dr
Las Vegas NV 89130
www.nv.blm.gov



In Reply Refer to:

6840 (NV-052)

Received
Nevada Fish & Wildlife Office

JUN 13 2013

June 13, 2013

Las Vegas, NV

Memorandum

To: Field Supervisor, Nevada Fish and Wildlife Office, Reno, Nevada

From: Assistant Field Manager, Division of Renewable Resources, Las Vegas Field Office,
Bureau of Land Management, Las Vegas, Nevada

Subject: Request to Amend the Append to the PBO 84320-2013-F-0105

In accordance with Section 7(a) 2 of the Endangered Species Act of 1973, as amended, the Las Vegas Field Office, Bureau of Land Management (BLM) requests to amend the append to the PBO issued on February 27, 2013 (File No. 84320-2013-F-0105).

Amendment request is due to the reduction in acres disturbed from 52.23 to 18.7 due to the power line ROW being moved thus reducing the overall miles from 12.8 to 2.75 on BLM managed land. This new amendment will supersede the existing as discussed between Michael Burroughs and Mark Slaughter. BLM believes all of the existing Terms & Conditions in the original append are still applicable to minimize effects to the desert tortoise.

If you have any questions, please contact Mark Slaughter at (702) 515-5195.

cc:

State Director (NV-930)

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

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

Fish and Wildlife Service File No. for Proposed Action: 84320-2013-F-0105

Part A: Information provided by the BLM

Part B: Fish and Wildlife Service Response

Date received: February 4, 2013

Date of response: February 27, 2013

1. Environmental baseline

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

Previous appended actions are identified in Table 1.

2. Effects of proposed action

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

- a. Up to 2 desert tortoises may be adversely affected by the project as a result of being captured and moved from harm's way; no desert tortoises will be killed or injured and no desert tortoise nests with eggs will be destroyed.
- b. 52.23 acres of non-critical habitat would be disturbed which consists of 45 acres of short-term and 7.23 acres of long-term disturbance.
- c. The proposed 884-acre solar field and 0.6-mile transmission line on Boulder City land, an interdependent and interrelated action, falls under purview of the Clark County Multiple Species Plan and incidental take permit.

3. Conclusion

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

4. Incidental Take Statement (desert tortoise)

a. Amount or Extent of Take Exempted:

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

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


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

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

5. Conservation Recommendation

We recommend that the BLM coordinate with the project proponent to survey for and remove tortoises from all project areas on non-BLM lands. Tortoises removed would be transported to the Desert Tortoise Conservation Center and may be translocated to promote recovery of the species.

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

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

3/1/13
 Date

cc:
 Supervisory Biologist- Habitat, Nevada Department of Wildlife, Las Vegas, Nevada
 Program Manager, Desert Conservation Program, Clark County, Nevada

Table 1. Updated Baseline for All Previous Actions (including proposed action)

| PROGRAM | No. Acres Affected | | Desert Tortoise Take - Exempted | | | | Desert Tortoise Take- Reported | | |
|------------------------------------|---------------------|--------------|---------------------------------|-------------|---------------|------|--------------------------------|-------------|------|
| | CRITICAL | NON-CRITICAL | ADULT SUBADULT | JUVENILE | ANY AGE-CLASS | EGGS | ADULT SUBADULT | JUVENILE | EGGS |
| 1. Lands and Realty | | | | | | | | | |
| • Land disposal | | | M/I: NL: | M/I: NL: | | | M/I: NL: | M/I: NL: | |
| • R&PP leases | | | M/I: NL: | M/I: NL: | | | M/I: NL: | M/I: NL: | |
| • Airport leases | | | M/I: NL: | M/I: NL: | | | M/I: NL: | M/I: NL: | |
| • Section 302 FLPMA actions | | | M/I: NL: | M/I: NL: | | | M/I: NL: | M/I: NL: | |
| 2. Rights-of-way | | | | | | | | | |
| • Pre-project geotechnical | | | M/I: NL: | M/I: NL: | | | M/I: NL: | M/I: NL: | |
| • Linear ROWs | 23.6 MM 10.3 GBP | 399.43 | M/I: 2 NL: | M/I: NL: | 84 | 8 | M/I: NL: | M/I: NL: | |
| • Site-type ROWs | | | M/I: NL: | M/I: NL: | | | M/I: NL: | M/I: NL: | |
| 3. Mining | | | | | | | | | |
| • Locatable | | | M/I: NL: | M/I: NL: | | | M/I: NL: | M/I: NL: | |
| • Leasable | | | M/I: NL: | M/I: NL: | | | M/I: NL: | M/I: NL: | |
| • Saleable | | | M/I: NL: | M/I: NL: | | | M/I: NL: | M/I: NL: | |
| 4. Recreation Management | | | | | | | | | |
| • Speed | | | M/I: NL: | M/I: NL: | | | M/I: NL: | M/I: NL: | |
| • Non-speed events | | | M/I: NL: | M/I: NL: | | | M/I: NL: | M/I: NL: | |
| • Casual, non-permitted recreation | | | M/I: NL: | M/I: NL: | | | M/I: NL: | M/I: NL: | |
| • Trails | | | M/I: NL: | M/I: NL: | | | M/I: NL: | M/I: NL: | |

