STATE OF NEVADA
PUBLIC UTILITIES COMMISSION OF NEVADA
1150 E. William Street
Carson City, Nevada  89701-3109

No.  46834

R E C E I P T

Received from

HOLLAND & HART LLP
5441 KIETZKE LN SECOND FL
RENO, NV  89511

Date: 4/8/2019

AMOUNT $ 200.00
TWO HUNDRED ---------------- and 00/100 Dollars

How Paid

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Invoice#:  

Memo

New Filing

Received by PB

Business Process Copy
April 8, 2019

Trisha Osborne
Assistant Commission Secretary
Public Utilities Commission of Nevada
1150 E. William Street
Carson City, Nevada 89701

Re: Docket 19-______: Application of COPPER MOUNTAIN SOLAR 5, LLC for a permit to construct a 250 MW solar energy generating facility, and associated facilities, including an optional energy storage system, and a 230-kV generation-tie power line, to be located in Boulder City, Nevada, under the Utility Environmental Protection Act.

Dear Ms. Osborne:

Please accept for filing with the Public Utilities Commission of Nevada the attached Application of COPPER MOUNTAIN SOLAR 5, LLC for a permit to construct a 250 MW solar energy generating facility, and associated facilities, including an optional energy storage system, and a 230-kV generation-tie power line, to be located in Boulder City, Nevada, under the Utility Environmental Protection Act.

A check in the amount of $200.00 is included for payment of the filing fee.

Should you have any questions, or require additional information, please advise.

Sincerely,

Bryce Alstead
of Holland & Hart LLP

EKN:jes
cc: See Service List.
Pursuant to Nevada Administrative Code ("NAC") 703.162, the Commission requires that a draft notice be included with all applications, tariff filings, complaints and petitions. Please complete and include **ONE COPY** of this form with your filing. (Completion of this form may require the use of more than one page.)

A title that generally describes the relief requested (see NAC 703.160(5)(a)):

*Application for Permit to Construct a 250 MW Solar Energy Generating Facility and Associated Facilities Under the Utility Environmental Protection Act.*

The name of the applicant, complainant, petitioner or the name of the agent for the applicant, complainant or petitioner (see NAC 703.160(5)(b)):

*Copper Mountain Solar 5, LLC*

A brief description of the purpose of the filing or proceeding, including, without limitation, a clear and concise introductory statement that summarizes the relief requested or the type of proceeding scheduled **AND** the effect of the relief or proceeding upon consumers (see NAC 703.160(5)(c)):

*Copper Mountain Solar 5, LLC ("CMS5") files this application for a permit to construct a utility facility to be known as the Copper Mountain Solar 5 Project ("CMS5 Project" or "Project").*

The CMS5 Project will consist of five major components: (1) a nominal 250-megawatt Alternating Current solar PV electric energy generating facility located on an approximately 1,145 acre site in Boulder City; (2) an optional battery energy storage system (either large format lithium-ion batteries or alternative battery technologies); (3) a nominal 230-kV generation-tie power line (the “Gen-tie”), consisting of one mile of new monopole structures and a new second circuit on some of Copper Mountain Solar 2’s existing structures, to deliver electricity to NV Energy’s Nevada Solar One ("NSO") Switchyard; (4) fiber-optic communications lines to be constructed on the Gen-tie’s pole structures, and redundant communications paths such as microwave transmission connecting the electricity generating facility to the NSO Switchyard and the local CenturyLink communication infrastructure for grid protection and control systems; and (5) civil infrastructure including driveways, waterlines, drainage channels, and fencing.

The Project would fulfill a need for reliable and affordable clean energy in Nevada pursuant to Nevada's Renewable Portfolio Standard.

The application is filed pursuant to the requirements of NRS 704.820 to 704.900 and NAC 703.415 to 703.427
A statement indicating whether a consumer session is required to be held pursuant to Nevada Revised Statute ("NRS") 704.069(1)¹:

A consumer session is not required by NRS 704.069.

If the draft notice pertains to a tariff filing, please include the tariff number AND the section number(s) or schedule number(s) being revised.

This application does not pertain to a tariff filing.

¹ NRS 704.069 states in pertinent part:

1. The Commission shall conduct a consumer session to solicit comments from the public in any matter pending before the Commission pursuant to NRS 704.061 to 704.110 inclusive, in which:
(a) A public utility has filed a general rate application, an application to recover the increased cost of purchased fuel, purchased power, or natural gas purchased for resale or an application to clear its deferred accounts; and
(b) The changes proposed in the application will result in an increase in annual gross operating revenue, as certified by the applicant, in an amount that will exceed $50,000 or 10 percent of the applicant’s annual gross operating revenue, whichever is less.
BEFORE THE PUBLIC UTILITIES COMMISSION OF NEVADA

Docket No. 19-

Application of COPPER MOUNTAIN SOLAR 5, LLC for a permit to construct a 250 MW solar energy generating facility, and associated facilities, including an optional energy storage system, and a 230-kV generation-tie power line, to be located in Boulder City, Nevada, under the Utility Environmental Protection Act.

APPLICATION OF COPPER MOUNTAIN SOLAR 5, LLC FOR A PERMIT TO CONSTRUCT A 250 MW SOLAR ENERGY GENERATING FACILITY AND ASSOCIATED FACILITIES, INCLUDING AN OPTIONAL ENERGY STORAGE SYSTEM AND A 230-KV GENERATION-TIE POWER LINE, UNDER THE UTILITY ENVIRONMENTAL PROTECTION ACT

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Exhibit F  Scaled Diagrams of Utility Structures
Exhibit G  Environmental Statement
Exhibit H  Public Notice
Exhibit I  Affidavit of Publication
Exhibit J  Proof of Submission

Pursuant to NRS 704.870(1) and NAC 703.423, COPPER MOUNTAIN SOLAR 5, LLC ("CMS5" or "Applicant") hereby submits its application ("Application") with the Public Utilities Commission of Nevada ("Commission") for a permit to construct a utility facility to be known as the Copper Mountain Solar 5 Project ("CMS5 Project" or "Project") pursuant to the requirements of the Utility Environmental Protection Act, NRS 704.820 et seq. ("UEPA").

I. Name and Address of Applicant and Applicant’s Attorney

Communications concerning this Application should be directed to:

Bryce C. Alstead  Copper Mountain Solar 5, LLC
Erica K. Nannini  c/o Paul F. Mapelli
Holland & Hart LLP  Vice President & General Counsel
5441 Kietzke Lane, Second Floor  Con Edison Clean Energy Businesses, Inc.
Reno, Nevada 89511  100 Summit Lake Drive, Suite 210
Phone: 775-327-3000  Valhalla, NY 10595
balstead@hollandhart.com  Phone: (914) 286-7041
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with copies to:

Copper Mountain Solar 5, LLC  Copper Mountain Solar 5, LLC
c/o Mark Noyes  c/o Marilyn Burke
President & CEO  Director, Business Development
Con Edison Clean Energy Businesses, Inc.  Con Edison Clean Energy Businesses, Inc.
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Valhalla, NY 10595  San Diego, CA 92101
Phone: (914) 993-2135  Phone: (619) 316-6273
NoyesM@conedceb.com  BurkeM@conedceb.com
II. Introduction

Applicant is a Delaware limited liability company authorized to conduct business in the State of Nevada. CMS5 will neighbor four existing solar photovoltaic ("PV") generating facilities currently operating in the Eldorado Valley area of the City of Boulder City ("Boulder City") near the location of the CMS5 Project: Copper Mountain Solar 1 ("CMS1"); Copper Mountain Solar 2 ("CMS2"); Copper Mountain Solar 3 ("CMS3"); and Copper Mountain Solar 4 ("CMS4").

The CMS5 Project will consist of five major components: (1) a nominal 250-megawatt ("MW") Alternating Current ("AC") solar PV electric energy generating facility located on an approximately 1,145 acre site in Boulder City; (2) an optional battery energy storage system (either large format lithium-ion batteries or alternative battery technologies) (at times, a "BESS"); (3) a nominal 230-kV generation-tie power line (the "Gen-tie"), consisting of one mile of new monopole structures and a new second circuit on some of CMS2’s existing structures, to deliver electricity to NV Energy’s Nevada Solar One ("NSO") Switchyard; (4) fiber-optic communications lines to be constructed on the Gen-tie’s pole structures, and redundant communications paths such as microwave transmission connecting the electricity generating facility to the NSO Switchyard and the local CenturyLink communication infrastructure for grid protection and control systems; and (5) civil infrastructure including driveways, waterlines, drainage channels, and fencing.

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1 This Commission has previously approved UEPA Permits for CMS2 (Docket 10-05018), CMS3 (Docket 10-12004), and CMS 4 (Docket 14-10013). CMS1 did not require a UEPA Permit because it has a nameplate capacity of 58 MW and its generation-tie line is located wholly within the municipal limits of Boulder City.
III. **Information Required by NAC 703.423**

The information required by NAC 703.423 is provided as follows.

**A. NAC 703.423(1). Description of Location.**

1. **NAC 703.423(1)(a). A general description of the location of the proposed utility facility, including a regional map that identifies the location of the proposed utility facility.**

The site of the CMS5 Project is located within the municipal boundaries of Boulder City, more specifically in the Eldorado Valley, approximately 17 miles south of Henderson, Nevada. The Project is located approximately 14 miles south of the intersection of Highway 93 and Highway 95, and to the west of Highway 95. The Eldorado Valley is the site of seven existing utility-scale solar energy generating facilities, with several more under development. The Project site is bordered on the north by the CMS1, CMS2, and CMS4 projects. A regional map identifying the location of the Project is attached hereto as **Exhibit “A.”**

CMS5 has entered into a lease-option with Boulder City for the CMS5 Project site. When CMS5 exercises its option to lease the Project site, the Project site will be added to Boulder City’s Eldorado Valley Energy Resource Zone zoning district, which allows for the development of renewable energy generating facilities as a matter of right.

The Project site is currently subject to the Boulder City Conservation Easement (the “BCCE”). The BCCE was established in 1995 in connection with the federal government’s conveyance of the Eldorado Valley to Boulder City (via Clark County). Proceedings are currently underway to release the Project site from the BCCE.

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2 In addition to CMS1, CMS2, CMS3, and CMS4, the Eldorado Valley is also the site of the Nevada Solar One project, the Boulder Solar 1 and Boulder Solar 2 projects, and the under-construction Techren Solar 1 and II projects.
Specifically, on May 8, 2018, Boulder City approved a Resolution to request that the Clark County Desert Conservation Program (the “DCP”) consider a proposal whereby approximately 1,927 acres of land adjacent to the Sloan Canyon National Conservation Area that would provide equal or higher overall habitat value for the desert tortoise would be added to the BCCE in exchange for a release of the 1,145 acres comprising the Project site. If DCP concurs with this request, the City Council of Boulder City and the Clark County Board of Commissioners would each then need to adopt a minor amendment to the BCCE releasing the 1,145-acre Project site from the BCCE. Applicant expects this process to be completed in the second quarter of 2019.

The locations of the specific major components of the CMS5 Project are summarized as follows:

(1) **250-MW Solar PV Electric Energy Generating Facility**

The Project will be sited on property owned by Boulder City and leased by CMS5 pursuant to the existing lease-option between CMS5 and Boulder City. Upon CMS5’s exercise of its option to lease the Project site, the Project site will be rezoned by Boulder City to an “Energy Resource Zone” designation, which allows for the development of solar energy generating facilities and related improvements as a matter of right. The Project site is currently vacant, and it abuts the existing CMS1, CMS2, and CMS4 solar energy generating facilities.

(2) **Optional Battery Energy Storage System**

The optional battery energy storage system would be located within the Project site and

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3 As a matter of practice, Boulder City does not rezone areas proposed for renewable energy uses until a project developer actually executes a lease for a project site. At this time, CMS5 holds an option to lease the Project site, which will be exercised at a point in time after the Project site is released from the BCCE.
generally near the Project’s on-site substation on the north side of the Project site.

(3) 230-kV Gen-tie

The Project’s 230-kV Gen-tie will originate from the Project’s on-site substation located on the north side of the Project site, and it will interconnect to the NSO Switchyard via approximately 2 miles of existing and to-be-constructed transmission infrastructure. The Gen-tie will be constructed wholly within the municipal limits of Boulder City. Accordingly, the Gen-tie and its associated on-site substation do not qualify as a “utility facility” under NRS 704.860(2)(c).4 As such, Applicant describes the Gen-tie in this Application as an associated facility of the 250-MW solar energy generating facility portion of the Project and not a stand-alone “utility facility” as regulated under UEPA.

(4) Communication Facilities

The Project’s Gen-tie will also provide a communication path from the Project’s on-site substation to the NSO Switchyard. CMS5 will install redundant and diverse communications paths along the Gen-tie route from CMS5’s on-site solar substation to the NSO substation. One communication circuit will be located on the transmission structures associated with the Gen-tie (typically fiber in optical ground-wire (“OPGW”) or underhung all-dielectric self-supporting (“ADSS”)). A second circuit could be underground along the route. Communications could be transmitted from a new microwave tower located at the CMS5 on-site substation to a new dish on the existing NSO microwave tower. CMS5 will arrange T-1 service for NV Energy between the CMS5 on-site substation and the local service provider (e.g., CenturyLink’s existing fiber optic cable running along the north side of Eldorado Valley Drive). This T-1 extension will be

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4 NRS 704.860(2)(c) excludes electric transmission lines and transmission substations that are constructed inside an incorporated city from the definition of a “utility facility.”
fiber that is either underhung along a portion of the Gen-tie or underground along a portion of the route of the Gen-tie. CMS5 will also communicate with either the CMS3 Operations and Maintenance ("O&M") building via microwave transmission to CMS3's existing microwave tower or via a new microwave transmission tower approximately half way down the CMS5 northern property line to communicate with the CMS1 O&M building.

(5) Civil Infrastructure

Access to the Project site will be via the existing paved Eldorado Valley Drive. An approximately 1-mile driveway will run south from Eldorado Valley Drive between CMS2 and CMS4 to the Project site. The access driveway would be of paved asphalt and is expected to share the existing CMS2 driveway turnout at Eldorado Valley Drive. An additional unpaved road will extend around the inside perimeter of the site. Subsidiary unpaved roads within the site boundaries would provide O&M personnel access to the Project site. The perimeter of the solar PV facility (including the onsite substation and, if included, the BESS) will be enclosed by a 6-foot-high chain link fence, which may be topped with a one-foot barbed wire section.

2. NAC 703.423(1)(b). A legal description of the site of the proposed utility facility, with the exception of electric lines, gas transmission lines, and water and wastewater lines, for which only a detailed description is required.

(1) 250-MW Solar PV Electric Generating Facility and BESS

A legal description of the site for the generating facility and optional BESS is attached hereto as Exhibit “B.”

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5 Note that construction details for the communications lines and T-1 service will not be finalized until final engineering is complete on the Project. Applicant believes that this Commission can act on this Application now because these lines are only ancillary to the generating facility, and because these lines do not implicate any permitting requirements.
(2) 230-kV Gen-tie

A detailed description of the location of the Gen-tie is attached hereto as Exhibit “C.”

3. NAC 703.423(1)(c). Appropriately scaled site plan drawings of the proposed utility facility, vicinity maps and routing maps.

 Appropriately scaled site plan drawings, vicinity maps, and routing maps are attached hereto as Exhibit “D.”

B. NAC 703.423(2). Description of the Facility.

1. NAC 703.423(2)(a). The size and nature of the proposed utility facility.

(1) 250-MW AC Solar PV Electric Energy Generating Facility and On-Site Substation

The generating facility will be an approximately 250-MW AC solar PV electric energy generating facility located entirely on approximately 1,145 acres of land to be leased by CMS5 from Boulder City. The solar generating facility will consist of: (a) a solar field of PV panels; (b) an electrical collection system that aggregates the output from the PV panels and converts the electricity from direct current (“DC”) to AC; and (c) an on-site solar substation where all of the output of the facility is combined and transformed to a nominal voltage of 230 kV.

The CMS5 Project will utilize PV panel technology to collect solar radiation, which will be sent to an electrical collection system that will convert generated power from DC to AC. The PV panels will be mounted on single-axis tracking steel structures. The assembled PV panels will have a height of approximately 15 feet. The PV panels will be arranged in rows aligned north to south and the PV panels will pivot, tracking the sun from east to west. Combiner boxes will be used to collect the power from multiple panels. The panels and combiner boxes will be organized into electrical groups referred to as “arrays,” with the size of each array depending upon the size of the inverter.
Conductors will be suspended under the PV panels and will extend underground to feed DC power to the inverters. The inverters convert the DC power to AC power and the AC output voltage is boosted to 34.5 kV through a medium-voltage ("MV") step-up transformer. The inverter and MV transformer are together referred to as an Inverter Skid Assembly ("ISA"). From each such ISA, electricity will be conveyed via an overhead or underground 34.5-kV collector circuit to the 34.5-kV bus within the solar substation.

The solar substation will be a central hub for the 34.5-kV collector circuits and will step up the electrical voltage from 34.5-kV to a nominal voltage of 230-kV. CMS5’s on-site solar substation will be located on the north side of the Project site. The on-site solar substation will include the following major components:

- 34.5-kV bus and associated switching devices
- 230-kV bus and associated switching devices
- 34.5/230-kV transformers
- 34.5-kV circuit breakers
- 230-kV circuit breakers
- 34.5-kV capacitors (as required)
- Grounding grid
- Prefabricated modular control building (unoccupied except during inspection and maintenance)
- Perimeter security fence (which may be partially shared with the existing fencing constructed by CMS1, CMS2, and CMS4)
- Lighting at the control building, within the on-site substation, and at the main plant entrance
• NV Energy’s facilities at the on-site solar substation will include a dedicated room in the control building housing communications and protection equipment with separate exterior entrance.

During daylight hours, power for plant auxiliaries will be provided by the Project’s electrical generation. During non-daylight hours, the Project will require small amounts of power to keep transformers energized, and for plant lighting and security. This auxiliary power will be provided by grid backfeed emergency generators. Auxiliary power will be stepped down to an appropriate voltage to support plant auxiliaries and will be connected to the station service power switchgear.

Access to the Project site will be from the existing paved Eldorado Valley Drive. An approximately 1-mile driveway will run south from Eldorado Valley Drive between CMS2 and CMS4 to the Project site. The access driveway will be of paved asphalt, and it is expected to share the existing CMS2 driveway turnout at Eldorado Valley Drive. An additional unpaved road will extend around the inside perimeter of the site. Subsidiary unpaved roads within the site boundaries will provide O&M personnel access to the Project site.

Water for construction activities and for operation of the Project will be provided by a connection to the Boulder City Public Works Department’s water main located along the west side of U.S. Highway 95. It is anticipated that the CMS5 Project’s waterline will be a tap off of the existing CMS2 waterline near the existing CMS2 fire hydrant.

A temporary construction workspace located adjacent to the solar field area will include a parking area, a construction office, a warehouse, and a laydown area. All of the facilities related to the temporary construction workspace will be removed once Project construction is completed. Additionally, the former CMS2 laydown area may be utilized as a temporary construction area.
The perimeter of the Project site will be enclosed by a 6-foot-high chain link fence, which may be topped with barbed wire. The fencing also will run on either side of the Southwest Gas pipeline corridor running through the solar PV facility, as no fencing will cross over the gas lines. The access points from the access driveway to the site will be controlled-access (authorized personnel only) by employing swinging or rolling chain link gates. To facilitate O&M activities at the Copper Mountain Solar Complex, it is anticipated that chain link gates will be installed in the existing southern perimeter fencing for CMS1, CMS2 and CMS4 to permit O&M personnel quicker access to the Project site.

Lighting will be provided at the control building, within the solar substation, and at the main plant entrance. Portable lighting would be used at individual solar modules or other equipment for any needed night maintenance. A perimeter security system may also be installed as necessary.

(2) Battery Energy Storage System

The proposed optional BESS\(^6\) would employ either large format lithium-ion batteries or alternative battery technologies (such as flow batteries) that can both absorb and discharge electricity directly onto the power grid. Battery technologies are constantly improving, exhibiting increased efficiency and greater energy density. The BESS design would consist primarily of: (a) batteries installed in standard typically 40-50 foot ISO shipping containers or in an unoccupied structure such as an approximately 5,000 square foot, 20-foot-tall standard masonry building; (b) power conversion systems (inverters) which can bi-directionally convert

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\(^6\) Though the BESS is contemplated to have a nameplate capacity of 87.5 MW, the BESS is not considered a standalone “utility facility” under UEPF because it does not generate electricity. As such, Applicant has described the optional BESS as an “associated facility” of the solar energy generating facility at issue in this Application.
the electricity between DC and AC; (c) electrical collection and fiber-optic communications lines; and (d) civil infrastructure including driveways and fencing. The proposed BESS is contemplated to be an 87.5 MW, 350 megawatt-hour system; final BESS sizing may be different based on customer preference and requirements.

If lithium-ion batteries are utilized, each container would contain racks similar to those found in a data center. Within each rack will be modules comprised of lithium-ion battery cells and the battery management system. Each container will be structurally modified for Seismic Zone 4 and would contain the necessary control layer; safety mechanisms; and heating, ventilation, and air conditioning. Each container would have DC disconnect breakers to be able to disconnect the battery from the remaining storage system. Each container would also contain a fire suppression system that is designed to suffocate any potential fire through the removal of oxygen.

As an alternative to the ISO shipping containers, a building solution may be implemented to house the energy storage batteries and associated equipment. A building would be designed to “compartmentalize” the BESS thereby reducing the risk for the spread of fire. Each portion of the building would contain a fire suppression system similar to what is noted for the ISO energy storage containers.

If smoke is detected or the fire suppression system is manually triggered, visual and audible alarms would be activated and remote monitoring will be notified. The fire suppression system chosen would use a non-toxic chemical (or other) compound to extinguish fires.
(3) 230-kV Gen-tie

The Gen-tie will be wholly within the municipal limits of Boulder City, and specifically within the Eldorado Valley Energy Resource Zone. The Gen-tie will have a nominal rating of 230-kV and will consist of two portions of transmission infrastructure. The first portion will consist of approximately one mile of new monopole structures running north from the Project site between CMS4 and CMS2. The second portion will consist of a new second circuit on some of CMS2’s existing structures running west along Eldorado Valley Drive. The existing and to-be constructed Gen-tie structures are (or will be, as applicable) monopole towers no more than 120 feet high set on concrete pier foundations. The span between supporting structures will range between 200 and 900 feet.

The Gen-tie will transition to an NSO transmission line at a new NV Energy-owned dead-end structure and 230-kV switch to be located immediately south of NSO on the south side of Eldorado Valley Drive. This is considered the Point of Change of Ownership (“POCO”) between CMS5 and NV Energy. An access driveway to the dead-end structure off Eldorado Valley Drive may be required, which would be an all-weather, adequate access drive with a minimum 20-foot width.

The design characteristics of CMS2’s existing 230-kV Gen-tie are listed in Table 1.

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<th>230-kV Gen-tie Characteristics</th>
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<tr>
<td>Type of structure</td>
<td>Tubular Steel Structures</td>
</tr>
<tr>
<td>Structure height</td>
<td>Between 105 - 120 feet</td>
</tr>
<tr>
<td>Span length</td>
<td>Between 200 feet to 900 feet</td>
</tr>
<tr>
<td>Number of structures per mile</td>
<td>Approximately 10</td>
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7 As noted earlier in this Application, the Gen-tie is not considered a “utility facility” under UEPA because it is located entirely within the municipal limits of Boulder City. See NRS 704.860(2)(c). As such, it is described in this Application as an associated facility of the generating facility.
<table>
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<th>Feature</th>
<th>230-kV Gen-tie Characteristics</th>
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<tbody>
<tr>
<td>Voltage</td>
<td>230-kV</td>
</tr>
<tr>
<td>Conductor size</td>
<td>up to 1192.5 kcmil ACSR</td>
</tr>
<tr>
<td>Ground clearance of conductor</td>
<td>Minimum 30 feet</td>
</tr>
<tr>
<td>Pole foundation depth</td>
<td>19 to 24 feet</td>
</tr>
<tr>
<td>ADSS fiber optic cable</td>
<td>Approximately 30 feet above grade; may be adjusted to allow NV Energy's transmission line crossing from the POCO</td>
</tr>
<tr>
<td>OPGW</td>
<td>Strung above the 230-kV conductors</td>
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</table>

The new structures will have design characteristics substantially similar to those set forth in Table 1.

4. Communication Facilities

A fiber optic cable will be installed on the same poles as the Gen-tie to connect the solar electricity generating facility with the NSO Switchyard and the on-site substation to existing CenturyLink fiber facilities located on the north side of Eldorado Valley Drive, thereby providing communication paths via OPGW fiber optic cable and ADSS fiber optic cable. Redundant communication paths using either buried fiber or wireless via microwave technology will also be installed. As described above, this T-1 extension will be fiber that is either underhung along a portion of the Gen-tie or underground along a portion of the Gen-tie route. Microwave communications between the CMS5 substation facilities and the existing microwave tower at CMS3 or CMS1 will also be utilized.

2. NAC 703.423(2)(b). The natural resources that will be used during construction and operation of the utility facility.

Natural resources anticipated for construction and operation include typical materials used for the construction of utility-scale solar PV generating facilities, such as steel for supports, structures, reinforcing rod, and fencing; silicon, copper, and other metals used in the
manufacturing of the PV modules; cable and electronic equipment; cement and aggregate for concrete for foundations; gravel and aggregate for roadways; and mineral oil for transformers. Water will be required during construction for dust suppression, soil compaction, and concrete fabrication. Very little water will be required during operations. Water will be supplied from an existing Boulder City water line that serves the Eldorado Valley.

3. NAC 703.423(2)(c) and (d). The layout diagrams of the structures at the proposed utility facility.

Layout diagrams are provided in Exhibit “E.”

4. NAC 703.423(2)(d). Scaled diagrams of the structures at the proposed utility facility.

Scaled diagrams are provided in Exhibit “F.”

5. NAC 703.423(2)(c). A statement concerning whether the proposed utility facility is an electrical generating plant or the associated facilities of an electric generating plant that uses renewable energy as its primary source of energy to generate electricity.

The proposed utility facility is an electric energy generating plant that uses renewable (solar) energy as its primary source of energy to generate electricity.

C. NAC 703.423(3). Environmental Studies.

NewFields prepared an Environmental Statement (“ES”) for the CMS5 Project in March 2019. The ES is attached hereto as Exhibit “G.” The ES describes the existing environment of the Project site, and it analyzes the environmental impacts of the Project and proposed mitigation measures for particular resources. The ES did not identify any significant environmental impacts that would occur during construction, operation, and maintenance of the Project. See ES (Exh.

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8 Because no part of the Project is on federal lands, no federal environmental assessment was required for the Project.
“G”), at Section 3. A summary of the analyses in the Environmental Statement, including impacts and mitigation measures, is as follows:

- **Geology, Soils, Mineral Resources, & Paleontology**

  The ES concludes that the Project poses low to moderate potential for soil erosion. To mitigate the potential impacts of soil erosion, Applicant would utilize BMPs for soil protection as set forth in the ES. *See ES (Exh. “G”), at Sections 3.1.2; 3.1.3. The ES further concludes that potential impacts to the Project from earthquakes are minor, impacts to mining operations are nonexistent, and that no paleontological resources are sensitive or legally protected in the Project area. *See ES (Exh. “G”), at Section 3.1.2.*

- **Water Resources**

  The Project will neither intercept nor impact groundwater. Both construction and operational water for the Project will be provided by a connection to the Boulder City Public Works Department’s water main. *See ES (Exh. “G”), at Section 3.2.2.1. The ES concludes that the Project will not divert flows from areas of perennial flow, ephemeral washes, or downstream habitats, and there will be no discharge of hazardous materials to surface water resources. *See ES (Exh. “G”), at Section 3.2.2.2.*

- **Air Quality and Climate**

  Engine exhaust emissions from increased traffic and fugitive dust from ground-disturbing activities during construction could have a short-term impact on air quality. *See ES (Exh. “G”), at Section 3.3.2.1. The ES details mitigation measures for Applicant to implement in order to control dust and engine exhaust, thereby minimizing air quality impacts. *See ES (Exh. “G”), at Section 3.3.3. The ES concludes that any impacts from emissions-related pollutants during
operations and maintenance will be minimal and would have no long-term air quality impact. See ES (Exh. “G”), at Section 3.3.2.2.

