Bonanza Peak Energy Project

Plan of Development for Inyo County, CA

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Acronyms / Abbreviations

AC	alternating current
ADA	Americans with Disabilities Act
AF	acre feet
AHJ	Authority Having Jurisdiction
APLIC	Avian Power Line Interaction Committee
BLM	Bureau of Land Management
BMPs	best management practices
Caltrans	California Department of Transportation
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
DC	direct current
ESA	Endangered Species Act
FAA	Federal Aviation Administration
gen-tie	generation tie-in line
HVAC	Heating, Ventilation, and Air Conditioning
ICAO	International Civil Aviation Organization
ISO	International Organization for Standardization
ITP	Incidental Take Permit
kV	kilovolt
LSAA	Lake and Streambed Alteration Agreement
MET	Meteorological
MW	megawatts
MWac	megawatts alternating current
NERC	North American Electric Reliability Corporation
NESC	National Electric Safety Code
NPDES	National Pollutant Discharge Elimination System
O&M	Operation and maintenance
OSR	Open Space and Recreation
PCB	polychlorinated biphenyl
PCS	Power Conversion Stations
POD	Plan of Development
PV	photovoltaic
PVMs	PV modules
REDA	Renewable Energy Development Agreement
REGPA	Renewable Energy General Plan Amendment
ROW	Rights-Of-Way
RWQCB	Regional Water Quality Control Board



SCADA	Supervisory Control and Data Acquisition
SEDA	Solar Energy Development Area
SHPO	State Historic Preservation Office
SPCC	Spill Prevention, Control, and Countermeasure
SWPPP	Stormwater Pollution Prevention Plan
UPS	uninterruptible power supplies
USFWS	US Fish and Wildlife Service



1 Overview

1.1 Project Summary

Bonanza Peak Solar, LLC, a wholly owned subsidiary of Hanwha Renewables, LLC, which is a wholly owned subsidiary of Hanwha Energy USA Holdings Corp. (Applicant) requests a Renewable Energy Development Agreement (REDA) from Inyo County, California to construct, own, operate, and maintain a utility scale solar photovoltaic (PV) energy generating facility on private lands. The requested term for the REDA is 50 years to allow for 1.5 years of construction and 48.5 years of operations.

The Project would be located in the Charleston View Solar Energy Development Area (SEDA) in southeastern Inyo County, adjacent to the Nevada state line just north of Old Spanish Trail Highway (**Figure 1-1**).

The solar generation facility, including the PV arrays, substation, and other electrical equipment, would be within a 3,382-acre Project Area with a Developable Area of no greater than 2,400 acres, as dictated by the Inyo County Renewable Energy General Plan Amendment (REGPA; Inyo County 2015; **Figure 1-1**). The Project has a planned net generating capacity of up to 500 megawatts (MW) alternating current (MWac) and will be built as one or more phases.

An approximately 9-mile long 230 kilovolt (kV) generation tie-in line (gen-tie line) would be located on lands managed by the Bureau of Land Management (BLM) in Nye and Clark Counties, Nevada (**Figure 1-1**). The Project would connect to the existing Gridliance 230 kV transmission line at the Trout Canyon substation.

The Project would include the following primary components in Inyo County:

- Main solar energy generation area, which includes the solar arrays.
- Power conversion systems including inverters and medium voltage transformers
- Medium voltage underground electrical collection system from the Power Conversion Stations (PCS) to the input of the main power transformer that will be located at the substation facility.
- High voltage substation
- Gen-tie line
- Operation and maintenance (O&M) facilities.
- Power plant control and monitoring system and communications networks.
- Site security and fencing.
- Interior access roads.
- Sediment (stormwater basins)

The gen-tie line would extend from the Project substation to the Trout Canyon substation in Clark County, Nevada. Approximately 0.4 miles of the gen-tie line would be in Inyo County and approximately 8.5-miles would be in Nevada. The transmission structures would be approximately 120 to 170 feet high. When



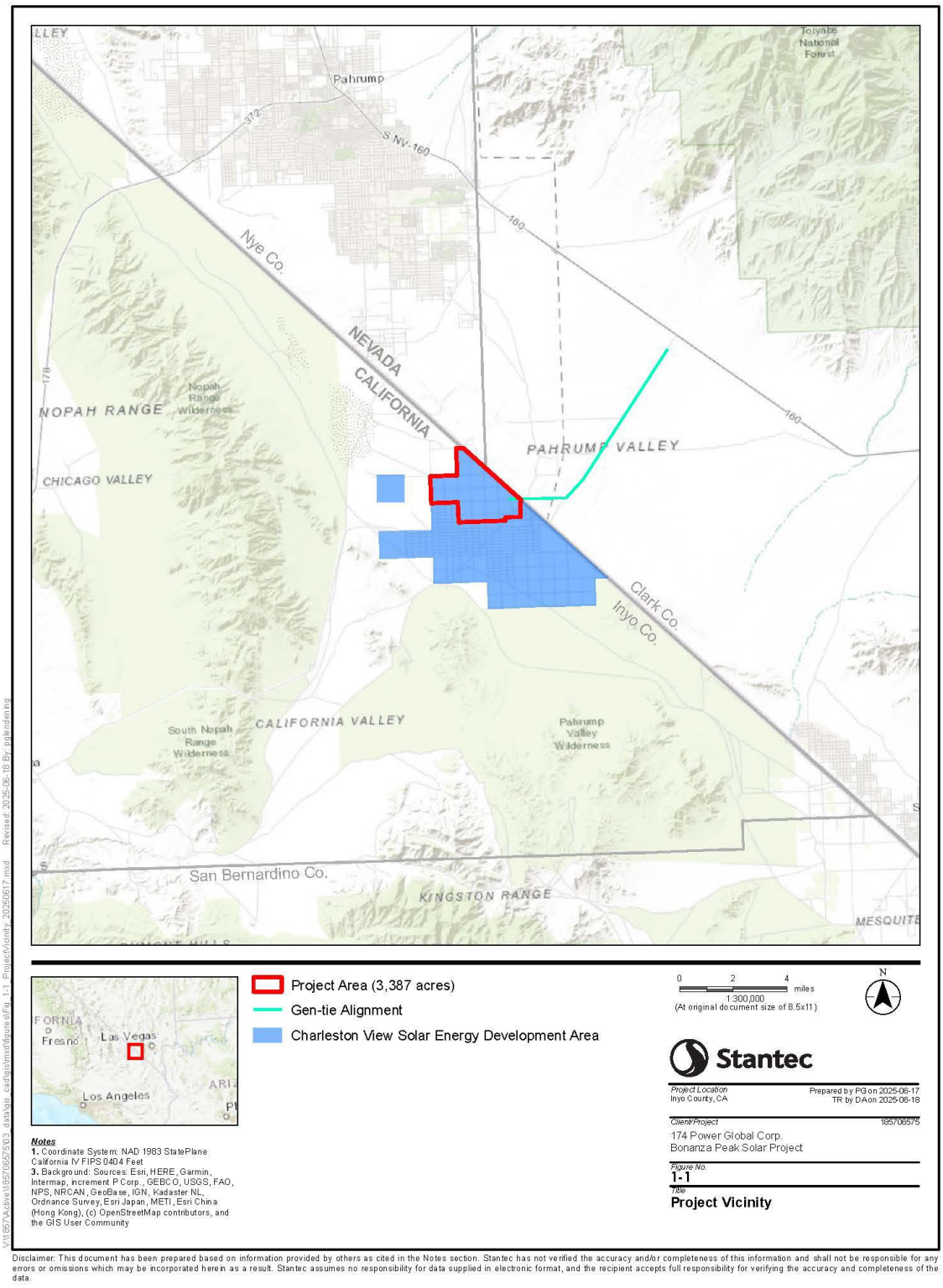
fully operational, the Project would have the capacity to convert solar energy to up to 500 MWac of electricity, producing no air pollutant emissions and using minimal water during normal O&M.[1] The Project would employ best management practices (BMPs, standardized practices to avoid or minimize adverse effects) throughout all phases of Project design, construction, testing, O&M, and decommissioning. The Applicant's advanced PV technology and efficient, environmentally sensitive site layout would maximize renewable energy generation potential, while minimizing impacts to the Project Area and surrounding environment. Key attributes of the Project, to be built in one or more phases, include:

- Direct conversion of sunlight to electricity without the use of water in the power generation process (i.e., no need for cooling water or water to generate steam) and no generation of emissions.
- Up to 500 MWac of electrical power generated from a renewable source and producing no air pollutant emissions, with low ambient noise levels during power generation.

This Plan of Development (POD) describes the site, regulations, facilities, and associated activities associated with the portion of the Project in Inyo County.

[1] In the event that back-up power is required, generators may be used which would produce a negligible quantity of air pollutant emissions.

***Figure 1-1**. Vicinity Map*



2 Purpose and Need for the Project

The Project would provide solar-generated electricity from a site in California to meet the region's existing and future electricity needs while providing a reliable, economical, and non-polluting renewable energy resource in the region. The Project would help serve the increase in demand for clean, low carbon electric power, in a manner that is consistent with federal and California policy mandates and incentives for development of new renewable energy resources, while avoiding and minimizing potential adverse impacts to the environment.

Recent national and regional forecasts project an increase in consumption of electrical energy continuing into the foreseeable future. Renewable energy, including solar PV generation, is expected to provide a large component of the diverse electrical supply in the future. Several western states have adopted renewable energy requirements or goals, and various national, regional, and state policies have been enacted to encourage and provide incentives for development of solar and other renewable energy projects. Continued increased consumption of electricity requires development of new generation facilities to satisfy demand.

Congress enacted the Inflation Reduction Act in 2022, which is a landmark federal law which aims to curb inflation by, among other activities, investing in domestic energy production while promoting clean energy. At least 29 states, plus Washington DC and 3 territories, have passed some type of renewable energy portfolio standards, including California which aims to have 60 percent renewable energy by 2030 and 100 percent by 2045.

