Palen Solar Project

CACA-48810

Revised Plan of Development

(Formerly Palen Solar Power Project)

Submitted to:
Bureau of Land Management,
Palm Springs – South Coast Field Office, CA

Submitted by:

EDF Renewable Energy

Revision 4
June 2016

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Appendices

APPENDIX A – Design Plans

APPENDIX B - Site Layout / Site Components

APPENDIX C – Example Equipment Specifications

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1.0 Project Description

1.1 Overview

This Plan of Development Revision (Revised POD) describes a proposed change in technology for the Palen Solar Electric Generating System (PSEGS), formerly known as the Palen Solar Power Project. Palen Solar III, LLC (PSIII), a wholly owned subsidiary of Palen Solar Holdings, LLC (PSH) is submitting this Revised POD to the Bureau of Land Management (BLM) in support of an application to amend pending Right-of-Way (ROW) application CACA-48810.

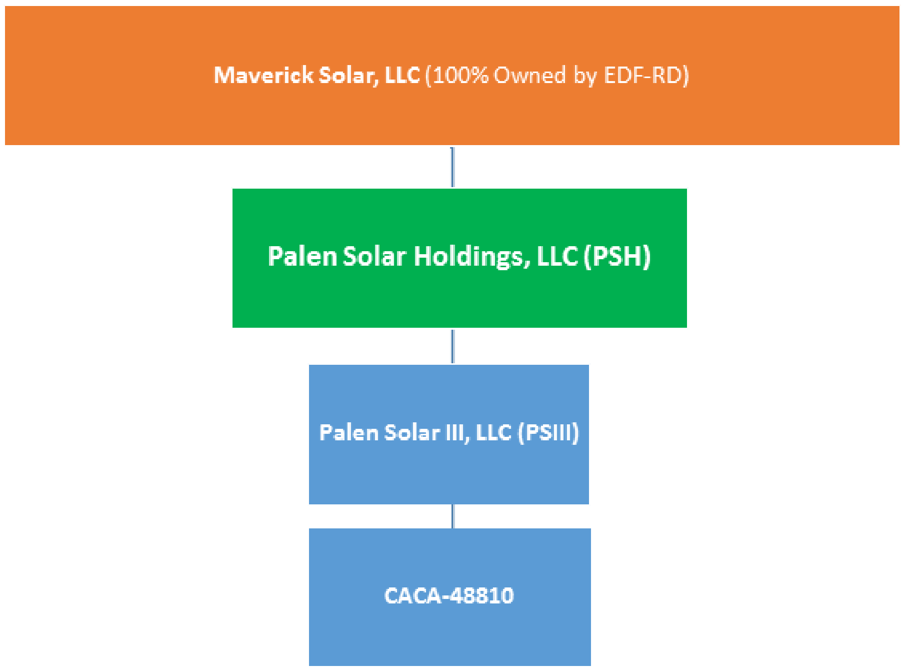
On March 14, 2007, Chevron Energy Solutions submitted an application for a ROW grant from BLM to construct, operate, maintain, and decommission the Palen Solar Power Project (PSPP). In 2008, Solar Millennium, through a wholly owned subsidiary, filed a POD that described PSPP as a Concentrating Solar Project using solar parabolic trough technology. PSPP would have constructed arrays of parabolic mirrors to collect heat energy from the sun and refocus the radiation on a receiver tube located at the focal point of the parabola. Therminol, an oil-based heat transfer fluid, (HTF) contained in the receiver tube, would be brought to high temperature (750°F) as it circulated through the receiver tubes. The HTF would then then be collected in a series of headers in the solar field, combined, and piped through a series of heat exchangers in the power block where it would release its stored heat to generate high pressure steam. The steam would then be fed to a traditional steam turbine generator where electricity would be produced.

BLM responded to the ROW application and POD by preparing with the California Energy Commission (CEC) a joint Staff Assessment, Draft Proposed Land Use Plan Amendment and Draft Environmental Impact Statement. BLM later prepared a Final Environmental Impact Statement (FEIS) and began drafting a Record of Decision (ROD) for the PSPP. However, before BLM finalized the ROD, Solar Millennium informed BLM that it was unlikely to construct the project. Solar Millennium filed for bankruptcy on April 2, 2012, and the bankruptcy court sold PSPP to BrightSource at auction on June 21, 2012. On July 19, 2012, BLM approved BrightSource's acquisition of the pending ROW application.

On December 12, 2012, BrightSource submitted two amended SF299s to replace the PSPP parabolic trough proposal with a new Palen Solar Electric Generating System (PSEGS) solar tower proposal consisting of two 750-foot "power towers" and their associated heliostat arrays. Those applications also realigned the project's gen-tie line to accommodate the relocation of the Red Bluff Substation and take advantage of the transmission line corridor already being developed for the nearby Desert Sunlight Solar Farm Project. On March 15, 2013, BrightSource submitted another amended SF299 to add a natural gas supply line for the proposed natural gas–fired auxiliary boilers. During this period, Caithness left the joint venture and BrightSource formed a new joint venture for PSEGS with Abengoa Solar, Inc. (Abengoa).

BLM issued a Draft Supplemental EIS to review the potential additional environmental impacts caused by PSEGS on July 17, 2013. The BLM never issued a Final Supplemental EIS, however, because BrightSource and Abengoa abandoned the parallel state authorization proceedings on September 26, 2014. On November 4, 2014, BrightSource sold its share in PSEGS to Abengoa. Abengoa sold its interest in PSH to EDF Renewable Development (EDF RE) in December 2015.

For clarity a chart depicting ownership is shown below:



EDF RE develops efficient, environmentally suited renewable energy projects, for both its internal electrical power generation portfolio and for third parties. EDF RE has more than 25 years of expertise in the renewable industry, including a portfolio of over 5 gigawatts of developed projects with 2.3 gigawatts of installed capacity. EDF RE specializes in wind and solar photovoltaic with presence in other segments of the renewable energy market, such as biogas, biomass, hydro, marine energy, and storage solutions.

Through its subsidiaries, EDF RE proposes to construct and operate a 500-megawatt (MW), nominal capacity, alternating current (AC), solar photovoltaic (PV), energy-generating project known as the Palen Solar Project (”PPSP” or “Project”). The Project consists of a main generation area, on-site substation, switchyard, site security, and a 220-kilovolt (kV) generation interconnection line (gen-tie line).

As described under this revised Plan of Development, the Project would replace the PSEGS solar power tower technology under the previous Revision 2 of the Plan of Development (and PSPP’s solar trough technology of the original Plan of Development) with 500 MW of solar PV panel technology with single-axis tracking. Palen Solar would deliver power to the Southern California Edison (SCE) Red Bluff Substation. The footprint of the Project would be within the footprint of the previously proposed PSPP.

1.1.1 New and Changed Circumstances

EDF RE desires to develop the Project site with solar PV technology instead of solar trough or power tower technology.

The following compares the primary project characteristics of PSP to those of PSPP:

- PSP would replace solar trough technology and its associated ancillary equipment (including, but not limited to, a propane-fired back-up boiler) with PV panel technology mounted on single-axis tracking equipment.
- An approximately 28-acre temporary construction laydown area would be located in the northwestern portion of the site. This area would be used for laydown of materials, staging of traffic to avoid congestion on the I-10/Corn Springs interchange, and for the temporary concrete batch plant.
- The Project would use the same proposed routing of the generation tie-line as the previous PSEGS project.
- PSP would implement a design layout that substantially avoids sensitive habitat and sand flow corridor areas.
- Elimination of a back-up boiler and use of fossil fuels for assisted generation.

1.1.2 Introduction

The Project would be located entirely on lands administered by the U.S. Department of the Interior, Bureau of Land Management (BLM), located in Riverside County, California approximately 10 miles east of the unincorporated community of Desert Center and north of Interstate 10. The project is within the jurisdiction of the BLM Palm Springs South Coast Field Office.

The project site is located within the Riverside East Solar Energy Zone (RESEZ) of BLM's Western Solar Plan, as designated in the Solar PEIS and approved by a Record of Decision signed by the BLM on Friday, October 12, 2012.

The Applicant intends to construct the components associated with a Solar PV facility as described in Section 1.1.5 within the proposed ROW. Table 1-4 in Section 1.5 includes a general description of the dimensions of the Project components.

The anticipated operational life of The Project is 30 years. Accordingly, the Applicant is requesting a ROW grant for an initial period of 30 years, subject to standard ROW grant renewal provisions consistent with the Federal Land Policy Management Act (FLPMA) regulations and other applicable rules and ROW management policies adopted by BLM.

1.1.3 Summary of Change in Environmental Effects

Specifically, in summary:

- PSP would not exceed the project footprint of the PSPP preferred alternative;
- PSP would use significantly less water during facility operations than the PSPP preferred alternative;
- PSP would use less water during construction than the PSPP preferred alternative;
- PSP would require less grading/earthworks than the PSPP preferred alternative;
- PSP would produce fewer air quality impacts due to the removal of back-up propane boiler and HTF;
- PSP would reduce impacts by eliminating the relocation of the existing SCE 161 kV transmission line.

1.1.4 Description of Facility

EDF RE proposes to use a single-axis tracking system and may use various PV technologies, including, but not limited to Crystalline Silicon panels or Copper Indium Gallium Selenide panels. The output of the facility is proposed to be 500 MW(AC) and would produce approximately 1,598,683 MWh a year of clean, renewable energy. The technologies that would be used at PSP have been proven at many solar facilities in the United States and globally.

The Applicant intends to construct the following components associated with a Solar PV facility:

- a single solar field with two smaller adjacent solar fields for a total of 3 solar fields;
- two-hundred (200) power blocks of electrical generating capacity of 2.50 MW each for a combined capacity of 500 MW;
- one project electrical switchyard;
- common facilities area that would include an administrative and maintenance building;
- up-to 10 on-site groundwater wells;
- one temporary construction laydown area;
- a roadway system consisting of internal and perimeter roadways;
- a main access road from the I-10/Corn Springs Road interchange;
- a single circuit 230 kV generation tie-line electric transmission line extending from the project electricity switchyard to the Red Bluff Substation; and
- a redundant telecommunications cable installed beneath the roadway along the gen-tie route.

1.1.5 Schedule for Project

Based on the reduced disturbance and impacts of the Project relative to the PSPP FEIS, it is possible that BLM could prepare a Determination of NEPA Adequacy (DNA) to assess whether the smaller footprint of the Project fits within the spectrum of alternatives discussed in the PSPP FEIS and therefore does not require supplemental NEPA review. BLM would be expected to prepare and issue a Supplemental EIS (SEIS) to assess the Project. Assuming a SEIS will be required, the proposed schedule for completing environmental review and permitting through construction and operation of the Project is summarized below.

Proposed Schedule Assuming BLM Prepares a SEIS		
Task	**Start**	**End**
BLM prepares SEIS	05/1/2016	4/28/2017
BLM issues Decision Record	5/1/2017	6/30/2017
BLM Issues ROW Grant	6/30/2017	7/31/2017
BLM Issues Notice to Proceed	7/31/2017	10/2/2017
Construction Commences	12/2017	

1.1.6 Technology Overview

Solar PV technology involves the direct conversion of photons (i.e., sunlight) into electricity. PV modules (also called solar panels) absorb solar radiation and convert it into direct current electricity. This direct current power is then converted into alternating current electricity for delivery to the electrical grid system. This conversion occurs when direct current (DC) flows through a device called an inverter, which converts the electrical characteristics to alternating current (AC) that can be tied to the power distribution system for power delivery. The electrical current produced is directly dependent on how much light strikes the module. Multiple PV panels are wired together to form an array, an arrangement that increases the total system output. PV technology does not involve thermal energy or the production of steam to power turbines. PV systems are relatively simple to operate and maintain and require little water for project operations compared to solar thermal energy systems.

A solar PV project would involve constructing and operating a utility-scale, single-axis tracking PV project at the proposed project site. PV trackers using single-axis (east-west) tracking maximize the panels' absorption of sunlight during the day and throughout the year. Tracking PV modules produce more electricity annually compared to fixed-tilt modules.

There is a minimized amount of moving parts, complicated machinery, liquids, or significant water requirements to employ photovoltaic technology, making it a preferred technology choice in the harsh conditions of the desert. Once constructed, there would be very little maintenance required at PSP due to the high reliability of all the systems employed. Thus, PSP would deliver zero emission solar generation to southern California during peak energy usage.

1.1.7 Technology History

EDF RE has no direct ownership in any of the proposed technologies. Consequently, EDF RE has no obligation to manufacturers and can exercise full discretion in choosing or rejecting a particular technology. The EDF Group (which includes EDF RE) continuously monitors the health and viability of its suppliers.

Selection of technology providers is a rigorous process that takes 6-12 months to complete. Each technology undergoes technology specific review, manufacturing capability assessment, and evaluation of the Company's financial stability and capability. PSP would use up to an 18-foot high single-axis tracking system with a variety of PV technologies currently in use elsewhere in the United States.

For multi-crystalline panels, EDF RE has supply agreements with the largest solar inverter manufacturer in the world, the third largest manufacturer of solar photovoltaic modules in the world, and the largest, most proven single-axis tracking system manufacturer in the North America. Combined, these products have decades of proven field experience; all are manufactured according to industry standards and have been proven to be among the best performers in the world. EDF RE and EDF Energies Nouvelle (EDF EN) conduct exhaustive due diligence of all products and EDF RE has a team dedicated to conduct quality control and validation of random product selection and testing.

1.1.8 Technology Description

EDF RE has extensive experience developing, constructing and operating large scale solar power plants. EDF RE has approximately 350 MWp in North America of solar projects operating or under construction. EDF EN (parent company), inclusive of North America has a total of 848 MWp of installed capacity worldwide. EDF RE's North America projects range from the permafrost challenged lands of Ontario to the windy and snow challenged parking lots of Long Island to the unforgiving hot desert of the Mojave in Southern California.