- Biological Resources

The ES finds that Project grading will result in the removal of certain vegetation and wildlife habitat, and ground disturbance could result in the spread of invasive weed species – all of which Applicant will minimize through implementing the mitigation measures detailed in the ES. See ES (Exh. “G”), at Sections 3.4.2.1; 3.4.3.1. The Project will impact suitable desert tortoise, gila monster, and migratory bird nesting habitat; however, Applicant will minimize that impact through numerous mitigation measures set forth in the ES, including relocating certain species during a pre-construction clearance survey by an authorized biologist, scheduling habitat-altering activities outside of bird breeding season in compliance with the Migratory Bird Act of 1918, and minimizing injury or death to species by implementing a Worker Environmental Action Plan. See ES (Exh. “G”), at Sections 3.4.2.2; 3.4.2.3; 3.4.3.2; 3.4.3.3. The ES finds that impacts as a result of the proposed Gen-tie will be minimal because it will be constructed in an existing and highly-disturbed utility corridor. See, e.g., ES (Exh. “G”), at Section 3.4.2.3.2.

- Cultural Resources

Ground disturbance during construction will impact one archaeological site and two historic isolated artifacts associated with the Project site, none of which are recommended eligible for listing in the National Register of Historic Places. Accordingly, the ES concludes that these impacts are acceptable given that the disturbed sites have little cultural value. See ES (Exh. “G”), at Section 3.5.2.
• Land Use

The ES concludes that the Project will have no land use impacts because it will be located in an area zoned for energy resource development with numerous existing energy generation facilities in the surrounding area. See ES (Exh. “G”), at Section 3.6.2.

• Transportation

The ES notes that traffic associated with the construction, maintenance, and operation of the Project is not expected to present a noticeable incremental increase to traffic in the area. See ES (Exh. “G”), at Section 3.7.2.

• Visual Resources

The ES concludes that the Project will result in little to no change to the existing landscape and visual resources due to the existing solar projects in the surrounding area of the Project site. See ES (Exh. “G”), at Section 3.8.2.

• Noise

The ES finds that Project construction will result in temporary increases in ambient noise levels for up to two years, while operational noise will be negligible and inaudible against ambient levels. See ES (Exh. “G”), at Section 3.9.2. Noise increases during construction will be mitigated due to the timing of work in compliance with Boulder City’s noise ordinances. See ES (Exh. “G”), at Section 3.9.3.

• Waste Management and Hazardous Materials

The ES notes the construction of the Project will generate solid waste which will be transported for disposal at a licensed waste management facility, and that the operation of the Project is expected to generate only limited solid waste that would be similarly treated. See ES (Exh. “G”), at Section 3.10.2. Impacts from waste generated will be minimized by adherence to
the mitigation measures outlined in the ES. See ES (Exh. "G"), at Section 3.10.3. The Project is not expected to generate or require the transportation or use of hazardous materials; nonetheless, Applicant will implement a Solid and Hazardous Waste Management Plan in accordance with the ES. See ES (Exh. "G"), at Section 3.10.2.

- **Socioeconomics**

Project construction will generate significant temporary employment among local residents. The ES concludes that the Project will not have any long-term or adverse health or environmental impacts. See ES (Exh. "G"), at Section 3.11.2. There are no residents in proximity to the Project site, and residential construction near the Project site is currently prohibited under the terms of the BCCE.

**D. NAC 703.423(4). Reasonable Alternate Locations.**

CMS5 considered the following criteria in deciding to locate the Project in Boulder City’s Eldorado Valley:

- Adequate solar irradiation;
- Close proximity to a high-capacity substation with access to multiple energy markets;
- Adequate transmission capacity to convey the electrical output of the Project;
- Minimal environmental concerns;
- Relatively flat site to minimize the need for site grading;
- Existing access to accommodate construction workforce needs;
- Land parcel large enough to accommodate a utility scale facility;
- Access to nearby workforce sufficient to support Project construction; and
- Economies of scale and operational efficiencies in developing a site near the existing CMS1, CMS2, CMS3, and CMS4 facilities.

No reasonable cost-effective alternate locations for the Project exist outside of the Eldorado Valley. Within the Eldorado Valley, the proposed Project site was the only suitable property that met CMS5’s key requirements that: (1) the length of the Gen-tie interconnection to the grid be less than 5 miles to minimize Gen-tie losses and costs, and the Gen-tie could be at least partially developed using existing transmission structures (thus lessening both environmental impacts and costs); (2) the necessary Gen-tie right-of-way could be acquired without complicated permitting requirements; and (3) no federal lands would be needed for the Project site or Gen-tie. The Project site meets these criteria because no federal lands are needed for the Project, and the Gen-tie has an approximately 2-mile-long route to the NSO Switchyard and will use some of CMS2’s existing gen-tie poles.

E. **NAC 703.423(5). Proof of Public Notice.**

A copy of the public notice of this Application is attached as Exhibit “H,” and proof of publication of the public notice of this Application in Boulder City, Nevada and Clark County, Nevada is attached as Exhibit “I.”

F. **NAC 703.423(6). Proof of Service to the Nevada State Clearinghouse.**

Proof of submission of this Application to the Nevada State Clearinghouse to enable agency review and comment, and proof of service on local governments in the area in which the facilities are to be located, is attached as Exhibit “J.”

G. **NAC 703.423(7). Probable Effect on Environment.**

1. **NAC 703.423(7)(a). A reference to any studies, if applicable.**

An analysis of the proposed Project is contained in the ES (Exh. “G”).
2. NAC 703.423(7)(b). An environmental statement that includes:

i. The name, qualifications, professions and contact information for each person with primary responsibility for the preparation of the environmental statement.

A list of preparers and reviewers of the ES, and their respective roles, qualifications, and professions is available at Section 4 of the ES (Exh. G). The following is the contact information for each person with primary responsibility for the preparation of the ES:

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Contact Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ken MacDonald</td>
<td>Partner – Senior Environmental Manager</td>
<td>(702) 952-2072 <a href="mailto:kmacdonald@newfields.com">kmacdonald@newfields.com</a></td>
</tr>
<tr>
<td>Matthew Trask</td>
<td>Senior Environmental Scientist</td>
<td>(916) 804-7271 <a href="mailto:mtrask@newfields.com">mtrask@newfields.com</a></td>
</tr>
<tr>
<td>Mary (Seagrave) Eurek</td>
<td>Project Manager, Cultural Resource Specialist</td>
<td>(404) 969-0973 <a href="mailto:mseagrave@newfields.com">mseagrave@newfields.com</a></td>
</tr>
<tr>
<td>Andrew Butsavich</td>
<td>Environmental Scientist, Biologist</td>
<td>(702) 813-8557 <a href="mailto:abutsavich@newfields.com">abutsavich@newfields.com</a></td>
</tr>
<tr>
<td>Justin Romanowitz</td>
<td>Environmental Scientist, Biologist</td>
<td>(480) 231-3539 <a href="mailto:jromanowitz@newfields.com">jromanowitz@newfields.com</a></td>
</tr>
<tr>
<td>Lisa Graham</td>
<td>Air Quality Specialist</td>
<td><a href="mailto:lgraaham@newfields.com">lgraaham@newfields.com</a></td>
</tr>
</tbody>
</table>

ii. The name, qualifications, professions and contact information for each person who has provided comments or input in the preparation of the environmental statement.

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Contact Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marilyn Burke</td>
<td>Director, Business Development</td>
<td>619-380-1342 <a href="mailto:BurkeM@conedcgeb.com">BurkeM@conedcgeb.com</a></td>
</tr>
<tr>
<td>Gillian Semmer</td>
<td>Project Development Manager</td>
<td>619-380-1380 <a href="mailto:SemmerG@conedcgeb.com">SemmerG@conedcgeb.com</a></td>
</tr>
</tbody>
</table>
iii. A bibliography of materials used in the preparation of the environmental statement.

A complete bibliography of reference materials used in preparation of the Environmental Statement can be found in the ES (Exh. “G”), at Section 6, pages 86-93.

iv. A description of:

- the environmental characteristics of the project area existing at the time the application is filed with the Commission.

The proposed Project site is in the Eldorado Valley in Boulder City, Clark County, Nevada. Eldorado Valley is a closed drainage basin bounded by the McCullough Range to the west, the River Mountains to the north, and the Eldorado Mountains and Opal Mountains to the east. The Project site is located on alluvial soils in an area dominated by creosote bush and burro bush vegetation. Surrounding land is characterized primarily by power generation facilities, energy transmission infrastructure, transportation infrastructure, and open space. Section 3 of the ES (Exh. “G”) describes the existing setting and environmental characteristics with respect to each of the resources studied.

- the environmental impacts that the construction and operation of the proposed utility facility will have on the project area before mitigation.

The Project will result in the disturbance of approximately 1,135\(^9\) acres of land which will become part of Boulder City’s Eldorado Valley Energy Resource Zone upon CMS5’s exercise of its option to lease the Project site. The Project site is in close vicinity to several solar energy generating facilities, a natural gas-fired power plant, as well as numerous substations.

\(^{9}\) Solar facilities will not be located on the approximately 10 acres of land within CMS5’s leasehold that are encumbered by Southwest Gas’s rights-of-way.
See ES (Exh. "G"), at Section 3.6.1. Boulder City’s zoning ordinance permits the development of electric generation facilities, electrical transmission and distribution facilities, ancillary facilities, and other similar uses as a matter of right for projects in the Energy Resource Zone. See ES (Exh. "G"), at Section 3.6.1. Construction of the CMS5 Project would last up to approximately 24 months, after which time only routine maintenance would be required.

The ES analyzed potential impacts on a variety of resources, and it identified minimal environmental impacts that will occur during construction, operation, and maintenance of the Project. See ES (Exh. "G"), at Section 3. As more thoroughly described in Section (III)(C) of this Application, the ES concludes that the impacts of the Project will not substantively impact the environment, and that project-specific mitigation measures will serve to mitigate any material adverse impacts on the environment. See ES (Exh. "G"), at Section 3. For example, while the ES finds that Project grading will impact suitable desert tortoise, gila monster, and migratory bird nesting habitat, the ES has recommended detailed ongoing mitigation measures (to which the Applicant will adhere) to minimize these impacts to wildlife. See ES (Exh. G), at Section 3.4.

- the environmental impacts that the construction and operation of the proposed utility facility will have on the project area after mitigation.

Analyses of the environmental impacts of the Project are included in Section 3 of the ES (Exh. "G"). The preceding response to NAC 703.423(7)(b)(4)(II), above, contains a summary of the analyses in the ES, including mitigation measures.

H. NAC 703.423(8). Explanation of Effect on Reliable Utility Service.

The Project is exempt from this requirement pursuant to NRS 704.890(1)(b). NRS 704.890(1)(b) provides that the Commission must find that a utility facility is needed to ensure reliable utility service to customers in Nevada only if (i) the utility facility emits greenhouse gases
and (ii) does not use renewable energy as its primary source of energy to generate electricity. Here, because the Project uses renewable energy as its primary source of energy (and also does not emit greenhouse gases), NRS 704.890(1)(b)'s finding does not need to be made, and thus the Project is exempt from NAC 703.423(8)’s requirement to explain why the Project is needed to ensure reliable utility service to customers in Nevada.

With that said, the electricity generated by the Project would be transmitted to the NSO Switchyard for delivery into the electrical grid, with the purpose of providing consistent and reliable renewable energy to utility customers in Nevada. In doing so, the Project would fulfill a need for reliable and affordable clean energy in Nevada pursuant to Nevada's Renewable Portfolio Standard (NRS 704.7801-.7828, inclusive) (collectively, the “RPS”).

I. NAC 703.423(9), Explanation of Need Versus Adverse Environmental Effects.

The need for the Project outweighs the insignificant environmental impacts of the Project. See ES (Exh. G), at Section 3. Namely, the Project will provide renewable energy to customers in Nevada, fulfilling both an environmental and statutory need for reliable and affordable clean energy in Nevada. The RPS requires that 25 percent of the electricity sold by an electric utility to retail customers in Nevada must come from renewable sources by 2025. CMS5 has entered into a power purchase agreement with Nevada Power Company d/b/a NV Energy (“Nevada Power Company”) with respect to the energy to be generated by the Project, which will help Nevada Power Company meet its obligations under the RPS.\(^\text{10}\)

Further, the economics of solar PV energy have significantly improved over the past several years, and are now competitive with conventional power resources on cost, while also

\(^{10}\) This Commission approved the PPA as part of NV Energy’s integrated resource plan application filed June 1, 2018, and designated as Docket No. 18-06003, pursuant to an order issued December 21, 2018, as modified on February 15, 2019.
having greatly reduced environmental impacts. Specifically, solar energy avoids the production of greenhouse gases and other air emissions, decreases Nevada’s dependence on fossil fuels, and reduces the need for construction of fossil fueled power plants. The Project’s optional BESS would also fulfill a need for renewable energy storage to provide energy in the evening, nighttime, and early morning hours, all as explained more thoroughly in the ES. See ES (Exh. “G”), at Section 1.1. Finally, the Project would also benefit the economy by generating approximately 350 construction jobs during peak activity (with daily average manpower ranging from 200 to 225), roughly $1.5 million in annual property taxes to Clark County, approximately $34 million in lease revenues to Boulder City, and approximately $5 million in sales and use tax receipts to the State of Nevada.

Thus, when weighed against the insignificant environmental impacts described in the ES, which Applicant will mitigate in the manner described in the ES, the need for the Project outweighs the minimal adverse impacts the Project may cause.


1. NAC 703.423(10)(a). The state of available technology.

The Project is designed to use similar technology as other utility-scale solar PV projects located in the Eldorado Valley. The exact specifications of the PV panel technology will be finalized before construction. Regardless of the supplier selected, the technology will optimize electrical output within the fixed project footprint. The Project will be designed, constructed, and operated to meet all applicable environmental and regulatory requirements.

2. NAC 703.423(10)(b). The nature of various alternatives.

No reasonable alternate locations meeting CMS5’s criteria for the Project were identified outside of the Eldorado Valley. See Section (III)(D) of this Application. The proposed Project
site was the only suitable property in the Eldorado Valley that met CMS5’s key requirements that: (1) the length of the Gen-tie interconnection to the grid be less than 5 miles to minimize Gen-tie losses and costs, and the Gen-tie could be at least partially developed using existing transmission structures (thus lessening both environmental impacts and costs); (2) the necessary Gen-tie right-of-way could be acquired without complicated permitting requirements; and (3) no federal lands would be needed for the Project site or Gen-tie.

No alternative transmission routes were considered for the Project because an existing generation-tie line owned by CMS5’s affiliate CMS2 runs along the north side of the Project site toward NSO, and this existing transmission infrastructure can be used for a portion of the Gen-tie. The utilization of existing transmission infrastructure will lessen environmental impacts and costs. No alternative route could offer these advantages.

3. NAC 703.423(10)(c). The economics of various alternatives.

As described more thoroughly in the response to NAC 703.423(10)(b), the Project site is the most cost-effective site for the Project because the Project site will allow the Project to utilize certain existing fencing, O&M building and warehouse space, and transmission infrastructure owned by affiliates of CMS5.

K. NAC 703.423(11). Explanation of Conformance of Location to State and Local Laws.

1. NAC 703.423(11)(a). All permits, licenses, and approvals the applicant has obtained, including copies thereof.

Applicant has not yet obtained any permits, licenses, or approvals for the Project. Applicant intends to pursue the required permits, licenses, and approvals for the Project upon the release of the Project site from the BCCE.
2. **NAC 703.423(11)(b).** All permits, licenses and approvals the applicant is in the process of obtaining to commence construction of the proposed utility facility. The applicant must provide an estimated timeline for obtaining these permits, licenses and approvals.

A list of all major permits, licenses, and approvals the Applicant or its contractors are in the process of obtaining in order to commence construction, and an estimated timeline for obtaining these permits, is provided below:

<table>
<thead>
<tr>
<th>PERMITS AND APPROVALS REQUIRED</th>
<th>WHEN TO SUBMIT APPLICATION OR PLANS</th>
<th>DATE FILED (EXPECTED)</th>
<th>DATE ISSUED (EXPECTED)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>STATE PERMITS REQUIRED</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nevada State Hazardous Material/&quot;Roving&quot; Permit</td>
<td>Prior to use</td>
<td>9/1/2019</td>
<td>10/1/2019</td>
</tr>
<tr>
<td><strong>COUNTY PERMITS REQUIRED</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clark County Department of Air Quality – Dust Control Permit</td>
<td>Prior to construction</td>
<td>8/1/2019</td>
<td>8/31/2019</td>
</tr>
<tr>
<td><strong>BOULDER CITY COORDINATION AND PERMITS REQUIRED</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boulder City, Community Development – Grading Permit</td>
<td>Upon completion of 100% design</td>
<td>9/1/2019</td>
<td>10/1/2019</td>
</tr>
<tr>
<td>Boulder City, Community Development – Building Permit</td>
<td>Upon completion of 100% design</td>
<td>9/1/2019</td>
<td>10/1/2019</td>
</tr>
<tr>
<td>Boulder City Fire Department – &quot;One time&quot; New Construction Permit</td>
<td>Upon completion of 100% design</td>
<td>9/1/2019</td>
<td>10/1/2019</td>
</tr>
</tbody>
</table>

L. **NAC 703.423(12).** An explanation of how the proposed utility facility will serve the public interest.

1. **NAC 703.423(12)(a).** The economic benefits that the proposed utility facility will bring to the applicant and this State.

The proposed utility facility will have a direct beneficial impact on the local and regional economy during the construction period, which is expected to last approximately 24 months. During peak construction activity, roughly 350 construction and supervisory personnel will be working on site to construct the solar field and associated facilities. The worker pool (with daily
average manpower of 200 to 225) is expected to primarily draw from Clark County. In addition, the Project will contribute roughly $1.5 million in annual property taxes to Clark County, approximately $34 million in lease revenues to Boulder City, and approximately $5 million in sales and use tax receipts to the State of Nevada. Finally, solar PV energy has become increasingly economically efficient over the past several years, and is now competitive with conventional power resources on cost (thus benefitting Nevada’s ratepayers because the off-taker for the CMS5 Project is Nevada Power Company), while also having greatly reduced environmental impacts.

2. NAC 703.423(12)(b). An explanation of the nature of the probable effect on the environment in this State if the proposed utility facility is constructed.

The ES contains a full analysis of the minimal probable environmental effects of the proposed utility facility. See ES (Exh. “G”), at Section 3.

3. NAC 703.423(12)(c). An explanation of the nature of the probable effect on the public health, safety and welfare of the residents in this State if the proposed utility facility is constructed.

The proposed utility facility will provide a clean, renewable source of energy and will not emit potentially harmful pollutants or greenhouse gases that could have an adverse impact on the public health, safety, and welfare of Nevada residents. In addition, construction and operation procedures will adhere to mitigation measures and design features intended to reduce the risk of exposure to hazardous materials, excessive noise, and other harmful conditions. Examples include adhering to the Boulder City Municipal Code noise regulations and helping Clark County and Nevada attain National Ambient Air Quality Standards.
4. **NAC 703.423(12)(d).** An explanation of the interstate benefits expected to be achieved by the proposed electric transmission facility in this State, if applicable.

Construction of the Gen-tie will likely not increase interstate deliverability options for renewable energy generated at the Project, as CMS5 will interconnect to the Nevada-based NV Energy transmission system, and the project output will be sold to NV Energy.

**IV. Construction in Multiple Phases**

CMS5 is requesting that the Commission’s compliance order allow for the issuance of six permits to construct for six phases of construction. However, the phases of construction may be executed with some overlap. The phases of construction, and the outstanding state and local permits that must be obtained for each phase prior to issuance of a permit to construct, are outlined below.

**Phase 1:** This phase of construction would include establishment of temporary construction facilities associated with the access driveway, communication and utility lines, Gen-tie, solar substation, solar generating facility, and optional BESS. Phase 1 permits that would be acquired prior to commencing construction of this phase are listed below.

<table>
<thead>
<tr>
<th>PHASE 1: TEMPORARY CONSTRUCTION FACILITIES</th>
<th>REQUIRED PERMIT</th>
<th>ISSUING AGENCY</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dust Control Permit (Temporary Construction Facilities)</strong></td>
<td></td>
<td>Clark County Department of Air Quality</td>
</tr>
</tbody>
</table>

**Phase 2:** Activities would include all necessary site grading for and construction of the access driveway and communication and water lines between Eldorado Valley Drive and the Project site. Permits that would be acquired prior to commencing Phase 2 are shown below.
Phase 2: Grading and Construction of Access Road, Communication Facilities, and Water Lines

<table>
<thead>
<tr>
<th>REQUIRED PERMIT</th>
<th>ISSUING AGENCY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grading Permit (Access Road, Communication Facilities, and Water Lines)</td>
<td>Boulder City Community Development</td>
</tr>
<tr>
<td>Dust Control Permit (Access Road, Communication Facilities, and Water Lines)</td>
<td>Clark County Department of Air Quality</td>
</tr>
</tbody>
</table>

Phase 3: Activities would include all necessary site grading for and construction of the Gen-Tie from the solar substation to the POCO south of the NSO Substation. Permits that would be acquired prior to commencing Phase 3 are shown below.

Phase 3: Grading and Construction of the Gen-Tie

<table>
<thead>
<tr>
<th>REQUIRED PERMIT</th>
<th>ISSUING AGENCY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grading Permit (Gen-Tie)</td>
<td>Boulder City Community Development</td>
</tr>
<tr>
<td>Dust Control Permit (Gen-Tie)</td>
<td>Clark County Department of Air Quality</td>
</tr>
<tr>
<td>Building Permit (Gen-Tie)</td>
<td>Boulder City Community Development</td>
</tr>
</tbody>
</table>

Phase 4: Activities would include all necessary site grading for and construction of the solar substation. Permits that would be acquired prior to commencing Phase 4 are shown below.

Phase 4: Grading and Construction of the Solar Substation

<table>
<thead>
<tr>
<th>REQUIRED PERMIT</th>
<th>ISSUING AGENCY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grading Permit (Solar Substation)</td>
<td>Boulder City Community Development</td>
</tr>
<tr>
<td>Dust Control Permit (Solar Substation)</td>
<td>Clark County Department of Air Quality</td>
</tr>
<tr>
<td>Building Permit (Solar Substation)</td>
<td>Boulder City Community Development</td>
</tr>
<tr>
<td>Hazardous Material Permit/&quot;Roving&quot; Permit (Solar Substation)</td>
<td>Nevada State Fire Marshall</td>
</tr>
</tbody>
</table>

Phase 5: Activities would include site grading for and construction of the solar generating facility, including the solar modules, electrical collection equipment, and related improvements. Permits that would be acquired prior to commencing Phase 5 are shown below.
**Phase 5: Grading and Construction of the Solar Field**

<table>
<thead>
<tr>
<th>Required Permit</th>
<th>Issuing Agency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grading Permit (Solar Field)</td>
<td>Boulder City Community Development</td>
</tr>
<tr>
<td>Dust Control Permit (Solar Field)</td>
<td>Clark County Department of Air Quality</td>
</tr>
<tr>
<td>Building Permit (Solar Field)</td>
<td>Boulder City Community Development</td>
</tr>
<tr>
<td>“One time” New Construction Permit</td>
<td>Boulder City Fire Department</td>
</tr>
</tbody>
</table>

**Phase 6:** Activities would include construction of the optional BESS. BESS design would consist primarily of: (1) batteries installed in standard typically 40-50 foot ISO shipping containers (Option A) or in an unoccupied structure such as an approximately 54,000 square foot, 20-foot-tall standard masonry building (Option B); (2) power conversion systems (inverters) which can bi-directionally convert the electricity between DC and AC; (3) electrical collection and fiber-optic communications lines; and (4) civil infrastructure, including driveways and fencing. Permits that would be acquired prior to commencing Phase 6 are shown below.

**Phase 6, Option A: Battery Energy Storage System Construction, Containers**

<table>
<thead>
<tr>
<th>Required Permit</th>
<th>Issuing Agency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grading Permit (BESS, Containers)</td>
<td>Boulder City Community Development</td>
</tr>
<tr>
<td>Dust Control Permit (BESS, Containers)</td>
<td>Clark County Department of Air Quality</td>
</tr>
<tr>
<td>Hazardous Material Permit/“Roving” Permit (BESS, Containers)</td>
<td>Nevada State Fire Marshall</td>
</tr>
<tr>
<td>Building Permit (BESS, Containers)</td>
<td>Boulder City Community Development</td>
</tr>
</tbody>
</table>

**Phase 6, Option B: Battery Energy Storage System Construction, Building**

<table>
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<tr>
<th>Required Permit</th>
<th>Issuing Agency</th>
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</thead>
<tbody>
<tr>
<td>Grading Permit (BESS, Building)</td>
<td>Boulder City Community Development</td>
</tr>
<tr>
<td>Dust Control Permit (BESS, Building)</td>
<td>Clark County Department of Air Quality</td>
</tr>
<tr>
<td>Hazardous Material Permit/“Roving” Permit (BESS, Building)</td>
<td>Nevada State Fire Marshall</td>
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<tr>
<td>Building Permit (BESS, Building)</td>
<td>Boulder City Community Development</td>
</tr>
</tbody>
</table>
Providing for the issuance of the six permits to construct the described utility facilities would allow construction to proceed on the Project while still providing assurance to the Commission that, consistent with the intent of the UEPA, no construction of any utility facility necessary to the Project will occur until CMS5 has verified to the Commission that all necessary permits have been obtained for construction of that particular facility.

V. CONCLUSION

Applicant respectfully requests that this Commission:

(1) approve this Application and issue a UEPA Permit to Construct for the Project, subject to the Applicant’s submission of the permits described herein to the Commission; and

(2) issue a compliance order authorizing the construction of the utility facilities in six phases as described above by authorizing the issuance of six Permits to Construct, with each Permit to Construct specifying the utility facilities included in that phase.

Applicant reserves the right to amend and supplement this Application as permitted and contemplated pursuant to NRS 704.820 to 704.900 and NAC 703.415 to 703.427.

Dated and respectfully submitted this 8th day of April, 2019.

HOLLAND & HART LLP

By: ____________________________
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   EKNannini@hollandhart.com

Attorneys for Copper Mountain Solar 5, LLC
Exhibit A

Project Location Map
Exhibit B

Legal Description of Facility
LEASE AREA LOCATED IN SECTION 13 AND SECTION 14, TOWNSHIP 25 SOUTH, RANGE 62 EAST, M.D.B.&M. AND IN SECTION 17 AND SECTION 18, TOWNSHIP 25 SOUTH, RANGE 63 EAST, M.D.B.&M., IN THE CITY OF BOULDER CITY, COUNTY OF CLARK, STATE OF NEVADA, DESCRIBED AS FOLLOWS:

BEGINNING AT THE COMMON QUARTER (1/4) CORNER FOR SECTION 8 AND SECTION 17, TOWNSHIP 25 SOUTH, RANGE 62 EAST, M.D.B.&M., A FOUND GOVERNMENT LAND OFFICE BRASS CAP; THENCE SOUTH 0°23'33" EAST 5,278.88 FEET ALONG THE CENTERLINE OF SAID SECTION 17 TO THE COMMON QUARTER (1/4) CORNER FOR SECTION 17 AND SECTION 20; THENCE SOUTH 89°42'05" WEST 2,640.66 FEET ALONG THE COMMON LINE BETWEEN SECTION 17 AND SECTION 20 TO THE COMMON CORNER OF SECTION 17, SECTION 18, SECTION 19 AND SECTION 20; THENCE SOUTH 89°39'05" WEST 2,640.00 FEET ALONG THE COMMON LINE BETWEEN SECTION 18 AND SECTION 19 TO THE COMMON QUARTER (1/4) CORNER OF SECTION 18 AND SECTION 19; THENCE NORTH 0°23'02" WEST 2,839.00 FEET ALONG THE NORTH-SOUTH CENTERLINE OF SAID SECTION 18 TO THE CENTER QUARTER (1/4) OF SECTION 18; THENCE SOUTH 89°39'09" WEST 2,653.05 FEET ALONG THE EAST-WEST CENTERLINE OF SAID SECTION 18 TO THE COMMON QUARTER (1/4) CORNER OF SECTION 13, TOWNSHIP 25 SOUTH, RANGE 62 EAST, M.D.B.&M. AND SECTION 18, TOWNSHIP 25 SOUTH, RANGE 63 EAST, M.D.B.&M.; THENCE SOUTH 89°37'41" WEST 5,279.19 FEET ALONG THE EAST-WEST CENTERLINE OF SAID SECTION 13 TO THE COMMON QUARTER (1/4) CORNER OF SECTION 13 AND SECTION 14; THENCE SOUTH 89°41'36" WEST 1,022.75 FEET ALONG THE EAST-WEST CENTERLINE OF SAID SECTION 14 TO THE POINT OF INTERSECTION WITH THE SOUTHEASTERLY LINE OF A 3,000-FOOT WIDE BUREAU OF LAND MANAGEMENT UTILITY CORRIDOR CENTERED ON THE CIMA/PISSGA NO.1 220KV TRANSMISSION LINE; THENCE NORTH 24°43'19" EAST 2,912.16 FEET ALONG SAID SOUTHEASTERLY LINE TO A POINT ON THE COMMON LINE BETWEEN SECTION 12 AND SECTION 13; THENCE NORTH 89°37'28" EAST 2,428.90 FEET ALONG THE COMMON LINE BETWEEN SECTION 12 AND SECTION 13 TO THE COMMON QUARTER (1/4) CORNER OF SECTION 12 AND SECTION 13, A FOUND GOVERNMENT LAND OFFICE BRASS CAP; THENCE NORTH 89°37'07" EAST 2,639.55 FEET ALONG THE COMMON LINE BETWEEN SECTION 12 AND SECTION 13 TO THE COMMON CORNER OF SECTION 12 AND SECTION 13, TOWNSHIP 25 SOUTH, RANGE 62 EAST, M.D.B.&M. AND SECTION 7 AND SECTION 18, TOWNSHIP 25 SOUTH, RANGE 63 EAST, M.D.B.&M., A FOUND GOVERNMENT LAND OFFICE BRASS CAP; THENCE NORTH 89°39'46" EAST 2,650.93 FEET ALONG THE COMMON LINE BETWEEN SECTION 7 AND SECTION 18 TO THE COMMON QUARTER (1/4) CORNER OF SECTION 7 AND SECTION 18, A FOUND GOVERNMENT LAND OFFICE BRASS CAP; THENCE NORTH 89°38'38" EAST 2,638.56 FEET ALONG THE COMMON LINE BETWEEN SECTION 7 AND SECTION 18 TO THE COMMON CORNER OF SECTION 7, SECTION 8, SECTION 17 AND SECTION 18, A FOUND GOVERNMENT LAND OFFICE BRASS CAP; THENCE NORTH 89°40'49" EAST 2,641.31 FEET ALONG THE COMMON LINE BETWEEN SECTION 8 AND SECTION 17 TO THE POINT OF BEGINNING.