2.1 Project Area

The Project would be located in southeastern Inyo County, with the proposed transmission tie-in connecting the Project to the utility grid point of interconnection via a gen-tie line that extends from the Project to the immediately adjacent Inyo County, California/Nye County, Nevada border and then to the Trout Canyon substation in Clark County, Nevada. The Old Spanish Trail Highway (Tecopa Road in Nevada) is located approximately 0.25 mile south of the Project Area boundary. From Tecopa Road, S Mcr928200 Road connects to Nevada State Route 16 in Nevada, on the eastern side of the Project Area, where the proposed transmission tie-in would be. A portion of the transmission tie-in is also located along Tecopa Road, terminating at the Yellow Pine Energy Center, approximately 0.6 mile from the intersection with the Pahrump Valley Highway (Nevada State Route 160).

The closest localities or towns to the Project Area include Charleston View, California 1 mile to the south; Tecopa, California, 26 miles to the west; Pahrump, Nevada, 25 miles to the north; and Mountain Springs, Nevada, 25 miles to the east. The nearest large city to the Project Area is Las Vegas, Nevada, 57 miles to the east.



The legal description of the Project Area is as follows:

Solar Facility (Private Land)

Calvada Springs and Mount Spring Meridian, California

Township 22 North,

Range 10 East, Sections 8, 9, 15, 16, 17, 20, 21, 22*, 23*, 26, 27, 28.

*Indicates section of solar facility site also crossed by gen-tie line.

For reference:

Transmission Tie-in Line (BLM-administered Land)

Calvada Springs and Mount Spring Meridian, California

Township 22 North,

Range 54 East, Sections 35, 36,

Range 55 East, Sections 2, 3, 10, 15, 16, 20, 21, 29, 31, 32.

2.2 Existing Conditions

The Project would be located on predominantly flat, arid, sparsely vegetated, open land in the southern portion of the Pahrump Valley. Elevations range from 2,560 feet to 2,660 feet above sea level. It is within the Basin and Range Geomorphic Province, characterized by interior drainage to lakes and playas, with horst and graben topography (i.e., basins and ranges).

On a broad scale, vegetation within the Project Area is predominantly *Larrea tridentata – Ambrosia Dumosa* shrubland alliance (creosote bush–white bursage scrub) on the eastern third and a mixture *Atriplex confertifolia* shrubland alliance (shadscale scrub) and *Atriplex polycarpa* shrubland alliance (allscale scrub) on the western two-thirds. The western two-thirds of the Project Area is also interspersed with areas of low vegetative cover dominated by noxious weeds such as cheatgrass (*Bromus tectorum*) and saltlover (*Halogeton glomeratus*).

The Project Area is located on private land currently designated by Inyo County as Open Space greater than 40 acres in size (OS-40). The OS-40 designation provides sites for open space and compatible uses. Commercial renewable energy facilities are an allowable use within the OS-40 land use zoning district (Inyo County 2002).



A small amount of commercial and residential zoning is present directly south of the Project Area in Charleston View. An existing solar facility (Yellow Pine Energy Center) is located east of the Project Area in Nevada at the proposed transmission tie-in location. Existing development and disturbed areas within the Project Area include dirt roads and abandoned buildings.

The following photos, taken in May 2024, reflect the existing condition of the Project Area:



Photo 2-1. *Evidence of vehicle tracks in open area on Project Area*



Photo 2-2. *Topography flat area on Project Area with mountains in background as reference*



Photo 2-3. *Evidence of human disturbance on Project Area*



Photo 2-4. *Potential drainage feature on Project Area*



Photo 2-5. *Dominant vegetation community on the Project Area - Creosote bush scrub*

Table 2-1 details designated roadways within the proposed Project Area. These roads are private and not under the jurisdiction of the State, County, or other local jurisdiction.

Table 2-1. *Designated Roads within the Project Area*

Name of Roadway	Existing Road Width (in feet)
Turtle Rock Way	40
Avenue “D”	40
Quartz Street	40
Roserwin Lane	40
Gold Street	40
Topaz Street	40
Zircon Street	40



3 Public and County Benefits of the Project

The goal of the Project is to provide solar-generated electricity from a site in Inyo County to meet the region's existing and future electricity needs while providing a reliable, economical, and non-polluting, domestic, renewable energy resource in the region. The Project would help serve the increase in demand for clean, de-carbonized energy, in a manner that is consistent with federal and California policy mandates and incentives for development of new renewable energy resources, while avoiding and minimizing potential adverse impacts to the environment.

In addition to providing a new source of clean energy, the Project pursuant to Inyo County's 2015 REGPA must provide local community benefits. This could take many forms that would include land and financial support for a new Southern Inyo Fire Protection District facility in Charleston View and financial support for an Environmental Impact Report to evaluate the Draft Community Plan for Charleston View. During the O&M period, the Project would employ a small workforce. Local qualified people will be given the opportunity for these jobs.



4 Construction Schedule

Construction would begin in the second quarter of 2027. The Project may be built in one or more phases within an approximately 18-month construction period.

5 Applicable Plans, Policies, and Designations

5.1 Inyo County General Plan and Zoning Code

The Project is located in Inyo County, and therefore, development would be subject to the County's 2002 General Plan, as amended, and Inyo County zoning code. The Project is designated as Open Space and Recreation (OSR) by the Inyo County General Plan and zoned OS-40 (Inyo County 2002).

OS-40 zoning designation does not define a solar facility as permitted or conditional use. However, Title 21, Renewable Energy Ordinance, of the Inyo County Municipal Code, governs solar facilities throughout Inyo County and provides requirements and development guidance for solar facilities. Specifically, Section 21.04.030 of the Inyo County Municipal Code states that the main purpose of the Renewable Energy Ordinance is to:

> "support, encourage and facilitate the responsible utilization of its solar and wind resources for the generation and transmission of clean, renewable electric energy, the county encourages potential developers of such resources to work with the county and to enter into a mutually agreeable renewable energy development agreement in lieu of applying for the issuance of a renewable energy impact determination or a renewable energy permit."

The Renewable Energy Ordinance requires applicants for a solar facility to apply for and obtain a Renewable Energy Permit or a Renewable Energy Development Agreement (REDA) from the county, so long as the facility is not specifically exempt from such requirements by state or federal law, or if any existing REDA is already in place with the county for the facility (Inyo County Municipal Code Section 21.16.010, and 21.16.030). Based on communications between the Applicant and Inyo County Planning Department, a REDA will be required.

5.1.1 Final Renewable Energy General Plan Amendment

In March of 2015, the final REGPA was adopted (Inyo County 2015). This final REGPA included relevant information for solar development projects within Inyo County including new general plan policies, land use definitions, land use implementation measures, and SEDA maps. The Project Area is within the Charleston View SEDA. Additionally, the Project meets the definition of a 'renewable energy solar facility' which is defined in the REGPA as:

> "Any electric transmission line or photovoltaic (PV) power plant to be constructed in Inyo County. A renewable energy solar facility does not include small scale renewable energy solar facilities or a pilot or proof of a concept power plant (Inyo County 2015)."

The Project further meets the definition of a "utility scale renewable energy solar facility (more than 20 megawatts [MW])" which is defined in the REGPA as:



> "A renewable energy solar facility that produces more than 20 megawatts (MW) of electricity for off-site use, consumption and/or sale, including all equipment and accessory structures related to the facility, including but not limited to PV panels, mounting posts, substations, electrical infrastructure, transmission lines, operations and maintenance buildings, appurtenant energy storage facilities and other accessory structures (Inyo County 2015)."

Transmission lines may be constructed within or outside of the SEDA, per Land Use Policy LU-1.17 (see **Table 5-1** for further details):

> "Appurtenant transmission and storage facilities and related infrastructure may be constructed and operated within any Land Use Designation and any zoning district under Title 18 of the ICC and in accordance with the standards set forth by CEQA."

Table 5-1 below includes polices from the REGPA that are applicable to the Project.

Table 5-1. *Renewable Energy General Plan Amendment Applicable Policies*

Policy Number	Policy Description
GOV-2.4	The County shall require that renewable energy solar facility developers notify local residents and/or landowners by direct mailings or other appropriate means announcing projects at the time an application is submitted.
LU-1.17	Utility Scale (more than 20 MW) and Commercial Scale Renewable Energy Solar Facilities (20 MW or less). The County shall consider utility scale and commercial scale renewable energy solar facilities within SEDA overlays or outside of SEDAs if the facility is proposed to be located over or along the Los Angeles Aqueduct. Within SEDAs or over or along the Los Angeles Aqueduct, the County may consider utility scale and commercial scale renewable energy solar facilities within any zoning district under Title 18 of the ICC and pursuant to ICC Title 21. Based on site-specific studies and appropriate environmental review, the County may process utility scale and commercial scale renewable energy solar facilities within the SEDA, or over and along the Los Angeles Aqueduct, pursuant to ICC Title 21. Potential social, economic, visual and environmental impacts from utility scale and commercial scale renewable energy solar facilities must be avoided, minimized, or mitigated to an acceptable level. Appurtenant transmission and storage facilities and related infrastructure may be constructed and operated within any Land Use Designation and any zoning district under Title 18 of the ICC and in accordance with the standards set forth by CEQA. Development standards, including minimum parcel size, may be specified in a Renewable Energy Permit or Renewable Energy Development Agreement in lieu of the standards specified herein, as permitted by ICC Title 21.
LU-1.20	The County does not support new transmission in or through Inyo County above what is necessary for the megawatt cap placed on each Solar Development Group (i.e., defined collection of SEDAs).
LU-1.21	The County does not support renewable energy solar development projects other than those that use PV technologies.
ED-4.4	Offset the Cost to the County for Service Provision. Renewable energy solar facility development shall be required to provide the means to offset the costs to the County, including but not limited to, the cost of infrastructure improvements and County services, and lost economic development potential. Economic impacts from renewable energy solar facility development identified by the County shall be mitigated or offset.