Table 1-1, below, shows recent EDF RE projects of similar technology.

Table 1-1

Year	Name	Location	Capacity
2015	Catalina Solar 2	California, USA	24.3 MWp
2015	Cottonwood Solar	California, USA	32.6MWp
2014	CID Solar	California, USA	27.23 MWp
2014	Lancaster Solar	Massachusetts, USA	5.86 MWp
2014	Lepomis Solar	Massachusetts, USA	5.97 MWp
2013	Catalina Solar	California, USA	143.2 MWp
2013	Pukana (Hilo) Solar	Hawaii, USA	0.3 MWp
2012	Eastern Long Island Solar	New York, USA	12.82 MWp
2012	Pukana (Beretania) Solar	Hawaii, USA	0.26 MWp
2012	Pukana (Ewa) Solar	Hawaii, USA	0.33 MWp
2011	Bellevue Solar	Oregon, USA	1.66 MWp
2011	Matrix Solar	New Jersey, USA	2.86 MWp
2011	RPI 100 Solar	New Jersey, USA	0.43 MWp
2011	RPI 400 Solar	New Jersey, USA	0.25 MWp
2011	St. Isidore A/B Solar	Ontario, Canada	11.83/11.48 MWp
2011	Yamhill Solar	Oregon, USA	1.19 MWp
2010	Elmsley Solar	Ontario, Canada	24.0 MWp
2010	Pocono Raceway Solar	Pennsylvania, USA	3 MWp
2010	Stevens Solar	New Jersey, USA	0.2 MW
2009	Arnprior A/B Solar	Ontario, Canada	11.4/12.0 MWp
2009	Bayshore Recycling Solar	New Jersey, USA	.68 MWp
2009	Belle Mead Solar	New Jersey, USA	1.81 MWp
2009	Halls Warehouse Solar	New Jersey, USA	1.8 MWp
2008	Black River Farm Solar	New Jersey, USA	.14 MWp
2008	Sacramento Soleil Solar	California, USA	1.25 MWp
2008	Sun Harvest Solar	California, USA	0.25 MWp

The proposed core technologies for the Project are as follows:

- Modules: Up to 390W, 1500v, crystalline, 72-cell silicon modules, or equivalent thin film panels. Examples of panel types shown below:

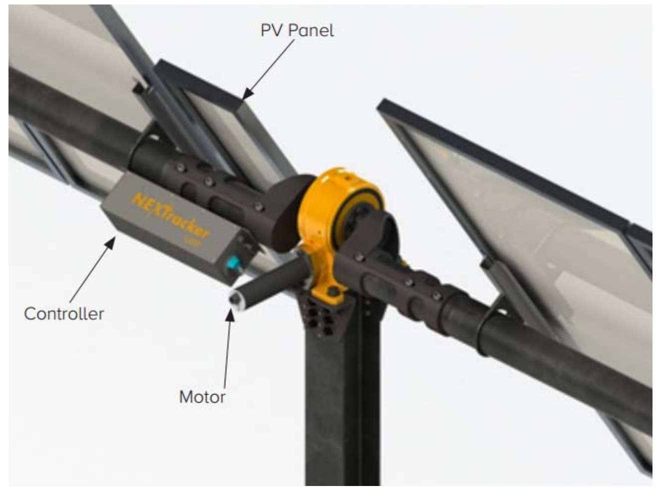
Trina Duomax Module

CanadianSolar Diamond CSX Module

- Inverter Stations: 1.25 MW 1500Vdc input, DC and AC disconnects, integrated SCADA, step-up transformer to medium voltage. Examples of Inverter types shown below:

Power Electronics (FS1500-CH15)

- Single-axis tracking technology: Horizontal Single Axis trackers with +/- 60 degrees range of motion. Examples of single-axis tracking technology below:



NEXTracker SPT

1.2 Proponent's Purpose and Need for the Project

The primary purpose of the PSP is to deliver 500 MW of renewable electrical energy to the regional electrical grid.

Specifically, EDF RE searched for a site that had completed environmental impact review of a solar power plant, was large enough to accommodate a utility scale solar PV facility, was designated within a BLM Solar Energy Zone, and had an executed and approved Large Generator Interconnection Agreement (LGIA) for interconnection to a substation that has capacity to deliver electricity under a CPUC Approved Power Purchase Agreement.

The Project site has been designated as "developable" by BLM in the RESEZ. The Project site is subject to a Section 106 Programmatic Agreement and a Biological Opinion. The Project has an approved LGIA to interconnect at the Red Bluff Substation.

In addition, PSP's purpose and needs encompasses the state and federal goals for development of renewable energy, as described in the PSPP FEIS. California is the most progressive green state in the US and an advocate for renewable energy. It also has the largest demand because of state policy. With an RPS (Renewable Portfolio Standard) of 50 percent by 2030, total RPS compliance demand for large solar expected at 700-1,000 MW per year from 2021-2030. The Project would help California meet its renewable energy requirements and would further facilitate the goal of the President's Climate Action Plan to install 20,000 MW of renewable energy generation on federal lands by 2020.

The Applicant's specific objectives for Project are:

- To provide 500 MW of installed electrical capacity to the California electrical grid;
- To site the Project within a Solar Energy Zone;
- To develop an economically feasible solar PV energy project through commercially available financing;
- To maximize operational efficiency and provide low-cost renewable energy by locating the Project on contiguous lands with high solar insolation values;
- To increase local short-term and long-term employment opportunities;
- To boost local business activity during construction and operation and provide economic benefits for local businesses in eastern Riverside County;
- To minimize environmental impacts and land disturbance by:
  - Locating the project near existing roads and transmission infrastructure;
  - Avoiding Desert Wildlife Management Areas and Areas of Critical Environmental Concern where feasible.
- To further the purpose of Secretarial Order 3285A1, establishing the development of environmentally responsible renewable energy as a priority for the Department of the Interior; and

- To further achievement of the President's Climate Action Plan goal of 20,000 MW of installed renewable energy generation on federal lands by 2020.

1.3 BLM Purpose and Need as Outlined in FEIS

The PSPP FEIS describes the purpose and need of BLM as follows:

In accordance with FLPMA Section 103(c), public lands are to be managed for multiple use that takes into account the long-term needs of future generations for renewable and non-renewable resources. The Secretary of the Interior is authorized to grant rights-of-way on public lands for systems of generation, transmission, and distribution of electric energy (FLPMA § 501(a)(4)). Taking into account the BLM's multiple use mandate, the purpose and need for the proposed action is to respond to a FLPMA ROW application submitted by PSI to construct, operate, maintain and decommission a solar thermal facility on public lands administered by the BLM in compliance with FLPMA, BLM ROW regulations, and other applicable Federal laws (40 CFR 1502.13). Other applicable BLM authorities include:

1. Executive Order 13212, dated May 18, 2001, which mandates that agencies act expediently and in a manner consistent with applicable laws to increase the "production and transmission of energy in a safe and environmentally sound manner."

2. The Energy Policy Act of 2005 (EPAct 05 or EPAct), Section 211 of which states: "It is the sense of the Congress that the Secretary of the Interior should, before the end of the 10-year period beginning on the date of enactment of this Act, seek to have approved non-hydropower renewable energy projects located on public lands with a generation capacity of at least 10,000 megawatts of electricity."

3. Secretarial Order 3285A1, *Renewable Energy Development by the DOI*, dated February 22, 2010. This Secretarial Order establishes the development of renewable energy as a priority for the DOI and creates a Departmental Task Force on Energy and Climate Change. It also announced a policy goal of identifying and prioritizing specific locations (study areas) best suited for large-scale production of solar energy.

4. The President's Climate Action Plan goal of 20,000 MW of installed renewable energy generation on federal lands by 2020.

1.4 Project Location, Land Ownership and Jurisdiction

The site for PSP is located in Riverside County, California approximately 10 miles east of the unincorporated community of Desert Center and adjacent to the northerly right-of-way of Interstate 10. The Project is entirely on federal lands. The federal lands that the proposed project would be located on are depicted in Figure 1-1 and outlined in Table 1-2 (Data acquired from LR-2000, December 2015).

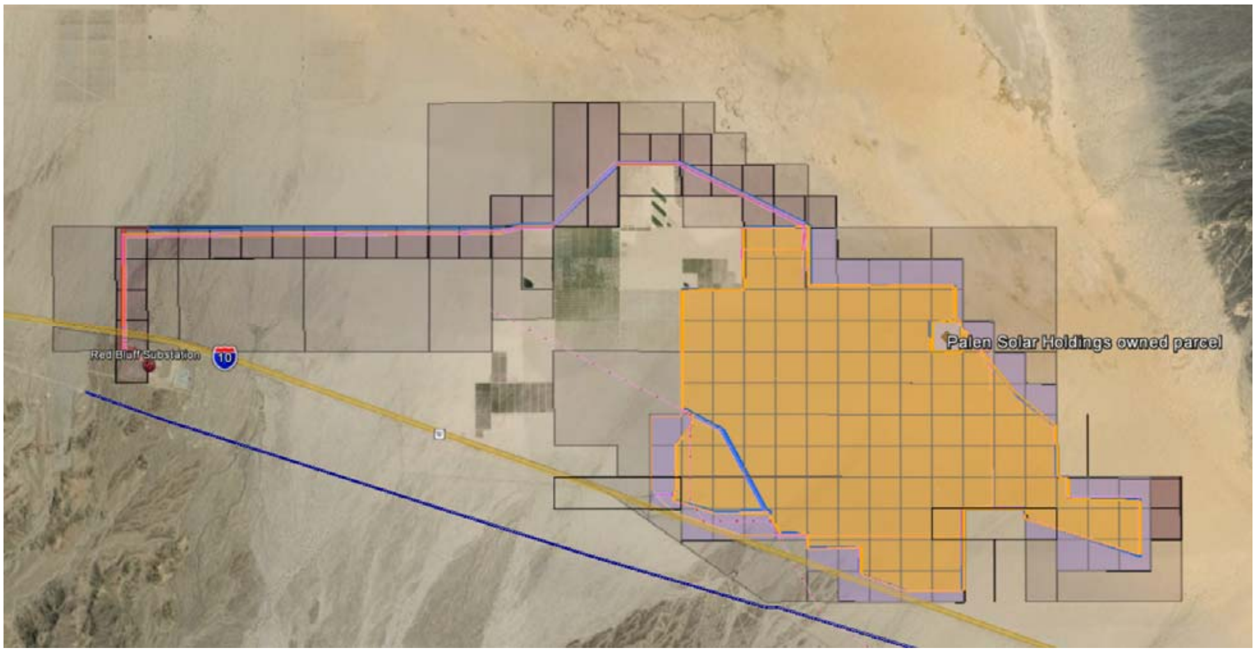


Figure 1-1

Table 1-2 depicts the legal land descriptions for the federal lands that would be used by the Project, including the proposed access road, electrical generation tie-line and telecommunications line.

Table 1-2

Project Component	Section, Township, Range & Meridian	Subdivision
	San Bernardino Meridian, California	
Solar Site Area	T. 5 S., R. 17 E.,	
	Sec. 27	SW1/4NW1/4, NW1/4SW1/4, SE1/4SW1/4;
	Sec. 28	NW1/4NW1/4, SW1/4NW1/4, SE1/4NW1/4, SW1/4NE1/4, SE1/4NE1/4, SW1/4, SE1/4;
	Sec. 29	NE1/4, SW1/4, SE1/4;
	Sec. 31	NE1/4SE1/4, SE1/4SE1/4;
	Sec. 32	ALL;
	Sec. 33	ALL;
	Sec. 34	NW1/4, NW1/4NE1/4, SW1/4NE1/4, SE1/4NE1/4, SW1/4, SE1/4;
	T. 6 S., R. 17 E.,	
	Sec. 2	NW1/4SW1/4, NE1/4SW1/4, NW1/4SE1/4, W1/2 LOT 1, W1/2 LOT 2, W1/2E1/2 LOT 1, W1/2E1/2 LOT 2;
	Sec. 3	NW1/4SW1/4, SW1/4SW1/4, W1/2W1/2 LOT 1, E1/2E1/2 LOT 1, LOT 2;
	Sec. 4	NW1/4SW1/4, NE1/4SW1/4, SE1/4SW1/4, SE1/4, LOT 1, LOT 2;
	Sec. 5	LOT 1, LOT 2;
	Sec. 6	E1/2E1/2 LOT 2.
Gen-Tie Linear Area		
	T. 5 S., R. 17 E.,	
	Sec. 19	SE1/4NE1/4, SW1/4NE1/4, S1/2N1/2 LOT 1, N1/2S1/2 LOT 1, S1/2 LOT 2;
	Sec. 20	SW1/4NW1/4, NW1/4SE1/4, NE1/4SW1/4, NW1/4SW1/4, SW1/4SE1/4, SE1/4SE1/4;
	Sec. 21	SW1/4SW1/4;
	Sec. 24	SW1/4SE1/4, SE1/4SE1/4.

The Project lands are abutting, adjacent to or over the existing grants listed in Table 1-3.