CONTAINS 1,144.84 ACRES MORE OR LESS.

Prepared by:
Richard A. Ariotti, Nevada P.L.S. No. 7953
Acting as Agent for:
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Boulder City, NV 89005
Phone: (702) 293-3330
Fax: (702) 293-8153
Exhibit C

Detailed Description of Location of Gen-Tie
- The gen-tie route from the CMS5 Substation to Eldorado Valley Drive will be on new structures.
- Turning west, CMS5's gen-tie will occupy the open position of CMS2's existing double-circuit poles 3-7.
- The path to the Point of Interconnection (POI) to the grid will turn north on new NVE-designed and installed structures.

Detailed Description of Location of Gen-Tie
Exhibit D

Site Plan Drawings, Vicinity Maps & Routing Maps
Exhibit E
Layout Diagrams
Exhibit F

Scaled Diagrams of Utility Structures
CMS5 will share some existing steel poles with CMS2. This Drawing looks south from Eldorado Valley Drive.

*Locations of CMS2 structures #3 thru #7*
The CMS5 circuit can be strung on existing CMS2 structures #3 thru #7. Drawing looks west along Eldorado Valley Drive.

CMS2 structures #3 thru #7
Example new turning pole structures for CMS5

Gen-Tie Turn Structure
CMS5 will construct a portion of the gen-tie from the project substation to the existing CMS2 structures.

*Gen-Tie Turn Structure*
Example Battery Energy Storage System, Building

Not to scale
Example 20' and 40' Standard Containers

Example Battery Energy Storage Layouts

Example Battery Energy Storage System, Containers
Exhibit G

Environmental Statement
Environmental Statement
Copper Mountain Solar 5 Project
Clark County, Nevada

Prepared for:

Copper Mountain Solar 5, LLC
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NewFields
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Las Vegas, NV 89129

April 8, 2019
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Copper Mountain Solar 5 Environmental Statement

1. Introduction

Copper Mountain Solar 5, LLC (CMS5) is proposing to construct, operate, and maintain the Copper Mountain Solar 5 Project (Project). The Project would consist of an up to 250-megawatt (MW) solar photovoltaic (PV) electricity generating facility (solar PV facility) on 1,145 acres owned by the City of Boulder City (the City or Boulder City) and leased by CMS5. Electricity generated by the Project would be transmitted to NV Energy's Nevada Solar One (NSO) Switchyard for delivery into the electrical grid via a generation-tie power line (gen-tie). The Project may also include a battery energy storage system (BESS). This Environmental Statement (ES) evaluates environmental impacts of the Project, which would be reviewed by the Public Utility Commission of Nevada (PUCN) in order to comply with the Utility Environmental Protection Act (UEPA).

1.1 Project Purpose and Need

The purpose of the Project is to provide renewable energy to utility customers in the region, taking advantage of the abundance of solar radiation in Southern Nevada. The Project fulfills a need for reliable and affordable clean energy in Nevada. Nevada's Renewable Portfolio Standard, NRS 704.7801, establishes that 25 percent of the electricity sold by an electric utility to retail customers must come from renewable sources by 2025; at least 6 percent of this renewable electricity must be generated from solar facilities.

The economics of solar PV energy have improved over the past several years and are now competitive with conventional power resources on cost, while also having greatly reduced environmental impacts. Solar energy avoids the production of greenhouse gases and other air emissions, decreases our dependence on fossil fuels, and reduces the need for construction of fossil fueled power plants. The Project would also benefit the economy by generating jobs, business income, and tax and lease revenue for Boulder City, Clark County, and Nevada.

If included, the Project’s BESS could also assist in meeting a need to provide renewable energy during the evening, nighttime, or early morning hours. Demand for electricity fluctuates throughout the day, and technology to store electrical energy so it can be available to meet demand whenever needed is an increasingly important factor in electricity distribution. Energy storage facilities convert electricity to a storable form and reserve it in various mediums; then the banked energy can be converted back into electrical power when needed. Energy storage facilities also provide an additional resource when the need for electricity is greatest, during peak load. Energy storage facilities aid in meeting peak electrical load demands, provide time varying energy management, alleviate the intermittence of renewable power generation, and improve power quality and reliability.
1.2 Authorizing Actions

The primary approval required for this Project would be issued by the PUCN. The PUCN would review the Project Environmental Statement (ES) in accordance with UEPA guidelines. Should the Project be approved, the PUCN would issue a Permit to Construct.

The PUCN list of potential federal, state, and local permits that may be necessary for the Project in order for the PUCN to issue a Notice to Construct is provided in Table 1. Table 1 also lists the issuing agency for each permit and the anticipated completion date. These permits and requirements are typical and well understood for projects of this nature in the Eldorado Valley.

<table>
<thead>
<tr>
<th>Permit Type/Name</th>
<th>Issuing Agency</th>
<th>Projected Completion Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boulder City Conservation Easement Amendment</td>
<td>Clark County DCP</td>
<td>April 2019</td>
</tr>
<tr>
<td>Amend Zoning to Energy Resource Zone</td>
<td>Boulder City</td>
<td>May 2019</td>
</tr>
<tr>
<td>UEPA Compliance Order</td>
<td>PUCN</td>
<td>July 2019</td>
</tr>
<tr>
<td>UEPA Permit to Construct</td>
<td>PUCN</td>
<td>September 2019</td>
</tr>
<tr>
<td>Nevada State Hazardous Materials Roving Permit</td>
<td>Nevada State Fire Marshall</td>
<td>December 2019</td>
</tr>
<tr>
<td>Dust Control</td>
<td>Clark County DAQEM</td>
<td>July 2019</td>
</tr>
<tr>
<td>Grading Permit</td>
<td>Boulder City</td>
<td>September 2019</td>
</tr>
</tbody>
</table>

(grading permit fees include a tortoise remuneration fee of $550/acre for compliance with Section 10 of the Endangered Species Act, as disclosed in the Clark County Multiple Species Habitat Conservation Plan)
Copper Mountain Solar 5 Environmental Statement

<table>
<thead>
<tr>
<th>Permit Type/Name</th>
<th>Issuing Agency</th>
<th>Projected Completion Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building Permit</td>
<td>Boulder City</td>
<td>September 2019</td>
</tr>
<tr>
<td>Installation Permit for Fire Protection and Protection Systems</td>
<td>Boulder City</td>
<td>September 2019</td>
</tr>
</tbody>
</table>

### 1.3 Environmental Statement Organization

To aid the reviewers and decision-makers, this section outlines the organization of this ES.

- **Introduction** - This provides a brief general description of the Project and its purpose and need. Also summarized is the Project location, the state and local reviews, regulatory approvals, and permits likely to be required.
- **Description of Proposed Action and Alternatives** - This describes the Project as well as the alternatives that were considered but eliminated from detailed consideration along with the rationale for their elimination.
- **Existing Setting, Environmental Consequences, and Mitigation Measures** - This describes the existing environment at and near the proposed Project site. It also details the potential environmental consequences of the Project and mitigation measures designed to reduce, minimize, or avoid impacts so they are reduced to an acceptable level. In addition, a table summarizing the potential effects, the recommended mitigation measures, along with the timing of those measures and identification of entities responsible for implementation and monitoring, has been included.
- **List of Preparers** - Lists persons who contributed to the preparation and review of this ES.
- **List of Acronyms** - Contains the abbreviations and acronyms contained in this ES.
- **References** - Lists references used in this ES.
- **Appendices** – Supplemental information on permitting and mitigation measures.
Copper Mountain Solar 5 Environmental Statement

2. Description of Proposed Action and Alternatives

2.1 Project Location and Access

The Project would be located on approximately 1,145 acres in the Eldorado Valley, approximately 17 miles south of the City of Henderson. The proposed Project site is located west of U.S. Highway 95 (US-95), approximately 14 miles south of its intersection with U.S. Highway 93 (US-93). See Figure 1. Figure 1. The site currently is vacant except for a Southwest Gas natural gas pipeline corridor. The existing Copper Mountain Solar 1 (CMS1), Copper Mountain Solar 2 (CMS2) and Copper Mountain Solar 4 (CMS4) projects border the site on the north.
Figure 1. Project Location
Main access to the Project site would be via Eldorado Valley Drive (a private, paved road), which connects the site with interstate US-95 (see Figure 2). An approximately 1-mile driveway would run south from Eldorado Valley Drive between CMS2 and CMS4 to the Project site. The access driveway would be paved asphalt and would share the existing CMS2 driveway turnout from Eldorado Valley Drive. Other users share Eldorado Valley Drive, and agreements and coordination with other project owners may be required to use the road.

![Figure 2. View of Eldorado Valley Drive Looking West from US-95.](image)

### 2.2 Project Facilities

This section describes the layout and design for the major equipment associated with the Project. Figure 3 illustrates the conceptual layout of the facilities.
2.2.1 Major Equipment and Site Arrangement

The Project would utilize solar PV modules that absorb sunlight and directly produce electricity. The Project would consist of (a) solar PV modules mounted on single-axis tracking steel structures; (b) an electrical collection system that would aggregate the output from the PV modules and convert the electricity from direct current (DC) to alternating current (AC); (c) an onsite substation where all of the facility output would be combined and transformed from 34.5 kilovolts (kV) to 230 kV; (d) a gen-tie that would transmit the electrical power generated to the electrical grid; (e) communications infrastructure including fiber optic cable; and (f) civil infrastructure including driveways, waterlines, drainage channels, and fencing.

The Solar PV facility's major equipment would include:

- PV modules
Copper Mountain Solar 5 Environmental Statement

- Single-Axis Tracking Module Racking System
- DC Combiner Boxes
- Inverter Skid Assemblies (ISA) including
  - DC to AC inverters
  - Medium Voltage (MV) transformers;
- Solar Substation including two 34.5-230 kV step-up transformers
  - 34.5 kV Capacitor Banks as required
  - BESS (if included)
- Plant Control System

Solar PV modules, inverters, and medium voltage transformers would be combined into arrays that are repeated to reach the required capacity. The proposed PV facility would use commercially proven PV modules, inverters, and transformers. Inverter and transformer manufacturers and capacities would be selected based on cost, efficiency, reliability, and market availability.

If included, the BESS would consist of either large format lithium-ion batteries or alternative battery technologies (such as flow batteries) that can both absorb and discharge electricity directly onto the power grid. Battery technologies are constantly improving, exhibiting increased efficiency and greater energy density. The storage facility design would consist of: (a) batteries installed in standard typically 40- to 50-foot ISO shipping containers or in an unoccupied structure such as an approximately 54,000 square foot (sf), 20-foot-tall standard masonry building; (b) power conversion systems (inverters), which can bi-directionally convert the electricity between DC and AC; (c) electrical collection and fiber-optic communications lines; (d) Heating Ventilation and Air Conditioning (HVAC) systems; (e) fire suppression systems; and (f) civil infrastructure including driveways and fencing.

If lithium-ion batteries in containers are utilized for the BESS, the containers would contain racks with modules comprised of lithium-ion battery cells and the battery management system. The containers would be structurally modified to Seismic Zone 4 standards and would contain the necessary control layer, safety mechanisms, and HVAC systems. Each container would have DC disconnect breakers to be able to disconnect the battery from the remaining storage system. Each container would also contain a fire suppression system that is designed to suffocate any potential fire through the removal of oxygen.

As an alternative to the ISO shipping containers, an approximately 54,000 sf building could be constructed to house the energy storage batteries and associated equipment. The building would be designed to “compartmentalize” the energy storage system, thereby reducing the risk for the
Copper Mountain Solar 5 Environmental Statement

spread of fire. Each portion of the building would contain a fire suppression system similar to what would be used for the ISO energy storage containers.

If smoke is detected or the fire suppression system is manually triggered, visual and audible alarms would be activated, and remote monitoring would be notified. The fire suppression system chosen would use a non-toxic chemical or other compound to extinguish fires.

If included, the BESS facilities would be located adjacent to the project substation described in Section 2.2.2 below.

2.2.1.1 Solar PV Modules
Solar PV modules would be mounted on single-axis tracking steel support structures. The installed height of assembled solar PV modules would not exceed 15 feet. The rows of solar PV modules would be aligned north to south and would pivot east to west tracking the sun throughout the day.

2.2.1.2 Electrical Collection System
The Project’s solar PV modules convert the sun’s energy into DC power, which is fed through underground cables to combiner boxes. The modules and combiner boxes are organized into electrical groups called “arrays.” The size of each array depends upon the selected size of the inverter. Conductors run underground to feed DC power through the combiner boxes to the inverters, which convert the DC power to AC power. The AC output voltage is then boosted to 34.5 kV through a step-up transformer. The inverter and transformer together are referred to as an inverter skid assembly. Electricity is conveyed from the inverter skid assemblies via overhead or underground collector circuits to the onsite substation.

2.2.2 Onsite Substation
An onsite substation would be located on the north side of the Project site (as shown on Figure 3). The substation acts as a central hub for the 34.5 kV collector circuits and steps up the electricity voltage from 34.5 kV to 230 kV for delivery into the grid through the Project’s gen-tie. The substation would include the following:

• 34.5 kV bus and associated switching devices
• 230 kV bus and associated switching devices
• 34.5/230 kV transformers
• 34.5 kV circuit breakers
• 230 kV circuit breakers
• 34.5 kV capacitors (as required)
• Grounding grid
Copper Mountain Solar 5 Environmental Statement

- Prefabricated modular control building (unoccupied except during inspection and maintenance)
- Perimeter security fence

2.2.3 Gen-tie and Associated Structures

A 230 kV gen-tie would transmit electricity from the Project’s on-site substation to NV Energy’s NSO Switchyard. The Project’s gen-tie route would be entirely within Boulder City’s Eldorado Valley Energy Resource Zone. The gen-tie would consist of two portions: the first consisting of approximately 1 mile of new monopole structures running north from the onsite substation in between CMS4 and CMS2; and the second consisting of a new 1-mile second circuit on a portion of CMS2’s existing common structures in the gen-tie easement corridor along Eldorado Valley Drive. The gen-tie would continue to a new dead-end structure to be located south of the NSO Switchyard and Eldorado Valley Drive; this structure would be the Point of Change of Ownership (POCO) with NV Energy. The circuit would then run north from the POCO into the NSO Switchyard. NV Energy would construct this portion of the gen-tie (i.e., from the POCO to the NSO Switchyard) on new transmission poles. Like the existing structures along Eldorado Valley Drive, the new gen-tie structures would be monopole towers no more than 120 feet high on concrete pier foundations. The span between supporting structures would range from 200 to 900 feet. Access to the POCO structure may require construction of an improved, engineered surface turnout running south from Eldorado Valley Drive.

The gen-tie would also provide communication paths via optical ground-wire (OPGW) fiber optic cable and all-dielectric self-supporting (ADSS) fiber optic cable. These fiber-optic communication paths would run from the onsite substation to the NSO Switchyard, and from the onsite substation to existing CenturyLink fiber facilities located on the north side of Eldorado Valley Drive. A diverse, redundant communication path is also required; a new microwave tower would be installed at the onsite substation, which would transmit to a new dish on NV Energy’s existing microwave tower at the NSO Switchyard. CMSS would also communicate with either the CMS3 O&M building or the CMS1 O&M building via microwave transmission to CMS3’s existing microwave tower or via a new microwave tower approximately half way down the CMS5 northern property line to communicate with the CMS1 O&M building.

The design characteristics of the existing 230 kV gen-tie are listed in Table 2.
Table 2. Typical Design Characteristics for the 230 kV Gen-tie

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<th>230 kV Characteristics</th>
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<td>Span length</td>
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<td>Voltage</td>
<td>230 kV</td>
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<td>Conductor size</td>
<td>up to 1192.5 kcmil ACSR</td>
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<tr>
<td>Ground clearance of conductor</td>
<td>Minimum 30 feet</td>
</tr>
<tr>
<td>Pole foundation depth</td>
<td>19 to 24 feet</td>
</tr>
<tr>
<td>ADSS fiber optic cable</td>
<td>Approximately 30 feet above grade</td>
</tr>
<tr>
<td>OPGW</td>
<td>Strung above the 230 kV conductors</td>
</tr>
</tbody>
</table>

Figure 4 shows the existing CMS2 gen-tie monopole structures where the new circuit for the Project would be suspended.
Figure 4. Existing Gen-tie Steel Monopoles along Eldorado Valley Drive (on the right).
2.2.4 Electrical System for Plant Auxiliaries

During daylight hours, power for plant auxiliaries would be provided by the Project's electrical generation. During non-daylight hours, the Project would require small amounts of power to keep the substation control building, plant lighting, and security energized. This auxiliary power would be provided by back-feed from the electrical grid. Auxiliary power would be stepped down to an appropriate voltage to support plant auxiliaries and would be connected to the station service power switchgear.

2.2.5 Plant Auxiliaries Process Description

The following subsections describe the various power plant auxiliary systems associated with the Project, including water infrastructure, the plant control system, light system, cathodic protection systems, and site access, roads, fencing, and security.

2.2.5.1 Water

Water for construction activities and for operation of the Project would be provided by a tap off of CMS2's existing connection to the Boulder City Public Works Department's water main, which is located along the west side of US-95. CMS5 proposes to tap this line near an existing fire hydrant near the CMS2 operation and maintenance (O&M) building. Under the terms of an agreement with the City, water would be made available to the Project from the City's water supply. CMS5 would install an approximately 1-mile long temporary waterline running south between CMS4 and CMS2 and provide water during construction of the Project. A temporary lined pond and/or storage tanks would provide buffer for water storage and use. During the construction phases of the Project, water would primarily be used for grading and for dust control. Construction is estimated to take up to 24 months to complete. Total water needs for the Project including dust control are estimated to be up to 590 acre-feet per year during construction.

For water needed during Project operations, CMS5 would construct a permanent waterline running underground for 1 mile south from the CMS2 fire hydrant area. The new waterline would be located between CMS4 and CMS2 and provide water for maintenance and fire protection. CMS5 would construct a fire hydrant on the Project site located near the onsite substation's control house.

2.2.5.2 Plant Control System

The microprocessor-based plant control system (PCS) would provide control, monitoring, alarm, and data storage functions for plant systems as well as communication with the Project's supervisory control and data acquisition (SCADA) system. Redundant capability would be
provided for critical PCS components so that no single component failure would cause a plant outage.

All field instruments and controls would be hard-wired to local electrical panels. Local panels would be hard-wired to the plant PCS system.

The Project would be monitored and controlled via Human Machine Interface (HMI) workstations located within the CMS3 or CMS1 O&M building. Communications between CMS5 and CMS3 or CMS1 would be by fiber optic connection or wireless and then communicated to the Control Room at CMS3 or CMS1 by microwave.

2.2.5.3 Lighting System

The Project’s lighting system would provide O&M personnel with illumination for both normal and emergency conditions. Lighting would be provided at the substation, control building, and at the main plant entrance. Lighting would be designed to provide the minimum illumination needed to achieve safety and security objectives. The solar PV facility would not be lighted, so light trespass on the surrounding properties would be minimal. Portable lighting would be used at individual solar modules or other equipment for any needed night maintenance.

2.2.5.4 Cathodic Protection Systems

Underground metal structures would have cathodic protection, as necessary, based on soil conditions, to avoid corrosion of metal surfaces.

2.2.5.5 Site Access, Roads, Fencing, and Security

As depicted in Figure 2, access to the Project site would be via the existing paved Eldorado Valley Drive. An approximately 1-mile driveway would run south from Eldorado Valley Drive between CMS2 and CMS4 to the Project site. The access driveway would be paved with asphalt and is expected to share the existing CMS2 driveway turnout at Eldorado Valley Drive.

An additional unpaved road would extend around the inside perimeter of the site. Subsidiary unpaved roads within the site boundaries would provide O&M personnel access to the Project site.

The perimeter of the solar PV facility (including the onsite substation and, if included, the BESS) would be enclosed by a 6-foot-high chain link fence, which may be topped with a one-foot barbed wire section. The fencing would also run on either side of the Southwest Gas pipeline corridor running through the solar PV facility, and no fencing would cross over the gas lines. The access points from the access driveway to the site would be controlled-access (authorized personnel only) by employing swinging or rolling chain link gates. The outer perimeter of the solar facility
would also be surrounded by a desert tortoise fence, constructed either separately or in conjunction with the chain-link fence, per the guidelines in the USFWS Desert Tortoise Field Manual (see https://www.fws.gov/carlsbad/PalmSprings/DesertTortoise.html). Select gates would be automated to facilitate emergency access for fire department vehicles.

To facilitate O&M activities at the Copper Mountain Solar Complex, it is anticipated that chain link gates would be installed in the existing southern perimeter fencing for CMS1, CMS2, and CMS4 to permit O&M personnel quicker access to the Project site.

2.3 Fabrication and Construction

2.3.1 Preconstruction Site Drainage Characteristics
Most of the Project site would drain by sheet flow, following existing flow patterns through the site. Areas of the facility that may release contaminants, such as the inverters and substation, would be elevated above the 100-year flood event, as appropriate. On- and off-site drainage would be coordinated with the City’s Public Works Department and the Clark County Regional Flood Control District. The Project may also incorporate permanent drainage and erosion control measures (e.g. drainage channels, flow dissipation measures, etc.) as part of the overall drainage design to help protect the Project and adjacent solar projects immediately north of the site.

2.3.2 Clearing, Grubbing, and Grading
Minor grading would occur throughout the solar PV facility to create a uniformly graded site. Vegetation would be removed as needed; however, vegetation on the Project site is minimal. Minor grading would include cuts and fills that are not expected to exceed 24 inches. The grading would be limited to that necessary for the technology chosen.

2.3.3 Assembly and Construction
During construction, workers would first establish a temporary construction workspace located within the Project site. The temporary workspace would include a parking area, construction offices, a warehouse, and a laydown area. The existing CMS2 laydown area adjacent to the new gen-tie and access driveway may also be utilized. All of these facilities would be removed once Project construction is completed.

Installation of posts, assembly of the solar PV module tables and construction of the arrays would occur concurrently. Multiple temporary staging and laydown areas would be located throughout the Project site to support assembly and installation.

As construction progresses across the site, equipment would be removed from each temporary staging and laydown area, and solar arrays would be installed. To provide concrete during
construction, an off-site ready-mix plant may be used with trucks making delivery; alternatively, the construction contractor may elect to use an on-site batching plant.

Multiple arrays are combined into a circuit, and then multiple circuits are connected to the electrical collection system. Improved (earthen or gravel) roads would be located in a generally north-south orientation to allow access within the arrays.

Construction of the optional BESS may be concurrent with construction of the solar PV facility, or it may occur later. Construction would be confined to a small footprint within or adjacent to the onsite substation. Either a containerized or unoccupied structure(s) would be utilized to house the storage technology. Associated conduit and support infrastructure would also be installed.

Construction of the new poles for the 230 kV gen-tie and stringing lines on the poles would occur concurrently with construction of the solar PV facility. New poles would be no more than 120 feet in height. Span lengths would be between approximately 200 feet and 900 feet, with approximately 10 poles per mile. Conductor stringing would occur by stationing stringing equipment at stringing sites along the gen-tie route, with bucket trucks, cranes, line/assist trucks with air compressors, truck- or trailer-mounted tensioner and puller, and various pickup and flatbed trucks stationed along the gen-tie route as the conductor is installed. Stringing would take place within the existing gen-tie right-of-way (ROW).

2.3.4 Design and Construction Schedule

Construction of the Project is anticipated to begin as early as mid-2019 and is anticipated to be completed late in 2021. The anticipated design and construction period for the Project is presented in Table 3 below.

<table>
<thead>
<tr>
<th>Milestones (Anticipated)</th>
<th>Dates</th>
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<tbody>
<tr>
<td>Execute Interconnection Agreement (LGIA)</td>
<td>09/04/2018</td>
</tr>
<tr>
<td>File UEPA permit application</td>
<td>~04/01/2019</td>
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<tr>
<td>Receive UEPA compliance order from PUCN</td>
<td>~07/31/2019</td>
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<tr>
<td>Execute an Engineering, Procurement and Construction (EPC) contract</td>
<td>06/01/2019</td>
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<table>
<thead>
<tr>
<th>Milestones (Anticipated)</th>
<th>Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deliver full notice to proceed (FNTP) under EPC contract</td>
<td>07/01/2019</td>
</tr>
<tr>
<td>Obtain construction-related permits</td>
<td>09/30/2019</td>
</tr>
<tr>
<td>Begin construction of Project</td>
<td>10/01/2019</td>
</tr>
<tr>
<td>Obtain control of all lands and rights-of-way comprising the site</td>
<td>09/30/2019</td>
</tr>
<tr>
<td>Achieve final completion</td>
<td>12/31/2021</td>
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Typical construction work schedules are expected to be from 7:00 AM to 5:00 PM, 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. Work on the gen-tie may be done at night to minimize outages.

2.3.5 Construction Sequencing

On-site construction is anticipated to begin mid-2019, in order to begin operations on December 31, 2021 as planned. The construction period would be up to two years. The engineering process would be divided between the basic design phase and detail design phase. During the basic design phase, key information drawings and technical specifications would be developed. A Request for Proposals (RFP) for the Engineering, Procurement and Construction (EPC) contractor would be developed and issued at the stage as well. The detail design phase would involve executing the EPC contract and completing the detail drawings and specifications for all equipment. Procurement of long-lead equipment would be conducted prior to starting construction. Construction may be divided into the following six phases:


2. **Grading and Construction of Driveway, Communication Facilities, and Water Line.** Grading for and construction of the approximately 1-mile access driveway between Eldorado Valley Drive and the Project site and installation of communications lines, and water line.

3. **Grading and Construction of Gen-Tie.** Grading for and construction of the 230 kV Gen-tie power line extending from the solar substation to the NSO Substation.
4. **Grading and Construction of Solar Substation.** Grading for and construction of the solar substation, and installation of fencing.

5. **Grading and Construction of Solar Field.** Grading for and construction of the solar generating facility, including the solar modules, electrical collection equipment, and related improvements including fencing.

6. **Optional BESS Construction.** Grading and all construction associated with the optional construction of the BESS in either shipping containers or an unoccupied structure.

The construction stage would commence with site mobilization. Site clearing and grading work would last for approximately 2 months or as required to support Project schedule. Construction of the access driveway and installation of the communication facilities and water line between Eldorado Valley Drive and the Project site would commence. Construction of the 230 kV Gen-tie power line and the onsite substation is expected to require approximately 6 months, inclusive of commissioning, and is expected to commence in the fourth quarter of 2019 (Gen-Tie) and first quarter of 2020 (substation) with concurrent construction anticipated. Piling work for the solar generating facility would then commence. Following normal installation processes for similar solar PV facilities, the mounting structure would first be installed. Next, the modules would be installed and connected to each other in series. The solar PV modules would be installed as arrays; the size of each array would depend upon selected inverter size. Commissioning for all components of the Project would be conducted separately. Upon completion of conventional commissioning, a “Performance and Acceptance” test would be performed.

