EXECUTIVE SUMMARY

ES.1 Background and Project Overview

McCoy Solar LLC, a subsidiary of NextEra Energy Resources LLC (Applicant), proposes to construct, operate, maintain, and decommission an up-to-750 megawatt (MW) photovoltaic (PV) solar energy generating facility and related infrastructure in unincorporated Riverside County, California, to be known as the McCoy Solar Energy Project (MSEP or Project). The majority of the MSEP would be developed on public land administered by the Bureau of Land Management (BLM). Approximately 477 acres of privately owned land would be included in the proposed solar plant site boundary. The Project would generate and deliver solar-generated power to the California electrical grid through an interconnection at the Colorado River Substation (CRS) owned by Southern California Edison (SCE).

To initiate the environmental review process under the National Environmental Policy Act (NEPA), the Applicant submitted a Standard Form (SF)-299 requesting a right-of-way (ROW) grant (Application CACA-048728) from the BLM for the approximately 7,700-acre portion of the Project that would be developed on BLM-administered land.[1] Within these 7,700 acres, construction and operation would disturb approximately 4,900 acres. Remaining acreage that would not be disturbed would not be part of the ROW grant. If a ROW grant is approved for the MSEP, then a land use plan amendment (PA) also would be required to identify the site in the California Desert Conservation Area Plan of 1980, as amended (CDCA Plan) as an appropriate site for the proposed use. The CDCA Plan Amendment also would require analysis of proposed impacts under NEPA. The BLM is the NEPA lead agency. The Applicant also has a loan guarantee application pending with the U.S. Department of Energy (DOE). If the DOE decides to enter into negotiation of a possible loan guarantee with the Applicant, the DOE would likely become a cooperating agency in developing the Final Environmental Impact Statement (EIS).

Additionally, the Applicant filed an Application for Land Use and Development with the Riverside County (County) Planning Department seeking a Conditional Use Permit (CUP) for the portion of the solar plant site that would be developed on private land under the County's land use jurisdiction and a Public Use Permit (PUP) for the portion of the gen-tie line that would be

[1] The Applicant's initial CACA-048728 application was filed on January 29, 2007, for 20,480 acres. It later was modified by a letter on January 15, 2008, to reduce the requested ROW size by 9,920 acres to 10,560 acres. By letter of July 15, 2010, the Applicant requested that an additional 3,040 acres be removed from the requested ROW area to reflect the current approximately 7,700-acre ROW application area. On December 1, 2010, the Applicant filed an amended SF-299 to include land needed for linear facilities such as the generation-transmission (gen-tie) and access roads.

developed on private land and on a small area of County-owned property. In March 2012, the County returned the CUP application. Because the BLM anticipates that the CUP application will be re-filed at a later date, this Draft PA/EIS assumes that the portion of the Project proposed on privately owned land could be implemented, and so includes these acres in the analysis of potential impacts.

ES.2 Purpose and Need

ES.2.1 BLM Purpose and Need

NEPA guidance published by the Council on Environmental Quality (CEQ) states that a environmental impact statement's Purpose and Need section "shall briefly specify the underlying purpose and need to which the agency is responding in proposing the alternatives including the proposed action" (40 Code of Federal Regulations (CFR) §1502.13). The following discussion sets forth the purpose of and need for the action as required under NEPA.

The BLM's purpose and need for the MSEP is to respond to the Applicant's application under Title V of the Federal Land Policy and Management Act of 1976 (FLPMA) (43 USC §1701 et seq.) for a ROW grant to construct, operate, maintain, and decommission a solar PV facility on public lands in compliance with FLPMA, BLM ROW regulations, and other applicable federal laws. The BLM will decide whether to approve, approve with modification, or deny issuance of a ROW grant to the Applicant for the MSEP. The BLM's action also will include consideration of a concurrent amendment of the CDCA Plan. The CDCA Plan, while recognizing the potential compatibility of solar generation facilities on public lands, requires that all sites associated with power generation or transmission that are not identified in the CDCA Plan to be added to it through the land use plan amendment process. California Desert Conservation Area (CDCA) boundaries are shown on Figure 1-1. The MSEP site is within the CDCA, but is not identified in the CDCA Plan for solar power generation. Therefore, if the BLM decides to approve the issuance of a ROW grant, the CDCA Plan amendment also would be required.

In conjunction with FLPMA, 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), §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."

Secretarial Order 3285, dated March 11, 2009, which "establishes the development of renewable energy as a priority for the Department of the Interior."

ES.2.2 Department of Energy Purpose and Need

If the DOE decides to enter into negotiation of a possible loan guarantee with the Applicant, the DOE would likely become a cooperating agency in developing the Final EIS. If the DOE accepts the Applicant's application as suitable for funding, the DOE may adopt this EIS to meet its NEPA requirements in making a determination of funding. The purpose and need for action by DOE would be to comply with its mandate under the EPAct by selecting eligible projects that meet the goals of the EPAct.

When the Final EIS is completed and made available to the public by the BLM, the DOE will carry out an independent review to ensure that DOE comments have been addressed and that the Proposed Action is substantially the same as the action described in the EIS. If these conditions are met, the DOE will adopt the Final EIS without recirculating it pursuant to the CEQ NEPA regulations at 40 CFR §1506.3(c).

While the Final EIS is being developed, the DOE also will be carrying out a detailed financial, technical, and legal evaluation of the Project in the course of negotiating the terms and conditions of a possible federal loan guarantee pursuant to its procedures set out at 10 CFR Part 609. The DOE may reach agreement on a conditional commitment for a loan guarantee prior to completion of the Final EIS and the BLM issuance of the ROW grant. Should this be the case, a condition precedent will be included in the conditional commitment requiring that the NEPA review and the BLM ROW grant process be completed before DOE closes the loan guarantee transaction.