Table 1-3

Serial No.	Holder	Type of Use	Location	Granted	Expiration
CACA 016385 CACA 016386 LA 048360 (06/08/1931)	AT&T CA	Underground Tel & Telegraph Line	Within the N1/2 of S.33, T.5S., R.16E., S.B.M.; Gen-Tie Route may cross; Facility encroaches in S.3 & S;.4, T.6S., R.16E., S.B.M	04/19/1984	09/20/2034
CACA 018888 LA 070612	PacBell	Underground Telecom Line	N1/2 of S.33, T.5S., R.16E., S.B.M.; Gen-tie route may cross;	08/01/1986 08/07/1950	Unknown
CACA 49980	Eagle Crest Energy (Pending – Withdrawal by FERC)	FERC Trans Line (Needs to be clearly located)	E2E2, S2SWSE of S.27, & NE,SENENW,NESENW of S.33, T.5S., R.16E., S.B.M.; Does not appear to encroach; S.31 & S.32 of T.5S., R.17E., S.B.M., Location Unknown;	04/28/2008	Unknown
CA 6805	Unknown	RW Access Road	Unknown	08/27/1981	Unknown
CA 4163	SCE	R/W Trans Line & Access Road	Gen-tie Route crosses this ROW in S.33, T.5S., R.16E., S.B.M.;	08/27/1981	Unknown
R 05498	DOT	Highway	Gen-tie Route crosses this ROW in S.28 & S.33, T.5S., R.16E., S.B.M.; S.31, T.5S., R.16E., S.B.M., does not encroach;	12/8/1964	Unknown
LA 0149780	SCE	Transmission Line (161 kV)	Gen-tie Route crosses this ROW in N1/2 S.6, T.5S., R.16E., S.B.M.;	05/03/1957	Unknown
LA 0134693 LA 0110795 LA 072548	So. CA Gas Co.	Pipe Line	Does not encroach; South of I-10;	08/23/1955 04/07/1954 02/28/1950	Unknown
R 01732	DOT	Hwy & Drainage	Gen-tie Route crosses this ROW in S.28 & S.33, T.5S., R.16E., S.B.M.;	10/18/1933	Unknown
LA 043640	Unknown	Unknown	Un-locatable; S.28 & S.33, T.5S., R.16E., S.B.M.;	05/17/1927	Unknown
R 002341	So. CA Gas Co.	R/W Pipe Line	Does not encroach; South of I-10;	02/04/1970	Unknown
CA 017642 CA 19127	SCE	R/W Trans Line R/W Underground Telecomm Line	S1/2 S.28 & N1/2 S.33, T.5S., R.16E., S.B.M.; Gen-Tie Route crosses this ROW;	10/10/1985	Unknown
CACA 37076	Unknown	R/W Road	Northerly Line of S. 28, T.5S., R.16E., S.B.M.; Unknown if Gen-Tie encroaches;	02/11/1997	12/31/2026
CA 13971	Doyle, James R., Inc.	R/W Access Road	Within the S1/2, Sec. 34, T.5S., R.16E., S.B.M.	07/03/1985	Relinquished

Interference with the existing use of the current ROW holders should be avoidable through buffers and setbacks in the preliminary Project design.

The average slope of the land under consideration is under 1 percent, which makes it ideal for solar PV. The land contains dry washes that flow predominantly southwest to northeast away from Interstate 10, and are fed by the Range to the south. The project civil design would incorporate layout and construction techniques utilized in past projects to minimize disturbance to the desert washes.

In addition to the physical characteristics of the site, the area was selected due to its easy access via existing roads. The site is directly off, and easily accessed via an on-ramp/off-ramp from, Interstate 10. Access to the project site would use existing access roads associated with the existing SCE transmission line. Although the existing roads would be used to the extent possible, new unpaved roads would be constructed to serve as access roads from the existing road network to the facilities and photovoltaic field. Please see Section 2.7 for further discussion of grading and roadwork that would be required.

1.5 *Total Acreage and General Dimensions of Facilities and Components*

The PSP acreage for this application is 4200 +/- acres and is entirely within the footprint of the previously analyzed PSPP. The structures and facilities presented in the following sections are based on the most up-to-date information available. However, the project disturbance area, equipment used, and schedule estimates may be reduced and/or modified consistent with this analysis based on the final engineering and permit requirements for the project components.

The PSP would consist of several main components:

- Main generation area—PV arrays, switchyard, inverters, overhead lines, and access corridors;
- O&M Facility – either on or off site;
- On-site electrical substation and switch gear; and
- Site security, fencing, and lighting.

Table 1-4 presents a breakdown of site acreage for each solar facility component.

Table 1-4

Estimated Overall Project Acreage

Project Component	**Temporary (acres)[1]**	**Permanent (acres)[1]**
Current Project Site Proposal	0	4200
Solar panel field	0	4100
Parking and administration areas	0	3.0
Access corridors for maintenance vehicles	0	835
Construction laydown area	28	0
Gravel access roads for the circulation of emergency vehicles	0	34
On-site substation	0	5
Area permanently covered by at-grade items (footprint of piles, power conversion station, transformer, PV combining switchgear, on-site substation, on-site overhead line poles, O&M Facility)	0	35
Approximate maximum area shaded by PV modules	0	3330
Total Disturbance	**28**	**4200**

1 - Disturbance acreages shown are inclusive, not additive.

1.5.1 Numbers and General Dimensions of Solar Array

The Applicant would use construction site preparation techniques that prepare the site for safe and efficient installation and operation of PV arrays. The Applicant proposes to use site preparation techniques that would minimize the required volume of earth movement, including a "disc and roll" technique that uses grading equipment to till the soil over much of the solar facility site and then roll it level, as well as "micro-grading" or "isolated cut and fill and roll" of other areas of the site to trim off high spots and use the material to fill in low spots.

The field of panels consists of repeating blocks of up to 2.50 MW (alternating current [AC]). The approximate dimensions of an array block consist of 8,046 panels, separated into four quadrants. Within each quadrant, there would be 25 rows comprised of 27-panel strings. Each block would employ a two inverters of up to 1.25 MW, set along the access roads, in the middle of the panel array area.

A horizontal single-axis balanced-mass tracker with independently-driven rows is proposed to be used for the PV modules. Tracking systems have a motor that rotates the PV modules from east to west during the day to track the sun across the sky. The tracking system would utilize a wireless communication system so that no communication wiring would be needed. Engineering design of the tracking system would be designed in accordance with code for wind loading and would be constructed of galvanized and stainless steel.

The panel field would be laid out by installing vertical H-pile galvanized steel beams directly into the ground by means of a small pile-driver. A preliminary walk-through by civil engineers suggests that this foundation would be sufficient to meet geotechnical requirements for wind stability. Site-specific soil tests would be required to validate the preliminary engineering. If tests conclude that further foundations are required, then the vertical H-pile galvanized steel beams would be attached to concrete ballasts. No welding would be required for assembly.

See a further discussion of the foundations in Section 2.7.

Spacing of the rows is driven primarily by engineering and shading constraints, but would also involve some micro-topography compensation.

1.5.2 Towers, Substations, Transmission Lines, Access Roads

The photovoltaic panels would produce a direct current (DC) and require inverters to convert the electricity to an alternating current (AC) before connecting to the transmission grid. A power conversion station with a PV inverter would convert the DC electric input into grid-quality AC electric output. The AC electrical output would be transmitted from the power conversion station to the adjacent transformer. The transformer would step up the voltage of the AC electrical input and then would transmit the power via underground lines in covered trenches to the PV combining switchgear. The PV combining switchgear would transmit the power to overhead lines that would transmit the electrical output to the on-site substation. The substation would be located in the northwesterly corner of the PSPP site and would cover an estimated 5 acres. At the on-site substation the voltage would be stepped up to 230 kV and routed by a generation tie line to the SCE Red Bluff 230 KV Substation.

The primary point of access to the project site would be via the I-10 off of the Corn Springs Exit.

Access roads within the project site would be 14 to 18 feet wide and would be cleared, graded and covered with aggregate. An 18-foot-wide perimeter road separating the solar arrays from the perimeter fencing would be constructed around the entire perimeter of the project. The roads would be constructed to allow fire and maintenance vehicle access.

Preliminary layout and road design is based on detailed topographic maps and an on-site walk-through by civil engineers. All standard engineering practices are incorporated into the road design and all applicable engineering designs would be applied to minimize soil erosion as caused by normal seasonal precipitation. The project access would use as much of the existing road structure as feasibly possible.

1.5.3 Temporary Construction Workspace, Yards, and Staging Areas

The staging area would include temporary construction trailers for the management of the construction, a parking area, and site security facilities. The Applicant has specified the northwesterly corner of the project for this area. Portable latrines would also be located in this area.

A small laydown area would be required adjacent to the on-site substation of approximately 28 acres to accommodate delivery of materials, vehicles, etc. Material delivery for the solar field would maintain a constant flow, and panels and framing structures would be delivered throughout the solar field adjacent to the subunit locations.

Temporary staging areas for material laydown including boxes of solar panels, steel, aluminum framing, conduit for underground electrical, transformers, and other project materials would be located throughout the project area. The laydown areas would be subsumed by the build-out of the panel array with some exceptions. Laydown areas would not be required within the solar field as such. Materials such as boxes of panels, steel and aluminum framing, etc. would be laid out between rows of panels and along the access roads.

1.5.4 Geotechnical Studies and Data Needs

Geotechnical studies for the previous project proposal have been performed, but additional studies may be needed. Solar radiation monitoring data obtained previously over the project site would be utilized for the PSP.

1.5.5 Ancillary Facilities

Ancillary structures would include an Operations and Maintenance (O&M) building. The onsite O&M would be located within the northwesterly portion of the project and would consist of a 120-foot-wide by 240-foot-long prefabricated building set on concrete slab-on-grade that would be poured in place. The building would be an estimated 19 feet tall at its highest point. The facility would be designed for project security, employee offices, and parts storage.

1.5.6 Water Usage, Amounts, Sources

During construction, water would be used to minimize fugitive dust and would total approximately 650 to 850 acre/feet per year. Water would be obtained by constructing up to 10 onsite wells, from off-site sources, or a combination of the two. During construction, existing commercial ready-mix concrete supply would be used where feasible and would not require water. If unavailable, a temporary, two-acre concrete batch plant would be installed in the construction laydown area. The concrete source materials would be purchased from a commercial source.

Three temporary large storage tanks would be used for water storage at various locations around the site. The use of temporary storage tanks aside from relying entirely on stand tanks and water trucks, would reduce the amount of vehicle travel around the site by water trucks (and associated exhaust and dust), reduce the rate of groundwater extraction during construction, and also improve capability to respond quickly and effectively to mitigate fugitive dust emissions caused by unexpected high wind events.

Portable bathrooms would be provided during construction, as needed, and would be emptied offsite per regulations.

During operations, potable water would be drawn from the on-site construction well or trucked in from a local off-site well. A permanent, above-ground water storage tank would be used for O&M tasks and facilities, including on-site fire-fighting. All operational water would be generated from the onsite wells. Operational water usage is estimated at 10 to 15 acre/feet per year for panel washing and general maintenance activities. Domestic wastewater would be treated and disposed at the site using a septic disposal system consisting of septic tanks and leach field.

In order to minimize CO_2 emissions from operations of the plant, the Applicant may use electric vehicles for maintenance tasks.

Annual operations of the project would require routine panel washings. The frequency of panel washings would be based upon the monitored output of the plant, weather events and the amount of airborne dust particulates in the geographic area over an amount of time. Based on this variability, it is projected for the PSP project that panel washing could occur 1 time annually during operations.

Water Consumption Requirements	Approximate Consumption during Construction	Approximate Consumption during Operation
Daily* (gallons per day)	814,628 – 1,065,282	N/A
Annual (acre-feet/year)	650 to 850	10 to 15

*assumes 5 days per week (260 working days per year)

1.5.7 Erosion Control and Stormwater Drainage

With the exception of the inverters and transmission facility, solar field development would maintain sheet flow where possible, with water exiting the site in existing natural contours and flows. In addition, impervious groundcover would be limited to the PV panel foundations, inverter and transmission cement pad, access roads, a small parking area, the O&M facility and the substation. Thus natural sheet flow and infiltration would be maintained throughout the photovoltaic panel field. Existing small to moderate ephemeral washes would remain intact at locations capable of being traversed by installation equipment. Large ephemeral washes would likely be avoided by the project plan and would be addressed in the finalized grading plan. Where paved roads cross larger ephemeral washes, culverts would be constructed to withstand the 100 year, 24-hour storm event. Where unpaved roads cross washes, a slight grading of the channel bank would allow vehicles to cross the wash.

Once the earthwork grading and pad construction has been completed, a stormwater conveyance system and permanent BMPs would be put into place (see Section 1.5.7.1, below). The site's final grade would coincide with the prior grade such that stormwater from within the photovoltaic field would maintain sheet flow and exit the site in existing desert washes. At this time it has not been determined if sediment/retention basins would be necessary.

An extensive hydrology report including a regression analysis would be completed prior to the final erosion control and stormwater drainage plan.

1.5.7.1 Erosion Control and Stormwater Drainage BMPs

See sheet C-104 for indicative results of a sheet flow hydraulic study. The drawing depicts a preliminary understanding of the value of stormwater entering and exiting the existing project area.

Appropriate control structures (small earthen berms and swales) would likely be used to redirect surface water entering the site to protect the solar installations. Discharge from these berms, if needed, would be into existing intermittent streams documented on the property. Intermittent streams would be defined and protected within the project area. Rip rap would be installed at the discharge point to these streams within the project boundary to reduce flow energy and allow water absorption. This would allow no increase in volume and no concentration of water leaving the project area. Some internal contouring may also be required due to the size of the site in order to accommodate precipitation that falls within the plant boundary.

In areas where some grading is required, such as the site for inverters and transmission facilities, mitigation measures would be necessary to minimize erosion and control runoff. These measures may include local soil berms and detention areas that can contain storm water runoff during construction. Applicant measures include best management practices such as temporary erosion controls including crushed rock, silt fences and fiber rolls would be used as needed to minimize erosion in these areas. Water would also be used as a method to control fugitive dust during construction, likely sprayed from a truck during heavy grading activities. A final erosion control and stormwater drainage plan would be developed for the project prior to ground disturbance.

The upstream portions of the project site may also be protected with a stormwater retention basin that would provide site protection from storm water run-on during a 100-year return storm event.