Temporary construction facilities would include:

- Full-length trailer offices or equivalent
- Parking for construction worker vehicles
- Construction equipment parking
- Fueling area (diesel and gas)
- Chemical toilets
- Holding tanks and/or temporary septic system
- Tool sheds/containers
- Covered assembly area
- Laydown area
- Water holding pond(s)
- Diesel power generator(s)
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Construction materials such as concrete, pipe, wire and cable, fuels, reinforcing steel, and small tools and consumables would be delivered to the site by truck. Initial grading work would include the use of excavators, graders, dump trucks, and end loaders, in addition to support pickups, water trucks, and cranes. It is anticipated that the following equipment would be required:

- Scraper(s)
- Concrete truck(s)
- Motor grader(s)
- Backhoe/loader(s)
- Excavator(s)
- Truck-mounted crane(s)
- Dozer(s)
- Grader-all(s)
- Dump truck(s)
- Flatbed truck(s) for pre-cast foundations
- Pad drum vibrato roller(s)
- Trencher(s)
- Water truck(s)
- Pile driver(s)
- Lightweight truck(s)

2.3.6 Construction Staff

The workforce needed for the Project would vary during construction. The peak personnel during construction is expected to be around 350 people, with average manpower of 200 to 225 per day. Construction of the optional BESS would require approximately 50 management, supervisory, and craft workers. Table 4 and Figure 5 depict the anticipated construction workforce for the duration of construction.
Table 4. Estimated Personnel During Construction

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</table>

Figure 5. Average Manpower During Construction

2.3.7 Construction Waste Management

During construction, the primary waste generated would be solid non-hazardous waste. However, some non-hazardous liquid waste and hazardous waste (solid and liquid) would also be generated. All waste generated during construction would be at the Project site, along the access driveway and gen-tie route. The types of waste potentially generated during construction are described in the following subsections.

2.3.7.1 Non-hazardous Solid Waste/Wastewater

Project construction could potentially generate the following non-hazardous waste streams:

Paper, Wood, Glass, and Plastics: Paper, wood, glass, and plastic wastes are typically generated from packing materials, waste lumber, insulation and empty non-hazardous chemical containers.
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These wastes would be recycled to the extent practical. Waste that cannot be recycled would be disposed of weekly at an appropriately licensed landfill. On the Project site, the waste would be placed in dumpsters.

Metal: Metal wastes that include steel (from welding and cutting operations, packing materials, and empty non-hazardous chemical containers) and aluminum waste (from packing materials and electrical wiring) would be generated during construction. Metal waste would be recycled where practical and non-recyclable waste would be deposited in an appropriately licensed landfill.

2.3.7.2 Wastewater

During construction, wastewater would be collected in self-contained systems and pumped out and disposed of as needed in accordance with local requirements. Wastewater generated during construction would include sanitary waste, collected stormwater runoff, and equipment washdown water. These wastewaters may be classified as hazardous or nonhazardous depending on their chemical quality and handled and disposed of in accordance with applicable laws. See Section 2.3.7.3 for additional discussion of hazardous wastewaters.

2.3.7.3 Hazardous Waste

Most of the hazardous waste generated during construction would consist of liquid waste, such as flushing and cleaning fluids, passivating fluid (to prepare pipes for use), and solvents. Some hazardous solid waste, such as welding materials, may also be generated during construction. Solar PV modules may contain hazardous materials and would be recycled or disposed of properly at the end of their lifecycle. No construction equipment oil or fuel would be drained on the ground. Oils or chemicals would be hauled to an approved site for disposal.

Waste liquid would be generated when pipes are cleaned and flushed, such as during construction of the Project water pipeline. The volume of flushing and cleaning liquid waste generated is estimated to be one to two times the internal volume of the pipes cleaned. The quantity of welding, solvent, and paint waste is expected to be minimal. Wastewaters generated during construction could also be identified as hazardous, based on sampling and testing results.

2.3.8 Erosion and Sediment Control Measures

Due to the removal or disturbance of soil and vegetation during construction, appropriate water erosion and dust-control measures would be required to minimize dust and sediment load to water bodies. These are described in the following subsections.
2.3.8.1 Water Erosion Control Measures

The Project would implement erosion-control Best Management Practices (BMPs) to control stormwater runoff. The contractor would implement site-specific BMPs to comply with regulations and permit conditions. As appropriate, the Project would implement practices for temporary and final erosion control, including:

- Monitor the weather using National Weather Service reports during construction to track conditions and alert crews to the onset of rainfall events.
- Preserve existing vegetation where feasible. Conduct clearing and grading only in areas necessary for Project activities and equipment traffic. Install temporary fencing or signage prior to construction along the boundaries of the construction zone to clearly mark this zone, preventing vehicles or personnel from straying onto adjacent off-site habitat.
- Sequence construction activities with the installation of erosion control and sediment control measures. Arrange the construction schedule as much as practicable to leave existing vegetation undisturbed until grading begins.
- Stabilize non-active areas as soon as feasible on those portions of the Project site where construction has temporarily or permanently ceased.
- Place covers over stockpiles prior to forecasted storm events and during windy conditions as necessary to prevent erosion of stockpiles. Place sediment controls (e.g., fiber rolls, straw bales, silt fencing) around the perimeter of stockpiled materials to control sediment runoff.
- Maintain sufficient erosion control materials on-site to allow implementation of BMPs. This includes implementation requirements for active areas and non-active areas that require deployment before the onset of rain.
- Promptly repair and reapply controls according to BMPs in areas where erosion is evident.

2.3.8.2 Wind Erosion Control Measures

The Project would implement the following practices for wind erosion control:

- Minimize grading and vegetation removal, and limit surface disturbance during construction to the time just before solar PV module support structure installation.
- Limit vehicular speeds on non-paved roads (Clark County ordinance speed limit is 25 miles per hour [mph]).
- Apply water and/or palliatives (as allowed) to disturbed soil areas of the Project site to control dust and maintain optimum moisture levels for compaction, as needed. Apply the water using water trucks. Minimize water application rates, as necessary, to prevent runoff and ponding.
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- During windy conditions (forecast or actual wind conditions of approximately 25 mph or greater), apply dust control to haul roads to adequately control wind erosion. Cover exposed stockpiled material areas that do not have an established crust (i.e., hardened surface).
- Suspend excavation and grading during periods of high winds.
- Cover all trucks hauling soil and other loose material or maintain at least 2 feet of freeboard.

2.4 Operation and Maintenance

2.4.1 Facility Operation

The Project would be an expansion of the Copper Mountain Solar Complex, which includes the existing CMS1, CMS2, CMS3, and CMS4 projects. The O&M activities would be managed and performed by a team of qualified technicians. It is anticipated that five new solar technicians would be hired to help operate the CMS5 facility.

Daily operation of the plant would begin when there is sufficient sunlight to begin operation of the single-axis tracking solar arrays. Maintenance technicians would work an alternative work schedule and be available 7 days a week as needed and would be on site during generation hours. Operators would be on-site on weekends and may work nights to complete maintenance requirements.

2.4.2 Maintenance

Maintenance schedules would be developed to include periodic maintenance and equipment replacement in accordance with manufacturer recommendations. Solar modules may be warrantied for 20 to 25 years and are expected to have a life of 40 years. Moving parts, such as tracker motors, motorized circuit breakers and disconnects, and inverter ventilation equipment, would be serviced on a regular basis, and unscheduled maintenance would be conducted as necessary.

The optional BESS would contain virtually no moving parts outside of its HVAC systems, and would have limited maintenance requirements. Maintenance activities would consist of checking electrical performance parameters, performing periodic inspections and maintenance of switchgear and transformers, and responding to any problems detected by remote monitoring.

2.4.3 Waste Management

The primary waste generated at the Project site during operations would be non-hazardous solid waste. However, varying quantities of liquid non-hazardous waste and solid and liquid hazardous
waste would also be generated. The types of wastes and their estimated quantities are discussed in the following subsections.

2.4.3.1 Non-hazardous Solid Waste

The Project would produce non-hazardous waste, including rags, broken and rusted metal and machine parts, defective or broken electrical materials, empty containers, typical refuse generated by workers and small office operations, and other miscellaneous solid wastes. Material storage yards and access roads would be kept in a clean and orderly condition. Large metal parts would be recycled, and all other non-hazardous wastes would be disposed of in an appropriately licensed landfill.

The large substation transformers and smaller pad-mount transformers in the solar fields would use a biodegradable, non-toxic, vegetable oil-based fluid for cooling (Envirotm™ FR3™ Fluid), which can be reconditioned, recycled, converted to biodiesel, or mixed with other fuels for use in furnaces after use in the transformers. The FR3 fluid that would be produced from sampling or draining the 34.5 kV and 230 kV transformers is considered recyclable waste oil in Nevada.

2.4.3.2 Non-hazardous Wastewater

During operation, routine solar PV module cleaning is not anticipated due to clear local conditions and occasional rainfall. If the panels become soiled over time, water would be used to wash dust and dirt off each solar panel for a cleaning. This water would be non-hazardous and would be allowed to flow onto the ground.

2.4.3.3 Hazardous Waste

Limited quantities of hazardous materials would be used and stored onsite. Based on the operation of the other solar facilities in the Copper Mountain Solar Complex, hazardous materials requiring disposal may include fluorescent light bulbs, batteries, janitorial supplies, office supplies, laboratory supplies, paint, air conditioning refrigerant, and welding rods. These materials would generally be used in small quantities.

During maintenance activities, 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.

Any hazardous materials would be stored in the CMS1 warehouse area. Flammable materials, such as paints and solvents, would be stored in flammable material storage cabinets with built-in containment sumps. The remainder of the materials would be stored on shelves, as appropriate. Due to the small quantities involved, the controlled environment, and the concrete
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floor, a spill would be able to be cleaned up without resulting in any considerable environmental consequences.

The solar PV modules and inverters produce no waste during operation. However, the PV panels may include solid materials that are considered to be hazardous. Broken PV panels would be transferred to a recycling facility.

The optional BESS would produce no waste during operation. However, the BESS may contain battery cells with solid materials that are considered to be hazardous; these components would be sent for recycling as they are replaced during operation of the Project. Because such materials are sealed and confined in trays, racks, and containers, they would not be a source of pollution to stormwater. The energy storage system facility does not present significant potential for introducing pollution to stormwater.

2.4.4 Decommissioning

The Project would be decommissioned following termination of the lease from the City. When the Project ultimately is decommissioned, all above-grade structures would be removed, such as the solar PV modules, support structures, and electrical equipment. All subsurface improvements located within two feet of the surface would also be removed. Any foundations, support structures or footings more than two feet below ground would not need to be removed as long as they are covered with soil.

The solar PV modules and inverters produce no waste during operation, and the modules and related equipment are solid and in a non-leachable state. All solar PV modules removed from the site would be sent off-site for recycling or trucked off-site to an appropriate disposal facility. All fluid removed from on-site transformers at decommissioning would be recycled or reused as discussed above, and the transformer components recycled or disposed of at an appropriate off-site facility. Thus, no ground decontamination or remediation would be required.

2.4.5 Health and Safety

The health and safety of employees and contractors is a high priority. Both the neighboring Copper Mountain Solar Complex and the Mesquite Solar Complex (in Arizona) are Occupational Safety and Health Administration (OSHA) Voluntary Protection Program Star Certified, demonstrating continued exemplary safety programs. All employees and contractors would be required to adhere to the appropriate health and safety plans and emergency response plans. All construction and operation contractors would be required to operate under a health and safety program that meets industry standards.
An operational Environmental Health and Safety Plan (EHS Plan) would be prepared for the Project. The EHS Plan would outline all Project activities, identify all hazardous substances and chemicals used at the site, and ensure compliance with OSHA Standards, the Nevada Division of Industrial Relations requirements, and all other local, state, and federal environmental and regulatory requirements. The EHS Plan would identify site-specific safety control measures, site health and safety roles and responsibilities, speed limits, and site safety hazards and controls.

2.4.6 Site Security and Lighting
The Project site would be secured with 6-foot chain-link fencing that may be topped with a 1-foot barbed wire section. Lighting would be provided at the control building, within the onsite substation, and at the main plant entrance. A perimeter security system may also be installed as necessary. The Project may share the southern existing perimeter fencing at CMS1, CMS2, and CMS4, and new O&M access gates to be installed in that fencing.

2.5 Alternatives Considered but Eliminated from Detailed Consideration
Potential alternatives for the Project were evaluated to determine whether they could substantially achieve the Project goals and objectives in order to be considered feasible and appropriate for further consideration. This section describes the evaluation criteria, interconnection options, and technologies eliminated because they did not meet the Project objectives and/or did not reduce environmental consequences compared to the proposed action.

2.5.1 Solar PV Facility Location Criteria
The primary objective of CMS5 was to locate the solar facility in southern Nevada. A number of criteria were developed and used in evaluating appropriate sites, including:

- adequate solar irradiation
- close proximity to a high capacity substation with access to the NV Energy grid
- adequate transmission capacity to convey the electrical output of the Project
- minimal environmental concerns
- relatively flat site to minimize the need for site grading
- existing access to accommodate construction workforce needs
- land parcel large enough to accommodate a utility scale solar facility
- access to nearby workforce sufficient to support Project construction

The Project site would be added to Boulder City's Eldorado Valley Energy Resource Zone (Energy Resource Zone), which meets all of the Project's siting objectives. The City has established a
zoning category of Energy Resource Zone\(^1\) in which land may be used for the development of private and/or public solar and gas-fired electric generation facilities, electrical transmission and distribution facilities, ancillary facilities, and other similar uses as permitted uses. The Energy Resource Zone is specifically designated for this use. The remote location of the Energy Resource Zone with respect to the population center in the City minimizes the potential for impacts affecting the local population. Annexing the Project site to the existing Energy Resource Zone minimizes all noise, visual, and traffic impacts. Four utility-scale solar generating facilities are already in commercial operation or under construction within the Energy Resource Zone (i.e., the NSO, CMS1, CMS2, and CMS4 projects). Other commercial solar projects are in commercial operation or under construction in areas to the north that the City has zoned as Energy Resource Zone (i.e., CMS3, Boulder Solar, and Techren Solar). Environmental pre-permitting of the Energy Resource Zone by the City would allow the Project to proceed based on the issuance of a building permit by the City. Species mitigation is accomplished through payment of an established mitigation fee.

The Project site is located near several electrical substations, including the NSO, Merchant, Eldorado, Marketplace, and McCullough. These substations could provide the Project with access to multiple energy markets including direct interconnection to NV Energy, the California Independent System Operator, and municipal systems.

2.5.2 Gen-tie Criteria

Another key objective of the Project was to locate the solar PV facility and the gen-tie in an area such that: (1) the length of the gen-tie interconnection to the electrical grid is less than 5 miles to minimize gen-tie losses and costs; and (2) the necessary gen-tie ROW can be acquired. The Project site meets these criteria and has the additional benefit of sharing some of the existing CMS2 gen-tie poles to convey power to the grid at the nearby NSO Switchyard.

2.5.3 Alternatives Considered and Eliminated

Two alternatives were considered but eliminated because they did not meet the goals and objectives of the Project. These included an alternative gen-tie route and use of alternative solar technologies. Alternatives and the reasons for eliminating them from consideration are summarized below.

\(^1\) See Boulder City, Nevada’s Zoning Ordinance, Title 11, Chapter 19.
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2.5.3.1 Alternative Gen-tie Route

One alternative gen-tie route was considered for the Project. Under this alternative, the Project’s onsite substation would be located on the northwest corner of the Project site, with the gen-tie located outside of the Energy Resource Zone in the Bureau of Land Management (BLM) corridor immediately west of CMS1. The gen-tie would then run east along the southern side of Eldorado Valley Drive, crossing over other project leaseholds and various transmission lines before reaching the NSO Switchyard.

The Project’s selected gen-tie route avoids leaving the Energy Resource Zone and the multiple lease/line crossings. Additionally, CMS5 can share about five existing poles with CMS2 with minimal environmental impacts and minimal cost, so the alternative route would not have any advantages.

2.5.3.2 Alternative Solar Technologies

The Project is designed to utilize crystalline silicon or thin-film PV technology mounted on a single-axis tracker racking system. Other solar technologies considered by CMS5 for the Project included concentrating PV and solar thermal technologies. The water demand is significantly greater for solar thermal technology and therefore presents greater environmental concerns. Crystalline silicon and thin film are commercially-proven technologies already in use by affiliates of CMS5 in the Eldorado Valley.

CMS5 determined that using crystalline silicon or thin film PV solar panels is the preferred technology for this Project given the comparatively low water requirements, and reliable, proven technology. Additionally, none of the alternative technologies mentioned above are considered to be capable of reducing the potential environmental impacts associated with the proposed action. Concentrating solar would have greater impacts on visual and biological resources and solar thermal would increase water use. Therefore, other alternative solar technologies were eliminated from further consideration.
3. Existing Setting and Environmental Consequences

The proposed Project site would be added to the City’s Eldorado Valley Energy Resource Zone in Clark County, Nevada. The Project site is approximately 17 miles south of Henderson, Nevada and within the incorporated City of Boulder City.

The Eldorado Valley is in the southern portion of the Basin and Range province and is characterized by north-south trending valleys. Specifically, the McCullough Mountain Range borders on the west and the Eldorado Range on the east flank this portion of the Eldorado Valley.

Resources analyzed in this ES include the following:

- Geology, Soils, and Paleontology, Section 3.1
- Water Resources, Section 3.2
- Air Quality and Climate, Section 3.3
- Biological Resources, Section 3.4
- Cultural Resources, Section 3.5
- Land Use, Section 3.6
- Transportation, Section 3.7
- Visual Resources, Section 3.8
- Noise, Section 3.9
- Waste Management and Hazardous Materials, Section 3.10
- Socioeconomics, Section 3.11
3.1 Geology, Soils, and Paleontology

This section describes the geological, soils, and paleontological resources on the Project site, the impacts of the Project on these resources, and the BMPs/mitigation measures that would reduce impacts.

3.1.1 Existing Setting

The Eldorado Valley has an area of roughly 530 square miles (State of Nevada 1966). It 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. The mid-Tertiary volcanic and plutonic rocks occur in the McCullough, River, and Eldorado Mountains. 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 valley floor of Eldorado Valley is between 1,708 and 1,760 feet (State of Nevada 1966).

The Project site is located on alluvial soils in the Eldorado Valley. 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. Based on the Geologic Map of the Boulder City 15-Minute Quadrangle, Clark County, Nevada (USGS 1977), the site is underlain by Holocene alluvium and fanglomerate. The alluvium is reportedly un lithified, poorly sorted basin-fill clastic deposits that form fans and sheets in the Eldorado Valley. The thickness of the alluvium below the site is approximately 1,000 feet, where it is underlain by bedrock of the Bridge Spring formation, a Miocene-age rhyolitic ash-flow tuff.

The soil textures in the Project site are: sandy clay loam; very gravelly, loamy sand; silty clay loam; and very gravelly, fine sandy loam (NRCS 2012). The soil slopes range from 0 to 2 percent. The soil erosion potential for the entire Project site is low. The Project site has a moderate wind erosion potential, soils with rapid permeability (rare frequency of flooding), and very deep soil depths.

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

3.1.2 Environmental Consequences

This section summarizes potential geologic, soil, and paleontological constraints on the Project site.
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Soils: The erosion susceptibility of the soils in Eldorado Valley ranges from low to moderate under the proposed action (BLM 1992). Soils disturbed by grading, excavation, and construction would have a higher potential for erosion by wind and water. Grading of the solar PV and BESS facilities would include cuts and fills that are not expected to exceed 24 inches. The minor grading would be limited to that necessary for the technology chosen.

Some potential for soil erosion exists within the solar PV facility, due to soil disturbance and removal of vegetation. The Project would utilize BMPs 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.

Faulting: The nearest potentially active fault is a 2-mile long feature located within the Eldorado Valley. Based on the estimated ages of faulted deposits and scarp-profile interpretation, the most recent surface-faulting event probably occurred less than 11,000 years ago. Diffusion-equation modeling of the scarp suggests that the age of the fault ranged from 5,500 to 8,200 years ago (City of Las Vegas 2010). The Project site, as well as most of the southern Nevada region, may experience ground shaking from possible future earthquakes in the region. Clark County has no known history of major earthquakes (City of Las Vegas 2010). However, tremors of intensities ranging between VI and VII on the Modified Mercalli Scale have been felt in the Clark County area as a result of strong earthquakes in west-central Nevada and Southern California. Because of these occurrences, the Las Vegas area is classified in Seismic Zone 2B of the Uniform Building Code (UBC) so that construction should remain sound if subjected to Modified Mercalli Scale intensities of VII (City of Las Vegas 2010). Therefore, potential impacts to the Project from earthquakes are minor.

Mineral Resources: The River Mountains Area of Critical Environmental Concern (ACEC) is an area of about 17.4 square miles, located approximately 14 miles northeast of the project at its closest point, near the intersection of US 83 and US 95. Miocene volcanic rocks underlie the area and no nearby important mineral deposits are known (USGS 2004). The Keyhole Canyon ACEC is about 4 miles southeast of the Project site, and about 2.4 miles east of US-95. There has been no known mining in the immediate area of Keyhole Canyon (USGS 2004); therefore, no impacts to mining operations are expected as a result of the Project.

Paleontological Resources: There are no known paleontological resources or fossils that are sensitive or legally protected in the Project area (Longwell, et al. 1965).

3.1.3 Mitigation Measures

Before the start of construction, the construction contractor would address potential impacts from erosion and obtain a dust control permit from the Clark County Department of Air Quality.
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and Environmental Management as required. Other potential BMPs/mitigation measures may include, but are not limited to, the following:

- Minimize grading and vegetation removal, and limit surface disturbance during construction to the time just before solar PV module support structure installation.
- Limit vehicular speeds on non-paved roads (Clark County ordinance speed limit is 25 mph).
- Apply water or dust palliative to disturbed soil areas of the Project site to control dust and maintain optimum moisture levels for compaction, as needed. Apply the water using water trucks. Minimize water application rates, as necessary, to prevent runoff and ponding.
- Apply dust control measures to haul roads to adequately control wind erosion during windy conditions (forecast or actual wind conditions of approximately 25 mph or greater). Cover exposed stockpiled material areas.
- Suspend excavation and grading during periods of high winds.
- Cover all trucks hauling soil and other loose material or maintain at least 2 feet of freeboard.
- Use gravel or other similar material where dirt access roads intersect the paved roadways to prevent mud and dirt track-out.
- Keep all paved roads clean of objectionable amounts of mud, dirt, or debris, as necessary.
- Apply soil stabilizers, where permissible.
- Install a construction entrance with track-out control devices.
- Stabilize disturbed surfaces after construction is completed.
- Confin e all construction vehicle movement to the Project site, pre-designated access roads, and public roads to reduce soil compaction, erosion, and vegetation loss.
- Conduct site inspections during the construction period to ensure that erosion-control measures were properly installed and are functioning effectively.
- Prohibit construction activities when the soil is too wet to adequately support construction equipment.
- Implement BMPs such as locating waste and excess excavated materials outside drainages to avoid sedimentation.
- Install silt fences, temporary earthen berms, temporary water bars, sediment traps, stone check dams, or other equivalent measures (including installing erosion-control measures around the perimeter of stockpiled fill material), as necessary.
3.2 Water Resources

Hydrologic resources include groundwater, surface water, and wetlands. The State Engineer, per authority granted by the Nevada Revised Statutes 533 and 534, oversees groundwater quality and the issuance of permits for the use of both groundwater and surface water. Wetlands and waters of the United States are managed by the U.S. Army Corps of Engineers. This section describes the water resources in the Project site, the impacts of the Project on these resources, and the BMPs/mitigation measures that would reduce impacts.

3.2.1 Existing Setting

3.2.1.1 Groundwater

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

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

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

According to the Nevada Division of Water Resources, the Eldorado Valley is a designated groundwater basin with high variability in the depth of water. Records from the Nevada Division of Water Resources list a borehole near the Marketplace Substation, approximately 1.6 miles northwest of the Project site. The depth in the borehole to static groundwater was measured at 315 feet below land surface in 1994 (NDWR, 1994).

The Safe Drinking Water Act sets up barriers against pollution to drinking water which includes the protection of source waters. States and water suppliers are responsible for ensuring that
these sources are protected. The state of Nevada’s Division of Environmental Protection (NDEP) has primary authority granted under this Act by the U.S. Environmental Protection Agency (USEPA) and has delegated responsibility to the owners, managers, and operators of public water systems (NDEP 2013). Since source waters would not be contaminated as a result of any activities associated with the Project within Eldorado Valley, there is no regulation.

3.2.1.2 Surface Water

The presence of surface water resources in the Eldorado Valley is very limited. Estimated runoff within the basin, though not known with certainty, is estimated at less than 100 acre-feet/year (Scott et al., 1971). Storm events in the Eldorado Valley basin may result in shallow flash flooding over large areas as observed in surrounding basins. There is infrequent storm runoff from the surface that occurs as ephemeral flow in streambeds and occasionally results in ponding of water in the Eldorado Dry Lake. An earthen berm bordering the east side of US-95 serves in directing the infrequent stormwater runoff northward.

The Project site is located within the Eldorado Valley, portions of which have been designated as a special flood hazard area subject to inundation by the 100-year floodplain. Areas to the west of the Project site are within a designated floodplain. The westernmost portion of the Project site is located within a Zone A floodplain. See Figure 6. The Federal Emergency Management Agency issued a Letter of Map Revision (Case No. 10-09-3783P) effective April 11, 2011 for this area.
Figure 6. Flood Zones in the Project Area

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

As the Eldorado Valley is a closed basin in which surface water runoff from the surrounding mountains is directed to the Eldorado Dry Lake, and because no federal approval is required for the project, certification under Section 401 of the Clean Water Act is not expected to be required for this project; however, a jurisdictional determination report can be submitted to the U.S. Army Corps of Engineers if an official determination is necessary. No permanent surface waters or wetlands exist on or near the Project site. Narrow and shallow ephemeral drainage washes flow
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from south to north across the site. Though water does flow during infrequent storm events, since there is no connection of this flow to the Colorado River system, there is no regulation under Section 404 of the Clean Water Act.

3.2.2 Environmental Consequences

3.2.2.1 Groundwater

Groundwater depth has been measured at 315 feet deep (NDWR, 1994). Activities associated with the construction and operation of the Project would not have impacts at depths exceeding 30 feet; therefore, the Project would not intercept or impact the groundwater.

Groundwater would not be utilized for either the construction or operation of the Project. Instead, water for construction and operation of the Project would be provided by a connection to the Boulder City Public Works Department’s water main which is located along the west side of US-95. A temporary waterline would be installed for construction while a permanent line would be constructed from the CMS2 fire hydrant area to support water needs during operations. Water use during construction (primarily for dust control) would total approximately 430 acre-feet per year for the estimated up to two-year construction period. A temporary lined pond and/or storage tanks would provide buffer for water storage and use. Annual water usage during operations (for dust control and possible solar PV module cleaning) is not expected to exceed 5 acre-feet per year.

3.2.2.2 Surface Water

Activities associated with the construction and operation of the Project would not divert flows from areas of perennial flow or from ephemeral washes and would not divert water from downstream habitats. As no discharge of hazardous materials to surface water resources would occur, considerations under the Safe Drinking Water Act would not be required. The Project may also incorporate drainage channels as part of drainage design to help protect the adjacent solar projects immediately north of the site.

Increased soil disturbance would occur during construction of the Project, potentially resulting in increased levels of erosion. It is possible that this erosion would result in increased levels of sedimentation to the Eldorado Dry Lake. Potential impacts resulting from this increased erosion and sedimentation due to soil disturbance would be reduced using BMPs and mitigation measures.
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3.2.3 Mitigation Measures

3.2.3.1 Groundwater

As no excavation activities would be expected to exceed 30 feet in depth and the groundwater level is at approximately 315 feet, no groundwater mitigation measures would be necessary.

Project maintenance operations may require occasional cleaning of solar panels using water from the Boulder City Public Works Department’s water main. While runoff from these activities would occur, no impacts would result from these activities due to the use of non-hazardous water sources as well as the extreme depth of the groundwater; therefore, no mitigation is required.

During construction of the Project, on-site portable toilets would be provided and maintained so no impacts to groundwater resources from discharge of sanitary wastewater would occur; therefore, no mitigation is required.

3.2.3.2 Surface Water

As no existing water bodies are located down gradient of the Project, no impacts to surface waters are anticipated; therefore, no mitigation is required. The State of Nevada Department of Environmental Protection determined that construction and operation of the adjacent CMS4 would not require a general permit for stormwater discharge or preparation of a Stormwater Pollution Prevention Plan (SWPPP) because the drainages were isolated and not connected with downstream-regulated waters. As CMS5 conditions are virtually identical, obtaining a SWPPP for this project would not be warranted.