Following conclusion of the NEPA process and the BLM decision, the DOE will issue a Record of Decision (ROD) and proceed to close the loan guarantee transaction provided that the Applicant has satisfied all the detailed terms and conditions contained in the conditional commitment and other related documents, and all other contractual, statutory, and regulatory requirements.

ES.3 Proposed Action and Alternatives

ES.3.1 Comparison of Alternatives

The Applicant did not request a CDCA Plan amendment directly. Nonetheless, the BLM has determined that a CDCA Plan amendment would be required if a ROW were granted for a solar power generating facility on the proposed site. Regardless of whether the Proposed Action is approved, the BLM could elect to amend the CDCA Plan. Consequently, the BLM is considering a CDCA Plan Amendment in connection with or independent of a ROW grant for the Proposed Action or Alternative 2. This Draft PA/EIS considers three action alternatives consisting of a Plan Amendment and Project components, one No Action alternative, and two Plan Amendment/ No Project alternatives. Each of the following alternatives is described in detail in Chapter 2, *Proposed Action and Alternatives*:

Alternative 1: Proposed Action. The Proposed Action would consist of Units 1 and 2, for a combined capacity of at least 500 MW and up to 750 MW. This alternative also would include a

gen-tie line and access road route as well as a distribution line. The Project would permanently occupy approximately 4,315 acres within an approximately 7,700-acre ROW on BLM-administered land, and 477 acres of privately owned land under County jurisdiction. This alternative would require a CDCA Plan Amendment.

Alternative 2: Reduced Acreage. This alternative would consist only of Unit 1, for a capacity of 250 MW. It would permanently disturb 1,693 acres of BLM-administered land and 477 acres of privately owned land under County jurisdiction. Because this alternative can be supported by the proposed gen-tie line route or the Alternative 3 Central Route, no gen-tie line is included in the description of this alternative. This alternative would require a CDCA Plan Amendment.

Alternative 3: Reconfigured Gen-Tie/Access Road Route. This alternative consists of two options for alternate gen-tie line routes:

> ***Central Route*.** The Central Route would be a total of 12.5 miles long, 5.5 miles of which would differ from the Proposed Action gen-tie line. It would be located farther west and would be collocated with the approved gen-tie line for the adjacent Blythe Solar Power Project (BSPP). A maintenance road and spur roads would be collocated with the Central Route gen-tie line.
>
> ***Western Route*.** The Western Route would be 15.5 miles long, 8.5 miles of which would differ from the Proposed Action gen-tie line. It would be located farther west than either the proposed route or the Central Route, and would travel along the western side of the adjacent BSPP. No maintenance road would be collocated with the Western Route gen-tie line.

Alternative 4: No Action. Under this alternative, the BLM would not amend the CDCA Plan for a solar plant in the proposed location, and no solar plant would be constructed or operated. No environmental impact would be associated with this alternative.

Alternative 5: CDCA Plan Amendment A/No Project. Under this alternative, the ROW application would be denied and the CDCA Plan would be amended to identify the Project application area as suitable for any type of solar energy development.

Alternative 6: CDCA Plan Amendment B/No Project. Under this alternative, the ROW application would be denied and the CDCA Plan would be amended to identify the Project application area as unsuitable for any type of solar energy development.

ES.3.2 Lead Agency Preferred Alternative

Under NEPA, the "preferred alternative" is a preliminary indication of the Lead Agency's preference of action among the Proposed Action and alternatives. A NEPA Lead Agency may select a preferred alternative for a variety of reasons, including the agency's priorities, in addition to the environmental considerations discussed in the EIS. In accordance with NEPA (40 CFR 1502.14(e)), the BLM has identified Alternative 1, the Proposed Action as the preferred alternative.

ES.4 Connected and Cumulative Actions

ES.4.1 Plant Communications and Proposed Telecommunication Lines (Fiber Optic Cable)

A Supervisory Control and Data Acquisition (SCADA) system would be included for remote control and monitoring of inverters, trackers, and other equipment within the MSEP. New telecommunications lines would connect the Project substations with the electrical grid through the CRS. As required for connection and interaction with the electrical grid, two independent telecommunication lines would be provided. As an alternate, the Applicant could elect for supervisory control by SCE at the switchyard at the CRS for Unit 1, which would avoid the need to run this telecommunication line back to the solar plant site.

ES.4.2 Solar Field DC Distribution and Power Conversion

ES.4.2.1 DC Distribution

The PV modules would be electrically connected in series by wire harnesses that conduct direct current (DC) electricity to combiner boxes. Each combiner box would collect power from several rows of modules and feed a power conversion station (PCS) via cables placed in covered underground trenches or within above ground cable trays or conduits in limited circumstances where underground trenching may not be practical. In the PCS, the inverters would change the DC output from the combiner boxes to AC electricity. The resulting AC current from each individual inverter then would be routed through AC cables to an oil-filled medium voltage step-up transformer positioned within secondary containment. Based on preliminary design, the 265-volt output from an inverter would be stepped up (increased) to the desired substation feed voltage of 34.5 kV by the transformer. The medium voltage cabling would create one to two collection circuits that would carry the electricity from the solar field to one of the MSEP's substations.

ES.4.2.2 AC Transmission

Multiple PCS blocks (approximately 10 MW each) would form a lateral configuration and transmit the AC power at 34.5 kV. Approximately three laterals would be combined into an underground feeder line (24 to 26 MW) that transmits the AC power to the Power Distribution Center (PDC) at each substation. Unit 1 and Unit 2 each would have a substation that combines all the AC power from the feeders within the respective Unit. Each substation would consist of parallel sets of internal power distribution systems, including 34.5 kV buses and circuit breakers, disconnect switches, and main step-up transformers.