Policy Number	Policy Description
ED-4.5	Employ and Train Local Labor. The County shall encourage renewable energy solar facility developers to employ the local labor force, during development and for long-term facility maintenance and provide educational and training opportunities, as practicable.
ED-4.6	Compensation to Local Communities. The County shall encourage renewable solar energy developers to provide compensation in the form of reduced rates for communities impacted by development.
ED-4.7	Provide Transient Housing. The County shall encourage renewable solar energy developers to help provide transient housing during the construction of solar energy facilities to minimize impacts to tourist accommodations.
AG-1.3	Conversion of Agricultural Land. Discourage conversions of productive agricultural lands for urban development and encourage avoidance of the use of productive agricultural lands for renewable energy solar facility development.
CUL-1.6	Protect Cultural Resources. The County shall require renewable energy solar facility developers recognize the Old Spanish Trail as a cultural resource and ensure that it and its immediate surroundings in the Charleston View SEDA are preserved and protected.
MER-2	Avoid, Minimize, Mitigate. Ensure that renewable energy solar facility development is conducted appropriately to avoid, minimize, or mitigate the impacts from such development on the social, economic, visual, and environmental resources of the County.
MER-2.2	Solar Energy Development Areas (SEDA). The County shall maintain a Land Use Diagram of areas where utility scale and commercial scale solar facilities may be appropriate (SEDA Map).
MER-2.3	SEDA Land Inventory. As illustrated, the total acreage that may be developed for utility and commercial scale renewable energy solar facilities within each SEDA is capped; and the amount of megawatts that may be generated within each Solar Energy Group is capped (small scale and community scale solar energy facilities are excluded from the caps).



<table>
<tr><th>Policy Number</th><th>Policy Description</th></tr>
<tr><td></td><td>Total Allowable Developable Acreage per Solar Energy Development Area and Total Allowed Megawatt Development per Solar Energy Group:
<table>
<tr><th>Solar Energy Group</th><th>Solar Energy Development Area</th><th>Total Allowable Capacity (MW)</th><th>Total Allowable Developable Area (acres)</th></tr>
<tr><td rowspan="6">Western*</td><td>Laws</td><td></td><td>120</td></tr>
<tr><td>Owens Lake</td><td></td><td>1,500</td></tr>
<tr><td>Rose Valley</td><td></td><td>600</td></tr>
<tr><td>Pearsonville</td><td></td><td>600</td></tr>
<tr><td>Owens Valley Study Area</td><td></td><td>1,500</td></tr>
<tr><td>Western Solar Energy Group Total</td><td>250</td><td>1,500</td></tr>
<tr><td rowspan="2">Southern</td><td>Trona</td><td></td><td>600</td></tr>
<tr><td>Southern Solar Energy Group Total</td><td>100</td><td>600</td></tr>
<tr><td rowspan="3">Eastern</td><td>Charleston View</td><td></td><td>2,400</td></tr>
<tr><td>Sandy Valley</td><td></td><td>600</td></tr>
<tr><td>Eastern Solar Energy Group Total</td><td>500</td><td>3,000</td></tr>
<tr><td colspan="4">MW = megawatts
*The Western Solar Energy Group includes four Solar Energy Development Areas (SEDAs) – Laws, Owens Lake, Rose Valley, and Pearsonville – and the Owens Valley Study Area which is not a SEDA. The Owens Valley Study Area has been identified for potential development equaling the total allowable capacity for the Western Solar Energy Group. The SEDAs or Owens Valley, or a combination may be developed to not exceed the total allowable capacity of 250 megawatts based on transmission availability or 1,500-acres.</td></tr>
</table></td></tr>
<tr><td>MER-2.6</td><td>Avoid, Minimize, or Mitigate Impacts. The County shall work with renewable energy solar developers and other agencies to avoid, minimize, or mitigate impacts to the social, economic, visual, and environmental resources of the County from renewable energy solar facility development.</td></tr>
<tr><td>MER-2.7</td><td>Dust Control. The County shall work with renewable energy solar developers to ensure that dust creation during the construction and operations of a renewable energy solar facility are avoided to the extent practicable.</td></tr>
<tr><td>MER-2.8</td><td>Reclamation Planning. The County shall work with renewable energy solar facility developers to provide and implement a reclamation plan to return the site of each project to pre-project conditions or another appropriate state (i.e., native, reuse, etc.). The reclamation plan shall include financial assurances, such as bonding, for the cost of decommissioning, reclaiming and re-vegetating (if required) each renewable energy solar facility including removal of all equipment and accessory structures related to the facility, including but not limited to PV panels, mounting posts, substations, electrical infrastructure, transmission lines, operations and maintenance buildings, appurtenant energy storage facilities and other accessory structures.</td></tr>
<tr><td>WR-3.5</td><td>Sustainable Renewable Energy Solar Development. The County shall require renewable energy solar facility development to incorporate measures to minimize water consumption and use of potable water and encourage the use of reclaimed water and/or practices that do not require water during construction, the life of the facility, and during reclamation.</td></tr>
<tr><td>WR-3.6</td><td>Sustainable Water Practices. Renewable energy solar facility development proposed in the Laws and Sandy Valley SEDAs shall be required to show that the proposed project will be water sustainable.</td></tr>
</table>

Policy Number	Policy Description
WR-3.7	Charleston View. Projects proposed in Charleston View shall be water sustainable and shall require project applicants to purchase and retire water rights along the same flow path for the water that will be used for the project (construction and maintenance) at a minimum of a 1 to 1 ratio.
VIS-1.8	Renewable Energy Solar Development, Light and Glare, Night Skies. The County shall encourage siting, orientation and screening to avoid, minimize or mitigate significant changes to the visual environment from renewable energy solar facility development during construction and operations including avoiding or minimizing light and glare, and impacts inconsistent with Death Valley National Park's International Night Skies designation.
VIS-1.10:	Old Spanish Trail Highway. Provide for setbacks, siting, orientation, screening and buffers, on a project by project basis, to avoid impacts to views of the Old Spanish Trial Highway located in the Charleston View SEDA.

Source: Inyo County 2015

The Project Developable Area includes all equipment and accessory structures related to the solar facility, including the solar arrays, mounting posts, a substation, electrical infrastructure, a portion of the gen-tie, an O&M building, and accessory structures. To meet the requirements of the REGPA and the Charleston View SEDA (**Table 5-1,** MER 2.3), the Project Developable Area will be no greater than 2,400 acres with a maximum capacity of 500 MW. To date, there are no other renewable energy projects developed or proposed within this SEDA or the Eastern Solar Energy Group.



6 Authorizations, Permits, Approvals, and Reviews

This section summarizes the permits and reviews required for the Project. This includes consultations, applications, and approvals that may be requested for the Project at Federal, State, and local levels.

Table 6-1 summarizes permits and approvals that may be required for Project construction for the portion of the Project in Inyo County. The information in the table is preliminary, informed by the current scope, design, schedule, and construction plan for the Project.

Table 6-1. *Summary of Permits and Approvals for Project Construction*

Name of Permit or Approval	Regulation	Agency
Federal		
Section 106 Consultation	National Historic Preservation Act, Section 106	California State Historic Preservation Officer (SHPO) and Advisory Council on Historic Preservation (ACHP), as applicable
Endangered Species Act (ESA) Section 10 Consultation under the General Conservation Plan for the Desert Tortoise of California	ESA Section 10	US Fish and Wildlife Service (USFWS)
State		
Section 401 Water Quality Certification	Clean Water Act Section 401	Regional Water Quality Control Board (RWQCB)
National Pollutant Discharge Elimination System (NPDES) Construction General Permit	Code of Federal Regulations (CFR) Title 40, Part 122	RWQCB
Lake and Streambed Alteration Agreement (LSAA)	California Fish and Game Code Section 1600	California Department of Fish and Wildlife (CDFW)
Incidental Take Permit (ITP)	California Endangered Species Act (CESA) Section 2081 for ITP or Section 2080.1 for Consistency Determination	CDFW
Local		
Inyo County Land Use and Development Authorization Renewable Energy Development Agreement (REDA)	California Environmental Quality Act (CEQA)	Inyo County
Authority to Construct and Permit to Operate	GBUAPCD Rule 200	Great Basin Unified Air Pollution Control District
Well and Septic Permits	Inyo County Code Title 7	Inyo County Environmental Health Department
Building and Grading Permits	Inyo County Code Title 14	Inyo County Building and Safety Department



7 Project Components

A general site layout is provided as **Figure 7-1.**

- Solar energy is converted from photon energy to direct current (DC) electrical energy via the semi-conductor material in the PV cells that are the heart of any PV system.
- The PV modules (PVMs) are mounted on rows of metal racking systems, which automatically rotate the modules to track the path of the sun from sunrise to sunset each day. The Project would use these tracking support systems as it improves the energy output and requires fewer modules compared to fixed racking systems, and therefore less impact to the site, to provide an increased amount of contracted energy to the utility.
- The racking system is supported from the ground by approximately 4-inch diameter steel posts, which are driven into the existing soils to a depth of approximately 8 feet by means of a hydraulically driven pile hammer. The steel post diameter and depth are subject to change per the final Project design. After construction, the disturbance to the soils is limited to the cross-sectional area of these standard steel posts.
- The groups of PVM rows, along with the associated electrical cable connections equipment, comprise the Project PV arrays.
- The PV arrays are connected to the inverter stations, which convert the renewable direct current (DC) energy into alternating current (AC) electricity. The inverters are connected to medium voltage transformer units (one for each inverter station), to step up the voltage output from the inverter to a level and configuration that is compatible with the input voltage of the main power transformer.
- The output from each of these medium voltage transformers is gathered via underground wiring (the electrical collection system), combined in electrical switchgear equipment, and connected to the main power transformer located at the Project substation.
- The main power transformer steps up the medium voltage to a level and configuration that is compatible with the grid voltage (i.e. interconnection voltage). The electrical energy output from main power transformer is transmitted to the delivery point through an overhead transmission line (Gen-tie), which interconnects the system via a switchyard to the existing electrical grid.
- Measurement, monitoring, safety, and control of the electrical operation is conducted by a Supervisory Control and Data Acquisition (SCADA) system. This system of energy measurement devices, weather monitoring, industrial computers, network communications, and equipment interfaces allows system operators to safely operate the electrical generation facility and to monitor, optimize, and control the system for the most efficient operation possible.
- The Project arrays would be secured from the general public by perimeter fencing and locked gates designed for emergency vehicle access. Perimeter fences and gates are typically 6 or 7 feet high with or without barbed wire as agreed with the Authority Having Jurisdiction (AHJ) and in accordance with insurance underwriter requirements.
- Electrical substation and high voltage infrastructure would be protected and secured in accordance with the National Electric Safety Code (NESC) to prevent unauthorized personnel from gaining access to energized equipment.