Measures would be established for control of on-site surface flows, erosion, and sedimentation resulting from soil disturbance activities. These measures are described in Section 2.3.8.1.
3.3 Air Quality

For this 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 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 considers these factors and provides a reliable and conservative prediction of the air impacts that would occur during construction and operation of the Project. The Federal Clean Air Act (CAA) and subsequent amendments have provided the authority and framework for regulation of air emission sources by the USEPA. 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 5). These standards are defined in terms of threshold concentration (e.g., micrograms per cubic meter [μg/m³]) 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 (PM2.5) were added.
### Table 5. National Ambient Air Quality Standards

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Primary/Secondary</th>
<th>Averaging Time</th>
<th>Level</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon Monoxide (CO)</td>
<td>primary</td>
<td>8 hours</td>
<td>9 ppm</td>
<td>Not to be exceeded more than once per year</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 hour</td>
<td>35 ppm</td>
<td></td>
</tr>
<tr>
<td>Lead (Pb)</td>
<td>primary and secondary</td>
<td>Rolling 3-month average</td>
<td>0.15 µg/m³ (1)</td>
<td>Not to be exceeded</td>
</tr>
<tr>
<td>Nitrogen Dioxide (NO₂)</td>
<td>primary</td>
<td>1 hour</td>
<td>100 ppb</td>
<td>98th percentile of 1-hour daily maximum concentrations, averaged over 3 years</td>
</tr>
<tr>
<td></td>
<td>primary and secondary</td>
<td>1 year</td>
<td>53 ppb (2)</td>
<td>Annual Mean</td>
</tr>
<tr>
<td>Ozone (O₃)</td>
<td>primary and secondary</td>
<td>8 hours</td>
<td>0.070 ppm (3)</td>
<td>Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years</td>
</tr>
<tr>
<td>Particulate Matter (PM)</td>
<td>PM₂.₅</td>
<td>primary</td>
<td>1 year</td>
<td>12.0 µg/m³ annual mean, averaged over 3 years</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Primary/Secondary</th>
<th>Averaging Time</th>
<th>Level</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>secondary</td>
<td>1 year</td>
<td>15.0 µg/m³</td>
<td>annual mean, averaged over 3 years</td>
</tr>
<tr>
<td></td>
<td>primary and secondary</td>
<td>24 hours</td>
<td>35 µg/m³</td>
<td>98th percentile, averaged over 3 years</td>
</tr>
<tr>
<td>PM₁₀</td>
<td>primary and secondary</td>
<td>24 hours</td>
<td>150 µg/m³</td>
<td>Not to be exceeded more than once per year on average over 3 years</td>
</tr>
<tr>
<td>Sulfur Dioxide (SO₂)</td>
<td>primary</td>
<td>1 hour</td>
<td>75 ppb (4)</td>
<td>99th percentile of 1-hour daily maximum concentrations, averaged over 3 years</td>
</tr>
<tr>
<td></td>
<td>secondary</td>
<td>3 hours</td>
<td>0.5 ppm</td>
<td>Not to be exceeded more than once per year</td>
</tr>
</tbody>
</table>
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<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Primary/Secondary</th>
<th>Averaging Time</th>
<th>Level</th>
<th>Form</th>
</tr>
</thead>
</table>

Source: EPA 2018

Notes:

(1) In areas designated nonattainment for the Pb standards prior to the promulgation of the current (2008) standards, and for which implementation plans to attain or maintain the current (2008) standards have not been submitted and approved, the previous standards (1.5 ug/m³ as a calendar quarter average) also remain in effect.

(2) The level of the annual NO₂ standard is 0.053 ppm. It is shown here in terms of ppb for the purposes of clearer comparison to the 1-hour standard level.


(4) The previous SO₂ standards (0.14 ppm 24-hour and 0.03 ppm annual) would additionally remain in effect in certain areas: (1) any area for which it is not yet 1 year since the effective date of designation under the current (2010) standards, and (2) any area for which an implementation plan providing for attainment of the current (2010) standard has not been submitted and approved and which is designated nonattainment under the previous SO₂ standards or is not meeting the requirements of a SIP call under the previous SO₂ standards (40 CFR 50.4(3)). A SIP call is an EPA action requiring a state to resubmit all or part of its State Implementation Plan to demonstrate attainment of the required NAAQS.

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.

Clark County is in attainment/unclassifiable for PM₂.₅, SO₂, NO₂, Pb, and the 2008 O₃ NAAQS. The Project site is located in Hydrographic Area 167, which is an attainment area subject to maintenance plan for the 1997 O₃ NAAQS. The project area, like most of Clark County, is in attainment with all NAAQS. However, the Las Vegas Valley (Hydrographic Area 212) is a marginal nonattainment area for the 2015 O₃ NAAQS and an attainment area subject to a maintenance plan for the CO and PM₁₀ NAAQS. The applicable de minimis thresholds for each criteria air...
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pollutant are presented in Table 6. While the status of the Las Vegas Valley is not applicable to the Project site, the thresholds are given for the subject pollutants for demonstration purposes.

Ongoing scientific research has identified the potential global climate impacts caused by 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. Currently there are no emission limits for GHG emissions.

The following subsections describe the air quality in the Project site and surrounding vicinity, the impacts of the Project on air quality, and the BMPs/mitigation measures that would reduce impacts.

3.3.1 Existing Setting

The Project site and surrounding region is located near a dry lake bed in the low-elevation arid Mojave Desert, surrounded by desert mountain terrain, all within Clark County, Nevada. Clark County maintains an arid climate year-round, with an average temperature of 69 degrees Fahrenheit. The hottest month is July with an average temperature of 93 degrees Fahrenheit and the coldest month is December with an average temperature of 48 degrees Fahrenheit (U.S. Climate Data). The Project site lies within the Eldorado Valley, between the McCullough Range to the west and the Eldorado Range to the east. Within the Eldorado Valley, elevation in the vicinity of the Project site is approximately 470 feet above mean sea level (MSL). Surrounding the Project site, elevations are more than 7,000 feet above MSL in the McCullough Range and 5,060 feet above MSL in the Eldorado Range. The elevation of these mountain ranges, along with the lower elevations of the valley, creates existing discernible air quality effects in the Eldorado Valley because the mountain ranges confine pollutants within the Eldorado Valley.

There are no ambient air quality monitoring stations within the immediate vicinity of the Project site. The nearest station, which monitors O₃ and PM₁₀, is located approximately 15 miles to the northeast of the Project site in Boulder City.

3.3.2 Environmental Consequences

Emissions associated with the construction and operation of the Project could have negative effects on air quality. Air emissions associated with the Project would occur primarily during
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collection and would be chiefly associated with fugitive dust from ground-disturbing activities include grading, pad construction and installation of the gen-tie, as well as emissions associated with engine exhaust from construction equipment, the transportation of goods, and the commuting of construction workers, all of which are included in this analysis. Emissions during operations would be limited primarily to on-road travel of vehicles associated with worker commutes for maintenance activities. Emissions resulting from Project construction and O&M activities are quantified in the following subsections.

3.3.2.1 Construction Emissions

Construction of the Project is projected to take up to 24 months. Average traffic during construction is estimated at 350 trips per day, carrying an average of 225 - 250 workers. Truck traffic during construction is expected to average approximately 30 truck trips per day. Emissions for the paved road components were based upon maximum trucks per month and number of workers at peak construction.

During site development, the Project would include grading of approximately 1,135 acres of the approximately 1,145-acre site and an additional 10 to 15 acres for the access driveway, gen-tie, and waterline corridor, 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 be associated with vehicle exhaust.

Construction emissions are summarized in Table 6, including oxides of nitrogen (NOx) and volatile organic compounds (VOC), which together combine chemically in the presence of sunlight to create ozone. 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. Fugitive dust emissions during construction were calculated using AP-42 emission factors, the estimated number of vehicles, vehicle parameters, paved and unpaved road travel distances, and an estimated 50 percent control factor for watering the unpaved roads during construction (AP-42 Section 13.2.1 and Section 13.2.2).

Table 6. Criteria Air Pollution Emissions (Tons/Year) Over the 24 Month Project Construction Duration

<table>
<thead>
<tr>
<th>Year</th>
<th>CO</th>
<th>NOx</th>
<th>SO2</th>
<th>VOC</th>
<th>PM10</th>
<th>PM2.5</th>
<th>CO2e</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019</td>
<td>6.4</td>
<td>6.1</td>
<td>0.014</td>
<td>0.7</td>
<td>9.5</td>
<td>2.3</td>
<td>2168</td>
</tr>
</tbody>
</table>
### 3.3.2.2 Operation and Maintenance Emissions

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

Fugitive dust emissions from paved and unpaved roads were calculated based on the estimated number of vehicles, vehicle parameters, estimated paved and unpaved road travel distances, and an estimated 50 percent control factor for dust suppressants planned for the facility roads (AP-42 Section 13.2.1 and Section 13.2.2), and are summarized in Table 7. 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 PM$_{10}$ and PM$_{2.5}$ (Section 13.2.5), and an estimated 90 percent control factor for the planned mitigation measures.

Vehicle exhaust emissions (NO$_x$, SO$_2$, CO, PM$_{10}$, PM$_{2.5}$, and VOC) during maintenance activities would include heavy trucks and employee vehicles. It was assumed that both the trucks and employee vehicles would travel 30 miles each way.
Table 7. Criteria Air Pollutant Emissions (Tons/Year) During the Project O&M (Annual)

<table>
<thead>
<tr>
<th>Source</th>
<th>CO</th>
<th>NOx</th>
<th>SO₂</th>
<th>VOC</th>
<th>PM₁₀</th>
<th>PM₂.₅</th>
<th>CO₂e</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emissions generated by maintenance and operation site traffic</td>
<td>1.0</td>
<td>0.2</td>
<td>0.001</td>
<td>0.02</td>
<td>2.4</td>
<td>0.4</td>
<td>128</td>
</tr>
<tr>
<td>Windblown dust from exposed ground</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>1.7</td>
<td>0.3</td>
<td>NA</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>1.0</strong></td>
<td><strong>0.2</strong></td>
<td><strong>0.001</strong></td>
<td><strong>0.02</strong></td>
<td><strong>4.1</strong></td>
<td><strong>0.7</strong></td>
<td><strong>128</strong></td>
</tr>
<tr>
<td>General Conformity <em>de minimis</em> Thresholds</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>NA</td>
</tr>
</tbody>
</table>

Notes: CO = carbon monoxide; CO₂ = carbon dioxide; NOx = nitrogen oxides; PM₁₀ = particulate matter with a mean aerodynamic diameter of 10 micrometers or less; PM₂.₅ = particulate matter with a mean aerodynamic diameter of 2.5 micrometers or less; SO₂ = sulfur dioxide; VOCs = volatile organic compounds
3.3.3 Mitigation Measures

Construction of the Project would temporarily cause fugitive dust related to grading and other construction activities. To comply with Clark County dust control requirements, water would be used to control dust. Areas of higher erosion or poor soils may require application of a palliative dust reducing agent; palliatives would not be used in desert tortoise habitat to avoid potential negative effects on individuals and their burrows. The Project would implement the following BMPs for fugitive dust and wind erosion control:

- Minimize grading and vegetation removal, and limit surface disturbance during construction to the time just before solar PV module support structure installation.
- Limit vehicular speeds on non-paved roads (Clark County ordinance speed limit is 25 mph).
- Apply water and/or palliatives (as allowed) to disturbed soil areas of the Project site to control dust and maintain optimum moisture levels for compaction, as needed. Apply the water using water trucks. Minimize water application rates, as necessary, to prevent runoff and ponding.
- During windy conditions (forecast or actual wind conditions of approximately 25 mph or greater), apply dust control measures to haul roads to adequately control wind erosion. Cover exposed stockpiled material areas that do not have an established crust (i.e., hardened surface).
- Suspend excavation and grading during periods of high winds.
- Cover all trucks hauling soil and other loose material or maintain at least 2 feet of freeboard.
- Gravel or other similar material would be used where dirt access roads intersect the paved roadways to prevent mud and dirt track-out. All paved roads would be kept clean of objectionable amounts of mud, dirt, or debris, as necessary.
3.4 Biological Resources

The term "biological resources" refers to the plants and animals that inhabit the Project area. These are divided into three categories: vegetation, referring to plants; wildlife, referring to animals; and special status species, which refers to plants, animals, or other organisms that are protected by the Endangered Species Act or NAC Chapter 501 and NAC Chapter 503. This section describes the biological resources known or expected to occur within the Project site, the impacts of the Project on these resources, and the BMPs/mitigation measures that would reduce impacts.

3.4.1 Existing Setting

3.4.1.1 Vegetation

Boulder City lies in the Mojave Basin and Range ecoregion. This is an arid desert environment, receiving approximately 2-8 inches of rain annually. Mojave Creosote Bush Scrub is the major vegetation type in the Project site. This vegetation type consists mostly of creosote shrub (Larrea tridentata) and white bursage (Ambrosia dumosa) in a sparse, widely-spaced pattern of growth that appears on slopes, fans, and valleys (UCSB 2004, BLM 2012). Additional species that were documented during field visits in September-October 2015 are presented in Table 8.

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cat's claw vines</td>
<td>Macfadyena unguis-cati</td>
</tr>
<tr>
<td>Beavertail cactus</td>
<td>Opuntia basilaris</td>
</tr>
<tr>
<td>Buck horn cholla</td>
<td>Cylindropuntia acanthocarpa</td>
</tr>
<tr>
<td>Devil's spineflower</td>
<td>chorizanthe rigida</td>
</tr>
<tr>
<td>Mediterranean grass</td>
<td>schismus barbatus</td>
</tr>
<tr>
<td>Desert marigold</td>
<td>Baileya multiradiata</td>
</tr>
<tr>
<td>Wingnut cryptantha</td>
<td>Cryptantha pterocarya</td>
</tr>
<tr>
<td>Cotton top cactus</td>
<td>Echinocactus polycephalus</td>
</tr>
</tbody>
</table>
3.4.1.1 Non-Native Invasive Plant Species

Four non-native invasive plant species are known to have colonized within or near the Project site: Sahara mustard (Brassica tournefortii), Mediterranean grass (Schismus spp.), red brome (Bromus madritensis), and Russian thistle/tumbleweed (Salsola iberica) (NextLight 2009). These invasive plants occupy the Project site in low numbers, and none of them are particularly abundant (NextLight 2009). Sahara mustard is the only one designated as a noxious weed by the Nevada Department of Agriculture. It is classified as a Category B weed species. 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” (NVDA 2005).

3.4.1.2 Cactus and Yucca

Cactus and yucca are protected under NRS 527.060-527.120, Nevada State Protection of Christmas Trees, Cacti, and Yucca. During field surveys, two species of cacti were observed in the Project site: cotton top cactus (Echinocactus polycephalus) and beavertail cactus (Opuntia basilaris). No yucca was observed within the Project site.

3.4.1.2 Wildlife

Species known to inhabit the Project site and vicinity include species typical of the Mojave Desert. Wildlife and wildlife sign known to occur or observed during field surveys (September-October 2015) are presented in Table 9.

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freemont’s pincushion</td>
<td>Chaenactis fremontii</td>
</tr>
<tr>
<td>Cheesebush</td>
<td>Ambrosia salsola</td>
</tr>
<tr>
<td>Soft prairie clover</td>
<td>Dalea mollisima</td>
</tr>
<tr>
<td>Six-weeks grama</td>
<td>Bouteloua barbata</td>
</tr>
<tr>
<td>Parry’s sandmat</td>
<td>Chamaesyce parryi</td>
</tr>
</tbody>
</table>
Table 9. Wildlife and Wildlife Sign Observed in the Project Area.

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reptiles</td>
<td></td>
</tr>
<tr>
<td>Desert iguana</td>
<td><em>Dipsosaurus dorsalis</em></td>
</tr>
<tr>
<td>Large-spotted leopard lizard</td>
<td><em>Gambelia wislizenii wislizenii</em></td>
</tr>
<tr>
<td>Side blotched lizard</td>
<td><em>Uta stansburiana</em></td>
</tr>
<tr>
<td>Southern desert horned lizard</td>
<td><em>Phrynosoma platyrhinos</em></td>
</tr>
<tr>
<td>Desert tortoise</td>
<td><em>Gopherus agassizii</em></td>
</tr>
<tr>
<td>Birds</td>
<td></td>
</tr>
<tr>
<td>Turkey vulture</td>
<td><em>Cathartes aura</em></td>
</tr>
<tr>
<td>Common nighthawk</td>
<td><em>Chordeiles minor</em></td>
</tr>
<tr>
<td>Raven</td>
<td><em>Corvus corax</em></td>
</tr>
<tr>
<td>Red-tailed hawk</td>
<td><em>Buteo jamaicensis</em></td>
</tr>
<tr>
<td>Mammals</td>
<td></td>
</tr>
<tr>
<td>Desert pocket mouse (sign)</td>
<td><em>Chaetodipus penicillatus sobrinus</em></td>
</tr>
<tr>
<td>Kit fox</td>
<td><em>Vulpes macrotis</em></td>
</tr>
<tr>
<td>Kangaroo rat (sign)</td>
<td><em>Dipodomys spp.</em></td>
</tr>
<tr>
<td>Woodrat (sign)</td>
<td><em>Neotoma ssp.</em></td>
</tr>
</tbody>
</table>
3.4.1.3 Special-Status Species

The only federally-protected special-status species known to occur in the Project site is the desert tortoise (*Gopherus agassizii*), which is classified as Threatened under the Endangered Species Act (ESA), and migratory birds, which are protected under the Migratory Bird Treaty Act (MBTA). State-protected special-status species that have the potential to occur in the Project site include the western burrowing owl (*Athene cunicularia hypugaea*) and Gila monster (*Heloderma suspectum*) (BLM 2012). These species are discussed further below.

3.4.1.3.1 Desert Tortoise

The desert tortoise was listed as Endangered under the ESA in 1990 (USFWS 2011a) and subsequently reclassified as Threatened. It occurs in the Mojave and Sonoran deserts in Southern California, southern Nevada, Arizona, and the southwestern tip of Utah in the United States, as well as Sonora and northern Sinaloa in Mexico (USFWS 2011a). As per USFWS (2011a), the “Mojave population” of this animal includes: “all individuals living north and west of the Colorado River in the Mojave Desert in California, Nevada, Arizona, and southwestern Utah, and in the Sonoran (Colorado) Desert in California”.

Throughout their range, primary threats to desert tortoise populations include habitat loss and alteration, illegal collection by human beings, disease, and predation (USFWS 2011a). Desert tortoise habitat is affected by urbanization, transportation infrastructure, off-road vehicle activity, poor grazing management, colonization by invasive plants, and wildfire (USFWS 2011a). All of these factors can cause alteration, fragmentation, or even the outright elimination of desert tortoise habitat. While the desert tortoise is protected by the ESA, illegal take of desert tortoises for food, pets, or other purposes does still occur (USFWS 2011a). Existing evidence suggests that upper respiratory tract disease has had a significant negative impact on desert tortoise populations (USFWS 2011a). There is some evidence to suggest that exposure to environmental contaminants, especially heavy metals, predisposes desert tortoises to contracting upper respiratory tract disease (USFWS 2011a). Desert tortoise populations are also threatened by various naturally-occurring predators, the most important of which are ravens and coyotes.

In September-October 2015, regionally experienced biologists conducted pre-project tortoise surveys for the Project in accordance with 2010 USFWS protocols (USFWS 2010). 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 a project area (USFWS 2010). The survey area included the entire Project site (1,145 acres) and 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.
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Three live tortoises (two adults and one juvenile) were found within the primary Project site during pre-project tortoise surveys. Results of the pre-project tortoise surveys are presented in Table 10. The density of desert tortoise within the Project site was estimated at 2.3 tortoises per square mile using USFWS pre-project survey protocol (USFWS 2010). Based on the Berry-Nicholson Model (1984), tortoise density within the Project site is considered “very low.”

Table 10. Desert Tortoise Sign Observed in the Project Site.

<table>
<thead>
<tr>
<th>Sign Type</th>
<th>Number Observed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Live Tortoises (Adult/Juvenile)</td>
<td>3 (2/1)</td>
</tr>
<tr>
<td>Tortoise Burrows</td>
<td>41</td>
</tr>
<tr>
<td>Scat</td>
<td>7</td>
</tr>
<tr>
<td>Carcasses</td>
<td>10</td>
</tr>
</tbody>
</table>

3.4.1.3.2 Migratory Birds Including Western Burrowing Owl

Executive Order (January 11, 2001) defines 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. Numerous bird species travel through Nevada during spring and fall migrations. Species protected by the MBTA are listed in 50 CFR 10.13. The list of birds protected under this regulation is extensive, with over 1,000 species protected. Typically, the breeding season is when migratory birds are most sensitive to disturbance, which generally occurs from March 1 through August 31.

Migratory birds that were observed during the pre-project tortoise surveys include the common raven, common nighthawk, and red-tailed hawk. It is assumed that the Project site contains potential nesting and foraging habitat for a wide range of migratory birds including the western burrowing owl.

Western 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;
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Western burrowing owls are protected by the MBTA and are a state-protected species in Nevada (NRS 503.620). Threats to burrowing owl populations throughout their range include alteration of breeding and wintering habitat, illegal hunting, predation, disease, inadequacy of existing regulatory mechanisms, pesticides, and various other natural or manmade factors (such as collisions with stationary/moving structures, or disease) (USFWS 2003).

No western burrowing owls or owl burrows were observed during field visits and pre-project tortoise surveys. However, the Project site does have the potential for burrowing owl use, as it contains suitable nesting and foraging habitat (BLM 2012).

3.4.1.3.3 Gila Monster

Gila monsters are carnivorous/insectivorous lizards (USFWS 2011b) whose range is centered in western and southern Arizona, and extends south through Sonora, Mexico (USGS 2006). They inhabit rocky slopes, washes, and sandy valleys in the desert environment, and can spend more than 95 percent of their time in underground shelters (USFWS 2011b). The Gila monster is not a federally protected species; however, the species is classified as State Sensitive Reptiles in Nevada (NAC 503.080) and are protected under Nevada state laws NAC 503.090 and NAC 503.093.

The Project site supports suitable Gila monster habitat, although no Gila monsters were observed during field visits and pre-project tortoise surveys. Data compiled by Nevada Natural Heritage Program (NNHP) from previous surveys reported the Gila monster occurs near the Project site.

3.4.2 Environmental Consequences

3.4.2.1 Vegetation

About 1,135 acres of the Project site would be graded, causing direct removal of vegetation and wildlife habitat; 10 to 15 acres of land along the Southwest Gas Pipeline easement corridor would also be graded. Additionally, ground disturbance associated with construction activities could facilitate the introduction or spread of noxious or invasive weed species that can displace native vegetation, increase fire frequency, and reduce the quality of wildlife habitat.

During field surveys, only a few cactus plants were observed in the Project site, which are protected for commercial sale and transport under NRS 527.060-527.120, Nevada State Protection of Christmas Trees, Cacti, and Yucca. Grading activities would cause direct removal of the few cactus plants known on the Project site.
3.4.2.2 Wildlife

During construction of the Project, ground-disturbing activities could directly result in mortality to various wildlife species, as about 1,150 acres would be graded. Fencing would be installed to help exclude wildlife after construction. Some species that are particularly mobile might be able to avoid injury or mortality by leaving the area. However, some wildlife, such as nocturnal species or species that use burrows, might be more susceptible to injury or mortality. Although temporary in nature, noise and activity associated with construction could cause animals to avoid the area, thus altering their normal behavior patterns.

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

3.4.2.3 Special Status Wildlife Species

3.4.2.3.1 Desert Tortoise

The entire Project site supports suitable desert tortoise habitat. During surveys conducted in September-October 2015, three live tortoises were observed on the Project site. The Project site is located entirely on private lands (i.e. land owned by the City) and CMS5 would obtain incidental take authorization for desert tortoise via the existing Clark County Multiple Species Habitat Conservation Plan (MSHCP) Section 10 permit.

Tortoises may be injured or killed during construction activities. Although not required under the Clark County MSHCP, a pre-construction clearance survey would be conducted for the Project site. If a tortoise is found during the pre-construction survey, it would be removed and appropriately relocated by an authorized biologist.

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

Indirect effects could be caused by access roads, newly constructed fencing and the new gen-tie line which may facilitate 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 gen-ties, fences, or other opportunities; or increased water sources due to dust control protocols. An increased presence of predators could lead to an increase in predation on smaller, more vulnerable tortoises.
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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.

Effects to desert tortoises due to constructing the gen-tie would be less than those described for construction of the solar facility because the alignment of the gen-tie has previously been disturbed. The gen-tie ROW would not be fenced so desert tortoises would be able to access the area over the life of the Project. Speed limits and a WEAP would reduce potential effects along the gen-tie ROW during operations.

3.4.2.3.2 Migratory Birds

Approximately 1,135 acres of native plant communities within the solar PV facility that provide potential habitat to nesting migratory birds would be removed during Project construction. In addition, 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 injured or destroyed. During operation of the facility birds may be injured, electrocuted, or killed from collisions with power lines or vehicles. The proposed gen-tie line would be within an existing and highly disturbed utility corridor; though some limited revegetation has occurred via natural recruitment within the corridor, the vegetation is too sparse to support breeding bird habitat. Additionally, minimization measures such as a WEAP would reduce these effects.

3.4.2.3.3 Gila Monster

The entire 1,145-acre primary Project site supports suitable Gila monster habitat. Therefore, the grading, construction, and fencing associated with Project would result in a loss of 1,135 acres of potential Gila monster habitat. Increased human activity and construction vehicle traffic may also result in Gila monster/vehicle collisions that result in injury or death. Minimization measures such as a WEAP, and speed limits on roads, would reduce or eliminate these effects.

Indirect effects that could be caused by Project site fencing and the 230 kV gen-tie 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 the new gen-tie, 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 Gila monsters.
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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 Project 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 the prey of Gila monsters. Minimization measures such as a WEAP, and speed limits on roads, would reduce these effects.

3.4.3 Mitigation Measures

3.4.3.1 Vegetation

The following BMPs/mitigation measures would be implemented to reduce construction impacts on vegetation and wildlife habitat:

- All construction vehicle movement would be restricted to the Project site, pre-designated access roads, staging areas, and public roads.
- CMSS would avoid creating soil conditions that promote weed germination and establishment.

3.4.3.2 Wildlife

These general conservation measures are adapted from the Clark MSHCP and associated Environmental Impact Statement (Clark County 2002). The following BMPs/mitigation measures would aid in preserving the quality of adjacent desert tortoise habitat and would benefit other species:

- Store, use, and dispose chemicals, fuels, and other toxic materials in an appropriate manner.
- Keep equipment in good condition with no significant leaks of fuel or other substances that could be toxic to animals and fish. Equipment should be washed prior to first site use to prevent the spread of invasive species.
- Keep materials to absorb small spills of toxic materials available onsite.
- Ensure that roads are engineered to adequately spread runoff to minimize erosion.
- Minimize soil compaction, erosion, and vegetation loss to preserve habitat by limiting construction activities to the Project site.

3.4.3.3 Special Status Wildlife Species

3.4.3.3.1 Desert Tortoise

The following BMPs/mitigation measures would be implemented to reduce effects on the desert tortoise and other species during construction:
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- **Pre-Construction Clearance Survey:** Though not required for projects entirely on private land, as a voluntary effort, the developer would have field biologists conduct a single-pass clearance survey immediately prior to any construction activities. Tortoises found during this survey would either be collected and/or relocated outside the Project site by Clark County Desert Tortoise Pick-Up Program.
  
  - Burrows with the potential to be occupied by tortoises within the construction area would be searched for tortoise occupancy. In some cases, a fiber optic scope would be used to determine presence or absence within a deep burrow. If a tortoise-occupied burrow is located, the tortoise would be excavated using hand tools by a qualified biologist in accordance with standard USFWS protocols.

- **Worker Environmental Awareness Program (WEAP):** A WEAP would be presented to all personnel on site during construction. This program would contain information concerning the biology and distribution of the desert tortoise, desert tortoise activity patterns, and its legal status and occurrence in the Project site. The program would also discuss the definition of "take" and its associated penalties, measures designed to minimize the effects of construction activities, the means by which employees limit impacts, and reporting requirements and procedures to be implemented if tortoises are encountered. Personnel would be instructed to check under vehicles before moving them as tortoises often seek shelter under parked vehicles.

- **Trash and Litter Control:** Trash and food items would be disposed properly in predator-proof containers with resealing lids. Trash would be emptied and removed from the Project site on a weekly basis. Trash removal reduces the attractiveness of the area to opportunistic predators such as ravens, coyotes, and foxes.

- **Habitat Compensation:** Prior to surface disturbance activities, CMS5 would pay a one-time remuneration fee (per acre of proposed disturbance). The compensation rate for habitat loss required by the MSHCP is $550/acre for development on private lands.

- **Fencing:** Desert Tortoise exclusion fencing would be installed along the outer perimeter fencing on the western, southern, and eastern borders of the Project site. The Project is bordered on the north by three existing solar projects so northern fencing is not contemplated. Tortoise fencing is not contemplated within the Project site along the transverse 85-foot wide Southwest Gas pipeline corridor; tortoise guards potentially could be installed to protect this area.
3.4.3.3.2 Migratory Birds

The following BMPs/mitigation measures would be implemented to reduce effects on the migratory birds and western burrowing owls during construction:

- In compliance with the Migratory Bird Act of 1918, habitat-altering portions of the Project would be scheduled outside bird breeding season (generally March 1st to August 31st) whenever possible. For work occurring during the nesting period, a qualified biologist would survey the area for nests within 5 days prior to initial grading and vegetation removal. If any active nests (containing eggs or young) are found, a 100-foot diameter no-construction buffer area for small passerine (perching birds) and a 500-foot diameter no-construction buffer for western burrowing owls) would be established and maintained until the young birds fledge and have left the nest.