If any post-development sediment/retention basins are required, storm water pollution prevention BMP controls along with retention time would reduce the peak offsite discharge to match pre-development conditions. The storm water discharge points would maintain the existing natural drainage course and would provide increased offsite drainage controls for the 100-year return storm event. Secondary stormwater released greater than the sediment basin capacity would flow over the northern basin berms and into the natural drainage channel without damaging the solar pad areas or adjacent downstream conditions. The discharge outlets would be constructed with rip rap that would be grouted in place, which would provide as an energy dissipater for heavy storm water discharge.

The hydraulic calculations referenced above, in conjunction with the final flood control design, have and would evaluate the following:

- Identify the site drainage patterns and drainage areas for each phase of construction.
- Identify the design storm event
- Determine peak discharge rate
- Determine the required capacity for the drainage control systems
- Develop flood control protection elevations
- Design and size storm water control systems components

Construction of the project would also be subject to requirements of the state National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges Associated with Construction Activities. BMPs would be developed and implemented to provide an effective combination of erosion and sediment controls.

Because low-impact development practices would be incorporated into the project design, construction, and operation, the increase in sediment yield from the site is not expected to be substantially greater than pre-project conditions.

A more detailed erosion control plan would be developed prior to ground disturbance. This would be dependent on biological studies and determination of existing intermittent stream locations, which locations would require setbacks from construction and the corresponding width of these setbacks. The influent hydraulic values are presented to support these discussions with biologists and the BLM.

1.5.8 Vegetation Treatment and Weed Management

Vegetation in the solar field would be cleared as needed with a blade to reduce the risk of fire and allow construction and maintenance access.

The Applicant proposes to use site preparation techniques that would minimize the required volume of earth movement, including a "disc and roll" technique that uses equipment to till the soil over much of the solar facility site and then roll it level, as well as "micrograding" or "isolated cut and fill and roll" of other areas of the site to trim off high spots and use the material to fill in low spots.

Much of the solar field would be impacted by some form of soil disturbance, either from compaction, micro-grading, or disc-and-roll grading. Scarifying, where required, would disturb the soil to several inches and potentially allow some roots to remain to assist in soil stabilization and reduce the possibility of erosion. Access roads for both installation and continued maintenance and cleaning of the photovoltaic field would be required at certain intervals. These roads would be moderately graded to allow regular access with a small vehicle for panel washing and maintenance. Continued weed management in cleared areas would be maintained through regular monitoring and targeted application of the herbicide glyphosate, which is approved for use on BLM lands and/or by occasional blading. Some vegetation may be allowed to grow back among the field of solar panels. Additional soil disturbance by regular operations of the plant is not expected

Key considerations for vegetation treatment of the site would include:

- Soil disturbance in support of construction would increase the possibility of introduction of invasive species. Regular monitoring and weed management would be required during construction. Ongoing maintenance in the solar field may include treatment of noxious weeds by targeted spraying with glyphosate.
- Where temporary access is needed to install facilities, such as along the perimeter fencing, no removal of existing vegetation or grading would occur. Instead, equipment would drive over or around existing desert scrub vegetation without direct removal. Crushed vegetation is much more likely to show a rapid recovery than where vegetation is removed and reseeded, or where soils are disturbed.
- Revegetation with native species would be implemented where feasible in areas of temporary disturbance.

The Applicant would implement an Integrated Weed Management Plan (IWMP) for the Project that describes non-native, noxious or invasive weed species that occur or are likely to occur at the site and prescribes management actions that may be taken to monitor and eradicate specified species. The IWMP would tier from the BLM's 2007 *Final Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement* and would describe applicable regulations for the use of herbicides on federally managed lands in California, and provide the basis for proper management and use of herbicides at the site.

Typical operations and maintenance requirements for native landscapes are low once established. The IWMP would include weeding, annual pruning, and soil monitoring if necessary. Weeding should occur frequently during the initial growth period to ensure that invasive plants do not mature and set seed. Weeding activities would follow the approved IWMP. Once the native plant species are established, weeding frequency would drop to less frequent levels.

Vegetation would be allowed to re-grow within the solar panel field to the extent that it does not interfere with the panels themselves (no higher than 18 inches) to avoid growing into electrical connections and creating a fire hazard, or disrupting the panel's performance. However, this is relatively unlikely given the shading the panels would be providing on the soil. The access roads would be kept clear of vegetation through the use of targeted herbicide spraying, occasional scarifying, or weeding to reduce fire hazard and allow access to the panel arrays.

1.5.9 Waste and Hazardous Materials Management

The PSP would be designed, constructed, operated and maintained to ensure the safe use and storage of hazardous materials. Storage, handling, and use of all chemicals would be conducted in accordance with applicable laws, ordinances, regulations and standards. Chemicals would be stored in appropriate chemical storage facilities. Bulk chemicals would be stored in storage tanks, and other chemicals would be stored in returnable delivery containers. Chemical storage and chemical feed areas would be designed to contain leaks and spills. Workers would be trained to handle hazardous wastes generated at the site.

Once construction is complete, the PSP would have minimal hazardous and non-hazardous waste at the site. If a panel is broken for whatever reason, the pieces would be cleaned up completely, and returned to the manufacturer for recycling.

Other hazardous chemicals that may be employed on site may include cleaning agents for the O&M building, oil and gasoline for vehicular use, and other such chemicals that would be standard at a commercial site. One of the significant benefits of photovoltaic solar technology is the lack of hazardous chemicals that are found at other energy generating facilities.

Electric equipment insulating materials would be specified to be free of polychlorinated biphenyls (PCBs).

State approved personal protective equipment would be used by plant personnel during chemical spill containment and cleanup activities. Personnel would be properly trained in the handling of these chemicals and instructed in the procedures to follow in case of a chemical spill or accidental release. Adequate supplies of absorbent material would be stored on-site for spill cleanup. At this time, the Applicant does not anticipate the need for the use of any hazardous chemicals beyond those found in typical vehicles.

Other wastes generated on site would include those typical of a commercial building, such as computer and electronic equipment, paper, food scraps, etc. All wastes would be disposed of according to applicable laws, ordinances, regulations, and standards. In addition, no food wastes would be available for wildlife such as ravens to scavenge.

1.5.10 Fire Protection

Fire protection would be provided to limit risk of personnel injury, property loss, and possible disruption of the electricity generated by the project. Fire protection starts with a lack of flammable materials in the solar field, including vegetation. This is one of the primary reasons that vegetation would be removed from the site prior to construction of the solar field. Fire prevention would also be dependent on secure fencing of the site, as described in the next section. Fire protection also includes appropriate access to all areas of the solar field by fire truck, with turn-around areas. Thus, final plans of the solar facilities would be inspected by local County fire marshals for sign-off.

A Fire Prevention Plan would be prepared for construction, operation, and decommissioning of the facility. The plan would include measures to safeguard human life, preventing personnel injury, preservation of property and minimizing downtime due to fire or explosion. Fire protection measures would include fire prevention methods to prevent the inception of fires. Of concern are fire-safe construction, reduction of ignition sources, control of fuel sources, availability of water, and proper maintenance of fire-fighting systems. The plan would be coordinated with the BLM Fire Management Officer.

During construction, the permanent facility fire suppression system would be placed in service as early as practicable. Prior to installation of the facility's permanent fire suppression system, fire extinguishers and other portable fire-fighting equipment would be available onsite, as well as additional water for use at the on or off-site O&M. These fire extinguishers would be maintained for the full construction duration in accordance with local and federal OSHA requirements.

Locations of portable fire extinguishers would include, but not necessarily be limited to office spaces, hot work area, flammable storage areas, and mobile equipment such as work trucks and other vehicles. Fire-fighting equipment would be marked conspicuously and be accessible at all times. Portable equipment would be routinely inspected, as required by local and federal laws, ordinances, regulations, and standards, and replaced immediately if defective or needing charge.

1.5.11 Site Security and Fencing

Site security would be of the utmost importance due to the high value of the solar panels used and the safety of personnel and the public. At the onset of construction, site access would be controlled for personnel and vehicles. A 6-foot tall security fence with 3 strands of barbed wire (for an overall height of no more than 10 feet), which would also be the permanent fence, would be installed around the plant site boundary. The construction of the security fence may or may not be installed at the beginning of construction. All required laydown areas are expected to be contained within the defined project boundaries, and thus no additional temporary fencing would be required.

In addition, security would be enhanced with motion detectors, facility lighting, and cameras in key locations. Coordination with the California Department of Transportation (CALTRANS) would be initiated to ensure compliance with exterior lighting regulations of lighting along Interstate 10. Care would be taken to prevent undue light pollution from the nighttime security lighting. Security would be maintained as required by the engineering, procurement, and construction (EPC) contractor or a suitable subcontractor to maintain public safety and the security of the facilities.

Security fencing would be erected around the entire perimeter of the project area, with access gates as appropriate. Emergency gates would be installed to provide secondary access in the event of an emergency. Site perimeter fence would be approximately 6 feet high and have an overall height of no more than 10 feet from the bottom of the fabric to the top barbed wire. The fence would have a top rail, a bottom tension wire, and three strands of barbed wire mounted on 45 degree extension arms. Posts would be set in concrete.

Controlled access gates would be located at the entrances to the facility. Site gates would be swing or rolling type access gates. Access through the main gate would require an electronic swipe card, preventing unaccompanied visitors from accessing the facility or construction area. All visitors would be logged in and out of the facility during normal business hours. Visitors and non-employees would be allowed entry only with approval from a staff member of the facility. Visitors would be issued passes that are worn during their visit and returned to the main office when leaving.

Security personnel would be located on the project site during the daytime operation hours of 7:00 am to 5:00 pm. Security personnel would be located on-site at all times.

To reduce offsite lighting impacts, lighting at the facility would be restricted to areas required for safety, security, and operation such as the switchyard of the on-site substation. Security lights would use motion sensor technology that would be triggered by movement at a human's height. The level and intensity of lighting during operations would be the minimum needed. Portable lighting may be used occasionally and temporarily for maintenance activities during operations.

1.5.12 Electrical Components, New Equipment and System Upgrades

The photovoltaic panels would produce a direct current (DC) and require inverters to convert the electricity to an alternating current (AC) before connecting to the California transmission grid. The inverters would convert the DC electric input into grid-quality AC output and would be located within an enclosure. The inverters would be located throughout the solar field, and connected to the project substation and switchyard via underground trenching. The project substation would be located in the northwest corner and cover approximately 5 acres. It would be surrounded by 10-foot security fencing and locked gates, as appropriate for a high voltage substation.

Electrical switchgear serves to interconnect an electrical generator to the grid. The switch gear would be constructed and operated by the Applicant. Surge arresters at the high-voltage bushings would protect the transformer(s) from surges caused by lightning or other disturbances.

The transformer(s) would be set on a concrete pad within a containment area designed to hold any accidental releases of transformer oil. All transformers would be free of polychlorinated biphenyls. The high-voltage side of the transformer(s) would be connected to the plant's switchyard.

A small control building would be located nearby the switch gear and would be accessible to authorized high-voltage personnel only. The building would house electrical control equipment, battery/DC systems for device operation, safety relays, and other similar electrical equipment. This building would interconnect with the main control room in the operations building for monitoring of the substation.

1.5.13 Interconnection to Electrical Grid – Gen-tie

The Project's interconnection route for would remain the same as described and analyzed in Revision 2 of the existing POD, as was proposed in the PSEGS project.

Detailed plans to interconnect via a stand-alone gen-tie transmission line inclusive of the required electrical interconnection facilities would be developed during the environmental permitting process.

1.5.14 Spill Prevention and Containment

Spill Prevention Control and Countermeasure Plans (SPCC) would be prepared for construction and operation of the site. The plans would include spill prevention and countermeasures procedures to be implemented including (but not limited to) a spill record (if applicable), analysis of potential spills, description of containment facilities, fill and overfill prevention facilities, spill response procedures, personnel training and spill prevention.

No equipment in the solar field would require containment structures. The project substation in the northwest corner of the site would include equipment that requires containment. Again, all equipment would be free of PCBs. The substation pad would be designed to capture any spills of insulator material.

Domestic wastewater would be treated and disposed at the site using a septic disposal system consisting of septic tanks and leach field permitted with the Riverside County Health Department.

Construction and maintenance vehicles would be maintained in accordance with manufacturer recommendations to minimize the risk of vehicle spills.

1.5.15 Health and Safety Program

Safety of personnel would remain the top priority of the operations and construction management staff at the PSPP. A Safety Manual would specify the methods for meeting this goal. This manual would be kept up-to-date with government laws, regulations and policies as well as prudent industry practices.

Annual familiarity training would be conducted with the local authorities, including police and fire departments, as appropriate. Annual First Aid and CPR training would also be conducted.

A Safety Committee, with representatives from maintenance and operations personnel, and chaired by the Plant Manager, would be established. It would meet at least quarterly to review overall personnel and plant safety and make recommendations to the Owner for improvements to plant and personnel safety that are beyond the scope of the Operator. The Safety Committee would maintain a safety incentive program for all plant personnel.

There would be safety meetings for all employees at least monthly to conduct training as well as review procedures and lessons learned from other plants in the area of personnel and plant safety.

Weekly site safety surveys would be conducted to verify and inspect the entire plant site. They are intended to look at safety equipment status, signs properly posted and safety equipment operation. The safety program would be evaluated periodically by site wide emergency drills.

There would be continuing training conducted for all plant personnel on current industry issues as well as new changes to safety equipment and procedures.

The Operator would work and cooperate with the Owner's insurers to implement safety recommendations and assist in conducting site inspections.

An Emergency Response Plan would be developed and implemented to provide an integrated procedure for response to oil and hazardous materials spills, plant evacuation, medical/fire/law enforcement, and severe weather emergencies. The Emergency Response Plan would be consistent with applicable laws and regulations governing such emergencies.