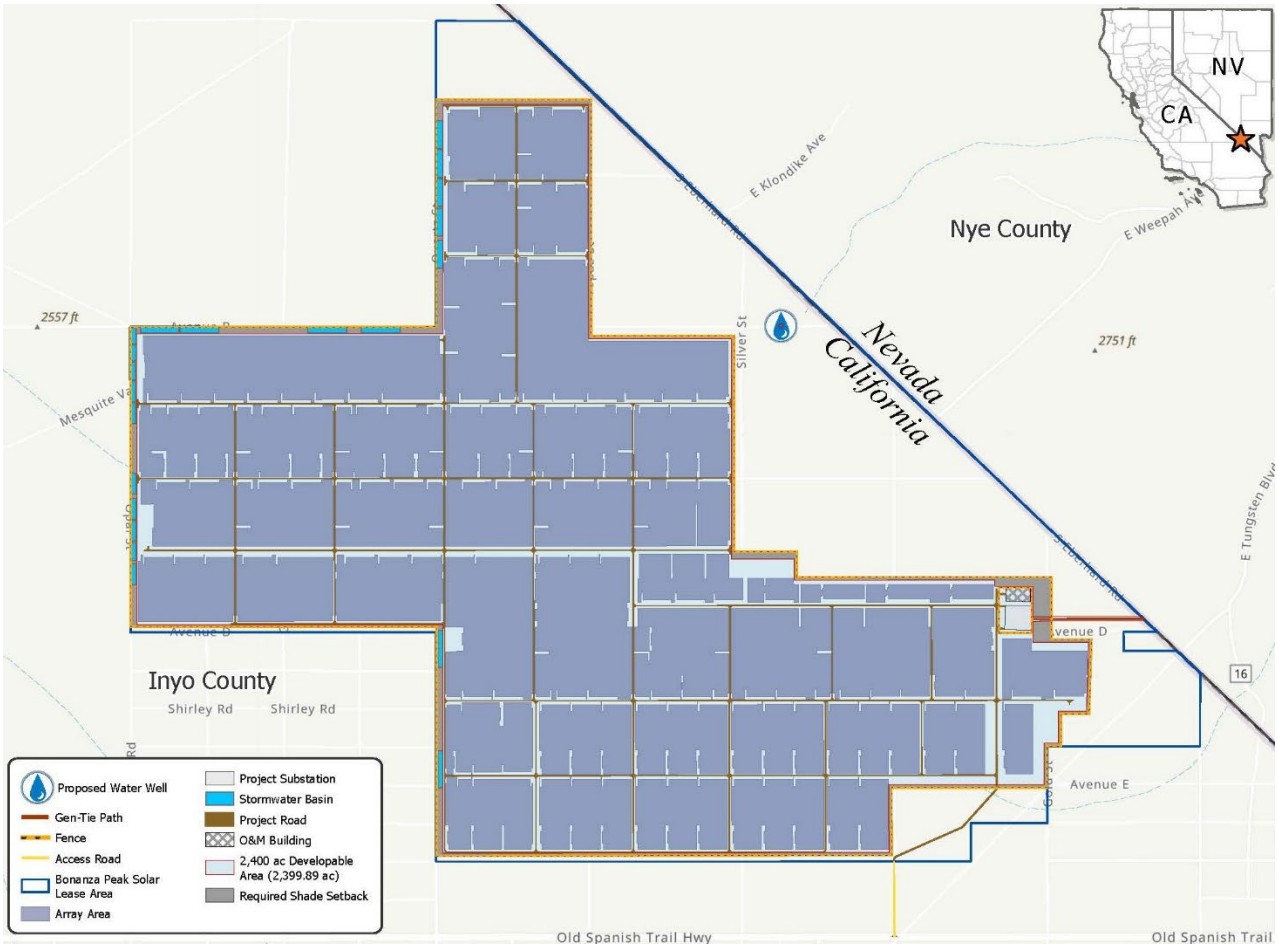
- Within each Project array, gravel service roads would provide access for O&M, and for emergency response vehicles in case of medical or other incidents at the site. These roads would be used for construction of the Project.
- O&M facilities typically comprise an O&M building for site personnel and shipping containers and/or shade structures for storage of spare parts and materials. The O&M building is equipped with lighting and Heating, Ventilation, and Air Conditioning (HVAC) services to provide a comfortable working environment and suitable conditions for SCADA equipment and computers. This facility may have workstations for technicians while on the Project Area. Storage facilities (for spare PV modules, electrical and electronic components, and other supplies) may have interior lighting and ventilation but are typically not environmentally controlled.

7.1 Photovoltaic Modules (PVM) and Arrays

The Project would utilize bifacial solar modules; a sufficient quantity of solar modules would be installed for a total potential capacity of approximately 500 MW ac power. PV modules are shipped in International Organization for Standardization (ISO) containers to the Project site by ship, train, and truck.



Figure 7-1. *Site Layout*



7.2 Typical Solar Tracker and Actuator

The solar tracker racking and actuators work to maintain PVM angle toward the sun (**Figure 7-2**). These devices change the orientation of the arrays throughout the day to follow the sun's path to maximize energy production. The solar trackers would rotate on one axis moving from east to west each day and returning to a stow position each night. In case of high winds, the control system automatically moves the modules to the stow position to minimize wind loads on the racking and support system. The solar trackers would be powered by motors and would be directed by an actuator that responds to the sun's direction. The use of solar trackers would increase electricity production by between 15 and 20 percent as compared with modules at a fixed angle. An example of a solar tracker on a PVM array is shown on **Figure 7-3**.

Figure 7-2. *Solar Tracker and Actuator*



Figure 7-3. *PV Module Tracking*



7.3 Tracking Mounting

The PVMs would be mounted onto corrosion resistant metal tracking structures which are anchored into the ground via steel posts of standard industry shapes and design. Posts would be driven to the depth required by structural loads and geotechnical conditions, using a vibratory ram or other specialized equipment. The array layout would be arranged in a linear pattern (**Figure 7-4** and **Figure 7-5**) as allowed by shading, topography, and other environmental constraints.

Figure 7-4. *Tracking Mounts and Installation*



Figure 7-5. *Tracking Mounts and Installation*



7.4 Power Conversion Stations (PCS)

PCS comprise inverters, step-up transformers, and ancillary electrical protection and control equipment (**Figure 7-6**). PCS convert DC electricity produced by PVMs to medium voltage alternating current (AC) electricity, typically 34.5 kV. PCS may be prefabricated off-site on metal or concrete skids (platforms), along with the associated electrical panels, enclosures, and other equipment necessary for correct operation (**Figure 7-6**). These PCS are typically delivered on flatbed trucks and set by a crane on foundation piers or alternatively may be assembled on concrete pads within the Developable Area.

Figure 7-6. *Typical Inverter Station*



7.5 Electrical Collection and Delivery System

Each PCS would transform the power generated by each inverter unit to medium voltage that is compatible with main power transformer voltage input. Transformers may be dry type, or liquid dielectric, PCB-free (polychlorinated biphenyl). The dielectric fluid would be either natural ester (derived from renewable vegetable oils), synthetic ester, or mineral oil. These fluids are generally accepted as non-hazardous to the environment and do not require secondary containment.

Each PCS would be connected via electrical switchgear to an electrical collection system, which would deliver the energy to combining switchgear. The collection system would be installed in accordance with the NESC, with underground cables run in trenches. Fiber optic communications networks would also run underground, generally in the same trenches as the electrical collection system.

7.6 Electrical Substation

The Project is planned to step up the collection system voltage to the interconnection system voltage through a Project substation. The substation would be within the Developable Area and the fence line. Substation equipment would include main power transformers, circuit breakers, metal-enclosed or open-air switchgear, disconnect switches, bus bars, safety grounding and lightning protection system, and a transition structure to the overhead gen-tie that would connect to the Trout Canyon substation and associated transmission line. Substation structures would be approximately 150 - 170 feet per NESC requirements for system voltages of 35 to 500 kV and local authority requirements. The Project substation would be fenced and secured in accordance with North American Electric Reliability Corporation (NERC), NESC, and AHJ requirements.

7.7 Access Roads and Connector Roads

Primary construction traffic to the Project would originate from Nevada Route 160 to Tecopa Road/Old Spanish Trail Highway, then turn north onto Zircon Street for approximately 0.25 mile before entering the Project Area. This portion of Zircon Street for construction access requires a 26-foot travel width with 2-foot shoulders and a gravel road base to a depth as required by the Fire Code Standards and Geotechnical Report recommendations. Operational period traffic would also utilize Nevada Route 160 and Tecopa Road, but during operations, one of two potential access points would be used; Option #1 would be off of Tecopa Road and Gold Street and Option #2 would be off of Tecopa Road and Zircon Street. Existing public roads would remain open to the public during construction.

New service roads would be constructed within the Developable Area along electrical collector line corridors to support Project construction and operation. The number and length of roads would be minimized to the extent possible to reduce surface disturbance. Such maintenance roads would have a permanent travel width of 16 feet and 2-foot shoulders with a gravel road base to a depth as required by the Fire Code Standards and Geotechnical Report recommendations. These service roads would be used during construction to facilitate delivery of components, installation, and wiring, and for scheduled and unscheduled (repairs) maintenance access during operations. All public roads outside of the fence would remain publicly accessible, but fencing would be placed along the public roads to prevent unauthorized access to the facility.