- To reduce impacts to burrowing owls, CMS5 would implement the protocols in the USFWS’s pamphlet: Protecting Burrowing Owls at Construction Sites in Nevada’s Mojave Desert Region (Appendix B).

3.4.3.3.3 Gila Monster

The following BMPs/mitigation measures would be implemented to reduce effects on the Gila monster (Note: these measures are in accordance with Nevada Department of Wildlife (NDOW) Gila Monster Protocols issued September 7, 2012 [Appendix C]):

- Gila monsters found during the desert tortoise clearance survey would be relocated offsite.
- In the event a Gila monster is injured, it would be transferred to a veterinarian proficient in reptile medicine for evaluation of appropriate treatment. Rehabilitation or euthanasia expenses would not be covered by the NDOW.
- NDOW would 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 would be immediately frozen and transferred to NDOW with a complete written description of the discovery and circumstances, date, time, habitat, and mapped location.
3.5 Cultural Resources

Cultural Resources are defined as “physical features, both natural and manmade, associated with human activity. Cultural properties are unique and nonrenewable resources” (Fowler 1999). They may include: structures, archaeological sites, historical archaeological sites, buildings, Native American graves and cultural items, shipwrecks, religious sites, cultural landscapes, and traditional cultural properties that are listed or eligible for listing on the National Register of Historic Places (NRHP). This section summarizes the results of cultural resources investigations conducted for the Project site, impacts of the Project on those resources, and the BMP/mitigation measures that would be implemented to reduce impacts (DuBarton 2014).

3.5.1 Existing Setting

Cultural resources with potential to affect the Project location were identified through archeological investigations located on approximately 1,145 acres within the Project site. NewFields conducted a Class I Literature review of the Nevada Cultural Resources Inventory System (NV CRIS) and the National Register of Historic Places (NRHP) database. A file search was also requested through the Desert Research Institute (DRI) in Las Vegas, which houses paper copies of archival information for the region. The Class I Literature review focused on previously documented archaeological sites and inventories as well as structural resources and inventories located within a 1-mile research radius of the Project site. NewFields also examined the broader historic and prehistoric documentation for the region. A Class III inventory of the Project site was subsequently conducted. The results of Class I and III inventories are summarized in the following subsections.

3.5.1.1 Historic Context

Little is known about the Eldorado Valley and its relationship to regional archaeological cultures. While the region is generally assigned to the Southern Paiute culture area, a realistic view of the region is that both prehistorically and historically it functioned as a major travel corridor between the Colorado River and the Las Vegas Valley. Particularly in the period post-dating 1,500 years before present, several varieties of cultural influences are manifest in the region. These include Anasazi, Patayan, and Numic traditions. Because the area is at the crossroads of these distinct cultural traditions, it is difficult to assign a comprehensive sequence of phases for the entire area. A chronology presented in Ezzo’s (1995) publication works well for the early periods, but a chronology developed by HRA Inc. (Ahlstrom 2003; Ahlstrom and Roberts 1999, 2001a, 2001b; Roberts and Ahlstrom 2000; Roberts et al. 2003a, 2003b) better characterizes the complexity of later occupations.

A chronological framework, presented in Table 11, includes four major periods: Paleo-Archaic (10,000–5500 BC), Archaic (5500 BC–AD 500), Ceramic (AD 500–1800) and Historical (AD 1500–
The first three periods are defined (10,000 BC–AD 1800) with reference to archaeological data, whereas the fourth period (AD 1800–1950) is based on historical and ethnohistorical data.

<table>
<thead>
<tr>
<th>Period</th>
<th>Subperiod</th>
<th>Date Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paleo-Archaic</td>
<td>Fluted Point Tradition</td>
<td>10,000–9200 BC</td>
</tr>
<tr>
<td></td>
<td>Stemmed Point Tradition</td>
<td>9200–5500 BC</td>
</tr>
<tr>
<td>Archaic</td>
<td>Middle</td>
<td>5500–3000 BC</td>
</tr>
<tr>
<td></td>
<td>Late</td>
<td>3000 BC–AD 500</td>
</tr>
<tr>
<td>Ceramic</td>
<td>Early</td>
<td>AD 500–1000</td>
</tr>
<tr>
<td></td>
<td>Middle</td>
<td>AD 1000–1500</td>
</tr>
<tr>
<td></td>
<td>Late</td>
<td>AD 1500–1800</td>
</tr>
<tr>
<td>Historical Paiute, Chemehuevi, and</td>
<td></td>
<td>AD 1600–1905</td>
</tr>
<tr>
<td>Mohave</td>
<td></td>
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<tr>
<td>Historical Euro-American</td>
<td>Exploration/Pioneering</td>
<td>AD 1800–1855</td>
</tr>
<tr>
<td></td>
<td>Transportation</td>
<td>AD 1856–Modern</td>
</tr>
<tr>
<td></td>
<td>Mining</td>
<td>AD 1863–1941</td>
</tr>
<tr>
<td></td>
<td>Power Generation and Transmission</td>
<td>AD 1931–1950</td>
</tr>
</tbody>
</table>

### 3.5.1.1.1 Paleo-Archaic Period (10,000–5,500 BC)

The Paleo-Archaic period includes the end of the Pleistocene epoch and the first several millennia of the Holocene epoch, and it combines what have generally been termed the Paleo-Indian and Early Archaic periods. Today, Great Basin archaeologists (Grayson 1993; Schroedl 1991) generally distinguish two artifact traditions within the Paleo-Archaic period: the Fluted Point (Paleo-Indian) and the Stemmed Point (Lake Mojave) traditions. Little evidence of either the Fluted or Stemmed Point traditions has been found in southern Nevada, although projectile points associated with these traditions have been found in surrounding areas.
3.5.1.1.2 Middle Archaic (5500–3000 BC) and Late Archaic (3000 BC–AD 500) Periods

The Archaic Tradition is characterized by a broad-spectrum adaptation to the animal and plant resources of a Holocene environment with conditions resembling those of the historic and modern-day environment. Jesse Jennings (1957) coined the concept of the Desert Archaic to refer to the Western expression of the American Archaic. His view emphasized the continuity of this hunting-and-gathering adaptation from the Early Archaic period until the adoption of agriculture. In southern Nevada, the earliest clear evidence of this generalized hunting and gathering lifeway does not appear until around 5500 BC, which would be in the Middle Archaic period.

Characteristic artifacts of the Middle and Late Archaic periods include large projectile points that would have been hafted to darts that were propelled with atlatls. Grinding tools appear to be an important part of tool assemblages dating to the Middle Archaic, and they are also common in Late Archaic assemblages. The Middle Archaic has also been called the Pinto period (in reference to the Pinto point) and the Late Archaic the Gypsum period (in reference to the Gypsum point) (Ezzo and Majewski 1995; Warren and Crabtree 1986). This usage reflects the fact that both Pinto and Gypsum points have been considered useful Archaic temporal markers (Bettinger et al. 1991).

3.5.1.1.3 The Ceramic Period (AD 500–1800)

The introduction of pottery for cooking and storage marks the beginning of the Ceramic period. As previously noted, the bow-and-arrow was introduced to the Southern Nevada region before ceramic technology. The replacement of lightweight basketry with heavier ceramic containers is usually associated with a farming economy and greater sedentism. Because pottery types vary from region to region, and because they correlate with other traits such as architecture and settlement patterns, pottery often forms the basis for defining prehistoric cultures. In the past, the Ceramic period in Southern Nevada was defined and subdivided into subperiods and phases with specific reference to the Virgin Branch (Anasazi) cultural sequence, specifically the sequence developed for the Moapa and Virgin river valleys (Ezzo and Majewski 1995; Lyneis 1982a). This temporal and cultural framework does not take into account the strong Patayan presence in Southern Nevada from around AD 1000 to AD 1500 (Seymour 1997, 1999).

Ceramic data suggest that, during the Early Ceramic period outside contacts were with the Virgin Branch culture area, located to the east. Later, during the Middle and Late Ceramic periods, these contacts shifted to the Patayan area, located to the south. Also, during the Middle Ceramic period, Paiute ceramics first appeared in the Las Vegas Valley.
3.5.1.4 Historical Paiute, Chemehuevi, and Mohave (1600–1905).

During the period from 1600 to 1905, Southern Paiute people inhabited the Las Vegas Valley and surrounding region. They utilized wild plants and animals, but also practiced small-scale horticulture where water sources were sufficient. They practiced what has been termed a “double-loop” subsistence strategy, planting crops and harvesting mesquite in the lower valleys and then moving to higher elevations in late summer and fall to harvest agave and pine nuts (Warren 1981).

The Chemehuevi, often described as an offshoot of the Las Vegas Paiute, occupied the region between the Las Vegas Paiute and the Mojave. They were influenced by the Mojave, and took on traits such as vocabulary, floodplain farming, earth-covered houses, songs, emphasis on dreams, and a complex of elements related to warfare (Laird 1976). They also adopted the squared metate, balsa rafts, ferrying pots, ceramic forms and ornaments, paddle-and-anvil pottery techniques and hair dye.

The ancestors of the Mojave (known archaeologically as the Lowland Patayan), have lived along the Colorado River since about AD 500. These groups practiced a form of floodwater farming, growing crops such as pumpkins, squash, corn, beans, sunflower, and amaranth. After contact, they also grew introduced crops such as wheat and watermelon (Fowler 1999). There is growing evidence that the Mojave utilized portions of the Las Vegas Valley along the Las Vegas Wash (Seymour 1999).

3.5.1.5 Historical Euro-American (1600–1950)

While exploration of the Lower Colorado River region began as early as 1540, the Spanish explorers found the river inhospitable and did not attempt any permanent settlement along its banks until the early 1800s. Prospecting and mining began around this time, although the lack of roads impeded such activities in the Eldorado Valley.

3.5.1.6 Cultural Resource Survey

An archeological survey of the Project site was conducted utilizing the Nevada BLM Cultural Resource Inventory General Guidelines (BLM 2012). The survey area was located “on the ground” using U.S. Geological Survey topographic maps and physical landmarks such as roads. A crew consisting of one crew chief and one technician surveyed the Project site walking parallel transects spaced no more than 30 meters apart. Survey of most portions of the Project site was accomplished utilizing transects oriented along primary directions, while in other areas topography or man-made landmarks served to orient the survey routes.
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The archeological survey recorded one previously unrecorded archaeological site (26CK10605, an assemblage of lithic flakes) and two historic isolated artifacts (both mid-20th Century cans) within the Project site (NewFields 2018).

3.5.2 Environmental Consequences

The construction of the Project would result in direct impacts to archaeological site 26CK10605 and to the two historic isolated artifacts due to the physical ground disturbance associated with construction activities. However, neither the archaeological site nor the isolated artifacts are recommended eligible for listing in the NRHP. Therefore, recording constitutes sufficient recovery of the limited data onsite and impacts to these cultural resources would be considered acceptable.

3.5.3 Mitigation Measures

If potential resources are found during Project construction, work would be halted immediately, and a professional archaeologist would be mobilized to the site to evaluate the find and determine appropriate further steps and mitigation measures as necessary. Any cultural and/or paleontological resource discovered during construction would be reported immediately to the appropriate authority. Work would not proceed until a notice to proceed has been issued. State Historic Preservation Office (SHPO) and appropriate Tribes would be notified and consulted with on eligibility and suitable treatment options. If significant resources are discovered, they would be recovered, transported, and stored at an approved curation facility that meets the standards specified in Title 36 CFR Part 79.
3.6 Land Use

Land use is the way in which a community uses land. This includes what is built, where it is built, and includes aspects such as the ownership of land as well as the governing entities’ management plans and zoning which regulate development and define types of land use. This section describes the land uses in the area and the Project’s consistency with the zoning criteria of the area.

3.6.1 Existing Setting

In 1958, acting on the behalf of the State of Nevada, the United States Congress Public Law 85-339 provided for the direct sale of 126,775 acres of public land located in the Eldorado Valley of Clark County, Nevada, to the Colorado River Commission. In 1995, the Colorado River Commission also purchased 107,412 acres of land from the United States Department of the Interior, BLM. This land was then sold to the City and is now referred to as the Eldorado Valley Transfer Area. This resulted in a substantial extension of the City’s corporate limits to the south and west. The sale of this land was subject to specified land uses. The City designated 3,000 acres for the development of energy (the Energy Resource Zone), 6,000 acres were designated for recreational use, and remaining areas were designated to conserve and protect the desert tortoise (BLM 1994).

Land adjacent to the Eldorado Valley Energy Resource Zone is zoned for government use. These areas may be used for public or quasi-public uses or for open space preservation. As a condition of the sale by the BLM, the City granted an easement to Clark County for these adjacent lands, consisting of approximately 85,000 acres. The Boulder City Conservation Easement (BCCE) is managed by the Clark County Desert Conservation Program (DCP) for the preservation and protection of the desert tortoise and its habitat (Boulder City 1988).

The proposed 1,145-acre Project site is currently located within the BCCE. Construction of energy generating facilities is prohibited within the BCCE. The Project site is proposed to be removed from the BCCE via an amendment to the BCCE boundary. Approximately 1,927 acres of City-owned land north of the Project site and adjacent to the Sloan Canyon National Conservation Area would be added to the BCCE via the boundary amendment; therefore, Project development would be allowed at the proposed Project site. On May 8, 2018, the City approved a resolution to request that DCP review the proposed BCCE amendment. If the DCP approves the BCCE amendment proposal, the City Council and Clark County Board of Commissioners would then adopt a minor amendment to the BCCE, thereby releasing the Project Site from the BCCE for development of the Project by CMS5.
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The Project site is included in the City’s 2018 Land Management Plan for purposes of renewable energy (solar) generation\textsuperscript{2}. The Project site is planned to become part of the City’s Eldorado Valley Energy Resource Zone. The City’s zoning ordinance permits the use of this type of zone for the development of private and/or public electric generation facilities, electrical transmission and distribution facilities, ancillary facilities, and other similar uses (Boulder City 1997).\textsuperscript{3}

The Project site consists of vacant, undisturbed land. Several substations already exist within a few miles of the Project. These substations, which connect the transmission systems of southern Nevada, California, and Arizona, include: the Eldorado Substation, the McCullough Substation, the Marketplace Substation, the NSO Switchyard, and the Merchant Switchyard.

The Project site is located within a sparsely populated area of Clark County approximately 17 miles to the south of Henderson within the Eldorado Valley. The surrounding land is primarily characterized by power generation facilities, energy transmission infrastructure, transportation infrastructure, and open space. Some portions of the Eldorado Valley are used recreationally for off-road vehicles. Activities such as land sailing and remote-control aircraft flying take place on the dry lake located approximately 4 miles north of the Project site. The Project would include a 230 kV gen-tie line that would be located entirely on land owned by the City and within the Eldorado Valley Energy Resource Zone.

3.6.2 Environmental Consequences

Construction of the Project would convert approximately 1,145 acres of open space to a solar generation facility and associated infrastructure. As described above, the Project site would be located in the Eldorado Valley Energy Resource Zone, an area zoned specifically for energy resource development. Several similar solar energy generation facilities currently exist in the area surrounding the Project. Development of the Project would fall into the appropriate zoning designations, would not impact or conflict with any current or future authorized land uses, and is consistent with other development activities occurring in the surrounding area.

\textsuperscript{2} Boulder City Council Resolution No. 6726, dated January 9, 2018.

\textsuperscript{3} Land within the Energy Resource Zone may be used for the development of private and/or public solar and gas-fired electric generation facilities, electrical gen-tie and distribution facilities, ancillary facilities, and other similar uses. See Boulder City, Nevada zoning ordinance, Title 11, Chapter 19, ER Energy Resource Zone.
3.6.3 Mitigation Measures

Development of the Project would not impact current or future land use activities in the area; therefore, no mitigation measures are necessary.
3.7 Transportation
This section describes the traffic and transportation facilities in the area, the impacts of the Project on these resources, and BMPs/mitigation measures that would reduce impacts.

3.7.1 Existing Setting
The Project site is adjacent to several major roadways. US-95 extends in a north-south manner through Eldorado Valley and is divided with two lanes in each direction. At the northern end of the valley, US-95 intersects US-93 approximately half the distance between Boulder City, Nevada, and Henderson, Nevada. US-93/95 continues northward through Henderson and through Las Vegas where it intersects Interstate 15. At the southern end of the valley at Searchlight, Nevada, US-95 intersects east-west trending State Route 164, a single lane in both directions (see Figure 7).

Nevada Department of Transportation (NDOT) maintains Annual Average Daily Traffic (AADT) Count Stations. The nearest to the site, Station 0031014, is located about 0.1 miles south of the Railroad Pass intersection on US-95. AADT at this station is shown in Table 12 below.

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td><strong>AADT at Station 0031014</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>9,900</td>
<td>10,000*</td>
<td>7,700</td>
<td>8,000</td>
<td>8,200</td>
<td>7,000</td>
<td>7,400</td>
<td>8,200</td>
<td>7,900</td>
</tr>
</tbody>
</table>

Source: NDOT 2013 and 2017

Notes: *Data adjusted or estimated
3.7.2 Environmental Consequences

During construction, commuting construction workers would account for an estimated average of approximately 350 daily trips, and 30 truck trips per day would be required to supply concrete, construction materials, and equipment to the Project site. To provide concrete during construction, either an off-site ready-mix plant would be used, or the construction contractor may use an on-site concrete batching plant. In either event, a similar number of trucks would be required to supply either concrete or concrete raw materials. Traffic associated with the construction, maintenance, and operation of the solar facility is not expected to present a noticeable incremental increase to traffic in the area.

As the most recent traffic count of 7,900 is less than the historic high of 12,700 AADT in 2012, Project-related traffic would represent a negligible incremental increase in traffic and be well within the normal variability where the roads have demonstrated historic capacity to handle the traffic. Therefore, no impacts to level of service are anticipated. The turning movements of vehicles exiting US-95 during peak construction have a minor potential to affect the flow of traffic. Traffic is also expected to increase minimally as a result of Project maintenance.

3.7.3 Mitigation Measures

The Project would not result in major impacts to traffic; therefore, no mitigation is required.
3.8 Visual Resources

Aesthetics can be defined as a mix of landscape character, the context in which the landscape is being viewed, and the scenic integrity of the landscape. This section describes visual characteristics of the Project site and surrounding area, the impacts of the Project on the visual setting, and the BMPs/mitigation measures that would reduce impacts.

3.8.1 Existing Setting

The city limit of Boulder City is inclusive of the Eldorado Valley with a residential area/business area in the northeast section of the city limits. The Project site is located at the south end of the Eldorado Valley, approximately 15 miles from the residential area of Boulder City. The Project would share some poles with an existing gen-tie and utilize Eldorado Valley Drive.

The Eldorado Valley landscape is monotone with mostly hues of brown, tan, and dark green. The area is sparsely vegetated. Located in the Mojave Desert, the Project site is generally flat and dominated by sandy soils and scattered low-growing vegetation. Mountain ranges can be seen in the distance and surrounding the Project site; however, the topography of the site itself is flat. Some small, ephemeral drainage channels occur on the site and in the immediate vicinity.

Manmade elements are abundantly evident on the landscape. US-95, an asphalt four lane highway, runs through the center of the city boundary. US-95 does offer broad views of the surrounding landscape; however, the landscape is not pristine. There are five major transmission line corridors within the Project vicinity, containing multiple transmission lines within each corridor. Given the generally flat topography, the infrastructure can be seen for long distances and is visible from the roadways. There are four major substation sites within the Project vicinity (varying in size from 100 acres to over 350 acres) and existing solar facilities in the area (varying from 180 acres to over 1,000 acres).

There are six solar facilities in the Project vicinity west of US-95. The facilities are visible from the highway. Overall, the current landscape in the Project area has been significantly altered by human influence and includes a variety of utility infrastructure. Infrastructure includes transmission lines, major highways, gas pipelines, substations, a natural gas-fired power plant, and solar facilities.

The Project site can be classified as having a low visual value based on the above description of the visual character of the Project vicinity. The visual sensitivity level (i.e., the level of public concern for scenic quality at the site) is also considered low.
3.8.2 Environmental Consequences
The construction of additional solar facilities under the Project would result in little change to the existing landscape. Solar installations, transmission lines, and electrical substations currently dominate views in the Eldorado Valley. The degree of modification to this existing setting attributable to the Project would be minimal and would not represent a substantial departure from the nature of development that has already occurred in the surrounding vicinity. The visual impacts of the optional BESS are relatively small because of its low, consistent profile and placement within containers or unoccupied structures. Overall, implementation of the Project would result in minimal contributing effects to existing visual resources.

3.8.3 Mitigation Measures
Potential impacts to visual character are consistent with the existing setting and planned use in the Eldorado Valley Energy Resource Zone; therefore, mitigation is not warranted.
3.9 Noise

Noise refers to unwanted sound that interferes with normal activities or reduces the quality of the environment. Response to noise varies according to its type, its perceived importance, its appropriateness in the setting, time of day, and the sensitivity of the individual receptor.

A decibel (dB) is a unit of measurement used to define sound levels. Sound measurement is further defined by using an "A-weighted" decibel (dBA) scale that describes how an individual perceives sound. There are differing sensitivities to noises relative to the time of day. Therefore, a day-night average noise level (Ldn) is used to determine whether noise would be perceived adversely. The USEPA has developed an index (threshold) to assess noise impacts from a variety of sources using residential receptors (USEPA 1974).

Noise is one of the major public concerns associated with construction and operational activities. Some of the factors to consider when assessing an acceptable level for a specific area are distance from major thoroughfares and airports, population density, age of the neighborhood, and time of day. Noise sensitive receptors are defined as the occupants of a facility or a location where a state of quietness is a basis for use or where excessive noise interferes with the normal use of the facility or location. Typical noise sensitive receptors include schools, hospitals, places of worship, libraries, homes, parks, and wilderness areas.

This section describes the existing ambient noise in the area, the impacts of the Project on these resources, and the BMPs/mitigation measures that would reduce impacts.

3.9.1 Existing Setting

The Project site is in a rural area. Day-night ambient noise levels of 40 to 50 dB on the A-weighted scale (dBA) are expected in rural areas (USEPA 1974). There is low to moderate ambient noise levels in the Project vicinity. Sources of noise include the power generating stations at Desert Star Energy, CMS1, CMS2, CMS4, and NSO. Other sources include the natural gas line regulating station, traffic on US-95, off-road vehicles, and aircraft. The Project site experiences low to moderate noise levels. Although no specific data are available, background noise levels at the Project site would be expected to range from 40 dBA (rural area during the day) to 60 dBA (commercial area heavy traffic), with occasional spikes related to equipment operation and off-road vehicles passing the site.

3.9.2 Environmental Consequences

3.9.2.1 Construction

Construction of the Project would result in temporary increases in ambient noise levels for up to two years. A variety of construction equipment such as scrapers, concrete trucks, motor graders,
backhoes/loaders, excavators, truck-mounted cranes, bulldozers, grader-alls, dump trucks, flatbed trucks, pad drum vibrator rollers, trenchers, water trucks, and lightweight trucks would generate noise intermittently during daylight hours. As seen in Table 13 below, typical construction equipment noise levels measure at less than 90 dBA at a distance of 50 feet from the source (BLM 2005).

**Table 13. Noise Levels at Various Distances from Typical Construction Equipment**

<table>
<thead>
<tr>
<th>Construction Equipment</th>
<th>Noise Level $L_{eq(1-h)}^a$ at Distances (dBA)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>50 ft</td>
</tr>
<tr>
<td>Bulldozer/scaper</td>
<td>85</td>
</tr>
<tr>
<td>Concrete mixer</td>
<td>85</td>
</tr>
<tr>
<td>Concrete pump</td>
<td>82</td>
</tr>
<tr>
<td>Crane, derrick</td>
<td>88</td>
</tr>
<tr>
<td>Crane, mobile</td>
<td>83</td>
</tr>
<tr>
<td>Front-end loader</td>
<td>85</td>
</tr>
<tr>
<td>Generator</td>
<td>81</td>
</tr>
<tr>
<td>Grader</td>
<td>85</td>
</tr>
<tr>
<td>Shovel</td>
<td>82</td>
</tr>
<tr>
<td>Truck</td>
<td>88</td>
</tr>
</tbody>
</table>

Source: BLM 2005

Notes: 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.
Stationary point sources of noise, including stationary mobile sources such as idling vehicles, attenuate (lessen) at a rate of 6 to 7.5 dBA per doubling of distance from the source, depending on the topography of the area and environmental conditions (e.g., atmospheric conditions and noise barriers, either vegetative or manufactured). Thus, a noise measured at 90 dBA 50 feet from the source would be about 84 dBA at 100 feet, 78 dBA at 200 feet, 72 dBA at 400 feet, and so forth (Lawrence Berkeley National Laboratory 2007).

3.9.2.2 Operation

Operational noise from the single-axis tracking solar PV arrays that would be installed on the Project site would be negligible and would likely be inaudible against ambient levels. Performing outdoor maintenance, repositioning test equipment, and using tools in the test areas of the Project site would temporarily increase ambient noise levels, but no receptors would be impacted.

Operational noise from the electrical equipment, primarily corona noise from the new gen-tie line and HVAC system noise from the BESS, would also be negligible. Gen-tie corona noise is the noise sometimes 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 gen-tie line is a function of its voltage, 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.

3.9.3 Mitigation Measures

Typical construction work schedules are expected to be from 7:00 AM to 5:00 PM, Monday through Friday, which complies with the local noise ordinance that restricts construction activity to within the hours of 7:00 AM to 7:00 PM, except Sundays and federal holidays. This construction schedule would mitigate noise impacts for the surrounding areas because noise from construction activities would only occur from 7:00 AM to 5:00 PM, Monday through Friday. However, because no nearby sensitive receivers exist, extended construction hours may be acceptable. Work on the gen-tie may be done at night to minimize outages.
3.10 Waste Management and Hazardous Materials

This section addresses potential site contamination issues: the use, handling, and storage of hazardous and toxic substances and the generation and disposal of hazardous materials associated with construction and operations of the Project. Hazardous materials are substances that, because of their quantity, concentration, or physical, chemical, or infectious characteristics, may present a substantial danger to public health or the environment if released. In relation to the Project, hazardous materials may include fuels, lubricants, and other liquid materials that would be used at the site during construction and operations. Non-hazardous solid waste refers to waste that is commonly discarded during everyday activities and for this Project may include construction debris, landscaping waste, and household waste from construction workers and O&M staff.

3.10.1 Existing Setting

A Phase I Environmental Site Assessment was conducted for the CMS4 project site in general accordance with American Society for Testing and Materials (ASTM) International Practice E-1527-05 (Ninyo and Moore 2014). CMS4 is located immediately north of the CSM5 site. The CMS4 study included: a review of the site history, including ownership records and historical aerial photographs; interviews with representatives of the City; and review of environmental databases. The area studied included a one-mile buffer zone that encompasses the CSM5 Project site. The assessment described the area as vacant desert land with a Southwest Gas natural gas pipeline traversing in a north-south direction adjacent to CMS4 on its east side. Based on a review of historical sources, the Project vicinity has not been previously developed with structures. No drums, unidentified substance containers, or other evidence of the storage or disposal of hazardous substances were observed on the Project site. Review of environmental databases indicated that there are three facilities in the vicinity of the Project that have handled hazardous materials or petroleum products and/or have been listed as having reported releases of hazardous materials or petroleum products. Based on the distance from the Project site, regulatory status of these facilities, and/or assumed groundwater flow direction in the vicinity of the Project, it was concluded that there was low likelihood that these facilities represent an environmental concern to CMS4 (Ninyo and Moore 2014). These findings apply to the adjacent CSM5 Project site.

The nearest site for municipal solid waste disposal is a Class I Municipal Landfill in Boulder City, about 15 miles northwest of the project site. Municipal solid waste is collected under contract by private solid waste services from residences and businesses and it disposed of at the landfill location at the end of Utah Street at the southeast portion of the city. A Class I site is one that refers to a municipal solid waste landfill unit including all contiguous land structures for the disposal of solid waste and accepts more than 20 tons of solid waste per day on an annual
average. In addition, Republic Services operates the Apex Regional Class I Landfill, which handles commercial and municipal wastes from incorporated and un-incorporated areas within the Las Vegas Valley. The next closest Class I municipal waste landfill is the Mesquite Municipal Waste Landfill, located in Mesquite, Nevada approximately 100 miles from the site (NDEP 2012).