ES.4.3 Generation Transmission Line

In the substation of each Unit, the voltage would be stepped up to 230 kV to match the voltage of the gen-tie line that would interconnect Project generation output with the CRS. The gen-tie line would use a single set of support towers and a separate circuit for each Unit, resulting in a total of two transmission circuits from the MSEP to the CRS. The Unit 1 circuit would connect to the

electrical grid via a 230 kV switchyard located near the CRS where the power for that circuit would be merged (as required by the Project's Interconnection Agreement with SCE) with the power from the Genesis Solar Energy Project (GSEP) before being connected to the CRS. As part of the construction for Unit 2, the second circuit would be added to the MSEP gen-tie structures that were installed for Unit 1 and follow the same gen-tie corridor from the Project substation to the CRS. The circuit from Unit 2 would be routed directly to the CRS rather than through the MSEP/GSEP switchyard.

ES.4.4 Distribution Line

During construction, electricity demand would be derived from the construction trailers for lighting, air conditioning or space heating, water heating, powering small appliances, temporary site lighting, and machinery operation. Power during the construction period, estimated at a peak demand of 10,000 kilowatt-hours (kWh) per year, would be supplied by extending an SCE distribution line that would be constructed, operated, maintained, and decommissioned by SCE. The distribution line also would provide power to the solar plant site. During operation and maintenance of the Project, this distribution power circuit also could provide a backup power supply for the low voltage tracker motors, various monitoring instruments, computer, access gates, and other low voltage equipment.

ES.4.5 Cumulative Scenario

Many renewable energy and other projects are proposed throughout the California desert that were identified as potentially contributing to cumulative environmental impacts. Those cumulative projects are discussed in detail in Section 4.1.4, *Cumulative Scenario Approach*.

ES.5 Environmental Consequences

Table ES-1 summarizes the environmental impacts that would occur as a result of the Proposed Action and Alternatives by environmental parameter. The unavoidable adverse impacts that would remain after mitigation are also summarized briefly in these tables.

ES.5.1 Areas of Controversy

Comments were received during the scoping process for the MSEP. The scoping process and public input received during that process are provided in detail in Appendix B, *Scoping Report*. Based on input received from agencies, members of the public and others, areas of controversy related to the Project include:

Air Resources: Concerns related to potential air quality impacts as compared to national and state ambient air quality standards. See Section 4.2, *Air Resources*.

Biological Resources: The disturbance areas associated with the Proposed Action and Alternatives consist almost entirely of native habitats, including desert dry wash woodland, unvegetated ephemeral dry wash, Sonoran creosote bush scrub, and stabilized and partially stabilized desert

TABLE ES-1
SUMMARY OF IMPACTS BY ALTERNATIVE

Resource	ALTERNATIVES					
	Alternative 1: Proposed Action	**Alternative 2: Reduced Acreage Alternative**	**Alternative 3: Reconfigured Gen-Tie/ Access Road Alternative**	**Alternative 4: No Action Alternative**	**Alternative 5: CDCA Plan Amendment A/ No Project**	**Alternative 6: CDCA Plan Amendment B/ No Project**
Air	*Construction*: NOx=9.9 tons/yr; VOC=1.9 tons/yr; CO=20.3 tons/yr; PM10=12.5 tons/yr; PM2.5=3.0 tons/yr; and SOx<0.1 tons/yr *Operation and Maintenance*: NOx= 0.1 tons/yr; VOC<0.1 tons/yr; CO=0.5 tons/yr; PM10=7.9 tons/yr; PM2.5=0.8; tons/yr; and SOx<0.1 tons/yr *Decommissioning*: Comparable in type and magnitude, but likely to be lower than, the construction emissions Maximum daily construction-related PM10 emissions would exceed the MDAQMD threshold.	*Construction*: NOx=9.9 tons/yr; VOC=1.7 tons/yr; CO=15.0 tons/yr; PM10=11.8 tons/yr; PM2.5=2.8 tons/yr; and SOx<0.1 tons/yr *Operation and Maintenance*: approximately half of Alternative 1 emissions *Decommissioning*: Comparable in type and magnitude, but likely to be lower than, the construction emissions Maximum daily construction-related PM10 emissions would exceed the MDAQMD threshold.	Similar to the Proposed Action gen-tie line emissions	No impact	No impact	No impact
Vegetation	4,900 acres vegetation communities disturbed; 7 special status plant species affected	2,200 acres vegetation communities disturbed; 7 special status plant species affected	*Central Route*: 190.5 acres vegetation communities disturbed; 2 special status plant species affected *Western Route*: 200.0 acres vegetation communities disturbed; 1 special status plant species affected	No impact	No impact	No impact
Wildlife	*Construction*: 4,900 acres wildlife habitat lost; 16 special status wildlife species affected or potentially affected. *Operation and Maintenance*: disruption of migratory patterns; death or injury to individuals from striking powerlines, arrays, poles or being struck by vehicles; increased predation.	*Construction*: 2,200 acres wildlife habitat lost; 16 special status wildlife species affected or potentially affected. *Operations*: Similar to Proposed Action.	*Central Route:* 200 acres wildlife habitat lost; 16 special status wildlife species affected or potentially affected. *Western Route:* 190.5 acres wildlife habitat lost; 16 special status wildlife species affected or potentially affected.	No impact	No impact	No impact