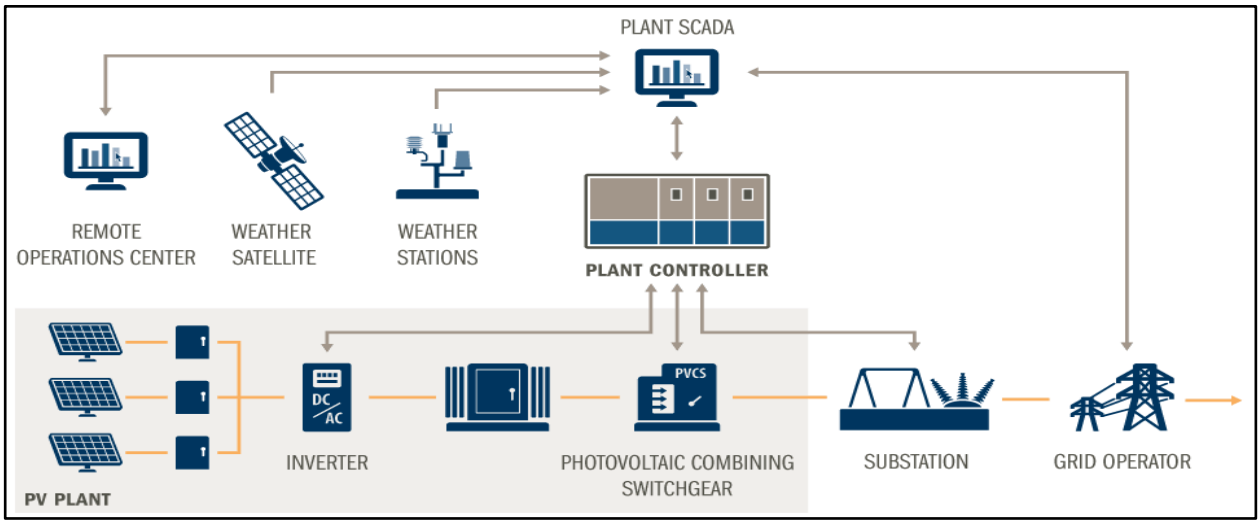
7.8 SCADA System and Fiber Optic Communications

The Project would include a SCADA system to collect operating and performance data from the Project and to provide for remote operation of the facility. The PVMs, PCSs, meteorological (MET) stations, etc. would be linked to a central computer in the O&M facility building and to remote operations center by a fiber optic network (onsite) and cellular, telephone, microwave, or satellite communications (off-site) via a lattice construction microwave tower located near the O&M building. The fiber optic cables used for SCADA communication would be buried with the electrical distribution system in a trench carrying the electrical collection lines to the O&M building.



The SCADA system would interface with the local utility grid operations to allow the utility to monitor plant operations and to disable Project output in case of safety or grid-operation requirements. A system architecture diagram of a typical SCADA system is provided in **Figure 7-7**.

Figure 7-7. *Typical SCADA System*



7.9 Meteorological Station

MET stations would be installed at the Project at various locations. The MET stations instruments are typically mounted on a 10- to 15-foot high approximately, tubular steel tower with guy wires, and a small concrete foundation as depicted in **Figure 7-8**. The MET stations would be located in the interior of the Project PV arrays to accurately measure conditions within the solar arrays and connected to the SCADA system to collect data for analysis and system monitoring.

Figure 7-8. *MET Station (Photo: Nor-Cal Controls 2024)*



7.10 Water Supply

Water for construction and operations will be sourced from one or more existing private groundwater wells and/or a new well permitted by Inyo County within the Applicant's lease. Water rights adequate to support the annual water requirements for construction (Section 8.10) and operations (Section 9.7) are held by the Applicant through agreement with the landowner. The identification of Project water supply wells will be determined upon well testing; all Project water supply wells will be reviewed and approved by the Inyo County Environmental Health Department and all appropriate permits will be obtained.

7.11 Operations and Maintenance Facility

For operations, the Project would include a single or double wide, approximately 2,000 square-foot pre-manufactured O&M building with electric power and lighting, plumbing and sanitation, and HVAC services. Up to 12 unpaved parking spaces including Americans with Disabilities Act (ADA) requirements would be included adjacent to the building. The building would provide a conditioned environment for the safety and health of O&M personnel. Plant monitoring and control equipment (SCADA) may also be installed within the O&M building, or in a separate freestanding insulated and conditioned enclosure.

The O&M building would be located close to the main Project Area entrance, and may be installed on a concrete pad foundation, or on a driven pile foundation, subject to soil conditions. Potable water would be from a well on the Project Area. A permitted septic system and/or tile field (if permitted) would be installed for wastewater treatment and disposal. A commercial power service and meter would provide power to the switchgear and O&M facilities. If a commercial power service is not available, then the Project may utilize a 175 kW generator for the construction trailers and the well pumps.

Up to twelve (12) 40-foot ISO shipping containers would be required for solar and electrical spare parts storage, fitted out with racking and interior and exterior lighting. Storage containers may be installed on sleepers on compacted native earth, or on a gravel base to ensure drainage and accessibility in inclement conditions.

7.12 Temporary Construction Facilities

The Project would have approximately 50 acres of temporary construction facilities that would include secured areas for receiving and storing Project materials (staging areas), water storage ponds, and four to five temporary construction trailers. The construction trailers are intended for construction day use only for office use, as well as a site safety location; approximately 50 people will be using these trailers during construction working hours, which will be locked at the end of each work day. Approximately 500 amps of temporary electrical service would be obtained through a meter installed on a local power line. Sanitation facilities will consist of exterior porta-johns or trailers that contain porta-johns. Workers will bring their own workday food, or a food truck may be provided. This area will include parking for work trucks and personal vehicles for the construction crews. Solid waste generated at the trailers and throughout the site will be hauled and disposed of at a permitted facility by a licensed waste removal contractor approved by the County.

All temporary construction facilities are tentative; these locations would be refined throughout the Inyo County permitting and final design process. These construction facilities would be used throughout the construction period and would then be decommissioned in accordance with the Project's Reclamation Plan, final graded to remove ruts and other disturbances, and then treated with a CDFW seed mix.

7.13 Electrical Collection Lines and Switchyard Interconnection

The power produced by the Project would be generated by the PV modules and collected within the PV arrays via medium voltage (34.5 kV) collection lines. The medium voltage connection lines will carry the generated electricity to the Project substation using a typical overhead or underground cable arrangement at 34.5 kV voltage level.

At the Project substation, this power would then be converted to high voltage (230 kV). The power would be carried between the Project substation and the Trout Canyon substation, located approximately nine miles to the northeast via a 230 kV high voltage overhead gen-tie line.



The high voltage gen-tie transmission line layout and configuration would be designed to accommodate constraints associated with utility easements and any other existing easements. The transmission line would consist of support pole structures, electrical power conductors, fiber optic communication lines and a lightning protection wire above. The overhead transmission pole structures would be approximately 150 to 170 feet tall, depending on terrain and ROW configuration. Structure design for the proposed Project would adhere to all Federal Aviation Administration (FAA) and International Civil Aviation Organization (ICAO) regulations.

The Project has also committed to design and construct the gen-tie line in accordance with appropriate Avian Power Line Interaction Committee (APLIC) guidelines in an effort to avoid avian electrocutions and minimize collision potential.

7.13.1 Gen-tie Line Access Roads

Construction would require access by service vehicles, ground augers, cranes, and trucks carrying the new power poles, conductor wires, and other equipment via temporary access roads. Temporary roads would be developed using a bushwhacker to remove tall brush, while leaving plant root structures to the extent possible. Minimal grading may be needed to remove any localized impediments to passenger and construction vehicles and equipment.

Permanent access along the gen-tie line would consist of a compacted native surface road that should not be traveled more than once per year and only for inspection and possible cleaning or repair. Therefore, the grounds below the gen-tie line would not be substantially altered from their current conditions. Minimal grading would occur to remove any localized impediments for passage by 4-wheel drive utility service trucks. No altering of existing major grades, installation of road base or gravel, or other major ground disturbance for access roads within the Project Area should be required.



8 Construction

8.1 Preconstruction Activities

Preconstruction activities would include a topographical survey and civil survey to delineate the following: PVM array boundaries, O&M facility location, access roads, temporary use areas, stormwater features, and the gen-tie line route. Pre-construction wildlife clearance surveys would be conducted within appropriate time windows.

8.2 Geotechnical Investigations and Testing

A geotechnical investigation and accompanying report were previously completed for the Project Area in 2021. According to the report, soils in the Project Area range from silt to gravelly sand. The report provides recommendations on design and methods for solar array and substation foundations that should be considered prior to construction. These recommendations would be reviewed and incorporated into relevant construction plans prior to the start of construction. Additional geotechnical information may be gathered to supplement the 2021 data, if needed.

8.3 Schedule

Construction of the Project would be accomplished by multiple construction crews specializing in various construction components. The overall construction period is estimated to be approximately 18 months and may occur over two phases. Construction would be initiated in the second quarter of 2027. Construction would occur Monday through Friday, 7:00 am to 6:00 pm, unless project schedule demands require a temporary extension of those hours.

8.4 Work Force

Employment during construction may range up to 450 workers depending on the phase of construction. Workers will commute by private vehicle to the site each workday, most likely from cities and towns in Nevada such as Pahrump, located approximately 25 miles from the Project Area, and Las Vegas, located approximately 60 miles from the Project Area, due to availability of housing; camping or staying in recreational vehicles will not be allowed on site or in the local area per Inyo County Code 14.04.040 (Habitation Restrictions). Carpooling to and from the site each workday will be encouraged, which would reduce the number of daily commuter vehicle trips. However, the maximum number of 450 one-way vehicle trips was analyzed. Workers will utilize the construction trailers during the workday for office use and site safety briefings; these trailers will be locked at the end of each workday. Workers will bring their own workday food, or a food truck may be provided. Sanitation facilities for the workers will consist of exterior porta-johns and/or sanitation trailers.



Preconstruction surveys include survey crews, utility workers for local station power, supervisors, and engineers. Site preparation and fencing would commence when environmental restrictions are cleared. Workers would be provided with training on potential environmental restrictions and best practices. The Applicant would use qualified local and non-local contractors/subcontractors according to the equipment and personnel needs of the Project.