3.10.2 Environmental Consequences

Construction of the Project would generate solid waste in the form of soil and brush from clearing and grubbing, as well as materials from installation of the solar PV modules, gen-tie, access driveway, and parking area. Solid waste generated during construction would be transported for disposal at a licensed waste management facility. Operation of the Project is expected to generate limited amounts of solid waste stemming from routine maintenance activities. Any waste generated as a result of these activities would be disposed of at a licensed waste management facility.

Construction and operation of the Project 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. The ordinary use of these materials would not result in the generation of hazardous wastes. To comply with federal, state and local regulations for waste minimization, storage and disposal, a Solid and Hazardous Waste Management Plan would be prepared and implemented for both the construction and operation of the Project. As the construction contractors would be required to comply with environmental and workplace safety laws and procedures, no significant risks to public health and safety are expected from the Project.

3.10.3 Mitigation Measures

The following BMPs/mitigation measures would be implemented to prevent and reduce impacts caused by hazardous waste:

- Spill cleanup kits would be available on construction equipment and vehicles so that spills or leaks of vehicle fluids would 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.
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- An operational EHS Plan would be prepared for the Project. The EHS Plan would outline all Project activities, identify all hazardous substances and chemicals used at the site, and ensure compliance with OSHA standards, the Nevada Division of Industrial Relations requirements, and all other local, state, and federal regulatory requirements. The EHS Plan would identify site-specific safety control measures, site health and safety roles and responsibilities, speed limits, and site safety hazards and controls.

- A Solid and Hazardous Waste Management Plan would be prepared and implemented for both construction and operation of the Project. Included in the solid and hazardous waste management plans would 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.
3.11 Socioeconomics

3.11.1 Existing Conditions

The Project site is in the undeveloped, uninhabited, and rural area that Boulder City, Nevada, acquired from the BLM in 1994. The inhabited area of Boulder City is over 15 miles from the Project site, although the site is located within the official city boundary. Boulder City is locally recognized as a “rural oasis” for the residents of the urban center of Las Vegas, Nevada (Hughes 2011), which is located approximately 22 miles to the northwest of Boulder City. Both Las Vegas and Boulder City are in Clark County, Nevada.

Boulder City, Nevada, is a small town of 208 square miles (U.S. Census Bureau 2012a) known for its recreational opportunities and rural lifestyle (Hughes 2011). Its population remained almost totally stable during the period 2000 to 2010, growing only 0.4 percent from 14,966 in 2000 to 15,023 in 2010 (Census 2012a). Clark County, Nevada had a population of almost 1.4 million in 2010, with Las Vegas city comprising over 30 percent of the county population.

Median household income in 2010 was $62,171, which decreased 5.2 percent from the high of $65,572 in 1999 (U.S. Census Bureau 2012a). In comparison, Clark County, Nevada had a median household income of $56,258 in 2010, approximately $6,000 less than the median household income in Boulder City.

The civilian employed population in Boulder City (including civilian workers of age 16 or older) was 6,473 in 2010 (U.S. Census Bureau 2012b). Tourism and recreation businesses, due to its proximity to Las Vegas, are very important to Boulder City’s economy (Hughes 2011). The three top employing sectors in Boulder City in 2010 were:

- Construction (18.4 percent of total employment);
- Arts, entertainment, recreation, and accommodation and food services (17.5 percent of total employment); and
- Educational services, health care, and social assistance (13.6 percent of total employment) (U.S. Census Bureau 2012b).

In Clark County, the civilian employed population was 907,510. The top employing industries in Clark County are:

- Arts, entertainment, recreation, and accommodation and food services (27.9 percent of total employment);
- Educational services, health care, and social assistance (13.3 percent of total employment);
- Retail sales (11.1 percent of total employment); and
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- Construction (9.4 percent of total employment).

3.11.1.1 Environmental Justice

The USEPA defines a community with potential environmental justice populations as one that has a higher proportion of minority or low-income populations than does an identified reference community. An environmental justice assessment requires an analysis of whether low income or poverty populations would be disproportionately and adversely affected by a project. For this analysis, “minority” includes all racial groups other than “white, not Hispanic or Latino.” Low-income populations are defined as those individuals that are considered living below poverty levels, as defined by the U.S. Census Bureau. The U.S. Census Bureau defines poverty level thresholds for individuals and a family of four as income levels below $11,139 and $22,314, respectively (U.S. Census Bureau 2012c). Populations in either group are considered significant if their share of the population is more than ten percentage points higher than the minority/lower-income population’s share of the state and the county.

Table 14 shows that Boulder City as a whole has a higher proportion of white, non-Hispanic residents and lower proportions of low-income residents when compared to those in Clark County and Nevada. The Project is located in two Census Tracts, which are located to the south and west of the inhabited area of Boulder City. These Tracts show larger proportions of minority populations relative to Boulder City, but similar or smaller proportions of minorities when compared to Clark County. Census Tract 300573 shows a higher portion of low-income residents than in Boulder City, Clark County, or the state as a whole.

<table>
<thead>
<tr>
<th>Environmental Justice Indicator</th>
<th>Nevada</th>
<th>Clark County</th>
<th>Boulder City</th>
<th>Census Tract 3005703</th>
<th>Census Tract 3005711</th>
</tr>
</thead>
<tbody>
<tr>
<td>White, Non-Hispanic</td>
<td>54.1%</td>
<td>48.0%</td>
<td>88.0%</td>
<td>72.2%</td>
<td>70.8%</td>
</tr>
<tr>
<td>Black</td>
<td>10.5%</td>
<td>8.1%</td>
<td>0.9%</td>
<td>6.4%</td>
<td>2.7%</td>
</tr>
<tr>
<td>American Indian and Alaska Native</td>
<td>1.2%</td>
<td>0.7%</td>
<td>0.8%</td>
<td>1.1%</td>
<td>0.4%</td>
</tr>
<tr>
<td>Asian</td>
<td>7.2%</td>
<td>8.7%</td>
<td>1.1%</td>
<td>5.9%</td>
<td>10.9%</td>
</tr>
</tbody>
</table>
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<table>
<thead>
<tr>
<th>Environmental Justice Indicator</th>
<th>Nevada</th>
<th>Clark County</th>
<th>Boulder City</th>
<th>Census Tract 3005703</th>
<th>Census Tract 3005711</th>
</tr>
</thead>
<tbody>
<tr>
<td>Native Hawaiian and Other Pacific Islander</td>
<td>0.6%</td>
<td>0.7%</td>
<td>0.3%</td>
<td>0.1%</td>
<td>0.4%</td>
</tr>
<tr>
<td>Two or More Races</td>
<td>4.7%</td>
<td>5.1%</td>
<td>3.0%</td>
<td>3.6%</td>
<td>5.1%</td>
</tr>
<tr>
<td>Hispanic or Latino, Total</td>
<td>26.5%</td>
<td>29.1%</td>
<td>7.1%</td>
<td>12.4%</td>
<td>11.6%</td>
</tr>
<tr>
<td>Low-Income Population</td>
<td>11.9%</td>
<td>11.7%</td>
<td>8.2%</td>
<td>24.8%</td>
<td>0.9%</td>
</tr>
</tbody>
</table>

Source: US Census Bureau 2012a,d,e

3.11.2 Environmental Consequences

The Project would generate temporary employment during construction. Construction of the Project is anticipated to employ approximately 350 workers during peak activity with daily average manpower of 200 – 225. Construction would be underway for up to 24 months.

Temporary construction jobs would bring employment and income to Clark County. It is expected that the construction workers would primarily be local residents. However, a small amount of workforce is expected to require specialty skills and would either relocate to the region temporarily or permanently, including staying in hotels/motels, apartments, or purchasing a home. Thus, population is expected to grow at least temporarily by up to 100 individuals over the duration of the construction phase, representing a very minor impact on population and temporary housing. The temporary employment would bring income to the region, which would support other businesses in the area. Workers spend their income on food services, transportation services, accommodations, retail stores, medical services, and other services and products. As worker spending rolls over in the local economy, it supports additional jobs and income in the area. Additionally, the state of Nevada and Clark County are expected to gain from sales and property tax receipts from the successful construction and operation of the Project.

The analysis indicates that the Project would be partially located in a Census Tract that has a higher percentage of minorities and low-income residents than the population of Boulder City and a higher proportion of low-income residents than Clark County. However, no one lives adjacent to or in close proximity to the site (over 10 miles); therefore, no environmental justice
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populations would be unduly affected. Additionally, construction and operation of the Project would not have long-term or adverse health or environmental impacts, and therefore there would not be disproportionate and adverse effects to these residents.

3.11.3 Mitigation Measures
Potential impacts to socioeconomic conditions may be beneficial; therefore, no mitigation is required.
4. **List of Preparers and Reviewers**

This section provides the name, qualifications, professions, and contact information of each person with primary responsibility for the preparation of this ES and of each person who has provided comments or input in the preparation of the statement.

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Project Role</th>
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<tr>
<td><strong>Copper Mountain Solar 5, LLC, 101 West Broadway, San Diego, CA 92101</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marilyn Burke</td>
<td>Director, Business Development</td>
<td>Project Developer</td>
</tr>
<tr>
<td>Gillian Semmer</td>
<td>Project Development Manager</td>
<td>Project Developer</td>
</tr>
<tr>
<td>Elliot Stein</td>
<td>Project Development Engineer</td>
<td>Project Engineer</td>
</tr>
<tr>
<td><strong>NewFields</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3265 N. Fort Apache Rd., Suite 110, Las Vegas, NV 89129</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ken MacDonald</td>
<td>Partner – Senior Environmental Manager</td>
<td>Principal-in-Charge</td>
</tr>
<tr>
<td>Matt Trask</td>
<td>Senior Environmental Scientist</td>
<td>Author of Environmental Statement</td>
</tr>
<tr>
<td>Mary Seagraves Eurek</td>
<td>Project Manager, Cultural Resource Specialist</td>
<td>Author of Environmental Statement and Cultural Report</td>
</tr>
<tr>
<td>Andrew Butsavich</td>
<td>Environmental Scientist - Biologist</td>
<td>Author of Environmental Statement, US Army Corps of Engineers 404 Evaluation</td>
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<tr>
<td>Justin Romanowitz</td>
<td>Environmental Scientist - Biologist</td>
<td>Author of Permitting Plan, Biological Resources</td>
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<table>
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<tr>
<th>Lisa Graham</th>
<th>Air Quality Specialist</th>
<th>Author of Environmental Statement – Air Quality</th>
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5. **List of Acronyms and Abbreviations**

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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<tbody>
<tr>
<td>AC</td>
<td>alternating current</td>
</tr>
<tr>
<td>ADSS</td>
<td>All-Dielectric Self-Supporting</td>
</tr>
<tr>
<td>ASTM</td>
<td>American Society for Testing and Materials</td>
</tr>
<tr>
<td>BESS</td>
<td>Battery Energy Storage System</td>
</tr>
<tr>
<td>BLM</td>
<td>Bureau of Land Management</td>
</tr>
<tr>
<td>BMP</td>
<td>Best management practices</td>
</tr>
<tr>
<td>CAA</td>
<td>Clean Air Act</td>
</tr>
<tr>
<td>CMS1</td>
<td>Copper Mountain Solar 1</td>
</tr>
<tr>
<td>CMS2</td>
<td>Copper Mountain Solar 2</td>
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<tr>
<td>CMS3</td>
<td>Copper Mountain Solar 3</td>
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<td>Copper Mountain Solar 4</td>
</tr>
<tr>
<td>CMS5</td>
<td>Copper Mountain Solar 5</td>
</tr>
<tr>
<td>CO</td>
<td>carbon monoxide</td>
</tr>
<tr>
<td>CO₂-e</td>
<td>CO₂ equivalent</td>
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<tr>
<td>DAQEM</td>
<td>Department of Air Quality and Environmental Management</td>
</tr>
<tr>
<td>dB</td>
<td>decibel</td>
</tr>
<tr>
<td>dBA</td>
<td>“a-weighted” decibel</td>
</tr>
<tr>
<td>DC</td>
<td>direct current</td>
</tr>
<tr>
<td>DCP</td>
<td>Desert Conservation Program</td>
</tr>
<tr>
<td>EHS Plan</td>
<td>Environmental Health &amp; Safety Plan</td>
</tr>
<tr>
<td>EPA</td>
<td>Environmental Protection Agency</td>
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</table>
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EPC  Engineering, Procurement & Construction
ER   Energy Resource
ES   Environmental Statement
ESA  Endangered Species Act
FEMA Federal Emergency Management Agency
FNTP Final Notice to Proceed
GHG  greenhouse gas
HMI  Human Machine Interface
HVAC Heating, Ventilation and Air Conditioning
kV   kilovolt
LGIA Large generator interconnection agreement
MSHCP Multiple Species Habitat Conservation Plan
MSL  mean sea level
MW   megawatt
NAAQS National Ambient Air Quality Standards
NDEP Nevada Division of Environmental Protection
NDWR Nevada Department of Water Resources
NDOW Nevada Department of Wildlife
NO₂  nitrogen dioxide
NRCS Natural Resource Conservation Service
NRHP National Register of Historic Places
NSO  Nevada Solar One
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O_3  ozone

O&M  operations and maintenance

OPGW  Optical ground wire

OSHA  Occupational Safety and Health Administration

Pb  lead

PCS  Plant control system

PM_{2.5}  particles with a diameter less than or equal to a nominal 10 micrometers

PM_{10}  particles with a diameter less than or equal to a nominal 2.5 micrometers

PUCN  Public Utilities Commission of Nevada

PV  photovoltaic

ROW  right-of-way

SHPO  State Historic Preservation Office

SO_2  sulfur dioxide

SWPPP  Stormwater Pollution Prevention Plan

UEPA  Utility Environmental Protection Act

USEPA  United States Environmental Protection Agency

USFWS  United States Fish and Wildlife Service

USGS  United States Geological Service

VOC  volatile organic compound

WEAP  Worker Environmental Awareness Program
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Anderson, R. Ernest


Avian Power Line Interaction Committee


Berry-Nicholson


Bettinger, R.L., James F. O’Connell, and David Hurst Thomas


Boulder City
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Buqo, T.S., and M.E. Giampaoli


Bureau of Land Management (BLM)


Buqo, T.S., and M.E. Giampaoli


City of Las Vegas
Copper Mountain Solar 5 Environmental Statement


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2010 Dust Control Applications and Forms. Information available at the website: http://www.clarkcountynv.gov/depts/AirQuality/Pages/Compliance_DustPermitting.aspx

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2011 Clark County, Nevada – Areas of Nonattainment, Attainment and Maintenance

Ezzo, Joseph A., and Teresita Majewski


Federal Emergency Management Agency (FEMA)


Fowler, Catherine


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Hughes, S.D.


Jennings, Jesse

1957 Danger Cave. University of Utah Anthropological Papers, No. 27. Salt Lake City

Lawrence Berkeley National Laboratory


Longwell, C.R., E.H. Pampeyan, Ben Brower, and RJ. Roberts.


Lyneis, Margaret M.


National Institute on Deafness and Other Communication Disorders (NIDCD).


Nevada Department of Agriculture (NVDA)


Nevada Department of Environmental Protection

2010 Ambient Air Quality Monitoring Standards.

Copper Mountain Solar 5 Environmental Statement


Nevada Department of Transportation (NDOT)


Nevada Division of Water Resources (NDWR)


Ninyo and Moore

2014 Phase I: Environmental Site Assessment Report – Copper Mountain Solar 4 Project, Boulder City, Nevada

NextLight Renewable Power, LLC (NextLight)


Rush, F.E., and C.J. Huxel, Jr


Schroedl, Alan R.


Scott, B.R., T.J. Smales, F.E. Rush, and A.S. Van Denburgh


Seymour, Gregory R.

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State of Nevada, Department of Conservation and Natural Resources


United States Army Corps of Engineers (USACE)


United States Census Bureau (Census)

2012a  Boulder City (city) QuickFacts from the US Census Bureau. Information available at: http://quickfacts.census.gov/


2012d  Clark County QuickFacts from the US Census Bureau. Information available at: http://quickfacts.census.gov/

2012e  Nevada Quickfacts from the US Census Bureau. Information available at: http://quickfacts.census.gov/

U.S. Climate Data

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2012  Web Soil Survey. Information available at:  
http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm

United States Environmental Protection Agency (USEPA)


2012a National Ambient Air Quality Standards (NAAQS). Information available at:  
http://www.epa.gov/air/criteria.html

2012b Region 9 Air Quality Maps. Information available at:  
http://www.epa.gov/region9/air/maps/index.html

United States Geologic Survey (USGS)


2013  Nevada Quaternary Faults map. Information available at:  
http://geohazards.usgs.gov/qfaults/nv/Nevada.php

United States Fish and Wildlife Service (USFWS)


http://www.fws.gov/mountainprairie/species/reptiles/gilamonster/

University of California Santa Barbara (UCSB)
Copper Mountain Solar 5 Environmental Statement

2004  UCSB Biogeography Lab. Information available at:
http://www.biogeog.ucsb.edu/Projects/gap/gap_home.html
Appendix A: Permitting Plan
Environmental Permitting Plan
Copper Mountain Solar 5 Project
Clark County, Nevada

Prepared for:
Copper Mountain Solar 5, LLC
101 West Broadway, Suite 1120
San Diego, California 92101

Prepared by:

NewFields
3265 N. Fort Apache Rd., Suite 110
Las Vegas, Nevada 89129

April 2019
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Executive Summary

This permitting plan was developed to identify federal, state, and local government permits that likely would be required for the construction and operation of the Copper Mountain Solar 5 (CMS5) project (the Project).

To ensure that a thorough and comprehensive assessment of the environmental permits was completed, potential permits were identified, included, and evaluated in this report. Additionally, the proposed development activities (i.e. Project components, construction activities, operation, and maintenance activities etc.) were reviewed to determine environmental permits and approvals that may have to be completed prior to project construction, operation, and maintenance.

Agencies were contacted to ascertain or confirm regulatory requirements, submittal conditions, agency review times, and costs. Compliance with federal, state, and local laws, rules, and regulations would require timely coordination to ensure successful acquisition of the required permits, approvals, and licenses for the Project.

This report contains the conceptual description of the proposed action, followed by a discussion of the key environmental permits and approvals. This is followed by a summary conclusion, a list of the permits identified, and an Appendix with detailed permit information.

Project Description

CMS5 is owned by Copper Mountain Solar 5, LLC, which is proposing the construction, operation, and maintenance of an approximately 250 MW solar energy generating facility with optional battery energy storage located on 1,145 acres of land owned by the City of Boulder City and leased byCMS5. The Project would also include construction of a new gen-tie power line to transmit the generated energy to the grid and extend an existing waterline to provide water for construction and maintenance activities. Please refer to the Environmental Statement for a detailed description of the CMS5 Project.

The Project is designed to meet the increasing demand for clean, renewable, electrical power. Development of solar resources reduces reliance on foreign sources of fuel, promotes national security, diversifies energy portfolios, and contributes to the reduction of greenhouse gas emissions. Solar energy development is also consistent with Federal policies including Executive
Order 13693, “Planning for Federal Sustainability in the Next Decade.” This Order establishes as policy of the United States that Federal agencies conduct their environmental, transportation, and energy-related activities under the law in support of their respective missions in an environmentally, economically and fiscally sound, integrated, continuously improving, efficient, and sustainable manner.

Federal Permits

Endangered Species Act

The Endangered Species Act (ESA) of 1973, as amended, provides protection for species of fish, wildlife, and plants that are listed as threatened or endangered with extinction, candidates for listing as threatened or endangered, and federally-designated critical habitat. Section 10 of the ESA includes provisions to address protected species on private property. One of these provisions allows applicants to prepare a Habitat Conservation Plan describing minimization and mitigation requirements for activities that would adversely affect listed species. In September 2000, a county-wide Multispecies Habitat Conservation Plan (MSHCP) addressing 79 species was completed in consultation with the U.S. Fish and Wildlife Service (USFWS). The MSHCP is intended under Section 10(a) of the ESA to support the USFWS’s issuance of a permit or permits (Section 10(a) Permit) that would (1) allow the “take” of threatened or endangered species resulting from otherwise lawful activities on non-federal properties within the county; and (2) allow the “take” of threatened or endangered species that are currently unlisted but may become listed in the future. To obtain coverage under the permit, the MSHCP requires that applicants pay $550/acre remuneration fee to Clark County, which is submitted with the grading permit fees.

U.S. Army Corps of Engineers

Two federal statutes mandate the U.S. Army Corps of Engineers (USACE or Corps) jurisdiction over navigable waterways and adjacent wetlands. These are Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act. Section 10 of the Rivers and Harbors Act applies to all navigable waters of the United States and Section 404 of the Clean Water Act applies to all waters including wetlands that have sufficient nexus to interstate commerce. Section 404 specifically regulates the placement of dredged or fill material into all waters of the U.S. and adjacent wetlands. Waters of the U.S. includes navigable waters and tributaries that often include ephemeral dry desert washes.
Examination of aerial photographs and field reconnaissance indicates that all of the surface water in the Project vicinity drains into the Eldorado Dry Lake located northeast of the project area. The dry lake is at the low area within a closed basin and therefore none of the surface flow drains into navigable waters (i.e. Waters of the U.S.). The USACE has not required Section 404 permits for adjacent projects in the Eldorado Valley. A permit is not expected to be required for this project, however, a jurisdictional determination report can be submitted to the U.S. Army Corps of Engineers if an official determination is necessary. This report would delineate areas per USACE protocol, to confirm that no waters and/or washes meet the criteria for wetlands or Waters of the U.S. Pending approval of this conclusion, the Corps will determine that no jurisdictional waters or wetlands would be affected by the project; therefore, Corps jurisdiction does not apply and no permits from the Corps would be needed.

**State Approvals**

**Utility Environmental Protection Act (UEPA)**

The Public Utilities Commission of Nevada (PUCN) has the authority to site most electrical utilities within the state as authorized through the Utility Environmental Protection Act, NRS 704.820 to 704.900, inclusive (UEPA). Proponents wishing to construct a utility facility within the state of Nevada must obtain a UEPA permit to construct from the PUCN prior to the commencement of construction activities. Permit approval is granted by the Commission, which is comprised of three Commissioners who are each appointed by the Governor to a four-year term.

Nevada law requires that the proponent submit an environmental statement which includes:

1. The name, qualifications, professions and contact information of each person with primary responsibility for the preparation of the environmental statement;
2. The name, qualifications, professions and contact information of each person who has provided comments or input in the preparation of the environmental statement;
3. A bibliography of materials used in the preparation of the environmental statement; and
4. A description of:
   1. The environmental characteristics of the project area existing at the time the application is filed with the Commission;
   2. The environmental impacts that the construction and operation of the proposed utility facility will have on the project area before mitigation; and
   3. The environmental impacts that the construction and operation of the proposed utility facility will have on the project area after mitigation.

The data and analyses in the descriptions must be commensurate with the degree of the anticipated impacts.
NAC 703.423(7)(b).

Further, a copy of every study (excluding the Cultural Resources Report and the Evaluation of Ecological Resources report, to protect identified sensitive information) must be included for public inspection. NRS 704.870(1).

Nevada Department of Wildlife

NRS 701.600 through 701.640 requires the owners/applicants of all proposed energy development projects (of applicable size) to file a notice (application) and provide an initial fee to NDOE for evaluation of the project.

Nevada Department of Public Safety, State Fire Marshal Division

A Hazardous Material Permit is required for storage of large amounts of flammable liquid or combustible liquid pursuant to Nevada Administrative Code 477.323. Construction activities for the proposed project would likely require temporary onsite fuel storage and thus require a Hazardous Materials Permit. The project owner would likely use the online Hazardous Materials Reporting System, which allows facilities to submit hazardous material information online, or they would direct the construction contractor to submit the information. This system contains a combined agency reporting form that contains Emergency Planning and Community Right-to-Know Act (EPCRA) and State Fire Marshall (SFM) hazardous material permitting information. Submittal of this information complies with federal and state reporting requirements.

Clark County, Nevada Department of Air Quality

Clark County requires a Dust Control Permit for soil disturbing projects greater than or equal to 0.25 acres. Because the proposed project expects to disturb more than 1,100 acres, a dust control permit would be required. A Dust Mitigation Plan is required as part of this permit.

City of Boulder City

Public Works

For all construction projects in the City of Boulder City, the City’s Public Works Department may require a review of the plan set, hydrology study, traffic study, and an on-site inspection.

Fire Department

The Fire Department issues two types of permits depending on the activity and material used: an annual permit issued for higher than normal fire hazards or hazardous material operations, and
a “one-time” installation permit for fire detection and protection systems (https://www.bcnv.org/DocumentCenter/View/182/Fire-Department-Required-Permits--PDF)

In order to issue these permits, the department must conduct either a thorough inspection or plan review. This permitting process helps ensure that quantities of hazardous and/or flammable substances are kept safe and manageable. It is anticipated that for the proposed project a plan review would be required. The plan review would be conducted prior to the issuance of a construction permit. It is anticipated that the proposed project would need a permit for hazardous materials that would be stored on site during construction.

Community Development

The Community Development Department of the City of Boulder City requires a grading permit for all new construction activities. The City of Boulder City’s Community Development Department would also issue the building permit. This permit specifies that a Clark County Dust Control permit must be obtained prior to construction.

Coordination with Utilities

Coordination may have to occur with several other utilities that have transmission lines, gas lines, telephone lines, or other linear facilities in the project area. Southwest Gas, CenturyLink, and NV Energy have been identified as having facilities within/near the proposed Project.

Summary

Numerous federal, state, county, and utility approvals would be required for the proposed Copper Mountain Solar 5 project. This report represents a best effort to determine the required permits and the application processes. This evaluation of the proposed project determined that the suite of required environmental and regulatory approvals is typical and well understood for projects of this nature in Southern Nevada. Additional coordination may be required with some utilities that may be near the proposed project area. Table 1 illustrates the permits and approvals that may be required for the proposed project.
Table 1. Permits and Approvals that May be Required.

<table>
<thead>
<tr>
<th>FEDERAL PERMITS AND APPROVALS REQUIRED</th>
<th>WHEN TO SUBMIT APPLICATION OR PLANS</th>
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<tbody>
<tr>
<td>USFWS - Endangered Species Act Section 10 Consultation through County Multiple Species Habitat Conservation Plan (MSHCP) and associated Incidental Take Permit (TE034927-0)</td>
<td>Prior to construction</td>
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<tr>
<th>STATE PERMITS REQUIRED</th>
<th>WHEN TO SUBMIT APPLICATION OR PLANS</th>
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<tbody>
<tr>
<td>Utilities Environmental Protection Act Compliance Order</td>
<td>Immediately</td>
</tr>
<tr>
<td>UEPA Permit to Construct</td>
<td>Will be issued as soon as designated Permits and Approvals have been obtained</td>
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<tr>
<td>Nevada Division of Wildlife – Energy Planning and Conservation Fund Payment</td>
<td>At same time as submittal of UEPA Application.</td>
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<tr>
<td>Nevada State Hazardous Material Permit Roving Permit</td>
<td>Prior to installation of on-site temporary fuel tanks</td>
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<tr>
<th>COUNTY PERMITS REQUIRED</th>
<th>WHEN TO SUBMIT APPLICATION OR PLANS</th>
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<tr>
<td>Clark County Department of Air Quality - Dust Control Permit</td>
<td>Prior to construction</td>
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<tr>
<th>CITY OF BOULDER CITY COORDINATION AND PERMITS REQUIRED</th>
<th>WHEN TO SUBMIT APPLICATION OR PLANS</th>
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<tbody>
<tr>
<td>City of Boulder City Public Works - Review and Approval of Plan Set, Hydrology Report, Traffic Study, and Onsite Inspections,</td>
<td>Upon completion of 100% design</td>
</tr>
<tr>
<td>City of Boulder City Community Development – Building Permit</td>
<td>Prior to construction of site improvements</td>
</tr>
<tr>
<td>City of Boulder City Community Development – Grading Permit</td>
<td>Prior to grading</td>
</tr>
<tr>
<td>Boulder City Fire Department – &quot;One Time&quot; New Construction Permit</td>
<td>Upon completion of 100% design</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>UTILITY SERVICES COORDINATION REQUIRED</th>
<th>WHEN TO SUBMIT APPLICATION OR PLANS</th>
</tr>
</thead>
<tbody>
<tr>
<td>CenturyLink Coordination</td>
<td>As needed, after submittal of UEPA application</td>
</tr>
<tr>
<td>NV Energy Coordination</td>
<td>As needed, after submittal of UEPA application</td>
</tr>
<tr>
<td>Southwest Gas Coordination</td>
<td>As needed, after submittal of UEPA application</td>
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</tbody>
</table>

Appendix 1 attached hereto contains detailed information about each permit such as the regulatory context, key contact address and phone number, submittal requirements, typical agency processing times, and application fees.
Appendix 1 – Permit Details
**FEDERAL PERMITS**

**U.S. FISH AND WILDLIFE SERVICE ENDANGERED SPECIES ACT SECTION 10 CONSULTATION**

**Need**
A county-wide Multispecies Habitat Conservation Plan (MSHCP) was completed under Section 10 of the Endangered Species Act in consultation the U.S. Fish and Wildlife Service (USFWS) addressing 79 species located on private property in Clark County. Under this MSHCP, applicants requesting coverage pay a remuneration fee to mitigate for impacts to threatened and endangered wildlife habitat.