TABLE ES-1 (Continued)
SUMMARY OF IMPACTS BY ALTERNATIVE

Resource	ALTERNATIVES					
	Alternative 1: Proposed Action	**Alternative 2: Reduced Acreage Alternative**	**Alternative 3: Reconfigured Gen-Tie/ Access Road Alternative**	**Alternative 4: No Action Alternative**	**Alternative 5: CDCA Plan Amendment A/ No Project**	**Alternative 6: CDCA Plan Amendment B/ No Project**
Cultural and historic	• 114 known sites within ROW application area • Possibly additional resources yet to be discovered during construction • Potential PTNCL and DTCCL cultural landscapes could be indirectly affected	• 86 fewer known sites • Possibly additional resources yet to be discovered during construction • Potential PTNCL and DTCCL cultural landscapes could be indirectly affected	• 20 to 24 fewer known sites • Possibly additional resources yet to be discovered during construction • Potential PTNCL and DTCCL cultural landscapes could be indirectly affected	No impact	No impact	No impact
Environmental Justice	No Impact	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action
Geology and Soils	Low potential for adverse soil conditions and ground subsidence due to groundwater pumping. Potential for wind and water erosion.	Similar potential for adverse soil conditions and seismic-related ground failures. Reduced potential for wind and water erosion and ground subsidence due to groundwater pumping.	Similar to Proposed Action	No impact	No impact	No impact
Global Climate Change	Amortized annual emissions of 8,107 metric tons CO_2e; net reduction of 630,954 metric tons CO_2e per year compared to natural gas-fired electricity.	Amortized annual emissions of 3,946 metric tons CO_2e; net reduction of 209,074 metric tons CO_2e per year compared to natural gas-fired electricity.	*Central Route*: 3 fewer amortized metric tons of CO_2e per year compared to the Proposed Action. *Western Route*: 3 additional amortized metric tons of CO_2e per year compared to the Proposed Action.	No impact	No impact	No impact
Hazards and Hazardous Materials	Risk of accidental release of hazardous materials 7.9 miles of gen-tie line in Blythe Airport Influence Zone	Slightly reduced risk of accidental release of hazardous materials	*Central Route:* 5.38 miles of gen-tie line in Blythe Airport Influence Zone *Western Route*: 5.86 miles of gen-tie line in Blythe Airport Influence Zone	No impact	No impact	No impact

TABLE ES-1 (Continued)
SUMMARY OF IMPACTS BY ALTERNATIVE

Resource	ALTERNATIVES					
	Alternative 1: Proposed Action	**Alternative 2: Reduced Acreage Alternative**	**Alternative 3: Reconfigured Gen-Tie/ Access Road Alternative**	**Alternative 4: No Action Alternative**	**Alternative 5: CDCA Plan Amendment A/ No Project**	**Alternative 6: CDCA Plan Amendment B/ No Project**
Lands and Realty	Minimal impacts to designated corridors from gen-tie line crossing. No impact to existing uses. Restriction of multiple use opportunities on 4,315 acres to a single dominant use.	Land use and realty effects similar to the Proposed Action. Restriction of multiple use opportunities on 1,717 acres to a single dominant use.	Similar to the Proposed Action.	No impact	No impact	No impact
Minerals	Solar plant site unavailable for mineral resource extraction	Smaller land area unavailable for mineral resource extraction	Similar to the Proposed Action	No impact	No impact	No impact
Noise	*Construction and Decommissioning*: short-term noise levels would be a maximum of 46 dBA at the nearest sensitive receptor. *Operation and Maintenance*: noise levels would be a maximum of 32 dBA during wet weather conditions at the nearest sensitive receptor.	*Construction and Decommissioning*: short-term noise levels from the solar plant site would be a maximum of 33 dBA at the nearest sensitive receptor. *Operation and Maintenance*: No effect from solar plant.	*Construction and Decommissioning*: short-term noise levels would be 48 to 51 dBA at the nearest sensitive receptor. *Operation and Maintenance*: Noise levels would be a maximum of 33 to 35 dBA during wet weather conditions at the nearest sensitive receptor.	No impact	No impact	No impact
Paleontology	Potential damage and/or destruction of paleontological resources.	Reduced potential for damage and/or destruction of paleontological resources.	Slightly reduced or increased potential for damage and/or destruction of paleontological resources.	No impact	No impact	No impact
Recreation and Public Access	*Construction and Decommissioning*: impacts from noise, fugitive dust, and increased use of recreational sites. Temporary closures of OHV routes. *Operation and Maintenance*: Site not available for recreational use. Permanent closure and relocation of one OHV route.	*Construction and Decommissioning*: reduced impacts from noise and fugitive dust. Reduced duration of increased use of recreational sites. *Operation and Maintenance*: Reduced acreage unavailable for recreational use. Same effect on OHV route as Proposed Action.	Similar to the Proposed Action	No impact	No impact	No impact

TABLE ES-1 (Continued)
SUMMARY OF IMPACTS BY ALTERNATIVE

Resource	ALTERNATIVES					
	Alternative 1: Proposed Action	**Alternative 2: Reduced Acreage Alternative**	**Alternative 3: Reconfigured Gen-Tie/ Access Road Alternative**	**Alternative 4: No Action Alternative**	**Alternative 5: CDCA Plan Amendment A/ No Project**	**Alternative 6: CDCA Plan Amendment B/ No Project**
Social & Economics	*Construction:* Employment of 341 workers (average) and 750 workers (peak). Most, if not all, expected to live within two hours of site. • No new housing or motel development induced. • Total annual direct construction labor income of $19.3 million. • Total annual indirect and induced economic benefits of $71.4 million and 503 jobs. • Riverside County sales tax revenues of $3 million. *Operation and Maintenance:* Annual employment of 20 workers, expected to live close to the site. • No new housing growth induced. • Total annual direct labor income of $1.3 million. • Total annual indirect and induced economic benefits of $5.3 million and 34 jobs. • Riverside County annual property tax revenues of $64,900. • Riverside County annual B-29 tax revenue of up to $1.9 million. *Decommissioning:* Temporary spending and employment benefit from deconstruction and site restoration work.	*Construction*: Shorter duration of employment of temporary workers, but same number of workers and same annual labor income effect. • Riverside County sales tax revenues of $1 million. *Operation and Maintenance:* Annual employment of 13 workers, expected to live close to the site. • Total annual direct labor income of $0.9 million. • Total annual indirect and induced economic benefits of $3.35 million and 23 jobs. • Riverside County annual B-29 tax revenue of up to $977,000. *Decommissioning:* Similar to construction, no sales tax generated.	*Central Ro*ute: Labor and income-related effects similar to Proposed Action. • Riverside County annual property tax revenues of $55,200. *Western Route*: Labor and income-related effects similar to Proposed Action. • Riverside County annual property tax revenues of $68,400.	No impact	No impact	No impact