1.6 Alternatives Considered by Applicant

Multiple alternatives have been considered by BLM and supporting agencies for the Project site. Of the alternatives considered, the alternative for a solar PV facility at the Project Site has been determined to create fewer significant impacts than other alternatives evaluated in the PSPP FEIS.

No private lands capable of supporting a nameplate capacity of 500 MW AC using renewable solar technology exists within close proximity to the SCE Red Bluff Substation. Private lands are considered to be a feasibility barrier due to parcel sizes, costs, lack of willingness to sell, and lack of contiguity. Multiple private landowners and a lack of sales and lease offerings render aggregation of separate ownerships infeasible. Although other projects may have successfully aggregated private lands, each acquisition is project-specific; parcel sizes, costs, willingness to sell, and contiguity vary widely from project to project and, in this instance, constituted a barrier to development. In this instance, the nearest private parcels lie north and east of Desert Center; both the developers of CACA 48649 and EDF RE with regard to Desert Harvest were unable to obtain site control of these lands, as demonstrated in their respective EISs.

Further, the PSP is entirely sited in the Riverside East Renewable Energy Zone as designated in the BLM Solar PEIS and approved by a Record of Decision signed on Friday, October 12, 2012.

1.7 Other Federal, State and Local Agency Permit Requirements

All construction, operation and maintenance activities associated with the proposed project would be conducted in compliance with all relevant federal, state and local regulations and permit requirements. The table at the end of this section details the preliminary list of required permits and authorizations that the Applicant may be required to obtain prior to construction and operation of the facility.

The primary agency responsible for issuing a permit for the solar facilities would be the BLM, which would issue a Right of Way (ROW) Grant. Under federal law, the BLM is responsible for processing requests for ROW grants to authorize projects such as this one, and associated transmission lines and other appurtenant facilities to be constructed and operated on land it manages. In processing applications, BLM must comply with the requirements of NEPA, which requires federal agencies to consider the environmental impacts associated with projects constructed and operated on their land.

Preliminary List of Required Permits and Permit Schedule

Permit/ Approval	Responsible Agency	Purpose
Federal		
Bureau of Land Management (BLM) Record of Decision	BLM	BLM's decision on whether and how to allow project development on federal land.
California Desert Conservation Area (CDCA) Plan Amendment under Federal Land Policy Management Act (FLPMA)	BLM	To amend the CDCA to recognize the Project as an authorized solar energy land use on BLM land.
Biological Opinion (BO) and Incidental Take Authorization under the Endangered Species Act	U.S. Fish and Wildlife Service (USFWS)	Determination whether project would jeopardize existence of federal listed endangered or threatened species (desert tortoise for the proposed project), and, if necessary, issue an Incidental Take Statement authorizing incidental "take" of the listed species.
National Historic Preservation Act (NHPA) Section 106 Review (36 CFR 800)	State Historical Preservation Office (SHPO)	Determination of whether project would adversely affect registered or eligible for listing cultural or historic resources.
Clean Water Act (CWA), Section 404 Jurisdictional Determination	U.S. Army Corps of Engineers	Determination of whether the Project site includes waters of the U.S. subject to federal jurisdiction under Section 404 of the Clean Water Act.
State, Regional, and Local		
2081 Incidental Take Permit	CDFW	Authorization of incidental "take" of species listed as threatened or endangered, or take of candidates for such listing.
Section 1602 Streambed Alteration Agreement	California Department of Fish and Wildlife (CDFW)	Authorization allowing disturbance of state jurisdictional streambeds subject to terms and conditions to protect riparian-dependent flora and fauna.
Fugitive Dust Control Plan	South Coast Air Quality Management District (SCAQMD)	SCAQMD requirements prior to construction.
Storm Water requirements under California Water Code and the CWA	Colorado River Regional Water Quality Control Board (RWQCB)	Plan for the control and management of stormwater runoff from construction sites.
Encroachment permits	Caltrans	Required for facilities crossing or encroaching upon Caltrans right-of-way. Required prior to construction of the linear encroachment.
Oversize Load/Heavy Haul permits	Caltrans, California Highway Patrol, as needed	As needed for equipment deliveries
Construction Activity, Trenching Excavation & Erection, Demolition, Tower Cranes/Erection of Fixed Tower, and Pressure Vessel permits	Cal/OSHA	Ministerial Cal/OSHA permits that may be required during construction.

1.8 Financial and Technical Capability of Applicant

1.8.1 About EDF Renewable Energy (EDF RE)

EDF RE is dedicated to create the most efficient renewable energy projects possible, for its own portfolio and for third parties. The Company has more than 25 years of expertise in the renewable industry, and a portfolio of over 5 gigawatts of developed projects and 2.3 gigawatts of installed capacity. The Company specializes in wind and solar photovoltaic with presence in other segments of the renewable energy market: biogas, biomass, hydro, marine energy, and storage solutions.

Its O&M group, EDF Renewable Services, is the leading provider of third-party operations and maintenance services in North America with over 7 gigawatts of power under contract. EDF Renewable Services understands renewable energy facilities represent a substantial investment and takes an owner-operator approach to ensure maximum returns on the asset, full project value, and ongoing profitability for new and existing facilities. As part of a global organization with utility-scale wind and solar plants, the company brings depth of experience to every project.

From site selection to asset management, the Company provides extensive services along the entire value chain. With its experience and meticulous attention to detail, the company's talented professionals ensure that green electricity stays in the black. EDF Renewable Energy and EDF Renewable Services work collaboratively with customers and clients as a local partner, ensuring mutual respect and accountability to deliver the best projects and service possible. While the health of the planet is a priority, the well- being and prosperity of the businesses and communities who partner with us must also be sustained.

1.8.2 Financial Capability

As mentioned above EDF RE is fully owned by EDF EN. That relationship gives EDF RE the significant advantage of bringing to bear the financial backing of its parent company. The result is that EDF RE is able to leverage EDF EN's global procurement power as well as top tier financial credibility.

EDF RE and EDF EN have extensive experience with renewable energy project financing. EDF RE and its affiliates are highly active in the capital markets, maintaining significant relationships in both the debt and equity markets. EDF Renewable Energy's Project Finance Group provides an indispensable element to our renewable energy portfolio by structuring and securing project construction and long-term financing, closing over $5.5 billion dollars in financing by utilizing innovative approaches.

EDF RE is a market leader in green electricity production, with a portfolio of 7,903 MW of gross installed capacity focused on wind (onshore and offshore) and solar photovoltaic energy.

1.8.3 Finance Structure

EDF RE would provide or secure all necessary capital through the development, construction, and operation phases of the proposed project. EDF RE has direct experience with a variety of financing structures, including strategic flips, all-equity with and without back-leverage, Pay-As-You-Go, cash and ITC leveraged, and pure cash-leveraged. The appropriate finance structure would be selected upon final negotiation of PPA terms, and long-term capital, both debt and equity as needed, would be arranged by EDF RE. Preliminary financing work for the Project would begin with the indication from the utility that it intends to execute a revenue contract or power purchase agreement (PPA) with EDF RE. The formal financing process would be undertaken immediately upon the execution of a power purchase agreement, giving ample time to complete arrangements on or before the commencement of construction.

1.8.4 EDF RE's Solar Experience

For more than 20 years EDF RE has been involved in the development of solar projects throughout North America. This experience has ranged from residential to small scale distributed electricity to utility-size projects.

2.0 Construction of Facilities

EDF RE plans to select a qualified EPC contractor for the construction of the PSP. The construction team would mobilize as soon as possible after project certification. Site access would be controlled for personnel and vehicles. A security fence would be installed around the plant site boundary, including the laydown area. Security would be maintained as required by the EPC contractor or a suitable subcontractor to maintain public safety.

During construction, temporary utilities would be provided for the construction offices, laydown area, and the project site via existing distribution line along the southern edge of the site or an on-site generator. Temporary construction power would be utility-furnished power. Area lighting would be provided and strategically located for safety and security, and targeted to minimize light pollution for area neighbors.

Communications among personnel during construction, as well as operation, would consist primarily of handheld radios. EDF RE is aware of Department of Defense (DOD) sensitivity to electronic spectrum use, and would communicate with and obtain confirmation from the DOD of the acceptability of frequency usage by the PSP.

The following site services would be provided by the PSP subcontractors:

- Environmental Health Safety Training
- Unexploded ordnance surveys
- Site Security
- Site First Aid
- Construction testing (NDE, Hydro, etc.)
- Site fire protection and extinguisher maintenance
- Furnishing and servicing of sanitary facilities
- Trash collection and disposal
- Disposal of hazardous materials and waste in accordance with local, state, and federal regulations

Construction materials such as concrete, pipe, wire and cable, panels, steel, and small tools and consumables would be delivered to the site by truck.

2.1 Solar Field Design, Layout, Installation, and Construction

The solar field at PSP would cover the majority of the project area, as shown in site drawings found in the Appendices. For the acreage, general dimensions and a description of the PSP refer to Section 1.5.

As mentioned in the previous section, PSP would utilize a single-axis tracking system that would have a maximum height of 18 feet. For Solar Field Design and Layouts, please refer to the design plans included in the Appendices.

2.1.1 Timetable for Construction

Construction is anticipated to commence during the 4th quarter of 2017, and continue through the 2nd quarter of 2020. The project may or may not be phased. Commercial operation may also be phased and between 2018 and 2020. The construction schedule would be from December 2017 to May 2020 (30 months).

Construction of would commence with pre-construction surveys, exclusion fencing around the PSP site, biological resource exclusion (if necessary), clearing and construction of a laydown yard, site grading and preparation, construction of the O&M building, parking area, and pad mounts for transformers. Construction would continue with site fencing, installation of temporary power, and on-site roads, construction of the on-site wells, construction of the project substation and switch-yard, and assembly and installation of panel blocks and wiring.

2.2 Access and Transportation System, Component Delivery, and Worker Access

During Project construction, the majority of the construction workforce is anticipated to be sourced locally and from the surrounding communities near the Project. Certain non-local specialty trade workers supporting proprietary plant equipment/components and construction processes may also be employed on a short-term basis during construction. The construction laydown and parking area will be located in the northwest corner of the Project Site. Construction access will be from the primary access road via the I-10/Corn Springs Road interchange. The existing dirt access road would need to be improved and widened to accommodate construction traffic. Materials and equipment will be delivered by truck.

Truck and worker vehicle traffic would be managed according to a Construction Traffic Control Plan. A work schedule and end-of-shift departure plan designed to ensure that stacking does not occur at intersections necessary to enter and exit the project sites.

The EPC contractor would consider using one or more of the following measures designed to prevent stacking: staggered work shifts, off-peak work schedules, and/or restricting travel to and departures from each project site to 10 or fewer vehicles every three minutes during peak travel hours on I-10.

New roads would be required within the project area. Worker access would be controlled through a locked entrance gate in the northwest corner of the project area.

2.3 Construction Work Force Numbers, Vehicles, Equipment, Timeframes

The on-site workforce would consist of laborers, craftsmen, supervisory personnel, supply personnel, and construction management personnel. The on-site workforce is expected to reach its peak of approximately 700 individuals. There would be an average workforce of approximately 175 construction craft people, supervisory, support, and construction management personnel on site during construction.

This is consistent with findings in the PSEGS FEIS, that cited a staff review of four approved single-axis tracking solar PV projects, finding that "*an average of 1.40 peak construction workers per MW of power generated.*"

Generally, construction work schedules are expected to be 8 hours per day Monday through Friday. Typically, the work day would consist of one shift beginning as early as 7:00 a.m. and ending as late as 7:00 p.m. The work schedule may be modified throughout the year to account for the changing weather conditions. For instance, during hot weather, it may be necessary to start work earlier to avoid pouring concrete during high ambient temperatures or for the health safety of workers. Additional hours may be necessary to make up schedule deficiencies, or to complete critical construction activities (e.g., PV block construction, foundation pouring, or working around time-critical shutdowns and constraints). During the startup phase of the project, some activities might be performed over the weekend.

An estimated 8,290 truck deliveries would be needed for the PV modules, with an additional 1,450 truck deliveries for the foundation posts and 1,830 truck deliveries for the tracking systems. Additional truck deliveries are expected for other construction items. Road aggregate required for the on-site access roads would amount to 58,300 cubic yards. The timeframe and specific delivery schedule is still under development.

2.4 Site Preparation, Surveying, Staking

Site preparation would begin shortly after final permitting is complete for PSP. Final boundary surveys, to accommodate existing ROW grants, and setback requirements for Interstate 10 and other existing ROW's would precede any site work. Surveying would be completed by a surveyor licensed to perform work in the State of California.

The surveyor would complete a boundary survey and a constraints map and place on file with the Riverside County Surveyor's Office and the BLM Field Office. The surveyor would then provide construction staking throughout the duration of the project to ensure that improvements are properly located in relation to the project boundary and existing ROW's.

2.5 Site Preparation, Vegetation Removal and Treatment

It is EDF RE's goal to minimize removal of vegetation and disturbance of the existing soil surface. Site preparation would consist of removal of vegetation within the project area by scarification where necessary. All access roads between the 2.50 MW blocks would be scarified, for example. In addition, any vegetation over 18 inches would be removed to avoid interaction with the solar panels. Annuals and smaller perennials would remain.

Key considerations for vegetation treatment of the site would include:

- Soil disturbance in support of construction would increase the possibility of introduction of invasive species. Regular monitoring and weed management would be required during construction. Ongoing maintenance in the solar field may include treatment of noxious weeds by targeted spraying with Roundup.
- Where temporary access is needed to install facilities, such as along the perimeter fencing, no removal of existing vegetation or grading would occur. Instead, equipment would drive over or around existing desert scrub vegetation without direct removal. Crushed vegetation is much more likely to show a rapid recovery than where vegetation is removed and reseeded, or where soils are disturbed. Final plans would not require any disturbance outside the final perimeter fencing.
- Revegetation with native species would be implemented where feasible in areas of temporary disturbance.