8.5 Transportation

A list of vehicles and equipment that would likely be used during construction is provided in **Table 8-1.**



Table 8-1. *Vehicles and Equipment Used for Project Construction*

Activity	Equipment	
Road Construction	Bulldozer Motor Grader Drum Packer Dump Truck/Belly Dump Trucks Gannon Tractor	Water Truck Rubber Tire Backhoe Excavator Scraper
Electrical Work, Station Construction	Backhoe, Bulldozer Cable Spool Truck Concrete Truck Excavator Gannon Tractor Water Truck	Trencher Materials/Waste Transportation Truck Auger Rig Fork Truck to Offload Spools Bobcat
Solar Array Assembly and Erection	Fork Truck Hydraulic Crane Water Truck	Materials Transportation Truck Vibratory Pile Driver
Project Cleanup	Dump Truck Front-end Loader Dozer	Motor Grader Materials/Waste Transportation Truck
Daily Construction Traffic	Full-size Pickups, FedEx, United Parcel Service, and Other Delivery Trucks	Gators, Buses

Trucks transporting Project components and construction materials would access the Project Area from Nevada Route 160 to Tecopa Road and then north on Zircon Street for approximately 0.25 mile before entering the Project Area. The Applicant estimates that 96,125 vehicle trips (60,045 passenger/service truck trips and 15,830 large diesel trucks) and trailer trips would be needed during the construction phase of the Project. There would be undeveloped construction parking for approximately 300 vehicles.

In general, oversized trucks would not be used to transport PVM components to the Project Area but may be required to deliver the main power transformers. It is not anticipated that any road improvements beyond adding a gravel road base to Zircon Street would be needed to accommodate delivery and construction traffic along public roads and highways. The REDA with Inyo County will contain information on road maintenance and restoration that the Applicant will be required to fulfill.

Equipment and material hauling would be performed in a manner to prevent damage to areas outside the Project and minimize interference with existing land use activities. Transportation and construction contractors would obtain all necessary permits for transportation-related elements of the Project from the California Department of Transportation (Caltrans) and Inyo County. A Traffic Management Plan would be drafted to ensure safety and minimize impacts on traffic flow in the vicinity of the Project.

Routine vehicle and equipment maintenance activities would be performed off-site or within the material storage, staging and laydown areas. Broken-down vehicles or equipment would be trucked or towed off-site for repair.

A Habitat Restoration and Integrated Weed Management Plan would be developed in coordination with environmental permitting agencies, to minimize potential impacts from the introduction and spread of



noxious and invasive weeds due to vehicles entering the construction areas. Best management practices would be employed to reduce the likelihood of the introduction of non-native invasive plant species.

8.6 Fencing

A 6- to 7-foot-high security perimeter fence topped with 1-foot of barbed wire would surround the solar arrays and along public roads within the Project Area. New fence lines would be established at the edges of the Project. There would be lockable double swinging security gates constructed at these locations, with access provided to emergency service providers. The facility fences and gates would be marked with the emergency contact information in accordance with Federal, State, and local emergency providers' requirements.

Per the USFWS General Conservation Plan for the Desert Tortoise of California, during construction, the Project would follow the USFWS's most recent protocol for construction of fencing and gates to exclude desert tortoises. The specifications of the perimeter fencing and gates would be designed under consultation from the USFWS and CDFW.

8.7 General Construction Methods

8.7.1 Vehicles and Equipment

Construction vehicles and equipment would include earthmoving equipment, including but not limited to loaders, various-sized bulldozers, graders, shovels, and backhoes; delivery trucks and semi-tractors; welding rigs, generators, and compressors; and light-duty support vehicles. **Table 8-1** lists specific types of equipment anticipated to be used during construction of the Project.

Per the USFWS General Conservation Plan for the Desert Tortoise of California, the Project would require that all workers, contractors, and all other participants in the activity check under their vehicles or equipment prior to moving them when they are in areas where desert tortoises are likely to be active. All jurisdictional waters within the construction area will be staked as exclusion areas; no vehicle traffic or other activity will occur within these areas.

8.7.2 Clearing and Grading

Site preparation of vegetated areas would involve minimal cutting, leaving part of the shrub and the root structure intact to minimize soil disturbance and reduce potential impacts to desert tortoise. Details pertaining to vegetation management during construction will be included in the Project's Vegetation Management Plan. Minimal grading would occur within the Project Area, primarily at the substation and O&M building site, plus the interior Project roads along electrical collection line corridors; most of the Developable Area will remain at existing grade. Clearing and grading of these areas (approximately 69 acres of the total 2,400-acre Developable Area [3 percent]) would be accomplished using a standard bulldozer, grader, or other similar earthmoving equipment. Twenty-one unlined sediment (stormwater) control basins totaling approximately 20 acres would also be graded and cleared along the Project



boundaries outside of the Project's Developable Area to capture stormwater and sediment leaving the site. These features would be approximately 2 feet deep, range in dimensions up to 95 feet by 670 feet, and would be allowed to revegetate. Therefore, a total of 89 acres would be graded.

Grading would require that affected areas are reseeded after construction is complete, if not covered by gravel roads or equipment foundations. Regrading and revegetation techniques from short-term and permanent disturbance would be provided in a Stormwater Pollution Prevention Plan (SWPPP).

Temporary access to the construction areas would occur by driving over existing vegetation and creating temporary access routes over crushed vegetation; no clearing and grading would be required. This construction method would minimize disturbance of soils and vegetation.

8.7.3 Temporary Material Storage, Staging, Laydown Areas

Temporary material storage, staging, and laydown areas would be established within the Project's Developable Area to store components and to facilitate construction activities. The storage, staging, and laydown areas would be used to store office trailers, for parking of construction and personal vehicles, storage of construction equipment, and temporary staging and laydown for construction materials. The storage, staging, and laydown areas would be reclaimed following construction.

8.7.4 Fueling Stations

Fueling stations would be established within the Project Area to service construction vehicles. Diesel aboveground fuel tanks would be located at the Project material storage, staging, and laydown areas for vehicle and equipment fueling. Each fuel tank would be located within a temporary secondary containment berm, would be equipped with a spill kit, and would be operated consistent with the Project's Hazardous Materials and Waste Management Plan.

8.7.5 Temporary Construction Water Storage Ponds

It is anticipated that two temporary water storage ponds would be needed during construction. Each construction water storage pond would hold approximately 100,000 gallons, would be lined with a plastic and/or rubber liner, and would have a slight pitch to the corner closest to the transfer pump. Ponds would be filled as necessary from a Project well according to water demands. Their locations would be identified upon a more detailed Project design. Any surface water discharge would comply with water quality and sediment management regulations.

8.7.6 Access and Connector Roads

Construction of the Project would require the construction of new roads within electrical collection corridors to provide access for employees and equipment. Access roads would provide permanent vehicle access throughout the construction, O&M, and decommissioning phases of the Project to the arrays, substation, O&M facility, and the MET towers.



The general road design criteria for the perimeter road and roads to facilities would include the following specifications:

- Roads would have gravel road base and a travel width of 16 feet and 2-foot shoulders and be sloped to match existing grades.
- Approximately 25-foot radius at road centerline.
- Approximately 35-foot radius at minimum or as dictated by the Fire Code Standards at road corners.
- Road base with gravel surface, as dictated by the Fire Code Standards or geotechnical report recommendations, which will also serve to reduce fugitive dust.
- Design speed: Approximately 15 miles per hour.

Where access roads would cross existing underground utilities (if identified) the crossing sites would be designed to be protective of the underground utilities. Access road construction would begin with site preparation. The service and maintenance access roads would be scarified and compacted with water bars installed as necessary. Road construction can also start with rough grading and leveling of roadways. Water bars would be cut across roads as needed to allow for natural drainage of water over the road surface and to prevent road washout. Water would be applied by tanker truck to all Project roads up to six times per workday to control fugitive dust.

After construction, all areas exhibiting soil disturbance would be surveyed for the presence of noxious weeds. Noxious weed control would be performed onsite during construction according to the specifications defined in the Project's SWPPP.

8.7.7 Facility Foundations

Foundations for inverter stations would be driven steel I-beams with a steel skid structure over concrete pads and poured in place over prepared soils. Foundations/pads for other buildings or equipment, such as the substation and O&M building, would consist of a concrete base, poured in place over prepared soils.

8.8 Solar Arrays

The PVM arrays would be assembled and erected at each array site. The PVMs and array frames would be delivered to the specific site, offloaded, and assembled using forklifts and physical labor. The PVM offloading and assembly area would utilize PVM array roads.

Support poles for the PVM tracker units would be galvanized steel piles driven directly into native soil.



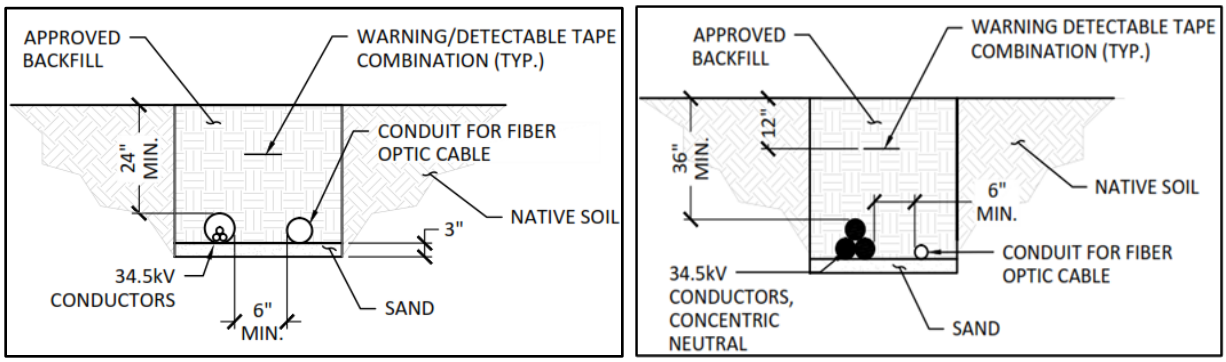
8.8.1 Electrical Distribution System

Electrical distribution system cables for each circuit would be buried in trenches. In locations where two or more sets of underground lines converge, underground vaults and/or pad-mounted switch panels would be used to tie the lines together into one or more sets of larger feeder conductors.