TABLE ES-1 (Continued)
SUMMARY OF IMPACTS BY ALTERNATIVE

Resource	ALTERNATIVES					
	Alternative 1: Proposed Action	**Alternative 2: Reduced Acreage Alternative**	**Alternative 3: Reconfigured Gen-Tie/ Access Road Alternative**	**Alternative 4: No Action Alternative**	**Alternative 5: CDCA Plan Amendment A/ No Project**	**Alternative 6: CDCA Plan Amendment B/ No Project**
Special Designations	Direct impact on 1,256 acres identified as lands with wilderness characteristics.	No impact	No impact	No impact	No impact	No impact
Transportation and Traffic	*Construction and Decommissioning*: increased traffic (1,260 daily trips) with no change in LOS on affected roadways, temporary lane/road closures. *Operation and Maintenance*: minor traffic increase.	*Construction and Decommissioning*: Reduced duration of traffic increases. *Operation and Maintenance*: Slightly reduced traffic increase.	Similar to Proposed Action.	No impact	No impact	No impact
Utilities	*Construction*: 750 acre-feet of water consumption *Operation and Maintenance*:930 to 1,350 acre-feet of water consumption *Decommissioning*: non-recyclable solid waste landfilled.	*Construction*: Reduced water consumption *Operation and Maintenance*: reduced water consumption *Decommissioning*: reduced amount of non-recyclable solid waste landfilled.	Similar to Proposed Action.	No impact	No impact	No impact
Visual	*Construction*: Mitigable short-term impacts from construction lighting and visible dust plumes; adverse effects from large-scale visual disturbance in the landscape. *Operation and Maintenance*: Moderate adverse visual impact for motorists on Midland Road, users of the Midland LTVA, residential communities on the southern edge of the mesa, and recreational users, including OHVs. *Decommissioning*: Mitigable short-term impacts prior to successful restoration.	Similar to Proposed Action, but occurring on a smaller land area. May be less visible from some viewpoints.	Slightly reduced (farther from KOPs).	No impact	No impact	No impact

TABLE ES-1 (Continued)
SUMMARY OF IMPACTS BY ALTERNATIVE

Resource	ALTERNATIVES					
	Alternative 1: Proposed Action	**Alternative 2: Reduced Acreage Alternative**	**Alternative 3: Reconfigured Gen-Tie/ Access Road Alternative**	**Alternative 4: No Action Alternative**	**Alternative 5: CDCA Plan Amendment A/ No Project**	**Alternative 6: CDCA Plan Amendment B/ No Project**
Water	Pumping/Consumption of up to 2,100 acre-feet of groundwater over life of Project, not resulting in significant drawdown of groundwater. Mitigable alteration of stormwater flows and drainage, including re-routing of existing flowpaths. Mitigable risk from on-site flooding. Mitigable water quality effects including use of heavy machinery and erosion and sedimentation during construction and decommissioning, and use of septic system, evaporation ponds, and spill cleanup facilities during operation.	Reduced intensity of impacts related to water quality, groundwater levels and storage, erosion and sedimentation, surface water hydrology, flooding, and on-site flooding.	Similar to the Proposed Action	No impact	No impact	No impact
Wildland Fire Ecology	*Construction and Decommissioning*: Slight increase in threat of wildland fires in area due to construction and demolition activities. *Operation and Maintenance*: increased risk of wildland fire due to establishment of non-native plants.	Reduced risk of wildland fires compared to Proposed Action due to smaller site footprint and reduced disturbance of native vegetation.	Similar to Proposed Action	No impact	No impact	No impact
Transmission Line Safety and Nuisance	Mitigable impacts related to interference with radio-frequency communication, hazardous and nuisance shocks, and electric and magnetic field (EMF) exposure.	Similar to Proposed Action	Similar to Proposed Action	No impact	No impact	No impact

dunes. Specific areas of controversy relating to biological resources relate to wildlife connectivity, sensitive plant communities, special-status species, and mitigation measures. See Sections 4.3, *Biological Resources – Vegetation*; and 4.4, *Biological Resources – Wildlife*.

Cultural Resources: Concerns related to damage and loss of cultural and historic artifacts and other resources; including Indian sacred sites. See Section 4.5, *Cultural Resources*.

Hazards and Public Safety: Concerns related to site access by emergency service providers and interference with radio emergency communications. See Sections 4.9, *Hazards and Hazardous Materials*; and 4.22.3, *Transmission Line Safety and Nuisance*.

Water Resources: Concerns related generally to surface water and groundwater use and associated effects, and specifically to potential impacts to Colorado River water. See Section 4.20, *Water Resources*.

Alternatives: Concerns related to whether the range of alternatives was broad enough and how it could be expanded through the statement of the purpose and need for the Project.

ES.5.1.1 Issues to be Resolved

The BLM will decide whether to grant the requested ROW, grant the ROW with modifications, or deny the ROW. Modifications may include modifying the proposed use or changing the route or location of the proposed facilities (43 CFR §2805.10(a)(1)). The BLM also will decide whether or not to amend the CDCA Plan to identify the application area as suitable for the proposed solar energy development.

ES.6 Lead Agency Roles and Approvals

The BLM's authority for the Proposed Action includes the FLPMA, EPAct §211, and BLM's Solar Energy Development Policy. The FLPMA authorizes the BLM to issue ROW grants for renewable energy projects. BLM's authority also extends to the BLM lands in the Palm Springs/ South Coast Field Office, which are governed by the CDCA Plan. Because the CDCA Plan would need to be amended to allow the MSEP on the proposed site, BLM also would oversee the CDCA Plan amendment process for the Project.