| PROGRAM | No. Acres Affected | | Desert Tortoise Take - Exempted | | | | Desert Tortoise Take- Reported | | |
|--------------------------|--------------------|--------------|---------------------------------|-------------|---------------|------|--------------------------------|-------------|------|
| | CRITICAL | NON-CRITICAL | ADULT SUBADULT | JUVENILE | ANY AGE-CLASS | EGGS | ADULT SUBADULT | JUVENILE | EGGS |
| 5. Livestock Grazing | | | M/I: NL: | M/I: NL: | | | M/I: NL: | M/I: NL: | |
| 6. Fire Management | | | | | | | | | |
| • Fuel breaks | | | M/I: NL: | M/I: NL: | | | M/I: NL: | M/I: NL: | |
| 7. Vegetation Management | | | M/I: NL: | M/I: NL: | | | M/I: NL: | M/I: NL: | |
| 8. Resource Management | | | M/I: NL: | M/I: NL: | | | M/I: NL: | M/I: NL: | |

M/I – mortality or injury; NL – non-lethal
 MM = Mormon Mesa Critical Habitat Unit
 GBP = Gold Butte-Pakoon Critical Habitat Unit

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

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

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

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

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

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

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

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

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

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

http://www.fws.gov/nevada/desert_tortoise/auth_dt_form.htm.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

The current base rate is \$810 per ac of disturbance, as indexed for inflation, effective March 1, 2012. The next adjustment will become \$824 per acre, effective March 1, 2013. The fee rate will be indexed for inflation based on the Bureau of Labor Statistics Consumer Price Index for All Urban Consumers (CPI-U) on January 31st of each year, becoming effective March 1st. Fees assessed or collected for projects covered under this biological opinion will be adjusted based on the current CPI-U for the year they are collected. Information on the CPI-U can be found on the internet at: <http://stats.bls.gov/news.release/cpi.nws.htm>.