After final grading, the electrical collection system trenches would be reclaimed using seed mixtures and techniques identified in the Project's Decommissioning and Site Reclamation Plan.

Dimensions as shown in **Figure 8-1** are indicative and will be customized based on site-specific requirements in compliance with the code standards.

Figure 8-1. *Electrical Collection System Trench Design*



8.8.2 Substation

Construction of the substation would include:

- Clearing and grubbing the site.
- A grid around the switchgear site and installing a grounding grid. Steel-copper ground rods would be driven into the ground at key locations and bonded to the ground grid.
- Constructing concrete foundations for switchgear equipment designed for the soil conditions at the switchgear site (concrete would be trucked to the site from the nearest acceptable commercial concrete batching plant).
- Installing switchgear components, including circuit breakers, metal-enclosed switchgear, disconnect switches, relays, battery and charger, surge arrestors, AC and DC supplies, control house, SCADA, and grounding and associated control wiring.
- Installing a secondary perimeter fence, if needed, and surfacing the yard with crushed rock.

The substation would be equipped with an outdoor motion-activated 'full cutoff' lighting system and safety signs as required by national electric and safety codes.

8.9 Gen-tie Line

8.9.1 Vehicles and Equipment

Table 8-2 lists specific types of equipment anticipated to be used during construction of the gen-tie line.

Table 8-2. *Vehicles and Equipment Used for Gen-tie Line Construction*

Activity	Equipment	
Electrical Work, Station Construction	Backhoe, Bulldozer Cable Spool Truck Winch / Spool Truck Boom Truck Fork Truck to offload spools Man-lift Bucket Truck	Trencher Materials/Waste Transportation Truck Auger Rig Cranes Excavator

8.9.2 Clearing and Grading

The gen-tie line corridor would not be substantially altered from the current condition. Light grading would be executed to remove any localized impediments to passage by 4-wheel drive utility service trucks. No altering of existing major grades, installation of road base or gravel, or other improvements should be required.

8.9.3 Temporary Material Storage, Staging, Laydown Areas

Temporary material storage, staging, and laydown areas would be established within the gen-tie line construction ROW to store components and to facilitate construction activities if needed. Otherwise, a laydown area could be used. The storage, staging, and laydown areas would be used for parking of construction and personal vehicles, storage of construction equipment, temporary staging and laydown for construction materials, and fueling. The storage, staging, and laydown areas would be reclaimed following construction as per the Decommissioning and Site Reclamation Plan.

8.9.4 Gen-tie Line Construction

Each gen-tie line structure would require the installation of foundations, which are typically drilled concrete piers. First, holes would be excavated for each structure. The holes would be drilled using a truck-mounted excavator equipped with augers of various sizes depending on the diameter and depth requirements of the hole to be drilled.

If the pole requires a concrete foundation, then concrete would be placed to fill the hole with reinforcing steel bars and anchoring bolts. Typically, concrete would be delivered directly to the site in concrete trucks with a capacity of up to 10 cubic yards.



The towers would be brought to the site on tractor trailer flatbeds and offloaded to the temporary laydown area within the Project Area or in the construction ROW of the gen-tie line. The structure would then be assembled and fitted with cross-arms, supports, insulators, etc., as needed by final designs. Assembly would be facilitated onsite by a small truck-mounted crane. Subsequent to full or partial assembly, the entire or the lower portion of the structures would be lifted onto the foundation using a large crane designed for erecting towers. The crane would move along the ROW as towers are erected. Helicopters will not be utilized.

The gen-tie line would consist of three power conductors, communications (fiber optic) below the power conductors, and possibly a lightning protection wire above. Pulleys and winch trucks would be used to install the powerlines, and ground and communication cables to their final positions and tensions.

8.10 Water Use During Construction

Construction of similar, utility-scale PV solar projects on more temperate desert sites (with temperatures below 100 degrees Fahrenheit) spanning up to 1 square mile have typically entailed the use of approximately 20 water truck fill-ups per day—each carrying 5,000 gallons (approximately 0.015 acre feet [AF])—during summer periods. For such projects, total water use generally ranged between 0.1 and 0.2 AF per acre annually.

The proposed Project Area, however, is located in a hotter and drier climate and therefore will require additional water. To account for the increased water need, it is conservatively assumed that 0.3 AF will be required for each acre of ground-disturbing activity annually. Furthermore, it is conservatively assumed that this demand will be required on an annual basis.

The proposed Project has an estimated construction water demand of 729 AF per year, based on the 2,400-acre Developable Area, 10 acres for the access road and construction corridors in California, and 20 acres for the retention/sediment basins. Therefore, the 18-month construction period would require a total of 1,094 AF of water.

8.11 Testing and Calibration

After construction, systems, controls, and safety equipment would be calibrated and tested before being placed in service. Qualified technicians and mechanical and electrical experts and electricians would test and inspect solar components, transformers, communications systems, switchgear, and interconnection systems to ensure that they comply with required specifications and are working properly.

8.12 Postconstruction and Revegetation

The final phase of construction is cleanup and restoration of areas disturbed by construction but not required for facility operations. Areas that have been temporarily disturbed by grading or other earthmoving activities would be restored to the preconstruction contours of the land to the extent possible and consistent with future operating needs. Work may consist of re-contouring areas, establishing vegetation, and applying



mulch to provide additional erosion control. Ungraded areas disturbed only by overland travel would be assessed in coordination with Inyo County to determine if restoration is needed for recovery of the area. Temporary disturbance areas would be revegetated using seed mixtures and techniques developed in consultation with Inyo County or CDFW.

Noxious and invasive weed control would continue onsite during the restoration process. Active management after initial seeding would help ensure the success of the revegetation process.

Upon completion of construction and restoration, fences and other previously existing structures would be reestablished to as good a condition or better than that existing at the start of site preparation and construction activities.

8.13 Health and Safety Program

Construction activity, personnel onsite, and worker travel could potentially have impacts on health and safety during the approximately 18-month construction period. However, in general the Project would have minimal impacts on fire, medical, and law enforcement services. Photovoltaic solar facilities are not generally associated with fire risk. During both construction and operations, the plans and procedures described in the following sections would serve to greatly reduce the chances that medical and law enforcement services would be required.

Prior to the start of construction, the Applicant would conduct a safety assessment to identify potential safety issues and to develop measures that would be employed to mitigate them. Potential safety issues include site safety and security, worker on-site and off-site (travel) injuries, fire control, safe work practices, heavy equipment transportation, and traffic management. A health and safety program would be developed to protect both workers and the public during Project construction, including a site-specific Emergency Response Plan and Health and Safety Plan with guidelines and procedures.

8.13.1 Site Safety and Security

The Project would post warning signs along the Project access roads from Nevada 160 to the Project Area boundary informing the public of construction activities, warning of increased vehicles and potential wide loads on the roads, and directing that the public does not enter the site. For areas where public safety risks could exist and site personnel would not be available 24/7 to control public access (such as excavated foundation holes and electrical distribution system trenches), warning signs and temporary fences or flagging would be erected. Fencing also may be installed around material storage, staging, and laydown areas, which would be locked after each work day. Other areas determined to be hazardous or where issues of security or theft are of concern also may be fenced. Temporary fencing around unfinished excavations and other potential hazards typically would consist of a high-visibility plastic mesh or red/yellow danger tape. The Applicant also may use security guards, cameras, and/or additional fencing, if necessary, to protect public health and safety and Project facilities. Public safety assistance would be expected to come from the Inyo County Sheriff's Office, Shoshone Substation. Per the Sheriff's Office, response time from the Shoshone Substation to the Project site would be approximately 30-40 minutes.



The site-specific Health and Safety Plan is provided to all workers and is available electronically and in hard copy on site. It is generally reviewed and updated at least annually and all changes are communicated to workers. The purpose of the plan is to provide compliance with Health and Safety federal, state and local requirements, Project and site-specific concerns, and the EPC's corporate Health and Safety guidance. Site safety procedures would address a zero-injury safety policy, responsibilities and roles of personnel, health and safety for subcontractors, worker safety orientation and training, severe weather conditions, and accident/incident reporting procedures. The site safety procedures would also outline employee safe work programs, including drug and alcohol policies, hazardous materials, fire protection, respirator use and maintenance, confined workspaces, and potential work hazards such as blood-borne pathogens, electrical hazards, and environmental dangers.

8.13.2 Emergency Response

An Emergency Response Plan provides information and instructions to guide site managers, workers, and first responders in preparing for, and safely responding to, an incident, fire, or other emergency associated with the solar facility and appurtenant systems. The Emergency Response Plan includes the general hazards and nearby exposures related to construction and operations, as well as detailed information including but not limited to the Incident Command System, safety, staging areas, site access, lock box access, and water supply. The EPC contractor must have a qualified health and safety individual at the construction trailer from construction start to completion. This individual must be EMT trained. The construction trailer must contain a first aid kit and a defibrillator.

Emergency response procedures would include emergency recognition and prevention, organization and personnel responsibilities, emergency alerting procedures, maps and diagrams of the facilities, incident documentation, investigation responsibilities, and post-emergency activities. Specific emergency response procedures for medical, severe weather, power outages, and other situations would also be addressed. It is expected that emergency medical response would typically come from Pahrump, Nevada, located 28 miles (30-40 minutes) from the Project Area. Additionally, workers would be trained in access routes and other emergency preparedness, which would assist in reducing impacts related to response times.

Emergency response procedures would be included in a Health and Safety Plan. The Applicant would be responsible for implementing emergency procedures during the course of the Project.