ES.7 Organizations and Persons Consulted

In addition to the scoping process, the BLM has been consulting and coordinating with public agencies that may be requested to take action on the Proposed Action. Consultation and coordination is summarized below and described in detail in Chapter 5.

ES.7.1 Native American Consultation and Coordination

The BLM consults with Indian tribes on a government-to-government level in accordance with several authorities including NEPA, National Historic Preservation Act (NHPA) §106, American

Indian Religious Freedom Act (AIRFA), and Executive Order 13007 as part of its responsibilities to identify, evaluate, and resolve adverse effects on cultural resources affected by BLM undertakings. Chapter 5, *Consultation and Coordination*, provides additional detail about these processes.

ES.7.2 United States Fish and Wildlife Service

The USFWS has jurisdiction over threatened and endangered species listed under the federal Endangered Species Act (FESA) (16 USC §1531 et seq.). Formal consultation with the USFWS under §7 of the FESA is required for any federal action that may adversely affect a federally listed species. This consultation will be initiated through the preparation and submittal of a Biological Assessment (BA), which would describe the Proposed Action to the USFWS. Following review of the BA, the USFWS would be expected to issue a Biological Opinion (BO) that specifies mitigation measures, which must be implemented for any protected species.

ES.7.3 Riverside County

Implementation of the MSEP would require discretionary approvals from Riverside County, including a CUP and a PUP. The County also has jurisdiction to issue discretionary approvals for any easements, rights-of-way and/or encroachment permits where County facilities are concerned. The County participated in the development of this document as a PA/EIS/Environmental Impact Report (EIR) toward satisfying the requirements of the California Environmental Quality Act (CEQA) with respect to its decision-making authority. The County participated in a joint scoping process, and had input on the administrative draft document. However, in March, 2012, the County returned the Applicant's CUP application, which prompted the BLM to bifurcate the environmental review process. The County would need to comply with CEQA before approving a CUP or PUP for the MSEP. The County may rely on this Draft PA/EIS in accordance with CEQA to document the analysis of potential environmental impacts that could result from its approval of permits for the Project.

ES.7.4 California Department of Fish and Game

The California Department of Fish and Game (CDFG) protects aquatic species and habitats within the state through regulation of modifications to streambeds under §1602 of the Fish and Game Code. The BLM and the Applicant have provided information to CDFG to assist the agency in its determination of the impacts to streambeds, and identification of permit and mitigation requirements. The Applicant filed a Streambed Alteration Agreement with CDFG. The requirements of the Streambed Alteration Agreement will be included as a recommended Mitigation Measure.

ES.8 Public Participation

Scoping activities were conducted by the BLM in compliance with the requirements of NEPA for the MSEP. Many of these activities were conducted jointly with the County. The BLM's scoping activities are described in detail in the Scoping Report, which is provided in Appendix B. The Scoping Report documents the BLM Notice of Intent, County Notice of Preparation, the scoping meetings, workshops, and the comments received during scoping.

CHAPTER 1
Introduction and Purpose and Need

1.1 Introduction

This Draft Plan Amendment/Environmental Impact Statement (PA/EIS) analyzes impacts of the project described in the right-of-way (ROW) grant application number CACA-048728 for 7,700 acres filed with the Bureau of Land Management (BLM) on January 29, 2007 and revised July 10, 2010, and the Application for Land Use and Development for 480 acres filed with Riverside County (County) on May 16, 2011 by McCoy Solar LLC[1] (Applicant) for the McCoy Solar Energy Project (MSEP or Project). In March 2012, the County returned the application for the Conditional Use Permit (CUP). Because the BLM anticipates that the Applicant will re-file its CUP application at a later date, this Draft PA/EIS assumes that the portion of the Project proposed on privately owned land could be implemented, and so includes these acres in the analysis of potential impacts. The Regional Context is shown in Figure 1-1 (see Appendix A for all figures referenced in the Draft PA/EIS); the Project Location, Proposed Site Layout, and Solar Unit Detail are shown in Figures 2-1, 2-2, and 2-3.

The Draft PA/EIS presents the potential effects of the Proposed Action (consisting of the MSEP and the amendment of the California Desert Conservation Area Plan of 1980, as amended (CDCA Plan). that would be required for the MSEP) and six alternatives on BLM-administered lands and resources and privately owned lands and resources under the County's jurisdiction. In this analysis, a number of other alternatives to the Proposed Action were developed and screened for feasibility and environmental impacts but not carried forward for more detailed analysis. These include alternative sites, solar and renewable technologies, generation technologies using different fuels, and conservation and demand-side management. Of the total of 21 alternatives considered, six alternatives were determined to be potentially feasible by the BLM and: the Reduced Acreage Alternative that would generate 250 megawatts (MW) instead of the proposed up to 750 MW, two alternate generation transmission (gen-tie) line/access road routes, and the No Action alternative.

Publication in the Federal Register of the BLM's Notice of Availability (NOA) for the Draft PA/EIS will initiate a 90-day public review and comment period.

[1] McCoy Solar LLC is a subsidiary of NextEra Energy Resources LLC.

1.2 Purpose and Need

1.2.1 BLM Purpose and Need

National Environmental Policy Act (NEPA) guidance published by the Council on Environmental Quality (CEQ) states that an environmental impact statement's Purpose and Need section "shall briefly specify the underlying purpose and need to which the agency is responding in proposing the alternatives including the proposed action" (40 Code of Federal Regulations (CFR) §1502.13). The following discussion sets forth the BLM's purpose of and need for the action.