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

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

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

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

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

**Appendix D: Eldorado Valley Transmission and Utility Corridor PEA
Cumulative Impact Table and Figure**

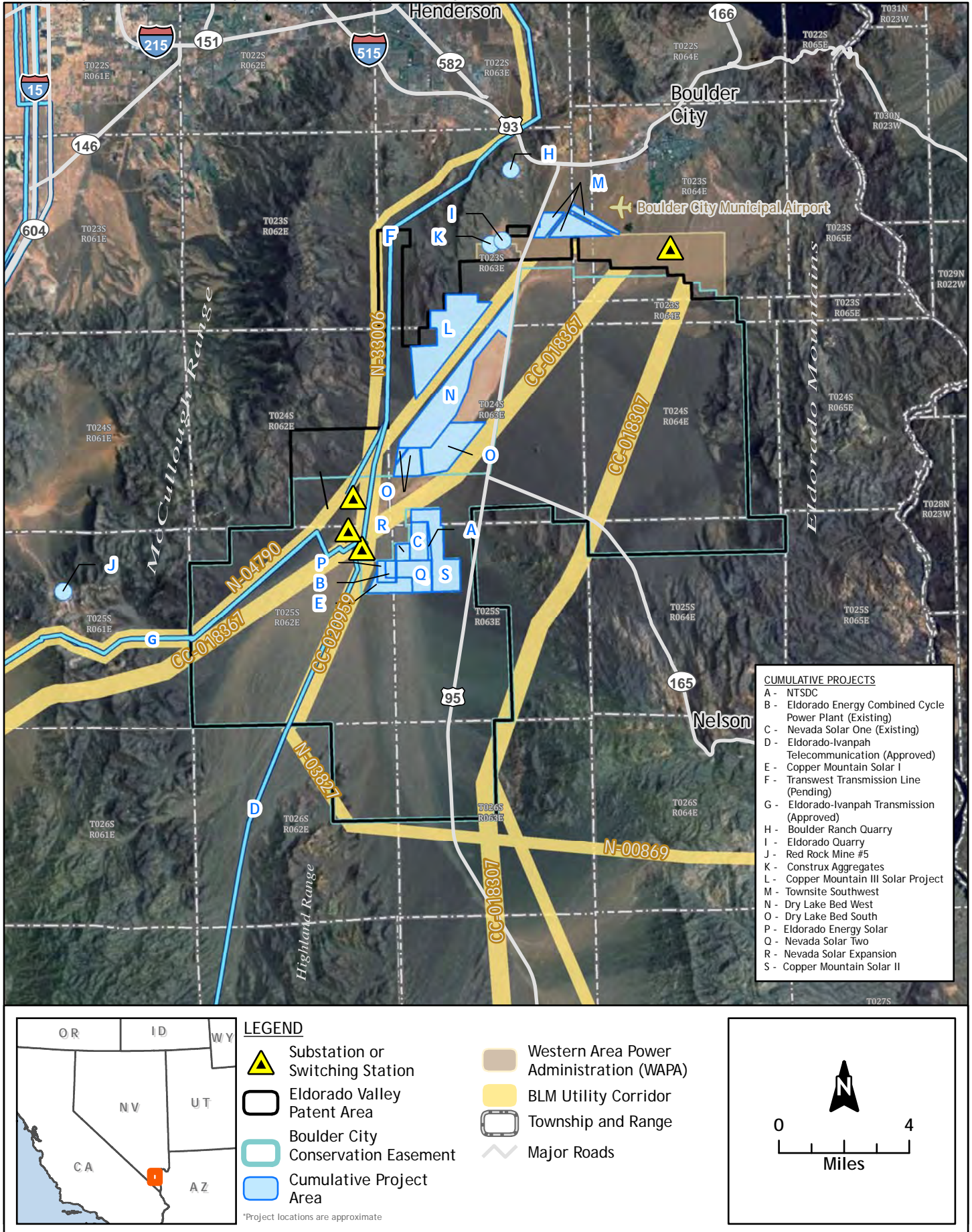


Figure 5-1: Eldorado Valley Cumulative Projects Overview
Clark County, Nevada

Table 5-1 Potential Cumulative Projects Within or Near the Eldorado Valley

| Project Name | Location | Owner | Project Description | Project Type | Status |
|--|---|--|--|---------------------|--|
| Existing Projects | | | | | |
| El Dorado Combined Cycle Power Plant | Boulder City Energy Zone | Sempra Energy | 480-megawatt (MW) natural gas fired power plant, 138-acres ¹¹ | Power Plant | Existing. Operational since May 2000. ¹ |
| Nevada Solar One Project ³ | Boulder City Energy Zone | Acciona/ Solargenix Energy | 64-MW CSP plant, 400 acres | Solar | Existing. Operating since June 2007. ⁴ |
| Copper Mountain Solar I | Boulder City Energy Zone | Sempra Generation | 48-MW PV project, 380 acres | Solar | Existing. The plant is currently under operation. |
| Copper Mountain Solar II | Boulder City Energy Zone | Sempra Generation | 150-MW PV project, 1,150 acres | Solar | Existing. The plant is currently under operation. |
| Boulder City Municipal Airport | 1201 Airport Road, Boulder City, NV | Boulder City | Personal and commercial flights serving the citizens of Boulder City. | Airport | Existing. A communications tower could be constructed within the next few years for safety. |
| Eldorado Valley Dry Lake | North of Boulder City Energy Zone, Southwest of Boulder City | Boulder City | Approximately 2300 acres. Recreational ATV day use area. | Dry Lake | Existing. Several currently planned Boulder City solar projects would be sited partially on the Eldorado Valley Dry Lake as described below. |
| El Dorado Quarry | SEC 22 T23S R63E Off of Highway 95 on Silverline Road | CEMEX Construction Materials Pacific LLC | Crushing screening of sand/gravel. | Aggregate Mine | Abandoned. |
| Boulder Ranch Quarry | SEC 22 T23S R63E | CTC Crushing LLC | Crushing screening of sand/gravel. | Aggregate Mine | Existing. |
| Construx Aggregates | SEC 22 T23S R63E | CalPortland | Crushing screening of sand/gravel. | Aggregate Mine | Existing. |
| Red Rock Mine #5 | SEC 19 T25S R61E | RL McVane | Crushing screening of sand/gravel. | Aggregate Mine | Existing. |
| Eldorado Energy Solar ⁸ | Boulder City Energy Zone | Sempra | 10 MWs, 130 acres | Solar | Existing |
| NTSDC ⁸ | Boulder City Energy Zone | University of Las Vegas (UNLV) | 0 MW (Boulder City ROW grant); project includes solar equipment; however, this is a test facility used for educational purposes and is not a utility-scale project. Joint venture between Nevada Test Site (former nuclear test site), the Department of Energy, and UNLV. | Solar | The site is not currently in use. ⁹ |
| Foreseeable Future Projects | | | | | |
| TransWest Express Transmission Project | Wyoming, Colorado, Utah, and Nevada; ends near the Marketplace Substation in the Boulder City Energy Zone | TransWest Express, LLC | 600 kilovolt (kV) direct current transmission line, traverses within and adjacent to BLM corridor identified by ROW N-33006 on Figure 2-1 | Transmission | Notice of Intent published on January 4, 2011. The BLM is currently reviewing the ROW application and POD. EIS has not yet been published. Construction anticipated to begin in 2015. ⁶ |