2.6 Site Clearing, Grading and Excavation

It is EDF RE's objective to minimize both grading and vegetation removal for PSP. Site grading within the project would be limited to the major access roads, the inverter pad locations, and the ancillary facilities in the northwest corner, including the parking area and switchyard. If there is slope greater than 1 percent at the set-back boundaries of defined intermittent streams, then grading would be completed to reduce the slope and make continuous with the solar panel area. If shoulders are created at the stream set-back, then they may be protected by rip rap or other rock.

Excavation would be limited to the trenches for the electrical conductors that connect the PV modules and the inverters to the switchyard. The PV modules would be electrically connected by wire harnesses and combiner boxes that would collect power from several rows of modules and feed the project's power conversion stations via direct current (DC) cables placed in underground covered trenches. DC trenches would be an estimated 3 feet deep and from 1.5 to 2.5 feet wide.

The PV inverters would convert the DC electric input into grid-quality AC electric output. The AC electrical output would be transmitted from the power conversion station to the adjacent transformer. The transformer would step up the voltage of the AC electrical input and then would transmit the power via underground lines in covered trenches to the PV combining switchgear. The trenches would be 3-foot deep, and from 8 inches to 6.5 feet wide.

2.7 Solar Array Assembly and Construction

The panel field would be constructed as follows. After the site is prepared and graded to the limited extent required, the panel field would be laid out by installing the vertical H-pile galvanized steel beams directly into the ground by means of a small pile-driver. A preliminary walk-through by civil engineers suggests that this foundation would be sufficient to meet geotechnical requirements for wind stability. Soil tests would be required to validate the preliminary engineering. If tests conclude that further foundations are required, then the vertical H-pile galvanized steel beams would be attached to concrete ballasts. Once the foundations are secure, trenching would be dug along the perimeter of the 2.50 MW units, to tie the inverter blocks together, and the electrical conduit and wires would be laid down. Next, the framing would be bolted to the vertical support beams. Once framing is complete, panels would be delivered on-site and be installed on the frames. The pre-poured concrete inverter pads would be delivered and laid down then the inverters are secured to the pads, and the electrical wiring is completed.

In general, material delivery for the solar field would maintain a constant flow, and panels and framing structures would be delivered throughout the solar field adjacent to the 2.50 MW subunit locations. These areas would be subsumed by the solar field as it is built out. Construction would proceed in an assembly-line fashion as each task is completed throughout the solar field.

2.8 Power Plant Construction

Electricity will be generated directly at the solar panels and transported to the high voltage transmission system via conductors. There are no other significant elements to the power plant.

Lighting during construction would be limited to the staging area for the construction trailers, parking area, and site security facilities and would be limited to that needed to ensure safety. It would be focused downward, shielded, and directed toward the interior of the site to minimize light exposure to areas outside the construction area. During construction, electric power would be derived from the transmission lines that run along the southern side of the project site, or by distributed generators. The only possible additional fuel would be for maintenance vehicles.

2.9 Gravel, Aggregate, Concrete Needs and Sources

Adequate aggregate surfacing will be provided within the generation facility, common areas and parking lots as required for maintenance and access. Gravel would be required for the north-south access roads (not for the less often used east-west routes). Road width and turning radius will meet plant operations requirements and all local regulations, including local fire department access. All other areas not utilized for access roads will be left with the natural soil as the final surface. No aggregate or other materials will be procured from onsite sources.

Concrete would be required for the inverter pads and the switchyard. Concrete for the inverter pads and vertical H-pile supports, if needed, would be pre-poured and transported to the site by truck. A temporary, two-acre concrete batch plant would be installed in the construction laydown area. Unmixed cement will be purchased from commercial suppliers and stored in a designated area adjacent to the temporary batch plant. Aggregate required for concrete manufacturing will be obtained from commercial suppliers and transported to the site.

2.10 Generation Tie-Line / Telecommunication Line

Installation of the generation tie-line and telecommunication line will generally be completed using the proposed construction techniques discussed in the following subsections. Significant modifications to these proposed construction techniques will be reviewed by the BLM prior to implementation to determine potential impacts and appropriate mitigation measures.

The primary activities and areas of potential impact associated with the generation tie-line and telecommunication line construction will occur within access roads, spur roads, transmission line structure locations, and pull sites.

2.10.1 Transmission Line Surveying

Prior to construction, preconstruction survey work would be conducted locating the centerline, structure center hubs, ROW boundaries, and structure access roads for the generation tie-line and the route for the buried communication cable. After all of these features have been staked in the field, any additional field surveys would be conducted as required prior to construction to determine the presence of cultural and biological resources within potentially affected areas. Necessary survey permits for federal or state resources and rights-of-entry to privately owned land would be obtained prior to conducting the surveys.

No paint or permanent discoloring agents will be applied to rocks or vegetation to indicate survey or construction boundaries. Sensitive areas will be flagged so they can be avoided or appropriately managed during construction.

2.10.2 Staging Area Construction

Construction of the transmission line would include staging/pulling areas. The staging/pulling areas would be located within the ROW corridor and would potentially be fenced for security.

2.10.3 Generator Tie-Line Access Construction

Access to the ROW and transmission structure sites will be required during construction and for the long term maintenance of the generation tie-line. Existing paved and unpaved roads would be used to the extent practical, to transport material and equipment to and from the locations within the ROW.

New access spur roads would be constructed using a bulldozer or grader (if required for safe access to a construction location), and a roller to compact and smooth the ground. Front-end loaders may be used to move soil locally or offsite. Typical 14-foot-wide straight road sections and 14 to 18 foot-wide sections at curves would be required to facilitate the safe movement of equipment and vehicles.

After Project construction, existing and new permanent access roads would be used by maintenance crews and vehicles for inspection and maintenance purposes.

Wherever possible, new spur roads would be built at right angles to existing roads. All existing roads would be maintained after construction in at least the same condition as prior to the construction of the line and communication cable. Culverts or other drainage structures would be installed only if necessary to move heavy equipment across drainages. Dust and erosion control measures would be implemented along unpaved access routes and where the road surface sealants would be unsuitable for wildlife habitat.

The redundant communication cable would be plowed-in or trenched utilizing standard cable installation machinery, or constructed using conventional trenching equipment, if installed underground. The cable will be installed in the transmission line access roadway. If conventional trenching techniques are used for construction, the trench will be covered at the end of each shift to avoid wildlife access.

The construction contractor selected to build the generation tie-line and install the communication cable will be required to prepare a specific Access Road Use Plan that will address use of the existing road network to transport workers, materials, and heavy equipment to the staging areas, structure locations, concrete batch plant sites, and material storage locations. The installation of culverts and other road improvement amenities would be reviewed and addressed on a site-by-site basis.

2.10.4 Structure Sites

A temporary workspace will be used at the 230kV structure sites on BLM lands and may be cleared and graded. Temporary disturbance areas include staging/pulling areas and temporary construction areas and would be minimized to the maximum feasible extent. Because of the generally flat topography along the proposed facility route construction pad grading at transmission structure locations may not be required at all locations.

Temporary graded areas will be re-contoured to match the original grade after construction.

If solid rock is encountered, blasting, rock-hauling, or the use of a rock anchoring or micro pile system for transmission tower facilities may be implemented subject to approval from the BLM and other applicable state, federal or local agencies.

2.10.5 Flagging/Staking

The Applicant will stake the ROW and the centerline prior to construction. During construction all environmentally sensitive areas will be staked and clearly marked. Flag colors will denote the type of resource and applicable activity restrictions in each sensitive area.

2.10.6 Fences, Gates, Cattle Guards

Fences and gates will be placed or replaced as required. Cattle guards, fences, and gates that may be damaged by construction will be repaired or replaced to their original condition as required by the BLM. Temporary gates will be installed only with the permission of the BLM.

2.10.7 Structure Site Clearing, Foundation Excavation, and Foundation Installation

Vegetation clearing and ground disturbance will be required at each structure site to excavate tower holes and pour concrete foundations. Temporary ground disturbance will occur at each structure location. Vegetation in each temporary disturbance will not be cleared apart from the locations directly required to install the structure and structural foundations.

Foundation excavations will be made using mechanized equipment, with the poles requiring one hole, 6 to 12 foot in diameter. Structure foundations will be excavated with a vehicle-mounted power auger or backhoe. In rocky areas, the foundation holes would be excavated by drilling. Foundation holes would be covered or fenced if practical.

Foundations would be installed by placing reinforced steel and transmission structure steel components into each foundation hole, positioning the steel components, and encasing them in concrete. Excess spoil material would be used for fill where suitable. The foundation excavation and installation activities would require access to the site by a power auger or drill, a crane, material trucks, and ready-mix concrete trucks.

Water will be used for soil compaction and dust abatement at each structure site and along access roads. Water for footer compaction and dust abatement will be obtained from onsite wells or offsite water sources and trucked to each construction location.

2.10.8 Blasting

As described above, transmission line structure foundations would normally be installed using drilled shafts or piers. If hard rock is encountered within the planned drilling depth, blasting may be required to loosen or fracture the rock in order to reach the required depth to install the structure foundation.

Prior to blasting, a detailed blasting plan will be submitted by the construction contractor for each blast site that identifies the proposed blasting methods, existing structures and facilities, and scaled distance estimates of projection distance and the speed of particles that may be mobilized by blasting activities. Conventional or plastic explosives would be used, if necessary subject to safeguards (e.g., blasting mats) for adjacent areas.

2.10.9 Structure Assembly and Erection

Structure components and associated hardware would be shipped to each structure site by truck. Steel structure sections would be delivered to structure locations where they would be fastened together to form a complete structure and hoisted into place by crane. At each structure site, leveled areas approximately 30 by 40 feet would be created to safely operate construction cranes and larger equipment. The leveled area required for the location and safe operation of large cranes would be approximately 30 by 40 feet. A work area would also be required for the structure footing location, structure assembly, and the crane maneuvers. The work area would be cleared of vegetation only to the extent necessary. Concrete for use in constructing foundations would be dispensed from concrete mixer trucks. After construction, all pads would be restored to natural contours and revegetated where required.

2.10.10 Conductor Installation

After the structures are erected, insulators, hardware, and stringing sheaves would be delivered to each structure site. The structures would be rigged with insulator strings and stringing sheaves at each ground wire and conductor position.

For public protection during wire installation, guard structures may be erected as required adjacent to roads, existing power-lines, and other obstacles. Guard structures would consist of H-framed wood poles placed on either side of an obstacle and would prevent ground wires, conductors, or equipment from falling on an obstacle. The guard structures would be removed following conductor installation. Equipment for erecting guard structures would include augers, line trucks, pole trailers, and small cranes. Guard structures may not be required for small roads or other areas where suitable safety measures such as barriers, flagmen, or other traffic controls could be used.

Pilot lines would be pulled (strung) from structure to structure and threaded through the stringing sheaves at each structure. Following the pilot lines, a larger diameter, stronger line would be attached to conductors to pull them onto the structures. This process would be repeated until the ground wires or conductors are pulled through all sheaves.

The shield wire and conductors would be strung using powered pulling equipment at one end and powered braking or equipment tensioning at the other end of each conductor stringing segment. Sites for tensioning equipment and pulling equipment would be approximately two miles apart. This distance may be increased in certain locations by pulling in two sets of conductors back to back.

Each tensioning site would be approximately 100 feet wide by 400-600 feet long. Tensioners, line trucks, wire trailers, and tractors needed for stringing and anchoring the ground wire or conductor would be necessary at each tensioning site. The tensioner, in concert with the puller, would maintain tension on the shield wires or conductors while they are pulled through the structures. The pulling site would require approximately half the area of the tension site. A puller, line trucks, and tractors needed for pulling and temporarily anchoring the shield wires, optical ground wire, and conductor would be necessary at each pulling site. There will be no blading at pull sites if the terrain is sufficiently level.

2.11 Aviation Lighting

The Applicant anticipates no aviation restrictions for this photovoltaic plant because all structures would be lower than the 200-foot height standard that triggers Federal Aviation Administration Part 77 Obstruction Evaluation Consultation.

2.12 Site Stabilization, Protection, and Reclamation Practices

The Applicant would restore all temporarily disturbed areas to their preconstruction conditions, as required by the BLM and as detailed in a Draft Vegetation Resources Management Plan.

The Plan would describe the Applicant's strategy to minimize adverse effects of the project to native vegetation, soils, and habitat, while recognizing that the primary mitigation for these impacts is the acquisition and long-term protection of off-site vegetation and habitat. The Plan would address the revegetation of sites to be temporarily disturbed during construction or other project activities; salvage of native cactus from the site prior to construction; and on-site vegetation management during project O&M.

Most of the project's temporary disturbance would be within the solar facility, where disturbed areas would largely be beneath solar panels. In these areas, the Vegetation Management Plan is intended to minimize dust, erosion, weed invasion, and fire hazard throughout the solar facility to the extent feasible.

2.12.1 Site Closure and Reclamation

The minimum expected operational lifetime of PSP is 30 years; however, depending on economic or other circumstances the real life of the project could be longer or shorter.

In case of a temporary closure of the facilities, the BLM, and other applicable responsible agencies would be notified. If temporary closure involves the threat or actual release of hazardous substances, procedures would be implemented from a Hazardous Materials Business Plan, as developed for the project. Procedures would include, but not be limited to, the following:

- Practices to control any release of hazardous materials;
- Applicable notifications of responsible agencies and the public;
- Emergency response procedures;

When permanent closure is appropriate, a decommissioning plan would be developed and submitted to the BLM for review and approval. Procedures would be designed to ensure public health and safety, environmental protection and compliance with all applicable laws, ordinances, regulations, and standards. Closure may range from short-duration closure to complete removal of equipment and restoration of the land to BLM approved specifications. The procedures for decommissioning are designed to ensure public health and safety, environmental protection, and compliance with applicable regulations. It is assumed that decommissioning would begin 30-50 years after commercial operation date of the solar plant.