The BLM's purpose and need for the MSEP is to respond to the Applicant's application under Title V of the Federal Land Policy and Management Act of 1976 (FLPMA) (43 USC §1761(a)(4)) for a ROW grant to construct, operate, maintain, and decommission a solar photovoltaic (PV) facility on public lands in compliance with FLPMA, BLM ROW regulations, and other applicable federal laws. In accordance with §103(c) of FLPMA, public lands are to managed for multiple uses that take into account the long-term needs of future generations for renewable and non-renewable resources. The Secretary of the Interior is authorized to grant rights-of-way on public lands for systems of generation, transmission, and distribution of electric energy (43 USC §1761(a)(4)). Taking into account BLM's multiple use mandate, the BLM will decide whether to approve, approve with modification, or deny issuance of a ROW grant to the Applicant for the proposed MSEP.

The BLM's action also will include consideration of a concurrent amendment of the CDCA Plan. The CDCA Plan, while recognizing the potential compatibility of solar generation facilities on public lands, requires that all sites associated with power generation or transmission that are not identified in the CDCA Plan to be added to it through the land use plan amendment process. California Desert Conservation Area (CDCA) boundaries are shown on Figure 1-1. The MSEP site is within the CDCA, but is not identified in the CDCA Plan for solar power generation. Therefore, if the BLM decides to approve the issuance of a ROW grant, a CDCA Plan amendment also would be required.

The Proposed Action, if approved, also would assist the BLM in addressing several management and policy objectives advanced through the following authorities applicable to BLM:

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. Section 211 of the Energy Policy Act of 2005 (EPAct), which established a goal for the Secretary of the Interior to approve 10,000 MW of electricity from non-hydropower renewable energy projects located on public lands.

3. Secretarial Order 3285A1 (March 11, 2009, as amended February 22, 2010), which "establishes the development of renewable energy as a priority for the Department of the Interior."

1.2.2 Department of Energy Purpose and Need

If the Department of Energy (DOE) decides to enter into negotiation of a possible loan guarantee with the Applicant, the DOE would likely become a cooperating agency in developing the Final EIS. If the DOE accepts the Applicant's application as suitable for funding, the DOE may adopt this EIS to meet its NEPA requirements in making a determination of funding. The purpose and need for action by the DOE would be to comply with its mandate under the EPAct by selecting eligible projects that meet the goals of the EPAct.

When the Final EIS is completed and made available to the public by the BLM, the DOE would carry out an independent review to ensure that DOE comments have been addressed and that the Proposed Action is substantially the same as the action described in the EIS. If these conditions are met, the DOE would adopt the Final EIS without recirculating it pursuant to the CEQ NEPA regulations at 40 CFR 1506.3(c).

While the Final EIS is being developed, the DOE also would be carrying out a detailed financial, technical, and legal evaluation of the Project in the course of negotiating the terms and conditions of a possible federal loan guarantee pursuant to its procedures set out at 10 CFR Part 609. The DOE may reach agreement on a conditional commitment for a loan guarantee prior to completion of the Final EIS and the BLM's issuance of the ROW grant. Should this be the case, a condition precedent would will be included in the conditional commitment requiring that the NEPA review and the BLM ROW grant process be completed before DOE closes the loan guarantee transaction.

Following conclusion of the NEPA process and the BLM's decision, the DOE would issue a Record of Decision (ROD) and proceed to close the loan guarantee transaction provided that the Applicant has satisfied all the detailed terms and conditions contained in the conditional commitment and other related documents, and all other contractual, statutory, and regulatory requirements.

1.3 Project Location and Overview

The Applicant proposes to construct, operate, maintain, and decommission a solar PV electric generating facility composed of two units. Unit 1 would have a capacity of up to 250 MW and Unit 2 would have a capacity of up to 500 MW for a total of up to 750 MW. The MSEP would be located in the southern California inland desert, approximately 13 miles northwest of the City of Blythe and 6 miles north of the Interstate 10 (I-10) freeway in Riverside County, California (Figure 2-1).

As reflected in the ROW grant application filed with BLM, and subsequently designated as ROW # CACA-048728 for BLM record tracking, the MSEP would be located primarily on BLM-administered land, in Sections or portions of Sections 25, 26, 27, 28, 29, 30, 32, 33, 34, 35, and 36, Township 5S, Range 21E. The Applicant is seeking a ROW grant for approximately 7,700 acres. Construction and operation of the MSEP, including ancillary facilities outside the solar plant footprint, would disturb approximately 4,900 acres, some of which would be located on

lands under County jurisdiction, outside of the ROW grant boundary. Remaining acreage that would not be disturbed would not be part of the ROW grant.

1.4 Major Authorizing Laws and Regulations/Agency Roles and Authorizations

The primary agency-specific authorizing laws, regulations, and policies governing the Lead Agencies' decisions are summarized below. Other relevant laws, regulations, plans, and policies are summarized in the resource- and issue-specific sections in Chapter 3.

1.4.1 BLM

BLM's authority and policy guidance for making a decision related to the Proposed Action flows from FLPMA (43 USC §1701 et. seq.), EPAct §211 (119 Stat. 594, 600), and BLM's Solar Energy Development Policy of April 4, 2007. FLPMA authorizes the BLM to issue ROW grants for systems for generation, transmission, and distribution of electric energy. Section 211 of the EPAct states that the Secretary of the Interior should seek to have approved a minimum of 10,000 MW of renewable energy-generating capacity on public lands by 2015.

1.4.2 U.S. Fish and Wildlife Service

The United States Fish and Wildlife Service (USFWS) has jurisdiction over threatened and endangered species listed under the Federal Endangered Species Act (FESA) (16 USC 1531 et seq.). Formal consultation with the USFWS under §7 of the FESA is required for any federal action that may adversely affect a federally listed species. This consultation has been initiated through a request by BLM to initiate formal consultation and the submittal of a Biological Assessment (BA), which determines whether the proposed action is likely to adversely affect a listed species. Following review of the BA, the USFWS is expected to issue a Biological Opinion (BO), which will specify reasonable and prudent measures that must be implemented for any protected species.