Table 5-1 Potential Cumulative Projects Within or Near the Eldorado Valley

| Project Name | Location | Owner | Project Description | Project Type | Status |
|---|---|------------------------------|---|----------------------|---|
| Eldorado-Ivanpah Transmission Project | Traverses BCCE mostly within BLM corridors, terminates at the Eldorado Substation | Southern California Edison | 220-kV 35-mile transmission line reconductoring project | Transmission | Existing transmission line. Reconductoring has been approved and is scheduled to begin construction in 2012. ² |
| Copper Mountain Solar III (Copper Mountain North) | Boulder City Energy Zone | Sempra Generation | 220 MWs, 1,400 acres, with associated gen-tie line | Solar & Transmission | Application for gen-tie ROW submitted to the BLM and EA (for gen-tie portion) published November 2011. ⁷ Proponent is currently performing field tests and testing soil conditions for substation design and siting of solar components. Project is not yet under construction. ⁹ |
| Townsite Southwest | Adjacent to northern boundary of the study area, south of Boulder City, NV | Korean Western Power Company | 100 MWs (estimated), 884 acres | Wind or Solar | Project is still in the early stages, probably 3 years away from construction. ⁸ |
| Dry Lake Bed West ⁸ | Western portion of the Eldorado Valley Dry Lake bed | Techren Solar | 300 MWs, 2,200 acres | Solar | Proposed, project is not yet under construction. Proponent is currently performing drainage studies. This will likely be the next project to be constructed according to Boulder City Community Development Department. ⁹ |
| Dry Lake Bed South ⁸ | Southern portion of the Eldorado Valley Dry Lake bed | Korean Midland Power Company | 300 MWs, 1,550 acres | Solar | Proposed, project is not yet under construction. |
| Nevada Solar Two | Adjacent to the south of Nevada Solar One | Acciona | 95 MWs, 553 acres | Solar | Project has been approved by Boulder City. |
| Nevada Solar Expansion | Adjacent to the west of Nevada Solar One | Acciona | unknown MWs, 133 acres | Solar | Proposed, project is not yet under construction. |
| Las Vegas RMP Revision | Las Vegas and Pahrump Field Offices | BLM | Update of 1998 Las Vegas RMP | Plan | The BLM's Southern Nevada District/ Las Vegas and Pahrump Field Offices are currently updating its 1998 RMP. |

Sources/Notes:

¹ Sempra Generation n.d.; ² SCE 2012; ³ Acciona 2009; ⁴ Ann 2010; ⁵ BLM 2012; ⁶ BLM 2011a; ⁷ BLM 2011b; ⁸ Boulder City 2012a ⁹ Boulder City 2012b

Note: Boulder City 2012a and 2012b refer to verbal information received from the Director of the Boulder City Community Development Department, Brok Armantrout