Decommissioning would generally include the following goals:

- Provide the BLM with a detailed Decommissioning Plan;
- Remove above ground structures unless converted to other uses;
- Restore the lines and grades in the disturbed area to match the natural gradients of the site, and;
- Re-establish native vegetation in the disturbed areas;
- Conform with applicable laws, ordinances, regulations, and standards and local/regional plans;

The proposed strategy to achieve the above goals could include the following:

- Analyze alternatives other than full restoration of the site (for instance, removal of old facilities and upgrading to newer solar technology);
- Use industry standard demolition means and methods to decrease personnel and environmental safety exposures by minimizing time and keeping personnel from close proximity to actual demolition activities to the extent practical;
- Plan components of decommissioning to ensure personnel and environmental safety are maintained while efficiently completing the work;
- Provide for recycling the components of the plant: metal, panels, concrete, etc., and proper disposal of all other materials;
- Remove all residual materials and chemicals from the site prior to demolition for reuse at other facilities or disposal at licensed facilities.
- Demolition of below-ground facilities to a depth required for restoration of the native habitat.
- Soils clean-up, if needed, particularly at locations where hazardous materials were used or stored to ensure that clean closure is achieved.
- Restore lines and grades to match the natural gradient and re-establish native vegetation in the disturbed areas.

The first stage of dismantling the site consists of removal and demolition of above-ground structures. The second stage consists of dismantling and removing concrete structures so that no concrete remains within 3 feet of final grade or as approved in the Decommissioning Plan and as appropriate. The third stage involves removal of underground utilities within 3 feet of final grade or as approved by BLM in the Decommissioning Plan. The fourth stage consists of excavation and removal of soils to return the disturbed areas to near the original condition.

3.0 Related Facilities & Systems

3.1 Transmission System Interconnect

3.1.1 Existing and Proposed Transmission System

The major interconnection point to the existing transmission system in the area for utility scale electrical generators is at the SCE Red Bluff Substation. The Red Bluff Substation is a newly constructed 500/220kV substation with two new parallel transmission line segments connecting to the existing Devers-Palo Verde 500kV transmission line.

The PSP interconnection route and strategy would follow the same route that the PSEGS project proposed and utilize the same Large Generator Interconnection Agreement (LGIA) between California Independent System Operator (CAISO), Southern California Edison (SCE), and the applicant's affiliate.

Please see Appendix A for location of existing and proposed transmission lines.

3.1.2 Ancillary Facilities and Substations

The project substation would be located in the northwesterly corner of the PSP project site and would cover an estimated 5 acres. At the on-site substation, the voltage of the solar-generated electricity would use a transformer to be stepped up to 230kV and the generation tie line would terminate into a 230kV bus at the SCE Red Bluff substation.

The PSP switchyard would occupy an area of approximately 400 feet long and 400 feet wide in the northwesterly corner of the project area immediately adjacent to the substation and within the fenceline. Surge arresters at the high-voltage bushings would protect the transformer(s) from surges caused by lightning or other disturbances. The transformer(s) would be set on a concrete pad within a containment area designed to hold any spill from the transformer(s). As mentioned elsewhere, all transformers would be free of PCBs. The high voltage side of the transformer(s) would be connected to the plant's switchyard.

A small control building would be located within the switchyard and would be accessible to authorized high-voltage personnel only. The building would house electrical control equipment, battery/DC systems for device operation, safety relays, etc. This building would interconnect with the main control room in the operations building for monitoring of the substation.

3.1.3 Status of Power Purchase Agreements

The recent increase in the State's Renewable Portfolio Standard from 33% to 50% has re-invigorated the California market for renewable energy. EDF RE intends to convert the technology from CSP trough to solar PV in order to make the Palen Solar competitive in upcoming solicitations for Renewable Energy procurement by California's Independently Owned Utilities (IOU's) and anticipates securing a revenue contract in 2016.

3.1.4 Status of Interconnect Agreement

As stated above, PSP would utilize the same Large Generator Interconnection Agreement (LGIA) as the preceding proposed PSEGS and PSPP projects.

3.1.5 General Design and Construction Standards

Earthwork for ancillary transmission structures at the PSP site would consist of the following:

- Removal and disposal of vegetation and debris
- Grading
- Concrete slab foundation for inverters and transmission facilities

The PSP would connect to the SCE Red Bluff substation by a single-circuit, monopole three-phase 230 kV transmission line. Foundations for the transmission line structures consist of single concrete piers reinforced as necessary to withstand design loads. The poles are 100-135 feet in height with a span length expected to average approximately 500 feet. Service roads would be required, if they do not already exist, to access the interconnection line.

3.2 Gas Supply Systems

As described above, PSP does not require a gas supply.

3.3 Other Related Systems

3.3.1 Communications System Requirements

Telecommunication equipment for the project site would reside within the on-site substation structure. All fiber optic communication lines necessary to support the on-site telecommunication equipment would be located underground or on the same poles used to support the gen-tie line. The communication lines would originate from the on-site project substation and terminate in the utility communication equipment at the SCE Red Bluff substation.

The major communication system on site would be the SCADA (Supervisory Control and Data Acquisition) system. The SCADA system is composed of industrial PLC (Programmable Logic Controllers) hardware and software, field instrumentation, meteorological stations, and communications devices designed for site monitoring, control and historical trending of the solar plant.

Communication between employees during both construction and operations phases would be through handheld radios.

4.0 Operations and Maintenance

EDF RE operates and maintains over 7,000MW of renewable energy, and employs a workforce of over 3,000 renewable energy workers. EDF RE relies on this experience when it comes to executing development projects and carrying those projects through to long term operation.

EDF RE brings experienced project management skills in order to execute the PSP Project. EDF RE's management teams have executed well in excess of 7,900 MW of power projects including natural gas fired projects, solid fuel projects, wind energy projects and solar projects. This experience includes all development, construction, financing and operational aspect of the project. The project management tasks associated with the execution of the project include:

- Land related issues and local approvals
- Environmental Permitting
- Water supply
- Public outreach and communications
- Interconnection activities
- Equipment supply and evaluation
- Balance of plant systems and design
- Contractor assessment and selection
- Transportation
- Financing related activities
- Construction management
- Operations and asset management

EDF-RS is an independent operator with experience in operating and maintaining solar power facilities. Plant personnel would begin being hired 12 months prior to the scheduled start of commercial operations (up to the total numbers included in the O&M Plan).

4.1 *Operation and Facility Maintenance Needs*

4.1.1 Operation Plan

This plan provides the overview for the operations and maintenance of the PSP Project for the first twelve (12) months of commercial operation. This plan provides basic assumptions and discussion of operations and maintenance areas and gives a short overview of the other programs used to meet the Owner and Operator objectives.

The Operating Budget provides, on a monthly basis, details for:

- Operations, repairs, and expected improvements.
- Routine maintenance.
- Expected purchases (including capital expenditures and equipment acquisitions).
- Personnel plan.
- Administrative and support activities taken in support of the plant.
- Additional related aspects.

The Operator would contract specific maintenance tasks or would perform them by the plant staff as appropriate and most cost-effective manner.

The Operator would operate and maintain the plant in accordance with approved procedures to comply with the issued Environmental Permits and appropriate government laws.

The Operator would operate the plant and associated systems to ensure that the emission limitations for air and waste water discharge contained in the plant permits are met. In addition, the Operator would ensure that all hazardous waste on the site would be stored and disposed of properly. All environmental issues and associated permits would be the subject of continuing training and management emphasis. Willful violations of environmental laws could result in employee termination for such a serious offense. At least annually, an internal assessment of environmental protection compliance would be made.

4.1.2 Maintenance Program

The Maintenance Program is conducted in accordance with the maintenance manual, vendor technical manuals, and good engineering practices. Subject to scheduled overhauls, the nominal design life for the major components of the plant is 30 years. This program consists of:

- Routine Preventive Maintenance (including "Operator checks") – normally conducted by the plant O&M staff, supported by outside contractors as required for some aspects of the predictive maintenance program (e.g., oil analyses).

- Corrective Maintenance – normally conducted by the plant O&M staff, supported as necessary by outside contractors as required due to special equipment or expertise which is not cost-effective to maintain current on site (e.g., "code" welding) or to augment efforts to return the plant to operation as soon as possible following a forced or unscheduled outage.

The PSP plant would be covered by a warranty from the respective suppliers. All warranties would be tracked and compiled with and warranty claims would be made as directed by the Owner's Representative.

The Operator would utilize a Computerized Maintenance Management Software (CMMS) package, vendor and contractor recommendations, and good engineering practices to plan and implement the component preventive maintenance program.

Scheduled Maintenance periods would be planned and coordinated with the utility in accordance with the PPA. There are no planned major equipment outages. Unscheduled corrective maintenance would be decided on a case by case basis. A projected outage maintenance schedule would be submitted separately.

Maintenance Service agreements are anticipated on the following areas, as appropriate:

- Predictive maintenance testing and analysis
- Safety valve setting, calibration and maintenance
- Testing and certification of fire protection system(s)
- Calibration services (beyond the cost-effectiveness of the plant's capability), such as:
  - High voltage protective relay calibration
  - Safety relief valve calibration
  - Electricity flow metering calibration
- Environmental engineering services
- Consulting engineering services
- Plant security services
- Fire protection services
- Plant janitorial services
- Trash and waste material disposal (including potentially hazardous waste)
- Individual office equipment, such as fax, copies, computers, etc.
- Employee transportation (as required)

4.2 Maintenance Activities

On average, one time annually water would be used to wash the panel arrays to maintain optimum generating efficiency. This would be accomplished by spraying demineralized water from a high pressure attachment on a small 4WD panel-washing vehicle. The quantity of water used would be sufficient for cleaning but controlled such that minimal water runs off the panels and onto the ground. There would be no appreciable surface water flows from this activity. Please see a discussion of water quantities and sources required under environmental considerations in section 5.

1. Some vegetation treatment would be required to maintain the site free from noxious weeds. At a minimum, the access roads in the photovoltaic field would be maintained free from significant vegetation through the use of targeted spraying, occasional scarifying, or weeding to reduce fire hazard and allow access to the panel arrays.

2. Vehicles and equipment used for construction, operation and maintenance at the project site would be cleaned to prevent weeds and other non-native plants from being brought onto the project site.

3. Only those chemicals (pesticides and herbicides) listed on the BLM approved label list are authorized for use on public lands. A Pesticide Use Proposal must be submitted for each chemical used, and it cannot be used until approval has been obtained in writing from the Authorized Officer. The proposal needs to identify any surfactants or dyes used in the spraying operation. Applicator(s) of chemicals used must have completed pesticide certification training and have a current up to date Certified Pesticide Applicator's License. Pesticide and herbicide application records for the areas and acres treated must be submitted to the Authorized Officer each year. This includes the following:

    - Brand or Product name
    - EPA registration number
    - Total amount applied (use rate #A.I./acre)
    - Date of application
    - Location of application
    - Size of area treated
    - Method of treatment (air/ground)
    - Name of applicator
    - Certification number and dates
    - Costs to treatment
    - Amount of surfactants or dyes used in spraying operation

    Roads would be maintained to minimize fugitive dust, and prevent erosion from rain events. Additional gravel or surface treatments on the dirt access roads may be required.

Other maintenance that would be performed in conjunction with the routine maintenance includes but is not limited to:

- Torque electrical fittings;
- Clean switch gear;
- Calibrate protective relays;
- Fire protection system test and annual certification;
- Fuse swapping, testing ground fault detection and power quality.

4.3 Operations Workforce and Equipment

4.3.1 Staffing

Management personnel would provide technical oversight/guidance in four critical areas: overall plant management (by the "Plant Manager"), plant operations and maintenance (by the "Operations Manager"), and human resources, accounting, and administration (by the "Administrative Assistants").

Between one and three security personnel would be located on the project site. The on-site O&M building will house security personnel that would be on-site 24 hours per day.

No replacement/rotations of plant personnel are projected during this period. If the need for such a rotation arises, necessary arrangements would be coordinated with the Owner on a case-by-case basis.

4.3.2 Staff Training and Safety

On-going training would be provided to maintain operator qualification and certification.

The Operator would pursue an ongoing training program in accordance with the Company's Training Manual. The main goal of this manual is to ensure that the O&M staff remains fully competent in the safe, reliable, and efficient operation, maintenance, and administration of the plant.

Following the construction period, final qualifications shall be completed for all plant operators. Following completion of appropriate qualifications, emphasis would be placed on the Company's continuing training program.

The Operator would send the plant staff to formal schools and training sponsored by outside activities and vendors as appropriate to ensure that O&M personnel continue to upgrade their level of knowledge of plant systems and equipment. Formal training is included in preparation of the annual Operating Budget.

The Operator would ensure that its staff is fully trained on all health, safety and environmental issues in accordance with local and national regulations, with the following objectives:

- Maintain personnel safety – Zero accidents goal.
- Comply with all safety and environmental regulations, policies, and laws.
- Provide meaningful feedback to improve plant procedures and manuals on a continuing basis.

Plant casualty drills would be run on a periodic basis to evaluate the casualty training program. In addition, "Table Top" drill scenarios would be conducted on a monthly basis. These drills include both plant and hazardous material casualties. The written response of each section would be reviewed and critiqued with all personnel. Mock emergency exercises would be conducted periodically in cooperation with the local fire and police departments in order to test Emergency Response Plan preparedness and to drill the plant employees in the proper execution of emergency roles and tasks.