**Agency Name and Address**
U.S. Fish and Wildlife Service  
4701 Torrey Pines Dr.  
Las Vegas, NV 89130-2301  
Phone: 702-515-5230, Fax: 702-515-5231

**Forms and Submittals**
See scheduling and fees, below.

**Scheduling**
Permit pulled by Contractor as part of grading permit process just prior to beginning construction.

**Fees**
Construction contractor to pay desert tortoise fees of $550/acre on private land in desert tortoise habitat.

**Additional Information**
Migratory Bird Treaty Act (MBTA) and Bald and Golden Eagle Act also are under the jurisdiction of USFWS and the MSHCP does not automatically ensure compliance. For example, Burrowing Owls or other migratory birds may occur at the site and the MBTA protects the birds, their nests, and prohibits activities that cause birds to leave nests. It does not protect habitat. As discussed in the Biological Evaluation, clearing owl burrows in the non-breeding season ensures compliance with the MTBA and does not specifically require consultation with USFWS. USFWS also has issued construction guidance to reduce impacts to burrowing owls, and these guidelines and other common standards are easily incorporated into the Best Management Practices for the project.
STATE PERMITS

NEVADA UTILITY ENVIRONMENTAL PROTECTION ACT

Need
1. The Nevada Legislature has declared that:
   (a) There is at present and will continue to be a growing need for electric, gas and water services which will require the construction of new facilities. It is recognized that such facilities cannot be built without in some way affecting the physical environment where such facilities are located.
   (b) It is essential in the public interest to minimize any adverse effect upon the environment and upon the quality of life of the people of the State which such new facilities might cause.
   (c) Present laws and practices relating to the location of such utility facilities should be strengthened to protect environmental values and to take into account the total cost to society of such facilities.
   (d) Existing provisions of law may not provide adequate opportunity for natural persons, groups interested in conservation and the protection of the environment, state and regional agencies, local governments and other public bodies to participate in proceedings regarding the location and construction of major facilities.
2. The Legislature, therefore, hereby declares that it is the purpose of NRS 704.820 to 704.900, inclusive, to provide a forum for the expeditious resolution of all matters concerning the location and construction of electric, gas and water transmission lines and associated facilities.
   (Added to NRS by 1971, 554; A 1985, 2051; 1997, 489, 1914)

Agency Name and Address
Public Utilities Commission Of Nevada
Las Vegas Office
9075 West Diablo Drive, Suite 250
Las Vegas, NV 89148
Phone: (702) 486-7210, Fax: (702) 486-7206

Forms and Submittals
A person or company who wishes to obtain a permit for a utility facility must file with the Commission an application, in such form as the Commission prescribes, containing:
   (a) A description of the location and of the utility facility to be built thereon;
   (b) A summary of any studies which have been made of the environmental impact of the facility; and
   (c) A description of any reasonable alternate location or locations for the proposed facility, a description of the comparative merits or detriments of each location submitted, and a statement of the reasons why the primary proposed location is best suited for the facility.
A copy or copies of the studies referred to in paragraph (b) must be filed with the Commission and be available for public inspection (with the exception of the cultural report and the ecological resources report, in order to protect identified resources).

Scheduling
The PUCN typically takes between 60 and 90 days to issue a UEPA Compliance Order after the application packet is received.

Fees
$200 filing fee.

Additional Information
All State and Federal Permits specified in the UEPA Compliance Order must be submitted prior to the final issuance of the UEPA permit to construct. Required federal, state, county, and local permits must be obtained before the PUCN will issue a UEPA permit to construct.
STATE PERMITS (CONTINUED)

NEVADA DIVISION OF WILDLIFE ENERGY PLANNING AND CONSERVATION FUND

Need

NRS 701.600 through 701.640 establish the Energy Planning and Conservation Fund and the Fund for the Recovery of Costs. These two funds are administered by the Nevada Department of Wildlife (NDOW). The statutes require the owners/applicants of all proposed energy projects (of applicable size) to file a notice (application) and provide an initial fee to NDOW for evaluation of the proposed project. Additional fees may be required depending upon the scope of the project. The application and initial fee is to be submitted to NDOW concurrently with application submittal to any other (local, State or Federal) government agency in the State of Nevada. Projects which are already in progress but still have documents pending for review by NDOW will also need to apply and provide funding. All unused fees will be returned upon completion of project review or if the application is withdrawn in advance of completion.

Agency Name and Address

Nevada Department of Wildlife
Attn: John Toll
Habitat Division
1100 Valley Road
Reno, NV 89512
Phone: 775-688-1561
http://www.ndow.org/Our_Agency/Special_Projects/

Forms and Submittals

An online application form must be submitted with a location map and schedule for the project.

Scheduling

NDOW is allowed 30 days to review.

Fees

An initial deposit toward reimbursable costs in the amount of $10,000. Any unused funds will be refunded.

Additional Information

N/A
STATE PERMITS (CONTINUED)

NEVADA STATE HAZARDOUS MATERIAL PERMIT

Need

Required for storage of flammable liquid of 5 or more gallons inside or 10 or more gallons outside and for combustible liquid of 10 or more gallons inside or 25 or more gallons outside for over 30 days. A Roving Permit from highway patrol is needed if the tanks would be moved. The Hazardous Material Permit is required for onsite fuel storage during construction activities. The Roving Permit is required if storage tanks are moved to different staging areas as construction progresses.

Agency Name and Address

Nevada Department Public Safety
Nevada State Fire Marshall Division
107 Jacobsen Way
Carson, City, NV 89711
Phone: 775-684-7524 Fax: 775-684-7507
http://fire.nv.gov/bureaus/FPL/Hazmat/

Forms and Submittals

Project proponent will obtain an operational permit from the State Fire Marshall (SFM) prior to storing hazardous materials onsite in excess of the threshold amounts allowed in International Fire Code, 2006 Edition as adopted pursuant to NAC 477.281, and submit reports to the SFM on hazardous materials inventory at least yearly during the construction phase.

Scheduling

Permit is issued upon completion of online application

Fees

$150.00 annual report fee per facility for up to 1 ton of hazardous material and $100.00 per additional ton of hazardous material

Additional Information

N/A
CLARK COUNTY PERMITS

DUST CONTROL PERMIT

Need

In accordance with Clark County Department of Air Quality Management regulations, a Dust Control Permit is required for any grading or land-disturbance activities within Clark County, Nevada.

Agency Name and Address

Clark County Department of Air Quality
4701 W. Russell Rd Suite 200
Las Vegas, Nevada 89118
Phone: 702-455-5942 Fax: 702-383-9994

Forms and Submittals

Submit the following materials prior to construction:
- Application for Dust Control Permit
- Location map
- Dust Mitigation Plan

This permit is required for construction activities in Clark County, Nevada impacting greater than 0.5 acre or 100 feet of trench. A sign must be displayed prior to construction pursuant to the Clark County Air Quality Regulations, at Sections 94.7.7.1 – 94.7.7.2.

Scheduling

The Department of Air Quality Management may take up to 7 days to issue a permit.

Fees

$144.00 per disturbed acre

Additional Information

Permits are issued for up to one year from date received. If project continues over one year, applicant must reapply for a new permit before the existing permit expires for disturbance on the remaining acreage.
Utility Coordination

CenturyLink Coordination

Need

Construction activity requires review of project location by utilities to avoid construction conflicts. Prepare preliminary project design drawing. For telephone service, prepare 60 percent design drawings. CenturyLink will design the telephone facilities.

Agency Name and Address

CenturyLink

Forms and Submittals

Design engineer will submit a preliminary design drawing or 60 percent design drawing if telephone service is required during design phase.

Scheduling

21 days

Fees

None

Additional Information

N/A
**UTILITY PERMITS (CONTINUED)**

**NV ENERGY COORDINATION**

**Need**

Construction activity requires review of project location by utilities to avoid construction conflicts. Must prepare preliminary project design drawing.

**Agency Name and Address**

NV Energy Land Services  
Attn: ROW Management Department  
6226 W. Sahara Ave., MS #9, Las Vegas, NV 89146  
Phone: 702-402-5555  

**Forms and Submittals**

Design engineer will submit Preliminary design drawing with project location during design phase.

**Scheduling**

21 days

**Fees**

None

**Additional Information**

N/A
**UTILITY PERMITS (CONTINUED)**

**SOUTHWEST GAS COORDINATION**

**Need**

Construction activity requires review of project location by utilities to avoid construction conflicts. Must prepare preliminary project design drawing.

**Agency Name and Address**

Southwest Gas  
4300 W. Tropicana Ave.  
Las Vegas, NV 89193  
Phone: 702-365-2056

**Forms and Submittals**

Design engineer will submit Preliminary design drawing with project location during design phase.

**Scheduling**

21 days

**Fees**

None

**Additional Information**

N/A
Appendix B: USFWS’s pamphlet, Protecting Burrowing Owls at Construction Sites in Nevada’s Mojave Desert Region
PROTECTING BURROWING OWLS AT CONSTRUCTION SITES IN NEVADA'S MOLAVE DESERT REGION

Burrowing owl numbers are declining despite protection under the Migratory Bird Treaty Act. Killing or possessing their eggs or destruction of their nests is illegal. Help these owls!

U.S. Fish and Wildlife Service
Nevada Fish and Wildlife Office
Conserving the Biological Diversity of Great Basin, Eastern Sierra & Mojave Desert

http://www.fws.gov/nevada
Appendix C: Nevada Department of Wildlife (NDOW) Gila-Monster Protocols
issued September 7, 2012
GILA MONSTER STATUS, IDENTIFICATION AND REPORTING PROTOCOL FOR OBSERVATIONS

Gila Monster Status

- Per Nevada Administrative Code 503.080, the Gila monster (Heloderma suspectum) is classified as a Protected reptile.

- Per Nevada Administrative Codes 503.090, and 503.093, no person shall capture, kill, or possess any part thereof of Protected wildlife without the prior written permission by the Nevada Department of Wildlife (NDOW).

This species is rarely observed relative to other species which is the primary reason for its Protected classification by the State of Nevada. The USDI Bureau of Land Management has recognized this lizard as a sensitive species since 1978. Most recently, the Gila monster was designated as an Evaluation species under Clark County's Multiple Species Habitat Conservation Plan (MSHCP). The evaluation designation was warranted because inadequate information exists to determine if mitigation facilitated by the MSHCP would demonstrably cover conservation actions necessary to insure the species' persistence without protective intervention as provided under the federal Endangered Species Act.

The banded Gila monster (H.s. cinctum) is the subspecies that occurs in Clark, Lincoln, and Nye counties of Nevada. Found mainly below 5,000 feet elevation, its geographic range approximates that of the desert tortoise (Gopherus agassii) and is coincident to the Colorado River drainage. Gila monster habitat requirements center on desert wash, spring and riparian habitats that inter-digitate primarily with complex rocky landscapes of upland desert scrub. They will use and are occasionally encountered out in gentler terrain of alluvial fans (bajadas). Hence, Gila monster habitat bridges and overlaps that of both the desert tortoise and chuckwalla (Sauromalus ater). Gila monsters are secretive and difficult to locate, spending >95% of their lives underground.

The Gila monster is the only venomous lizard endemic to the United States. Its behavioral disposition is somewhat docile and avoids confrontation. But it will readily defend itself if threatened. Most bites are considered illegitimate and consequential to harassment or careless handling. These lizards are not dangerous unless molested or handled and should not be killed.

Scant information exists on detailed distribution and relative abundance in Nevada. The Nevada Department of Wildlife (NDOW) has ongoing management investigations addressing the Gila monster’s status and distribution, hence additional distribution, habitat, and biological
BEFORE THE PUBLIC UTILITIES COMMISSION OF NEVADA
NOTICE OF APPLICATION FOR A PERMIT TO CONSTRUCT A UTILITY
FACILITY UNDER THE UTILITY ENVIRONMENTAL PROTECTION ACT

COPPER MOUNTAIN SOLAR 5, LLC, ("Applicant" or "CMS5") is submitting, pursuant to the Nevada Utility Environmental Protection Act ("UEPA"), an application to the Public Utilities Commission of Nevada ("PUCN") for a permit to construct a utility facility, consisting of a 250-megawatt ("MW") Alternating Current ("AC") solar photovoltaic ("PV") electric energy generating facility and associated facilities, including a 230-kV generation-tie power line (collectively, the "Project"), pursuant to Nevada Revised Statutes Chapter 704.820 through .900, inclusive, and Nevada Administrative Code Chapter 703.415 through .427, inclusive (the "Application").

The CMS5 Project will consist of five basic components: (1) a nominal 250-MW AC solar PV electric energy generating facility located on an approximately 1,145 acre site in the City of Boulder City ("Boulder City"); (2) an optional battery energy storage system (either large format lithium-ion batteries or alternative battery technologies); (3) a 230-kV generation-tie power line ("Gen-tie") consisting of one mile of new monopole structures and a new second circuit on existing structures, to deliver electricity to the NV Energy Nevada Solar One ("NSO") Switchyard; (4) fiber-optic communications lines constructed on the Gen-tie pole structures and redundant communications paths such as microwave transmission connecting the electricity generating facility to the NSO Switchyard and the local CenturyLink communication infrastructure; and (5) civil infrastructure including driveways, waterlines, drainage channels, and fencing.

The Project will be located in Boulder City's Eldorado Valley Energy Resource Zone, an area zoned for energy resource development with existing energy generation facilities in the surrounding area. The Project will be located entirely on approximately 1,145 acres of land subject to a lease-option from Boulder City to CMS5. This acreage will include the solar field, driveways, fencing, substation, optional energy storage facility, and other related infrastructure. The Gen-tie will consist of two portions, with the first spanning approximately one mile of new monopole structures running north from the Project site, and the second portion consisting of a new second circuit on existing structures in the gen-tie easement corridor along Eldorado Valley Drive in Boulder City. NV Energy will own the last pole and 230 kV circuit running north into the Nevada Solar One Switchyard.

NOTICE OF THE APPLICATION FOR A PERMIT TO CONSTRUCT UNDER UEPA FOR A 250-MW ELECTRICITY GENERATING FACILITY AND ASSOCIATED FACILITIES, INCLUDING A 230-kV TRANSMISSION LINE.

Notice is hereby given to persons residing in the municipalities in which any portion of the Project will be located and constructed: CMS5 will request a permit to construct the Project, which will consist of a 250-MW AC solar PV electric energy generating facility and associated facilities, including a 230-kV Gen-tie, all located within the municipal limits of Boulder City. The Project will also include ancillary facilities typical of solar energy generating facilities, including an optional energy storage system, fiber-optic communications lines, and microwave communications facilities.
The contents of the Application to be submitted to the PUCN for the Project will include but are not limited to:

1. A description of the Project, including general and detailed descriptions of the location of the Project, appropriately scaled site plan and layout drawings, vicinity maps, and routing maps; a description of the size and nature of the Project; and a description of the natural resources that will be used during the construction and operation of the Project;

2. A copy and summary of the Environmental Statement drafted by NewFields with respect to the environmental impact of the Project; an explanation of the nature of the probable effect of the Project on the environment; and a description of the current environmental characteristics of the Project area, the environmental impacts that the construction and operation of the Project would have on the Project area before mitigation, and the environmental impacts that the construction and operation of the Project will have on the Project area after mitigation;

3. A description of any reasonable alternate locations for the Project, a description of the comparative merits or detriments of each location submitted, and a statement of the reasons why the location is best suited for the Project;

4. An explanation of the extent to which the Project is needed to ensure reliable utility service to customers in this State of Nevada, including a description of the extent to which the Project will provide and enhance utility service to customers in Nevada;

5. An explanation of how the need for the Project balances any adverse effects on the environment, and how the Project represents the minimum adverse effect on the environment;

6. An explanation of how the location of the Project conforms to applicable federal, state, and local laws and regulations; and

7. An explanation of how the Project will serve the public interest, including the economic benefits that the Project will bring to the state, and the nature of the probable effect on the public health, safety, and welfare of the residents of the state if the Project is constructed.

A copy of the Application will be available on the PUCN’s website following Applicant’s filing of the Application. Additional information about the UEPA process and a person’s right to participate in that process can be found in Nevada Revised Statutes Chapter 704 and Nevada Administrative Code
Chapter 703. Protests and written comments about the Application and the Project must be filed with the PUCN as provided by law. DATED this 1st day of April, 2019 by Copper Mountain Solar 5, LLC.
Exhibit I

Affidavit of Publication
Leslie McCormick, being first duly sworn, deposes and says: That she is the Legal Clerk for the Las Vegas Review-Journal and the Las Vegas Sun, daily newspapers regularly issued, published and circulated in the City of Las Vegas, County of Clark, State of Nevada, and that the advertisement, a true copy attached for, was continuously published in said Las Vegas Review-Journal and / or Las Vegas Sun in 1 edition(s) of said newspaper issued from 04/04/2019 to 04/04/2019, on the following days:

04 / 04 / 19

LEGAL ADVERTISEMENT REPRESENTATIVE

Subscribed and sworn to before me on this 4th day of April, 2019

Notary
BEFORE THE PUBLIC UTILITIES
COMMISSION OF NEVADA

NOTICE OF APPLICATION FOR
A PERMIT TO CONSTRUCT A
UTILITY FACILITY UNDER THE
UTILITY ENVIRONMENTAL
PROTECTION ACT

COPPER MOUNTAIN SOLAR 5,
LLC ("Applicant" or "CMSS")
is submitting, pursuant to the
Nevada Utility Environmental
Protection Act ("UPEPA"), an
application to the Public
Utilities Commission of Nevada
("PUCN") for a permit
to construct a utility facility,
consisting of a 250-megawatt
("MW") Alternating Current
(AC) solar photovoltaic ("PV")
electric energy generating facility
and associated facilities,
including a 230-kV generation-tie
power line (collectively, the
"Project"), pursuant to Nevada
Revised Statutes Chapter 704.020 through 700,
inclusive, and Nevada
Administrative Code Chapter
703.415 through 427, inclusive
(the "Application").

The CMSS Project will consist
of five basic components: (1) a
nominal 250-MW AC solar PV
electric energy generating facility
located on an approximately
1,145-acre site in the City of Boulder City
("Boulder City"); (2) an
optional battery energy
storage system (either large
format Lithium-Ion batteries
or alternative battery
technologies); (3) a 230-kV
generation-tie power line
("gen-tie") consisting of one
mile of new monopole
structures and a second
circuit on existing structures,
to deliver electricity to the NV
Energy Nevada Solar One
("NSO") Switchyard; (4)
fiber-optic communications lines
constructed on the Gen-tie pole
structures and redundant
communications paths such as
microwave transmission
connecting the electricity
generating facility to the
NSO Switchyard and the local
CenturyLink
communication infrastructure; and (5)
civil infrastructure
including driveways,
waterlines, drainage
channels, and fencing.

The Project will be located in
Boulder City's Eldorado Valley
Energy Resource Zone, an
area zoned for
energy resource development
with existing energy generation
facilities in the surrounding
area. The Project will be
located entirely on
approximately 1,145 acres
of land subject to a lease-option
from Boulder City to CMSS.

This acreage will include
the solar field, driveways,
fencing, substations, optional
energy storage facility, and
related infrastructure.
The Gen-tie will consist of two
portions, with the first
spanning approximately one
mile of new monopole
structures running north from
the Project site, and the
second portion consisting of
a new second circuit on
existing structures in the gen-
tie easement corridor along
Eldorado Valley Drive in
Boulder City. NV Energy will
down the last pole and 230-kV
circuit running north into the
Nevada Solar One Switchyard.

Notice of the application for a
permit to construct under
UPEPA for a 250-MW electricity
energy generating facility
and associated facilities,
including a 230-kV transmission line.

Notice is hereby given to persons residing in the municipalities in or near any portion of the Project will be
located and constructed. CMSS will request a permit
to construct the Project, which
will consist of a 250-MW AC
solar PV electric energy generating facility
and associated facilities.

Including a 230-kV Gen-tie, all
located within the municipal
limits of Boulder City. The
Project will also include
an auxiliary facility typical of
solar energy generating
facilities, including an
optional "energy storage
system," fiber-optic
communications lines, and
microwave communications
facilities.

The contents of the
Application to be submitted to
the PUCN for the Project
will include but are not
limited to:
1. A description of the
Project, including general and
detailed descriptions of the
location of the Project,
appropriately scaled site plan
and layout drawings, vicinity
maps, and routing maps; a
description of the size and
nature of the Project; and a
description of the natural
resources that will be used
during the construction and
operation of the Project;
2. A copy and summary of the
Environmental Statement
drafted by NewFields with
respect to the environmental
impact of the Project, an
explanation of the nature of
the probable effect of the
Project on the environment;
and a description of the
current environmental
characteristics of the Project
area, the environmental
impacts that the construction
and operation of the Project
would have on the Project
area before mitigation,
and the environmental impacts
that the construction and
operation of the Project
will have on the Project area after
mitigation;
3. A description of any
reasonable, alternate
locations for the Project, a
description of comparative
merits or detriments of each
location submitted, and a
statement of the reasons why
the location is best suited for the Project;
4. An explanation of the
extent to which the Project is
needed to ensure reliable
utility service to customers in
this State of Nevada,
including a description of the
extent to which the Project will
provide and enhance
utility service to customers in
Nevada;
5. An explanation of how the
need for the Project balances
any adverse effects on the
environment, and how the
Project represents the
minimum adverse effect on the
environment;
6. An explanation of how the
location of the Project conforms
to applicable federal, state, and
local laws and regulations;
and
7. An explanation of how the
Project will serve the public
interest, including
economic benefits that the
Project will bring to the state,
and the nature of the
probable effect on the public
health, safety, and welfare of
the residents of the state if
the Project is constructed.

A copy of the Application
will be available on the PUCN's
website following the Applicant's
filling of the Application.

Additional Information about
the UPEPA process and a
person's right to participate
in this process can be found in
Nevada Revised Statutes
Chapter 704 and Nevada
Administrative Code Chapter
703.

Protests and written
comments about the
Application and the Project
must be filed with the
Commission, as provided by law.

DATED this 1st day of April, 2019
Cooper Mountain Solar 5, LLC
PUB April 4, 2019
LV Review-Journal
Proof of Publication

STATE OF NEVADA
COUNTY OF CLARK) SS:

HOLLAND & HART LLP
377 S NEVADA ST
CARSON CITY NV 89703

Account # 134255
Ad Number 0001042566

Denzi Watts, being 1st duly sworn, deposes and says: That she is the Legal Clerk for the Boulder City Review, a weekly newspaper regularly issued, published and circulated in the City of Boulder City, County of Clark, State of Nevada, and that the advertisement, a true copy attached for, was continuously published in said Boulder City Review in 1 edition(s) of said newspaper issued from 04/04/2019 to 04/04/2019, on the following days:

04 / 04 / 19

/S/ LEGAL ADVERTISEMENT REPRESENTATIVE

Subscribed and sworn to before me on this 4th day of April, 2019

Notary

MARY A. LEE
Notary Public, State of Nevada
Appointment No. 09-8941-1
My Appt. Expires Dec 15, 2020
BEFORE THE PUBLIC UTILITIES COMMISSION OF NEVADA
NOTICE OF APPLICATION FOR A PERMIT TO
CONSTRUCT A UTILITY
FACILITY UNDER THE UTILITY
ENVIRONMENTAL PROTECTION ACT

COPPER MOUNTAIN SOLAR 5, LLC, ("Applicant" or "CMS5") is submitting, pursuant to the Nevada Utility Environmental Protection Act ("UEPA"), an application to the Public Utilities Commission of Nevada ("PUCN") for a permit to construct a utility facility, consisting of a 250-megawatt ("MW") Alternating Current ("AC") solar photovoltaic ("PV") electric energy generating facility and associated facilities, including a 230-kV generation-tie power line (collectively, the "Project"), pursuant to Nevada Revised Statutes Chapter 704.820 through .900, inclusive, and Nevada Administrative Code Chapter 703.415 through .427, inclusive (the "Application").

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The Project will be located in Boulder City's Eldorado Valley Energy Resource Zone, an area zoned for energy resource development with existing energy generation facilities in the surrounding area. The Project will be located entirely on approximately 1,145 acres of land subject to a lease-option from Boulder City to CMS5. This acreage will include the solar field, driveways, fencing, substations, optional energy storage facilities, and other related infrastructure. The Gen-tie will consist of two portions, with the first spanning approximately one mile of new monopole structures running north from the Project site, and the second portion consisting of a new second circuit on existing structures in the gas-tie easement corridor along Eldorado Valley Drive in Boulder City.

NV Energy will own the last pole and 230 kV circuit running north into the Nevada Solar One Switchyard.

NOTICE OF THE APPLICATION FOR A PERMIT TO
CONSTRUCT UNDER UEPA FOR A 250-MW ELECTRICITY
GENERATING FACILITY AND ASSOCIATED FACILITIES,
INCLUDING A 230-KV TRANSMISSION LINE.

Notice is hereby given to persons residing in the municipalities in which any portion of the Project will be located and constructed: CMS5 will request a permit to construct the Project, which will consist of a 250-MW AC solar PV electric energy generating facility and associated facilities, including a 230-kV Gen-tie, all located within the municipal limits of Boulder City. The Project will also include ancillary facilities typical of solar energy generating facilities, including an optional energy storage system, fiber-optic communications lines, and microwave communications facilities.

The contents of the Application to be submitted to the PUCN for the Project will include but are not limited to:

1. A description of the Project, including general and detailed descriptions of the location of the Project, appropriately scaled site plan and layout drawings, vicinity maps, and routing maps; a description of the size and nature of the Project; and a description of the natural resources that will be used during the construction and operation of the Project;

2. A copy, and summary of the Environmental Statement drafted by Newfields with respect to the environmental impact of the Project; an explanation of the nature of the probable effect of the Project on the environment; and a description of the current environmental characteristics of the Project area, the environmental impacts that the construction and operation of the Project would have on the Project area before mitigation, and the environmental impacts that the construction and operation of the Project will have on the Project area after mitigation;

3. A description of any reasonable alternate locations for the Project, a description of the comparative merits or detriments of each location submitted, and a statement of the reasons why the location is best suited for the Project;

4. An explanation of the extent to which the Project is needed to ensure reliable utility service to customers in this State of Nevada, including a description of the extent to which the Project will provide and enhance utility service to customers in Nevada;

5. An explanation of how the need for the Project balances any adverse effects on the environment, and how the Project represents the minimum adverse effect on the environment;

6. An explanation of how the location of the Project conforms to applicable federal, state, and local laws and regulations; and

7. An explanation of how the Project will serve the public interest, including the economic benefits that the Project will bring to the state, and the nature of the probable effect on the public health, safety, and welfare of the residents of the state if the Project is constructed.

A copy of the Application will be available on the PUCN's website following Applicant's filing of the Application. Additional information about the UEPA process and a person's right to participate in that process can be found in Nevada Revised Statutes Chapter 704 and Nevada Administrative Code Chapter 703. Protests and written comments about the Application and the Project must be filed with the PUCN as provided by law.

DATED this 1st day of April, 2019 by Copper Mountain Solar 5, LLC.

PUB: April 4, 2019 Boulder City Review
Exhibit J

Proof of Submission
CERTIFICATE OF SERVICE

I hereby certify that I am an employee of Holland & Hart LLP and on April 8, 2019, I caused to be served a true and correct copy of the Application of Copper Mountain Solar 5, LLC for a Permit to Construct a 250 MW Solar Energy Generating Facility and Associated Facilities, Including an Optional Energy Storage System and a 230-KV Generation-Tie Power Line, under the Utility Environmental Protection Act via electronic transmittal or U.S. Mail, as noted below, to the following parties:

U.S. Mail Transmittal:

Clark County Clerk
200 Lewis Ave., Box 551604
Las Vegas, NV 89155

Lorene Krumm
City Clerk
Boulder City Clerk's Office
401 California Avenue
Boulder City, NV 89005

Las Vegas City Clerk
City Hall
495 S. Main Street
Las Vegas, NV 89101

Electronic Mail:

Skip Canfield, Program Manager
Nevada State Clearinghouse
Department of Conservation & Natural Resources,
Division of State Lands
901 S. Stewart Street, Ste. 5003
Carson City, NV 89701
nevadaclearinghouse@lands.nv.gov
Kristen Burke  
Administrative Assistant  
Nevada Division of Environmental Protection  
901 S. Stewart Street, Suite 4001  
Carson City, NV 89701  
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Ernest Figueroa, Esq.  
Nevada State Consumer Advocate  
Bureau of Consumer Protection  
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JEANETTE SPARKS, Legal Secretary,  
an employee of Holland & Hart LLP