8.13.3 Fire Management and Protection Plan

Fire prevention and suppression procedures would be provided in the Emergency Response Plan and would address potential fire sources and appropriate safety and fire prevention measures. Project-specific fire sources could include vehicle exhaust systems, fueling operations, smoking, electrical work, and onsite flammable liquid storage. Fire suppression, emergency preparedness, and emergency notification and follow-up procedures would be addressed, and other measures such as carrying fire extinguishers and shovels would be incorporated into the procedures. Fire response could come from the Southern Inyo Fire Protection District in Tecopa (25 miles/30-40 minutes), from a new fire station in Charleston View (completion date to be determined), or from Pahrump, Nevada.



8.13.4 Traffic Management Plan

Traffic management and transportation procedures would be included in the Traffic Management Plan. Traffic management procedures would be designed to minimize potential hazards from increased truck traffic and worker traffic and to minimize impacts to traffic flow in the vicinity of the Project. The procedures would present Project-specific information on traffic and circulation in the Project Area, truck traffic volumes, traffic situations, areas of congestion, and special traffic concerns such as the location of school bus routes, and specific traffic management measures including informational signs, flaggers when equipment blocks throughways, and traffic cones to identify any temporary changes in lane configuration.

Transportation procedures would address issues specific to transporting Project components, as well as construction equipment, including but not limited to trucks, loaders, various-sized bulldozers, shovels and backhoes, welding rigs, generators, and compressors. Equipment and material hauling would be performed in such a manner as to prevent damage to areas outside the Project and to minimize interference with existing uses of lands crossed.

The transportation procedures would describe regional and local access routes and affected roadways, traffic volumes, pavement conditions, and traffic mitigation measures. The procedures would describe travel routes for construction materials, current and predicted traffic volumes for construction access routes, and BMPs for handling traffic along these transit routes during Project construction. The procedures would also identify the processes for complying with any state requirements.

8.13.5 Grounding

Grounding equipment would be installed at the Project substation, PV racking systems, combiner boxes and inverters. Each transformer also would be grounded to protect equipment and personnel. The Project substation would include a below grade grounding grid.



9 Operation, Monitoring, and Maintenance

After construction, onsite personnel would operate and maintain the Project. Public access would be restricted to protect public safety and prevent vandalism.

9.1 Work Force

Operation of the solar energy facility would require approximately six to ten full-time employees. The operations workforce would include off-site facility managers, administrative support, SCADA instrument and PVM technicians, and other monitoring and maintenance personnel. There would be no on-site housing. The majority of the employees would be full-time throughout the anticipated life of the Project. During the first several years of Project operations (the warranty period), additional personnel employed by the component manufacturer(s) may be onsite conducting equipment performance monitoring and calibration. Seasonal workers will be onsite to support vegetation management as needed.

9.2 Operation and Maintenance Activities

Routine maintenance of the PVM arrays would be necessary to optimize performance and to detect potential malfunctions. O&M procedures would be established that define specific routine PVM array maintenance and inspection activities based on the PVM manufacturer's recommendations.

Transformers and inverter units would be maintained as part of normal O&M activities. Periodic inspection and/or maintenance of underground electrical collection lines may be required during the life of the Project. These activities would be conducted pursuant to prudent utility practices. Switchgear maintenance activities would include routine, scheduled equipment maintenance, grounds keeping, and emergency maintenance in the event of equipment failure. Switchgear maintenance would be performed by Project personnel or approved contractors. Inoperative PVMs would be repaired, replaced, or removed in a timely manner.

Once temporary reclamation is complete and vegetation is stable following construction, noxious weed surveys would continue on an annual basis. Routine maintenance would include weed monitoring and treatment that would be outlined in the SWPPP.

9.3 Products Used for Monitoring and Maintenance

The Project would utilize a meter on a local power line for power during the operational phase. Should the local power source be unavailable, the Project may utilize a 20-kW propane generator for service power.

No new raw materials would be routinely required for Project operation, once each phase of construction is completed and commercial operation is achieved. Materials brought onto the site after commercial operation is achieved would be limited to those required for O&M, repair or replacement of components, systems or structures necessary for continued safe and reliable operation.



Materials typically used for O&M of the Project may include mineral or biodegradable transformer dielectric fluids, natural or synthetic oils as lubricants, cleaning agents, and herbicides for weed control. These materials, some of which may be classed as hazardous, would be stored in small quantities (less than 50 gallons) securely at the O&M facility. Batteries, for switchgear tripping or uninterruptible power supplies (UPS) for SCADA or computers may include materials classified as hazardous, depending on the specific type of energy storage technology utilized.

Hazardous materials use, storage, and disposal would be in accordance with the Project's Hazardous Materials and Waste Management Plan and would comply with applicable local, state, and federal environmental laws and regulations. The plan identifies hazardous materials that would be used, stored, or transported and establishes inspection procedures, storage requirements, storage quantity limits, inventory control, non-hazardous product substitutes, and disposal of excess materials. The plan also identifies requirements for notices to federal and local emergency response authorities and includes emergency preparedness and response plans, including spill response. Accidental releases of hazardous materials would be prevented or minimized through proper containment of these substances during transportation to the site, storage onsite, and use. Hazardous waste would be removed and disposed of off-site in an appropriately permitted disposal facility.

Hazardous substances or hazardous wastes that are oils or mixed with oils are subject to Spill Prevention, Control, and Countermeasure (SPCC) rule requirements and would be managed according to a Project SPCC Plan for Project O&M. The SPCC Plan would be supplemented by other plans, as necessary, describing control and response procedures for other hazardous materials or wastes regulated by the Resource Conservation and Recovery Act and not included in the SPCC Plan.

The Project Hazardous Materials and Waste Management Plan would also identify the waste streams expected to be generated at the site and address solid waste determination procedures, waste storage locations, waste-specific management and disposal requirements, inspection procedures, and waste minimization procedures. Disposal of liquid and solid waste produced during operation of the solar energy facility would be done so as not to impact human health and the environment.

9.4 Site Security

The facility requires security during the operations phase. A permanent fence would be installed around the Developable Area and the retention/sediment basins. The typical fence profile is 6- to 7-feet of 2-inch cyclone mesh, with two to three strands of barbed wire above the cyclone. The finished fence is standard for most electrical installations and is required by National Electric and National Safety Codes to prevent unauthorized personnel from gaining access to energized components. The specifications of the perimeter fencing and gates would be designed under consultation from the USFWS and CDFW.

The Project also would be marked with warning and no trespassing signage on fences, gates, and electrical equipment. All gates, access doors, and ports would be locked at all times.



9.5 Lighting Plan

All site lighting will comply with Inyo County's Outdoor Lighting Ordinance (Title 18.79). The O&M facility and substation would have motion-activated, downward pointing/full cutoff nighttime lighting (designed to limit upward light pollution or across Project boundaries) to minimize effects on dark night skies. The lights within the O&M facility would be installed on the exterior of the O&M building and the storage shipping containers. This lighting may also be placed at gates or other locations to provide additional security. Electricity for the lighting would be provided by the local utility via a commercial meter.

9.6 Gen-tie Line

The gen-tie line would be inspected periodically as required, for conductor soiling, corrosion or oxidation, operating temperatures, physical damage, etc.

9.7 Operational Water Needs

Solar panel washing is not anticipated. The main water demand components for the operational phase of the Project consists of water use associated with the O&M building. The estimated total annual water use during operations is approximately 0.014 AF per year, totaling approximately 0.68 AF over the Project's 48.5-year operational period. This water would be obtained from an existing well or a new well permitted by Inyo County. Drinking water will also be supplied via a 5-gallon cooler dispenser in the O&M building.

10 Decommissioning

The Applicant is seeking a 50-year REDA for the Project on private land in Inyo County. At the end of the Project's useful life, the solar arrays and gen-tie line would be decommissioned and dismantled, and some components would be recycled or re-used. While it is possible that the Applicant may want to work with Inyo County to repower the site at some point in time, repowering is beyond the scope of this Project. Project decommissioning would be completed, including reclamation, in compliance with all applicable federal, state, and local requirements on or before the REDA expiration date. The Project's Reclamation Plan would provide specific details as to how decommissioning would be accomplished and would be based on a final layout. While speculative at this point, it is assumed that the same amount of water would be used per year (729 AF) for decommissioning as would be used for construction.

10.1 Facility Decommissioning

Decommissioning is a systematic deconstruction process that would involve removal and off-site recycling, reuse and disposal of the infrastructure and associated facilities within the solar energy facility. Many of the activities involved with Project decommissioning are similar to those performed for Project construction.

In general, decommissioning of the Project would involve disassembling the PVM arrays and associated infrastructure and salvaging valuable equipment, such as PVM array steel, electric components, and materials such as steel and copper. The Applicant would attempt to salvage economically recoverable materials and to recycle solar energy components for future uses. Unsalvageable materials would be disposed of at authorized locations. Associated infrastructure, including conductors, cables, poles, and roads would be removed unless otherwise allowed by Inyo County to remain in place. Demolition or removal of equipment and facilities would meet applicable environmental and health regulations.

Following the removal of Project facilities, the site would undergo final cleanup and reclamation as would be detailed in the Decommissioning and Site Reclamation Plan. Concrete foundations would be removed to 3 feet below grade and reseeded as appropriate. Areas disturbed during removal of Project features would be restored and rehabilitated as near as possible to their preconstruction condition and would be available for the same uses that existed prior to construction of the Project.

10.2 Gen-tie Line Decommissioning

Similar activities would occur with the decommissioning of the gen-tie line. The electrical lines and structures would be removed using trucks and cranes and would be moved to a designated laydown area. The electrical power conductors would be removed from the poles and recycled, as would the metal poles and lattice structures. Any material deemed hazardous or unusable would be trucked off-site using tractor trailer flatbeds and disposed of at authorized locations. If foundations are utilized for metal structures, they would be removed to a minimum of approximately 3 feet below the surface. All foundation holes would be refilled, compacted, and reseeded as appropriate. The unimproved service and maintenance route along the corridor would be scarified, compacted, water bars would be placed if and where necessary to prevent



erosion, and the route reseeded in accordance with the County approved Decommissioning and Site Reclamation Plan.



11 References

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