Plant employees would be encouraged to pursue outside educational courses, as well as obtaining degrees or certifications that are job-related. The expenses for these job improvement educational pursuits would be handled on a case-by-case basis.

4.3.3 Administrative Activities

All administrative functions would be carried out offsite by EDF RE. The site would be redundantly monitored remotely both for security and for equipment function.

Arrangements would be established with an international freight forwarding company, to expedite parts shipping, customs brokering, and other requirements to receive parts and consumables. The effective arrangements are critical to achieving the target performance.

4.3.4 Capital Improvements

EDF RE would conduct an on-going program to identify any capital improvements that would increase the plant's efficiency and effectiveness. Proposed capital improvements would be submitted as part of the on-going budget process.

4.3.5 Operations Equipment

Facilities would be maintained by the following equipment:

- 4 diesel engine pickup trucks – these would be used for accessing the site and delivering equipment and crews for maintenance activities. Panel washing would occur once annually during operations.

5.0 Environmental Considerations

5.1 Air Quality

The principal sources of emissions from the proposed project would occur during construction; the operation of the solar project and general maintenance activities would have a negligible impact on air quality. Construction-related emissions would include the exhaust from construction equipment (including vehicles transporting personnel, equipment, and supplies) and fugitive dust and particulate matter (PM_{10}) from grading, earth moving, and equipment/vehicles traveling on paved and unpaved roads.

The number of permitted fuel-consuming and air pollutant emitting sources would be significantly fewer under the PSP than under PSPP. Construction-related emissions and impacts may be similar. Operational impacts relating to criteria pollutant emissions for a utility-scale PV project would include normal maintenance truck activity, possibly including periodic fire water pump engine testing, and use of water trucks coinciding with the infrequent work to wash the PV modules. PSP would not require the auxiliary equipment (e.g., auxiliary boilers for freeze protection and fast startup) necessary to operate a solar thermal power plant; therefore, the PSP would generate GHG emissions that would be less than both the PSPP and PSEGS proposals.

5.2 Biological Resources

PSP would employ single-axis tracking PV technology at the proposed site. The PSP would use a low-impact design that would minimize on-site grading and possibly entail management of native vegetation under the solar panels by mowing.

Impacts on special-status plant species and waters of the state would be similar to the previously proposed projects.

EDF RE seeks to avoid some of the more sensitive habitats and species previously identified on the Project site. For example, the proposed PSP site plan seeks to minimize impacts to the active sand transport corridor.

PV solar power plants require less operational water use, and less groundwater pumping, compared to solar trough and solar power tower facilities. Therefore, potential impacts on groundwater dependent plants and wildlife species would be somewhat less than both the PSPP and PSEGS proposals.

The PSP would use numerous individual driven foundation elements to support the PV panels and would eliminate the deep or otherwise specialized foundations required for the previously proposed projects. Unlike solar thermal projects, the PSP would require fewer and smaller structures (no power towers, turbines, and steam condenser).

Appropriate mitigation measures associated with the biological resources of the Project site would be considered by EDF RE in partnership with the responsible agencies and included at a later time as APMs.

5.3 Cultural Resources

Construction and operation of PSP would require a roughly similar amount of ground disturbance as PSPP and PSEGS. However, the extent of the Project's visual intrusion on cultural resources beyond the site project would be less than PSPP and much less than PSEGS.

The net effect of the PSP on historical resources, primarily due to its much reduced visual presence relative to the prior proposed projects, would be much less than the PSPP or PSEGS projects.

Appropriate mitigation measures associated with the cultural resources of the PSP would be considered by EDF RE in partnership with the responsible agencies and included at a later time as APMs.

5.4 Geologic Resources and Hazards

Regional seismic hazards could expose site workers to seismic hazards, including being struck by project infrastructure that may move as a result of seismic shaking or by being present in an unstable indoor area; however, seismic events are infrequent and EDF RE would require appropriate emergency plans for such incidents.

5.5 Hazardous Materials Handling

Based on the mechanics of a Solar PV project compared to that of solar thermal technology, the PSP utilizes significantly less hazardous materials in both construction and operation than the previously proposed PSPP and PSEGS projects and is unlikely to pose a significant risk to the public.

The PSP project would be designed, constructed, operated and maintained to ensure the safe use and storage of hazardous materials. Storage, handling, and use of all chemicals would be conducted in accordance with applicable laws, ordinances, regulations and standards. Chemicals would be stored in appropriate chemical storage facilities. Bulk chemicals would be stored in storage tanks, and other chemicals would be stored in returnable delivery containers. Chemical storage and chemical feed areas would be designed to contain leaks and spills. Workers would be trained to handle hazardous wastes generated at the site.

Once construction is complete, PSP would have minimal hazardous and non-hazardous waste at the site. EDF RE anticipates that the only hazardous material on site would likely be:

- diesel fuel and gasoline for vehicles during construction,
- motor, hydraulic fluids, and lubricating oils for machinery and vehicles,

- solvents and adhesives,
- soil stabilizers,
- mineral oil for the transformers,
- approved herbicides, and
- batteries, paints, thinners, and cleaning solvents.

None of the major components of the solar field: glass, metal, cement, and wire, are considered hazardous materials. None of the panels being considered are classified as hazardous wastes because the chemicals within PV modules are highly stable and would not be available for release to and interaction with the environment. If a panel is broken for whatever reason, the pieces would be cleaned up completely, and returned to the manufacturer for recycling. EDF RE has multiple existing panel contracts, where manufacturers are bound to collect and recycle any broken or malfunctioning panels.

It is not anticipated at this time that a chemical storage area requiring specialized storage techniques or safety equipment would be required. However, if necessary, safety showers and eyewashes would be provided adjacent to or in the area of all chemical storage and use areas. Hose connections would be provided near the chemical storage and feed areas to flush spills and leaks to the plant wastewater collection system. State approved personal protective equipment would be used by plant personnel during chemical spill containment and cleanup activities. Personnel would be properly trained in the handling of these chemicals and instructed in the procedures to follow in case of a chemical spill or accidental release. Adequate supplies of absorbent material would be stored on-site for spill cleanup.

Electric equipment insulating materials would be specified to be free of polychlorinated biphenyls (PCBs).

5.6 Land Use

The PSP would consist of a utility-scale, single-axis tracking PV project within the previously analyzed boundaries of the PSPP FEIS project site. The PSP would be located entirely on public land administered by BLM. The Project Site is completely within the BLM's RESEZ. The PSP includes no private land, and no part of the site would be subject to Riverside County's jurisdictional authority.

5.7 Noise

During operation, the PSP would generate negligible noise. The panels are silent, and the inverters produce minimal noise from the cooling fans. It is anticipated that the impact would be less than significant. During construction, some noise would be created by the construction vehicles, though much of it would be limited to the short period of time when earthwork is taking place. Otherwise, the primary vehicles would be delivery trucks. Because the site is located near a busy interstate freeway, it is likely that any additional noise would be insignificant.

5.8 Paleontological Resources

The PSP would use numerous individual driven foundation elements to support the PV panels, similar to PSEGS, but would not require the deep or otherwise specialized foundations that would be required for PSEG's solar receiver towers. The elimination of deep foundations would decrease the potential for encountering fossil bearing strata.

The construction of the PSP project would cause impacts on paleontological resources that would be somewhat less than the previously proposed PSPP and PSEGS projects.

Prior to construction EDF RE would retain a qualified Project Paleontologist to design and implement a mitigation program during project-related earth-moving activities. The paleontological resource mitigation program would include the preparation of mitigation and monitoring plan for construction monitoring; emergency discovery procedures; sampling and data recovery, if needed; museum storage coordination for any specimen and data recovered; pre-construction coordination; and reporting.

Construction personnel involved with earth-moving activities would be informed by the Project Paleontologist of the possibility of encountering fossils, how to identify fossils, and proper notification procedures. This worker training would be prepared and presented by a qualified paleontologist. A construction contractor superintendent would be identified and provided with contact information for notifying the Project Paleontologist if any potential paleontological resources are encountered during construction.

5.9 Public Health

Public health impacts would result from use of hazardous materials, use of herbicides for weed control, and mobilizing existing contamination. Impacts would be reduced through measures such as spill containment kits, best management practices, and plans for environmental health and safety, emergency response and inventory plan, and other emergency plans.

5.10 Socioeconomics

Project construction is anticipated to have a positive impact on local economics. The on-site workforce would consist of laborers, craftsmen, supervisory personnel, supply personnel, and construction management personnel. The on-site workforce is expected to reach its peak of approximately 700 individuals. There would be an average workforce of approximately 175 construction craft people, supervisory, support, and construction management personnel on site during construction.

5.11 Soils

Appropriate control structures (small earthen berms and swales) would likely be used to redirect surface water entering the site to protect the solar installations. Discharge from these berms, if needed, would be into existing intermittent streams documented on the property. Intermittent streams would be defined and protected within the project area. Rip rap would be installed at the discharge of these streams within the project boundary to reduce flow energy and allow water absorption. This would allow no increase in volume and no concentration of water leaving the project area. Some internal contouring may also be required due to the size of the site in order to accommodate precipitation that falls within the plant boundary.

In areas where some grading is required, such as the site for inverters and transmission facilities, mitigation measures would be necessary to minimize erosion and control runoff. These measures may include local soil berms and detention areas that can contain storm water runoff during construction. Temporary erosion controls including crushed rock, silt fences and fiber rolls would be used during construction as needed to minimize erosion in these areas. Non-hazardous dust suppressants and water would also be used as a method to control fugitive dust during construction, likely sprayed from a truck twice per day during heavy grading activities.

5.12 Traffic and Transportation

The on-site workforce would consist of laborers, craftsmen, supervisory personnel, supply personnel, and construction management personnel. The statistics relating to workforce and transportation were discussed in previous Sections of this POD. The impacts to traffic and transportation would be somewhat less than the previously proposed PSPP and PSEGS projects because solar PV installations require less equipment to construct and operate.

5.13 Transmission Line Safety

The PSP would utilize the revised gentie-transmission line route proposed by the PSEGS project. The gentie-transmission line would be built according to federal standards and regulations. Per a study completed by Southern California Edison, there is an estimated corona discharge noise from 230 kV transmission lines at 50 dBA at the edge of the transmission line right-of-way (California Public Utility Commission 2006). Ambient noise levels during rainstorms often exceed this noise level, especially if the rain is accompanied by high winds.

5.14 Visual Resources

PV systems do not use steam generators because PV arrays directly generate electricity and thus do not require the solar towers topped by solar receivers, steam boilers, generators, or steam condensers associated with the proposed PSEGS and PSPP projects. The 230-kV transmission line from the project site to the Red Bluff Substation would use the same linear corridor as the proposed PSEGS project. The solar PV arrays would be lower in height than the PSPP solar troughs and PSEGS solar towers. The visual resource impacts for the PSP would be significantly less than the previously proposed PSPP and PSEGS projects.

Operations would require onsite nighttime lighting for safety and security. To reduce offsite lighting impacts, lighting at the facility would be restricted to areas required for safety, security and operation. Exterior lights would be hooded, and lights would be directed onsite so that light or glare would be minimized. Low pressure sodium lamps and fixtures of a non-glare type would be specified. Switched lighting would be provided for in areas where continuous lighting is not required for normal operation, safety, or security. There would be a small amount of additional visible nighttime lighting associated with the project structures and open site areas.

Project construction activities would usually occur during the day, over normal working hours. At times, nighttime construction activities may be necessary in order to avoid the hottest portion of the day. When and if nighttime construction is required, illumination would be provided that meets State and Federal worker safety regulations. To the extent possible, the nighttime construction lighting would be erected pointing away from possible outside observers.

5.15 Waste Management

The PSP would produce maintenance and plant wastes typical of PV power generation operations. Generation plant wastes include oily rags, broken and rusted metal and machine parts, defective or broken panels and electrical materials, empty containers, and other miscellaneous solid wastes including the typical refuse generated by workers. These materials would be collected by the local waste disposal. The broken panels would be collected by the manufacturer and recycled.

There is no daily volume of waste generated by the facility. There would be some removal of office waste and broken components from time to time, but these volumes would be small. Project wastes are not projected to significantly affect the capacity of local hazardous and non-hazardous waste facilities.

Facilities would be kept clean and waste, including food scraps, would be kept in secured locations to minimize the likelihood of impact to scavenger species such as ravens.

5.16 Water

The statistics relating to water usage during construction and operation of PSP were discussed in previous Sections of this POD. During construction, water would be required for dust mitigation. Drinking water would be provided by an off-site source during construction.

During Operation, small amount of water would be required for drinking and sanitary facilities during operation. EDF RE anticipates minor water requirements for washing panels during plant operation.

Based on analysis performed in both the PSPP FEIS and the PSEGS FSA, the water resource impacts for the PSP would be significantly less than the previously proposed PSPP and PSEGS projects.

5.16.1 Waste Water

There would be minimal waste water during plant construction or operation. During construction, water would be used for dust mitigation, but not to the extent that runoff from the site is expected. Please see a discussion in the section on erosion control and stormwater drainage. Portable bathrooms would be provided during construction, as needed, and would be emptied offsite per regulations.

Water used to wash panels would be demineralized, and not contain any chemicals. The quantity of water used would be carefully monitored to produce no appreciable runoff; that is, the water would soak directly into the ground below the panels, or evaporate, and not travel across the ground.

Sanitary wastewater from sinks, toilets, showers, and other sanitary facilities would be discharged into an appropriate septic system and leach field that would be permitted with local jurisdictions.

5.17 Applicant Proposed measures

Appropriate applicant proposed measures associated with the environmental resources of the PSP would be considered by EDF RE in partnership with the responsible agencies and included at a later time.