1.4.3 U.S. Army Corps of Engineers

The United States Army Corps of Engineers (USACE) has jurisdiction to protect the aquatic ecosystem, including water quality and wetland resources, under §404 of the Clean Water Act (CWA). Under that authority, USACE regulates the discharge of dredged or fill material into waters of the United States, including wetlands, by reviewing proposed projects to determine whether they may impact such resources and, thereby, are subject to retain a §404 permit. Throughout the NEPA process, the BLM has provided information to the USACE to assist the agency in making a determination regarding its jurisdiction and the need for a §404 permit. The USACE issued a determination on August 30, 2011, that the proposed MSEP site does not contain waters of the United States pursuant to 33 CFR §325.9 (USACE, 2011).

1.4.4 Riverside County

Implementation of the portions of the proposed MSEP that would be located on private or County-owned lands would require discretionary approvals from Riverside County, including a CUP and Public Use Permit (PUP). Riverside County would be responsible for complying with the California Environmental Quality Act (CEQA) before the County may approve the portion of the MSEP under its land use jurisdiction.

1.4.5 California Department of Fish and Game

The California Department of Fish and Game (CDFG) protects fish and aquatic habitats within the state through regulation of modifications to streambeds, under §1602 of the California Fish and Game Code. CDFG has interpreted the term "streambed" to encompass all portions of the bed, banks, and channel of any stream, including intermittent and ephemeral streams, extending laterally to the upland edge of riparian vegetation. In the case of vegetated ephemeral dry washes, such as those present on the MSEP site, this CDFG interpretation often results in an asserted geographic jurisdictional area that is much wider than the active channel of the stream and, therefore, much wider than the jurisdiction of the USACE. Section 1602(a) states that it is unlawful for an entity to "substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake" without first notifying CDFG of that activity. If CDFG determines that the activity may substantially adversely affect an existing fish or wildlife resource, the entity will need to obtain a Lake or Streambed Alteration Agreement from the CDFG before it may commence the activity (Fish & Game Code §1602(a)(4)(B)). CDFG would include in the Lake or Streambed Alteration Agreement measures necessary to protect the affected resources. CDFG has received information about the MSEP to assist in its identification of permit and mitigation requirements. The Applicant filed a Streambed Alteration Agreement with CDFG. The requirements of the Streambed Alteration Agreement will be included in the PA/EIS as a recommended mitigation measure.

CDFG also has the authority to regulate potential impacts to species that are protected under the California Endangered Species Act (CESA) (Fish and Game Code §2050, et seq.). If appropriate, the Applicant would be required to file an Incidental Take Permit application, and the requirements of the Incidental Take Permit would be included in the PA/EIS as a recommended mitigation measure.

1.5 Policy Consistency and Land Use Conformance

1.5.1 Relationship of the Proposed Action to BLM Policies, Plans, and Programs

BLM-administered lands in the California Desert District are governed by the CDCA Plan. CDCA Plan boundaries are shown on Figure 1-1. The CDCA Plan, while recognizing the potential compatibility of solar generation facilities on public lands, requires that all sites

associated with power generation or transmission not specifically identified in the CDCA Plan for a project site be considered through the Plan Amendment process.

The MSEP site is classified as Multiple Use Class L (Limited Use) in the CDCA Plan. The Limited Use classification is intended to protect sensitive, natural, scenic, ecological, and cultural resource values. Public lands classified as Limited Use are managed to provide for multiple use of resources at a lower intensity, ensuring that sensitive values are not significantly diminished. The construction, operation, maintenance, and decommissioning of a solar generating project on the proposed site would require the BLM to amend the CDCA Plan to identify the Project area as suitable for future large-scale solar energy development. The CDCA Plan amendment would restrict the use of the site to that solar use only.

Based on CDCA Plan Table 1, Multiple Use Class Guidelines, and CDCA Plan Chapter 3, Energy Production and Utility Corridors Element, solar uses are conditionally allowed in the Multiple Use Class L designation contingent on the CDCA Plan amendment process and NEPA requirements being met for the proposed use. The MSEP site currently is not identified in the CDCA Plan for such use; therefore, a Plan Amendment would be required if the BLM approved the Project. This PA/EIS meets NEPA's requirements for consideration of the MSEP.

1.5.1.1 Planning Criteria

The CDCA planning criteria are the constraints and ground rules that guide and direct the development of the PA. They ensure that the PA is tailored to the identified issues and ensure that unnecessary data collection and analyses are avoided. They focus on the decisions to be made in the PA, and will achieve the following:

> "Sites associated with power generation of transmission not identified in the Plan will be considered through the Plan Amendment process."

Because the MSEP is not currently identified within the CDCA, an amendment to identify it within the CDCA Plan hereby is proposed. Relevant guidelines are identified in Table 1, Multiple Use Class Guidelines, to the CDCA Plan (at page 15). As specified in the CDCA Chapter 7 Plan Amendment Process, there are three categories of Plan Amendments, including:

> **Category 1**, for proposed changes that will not result in significant environmental impact or analysis through an EIS;
>
> **Category 2**, for proposed changes that would require a significant change in the location or extent of a multiple-use class designation; and
>
> **Category 3**, to accommodate a request for a specific use or activity that will require analysis beyond the Plan Amendment Decision.

Based on these criteria, approval of the MSEP would require a Category 3 amendment. This section summarizes the procedures necessary to evaluate the PA.

1.5.1.2 Statement of Plan Amendment

The Implementation section of the Energy Production and Utility Corridors Element of the CDCA Plan lists a number of Category 3 amendments that have been approved since adoption of the CDCA Plan in 1980. An additional amendment would be added to this section of the CDCA Plan that would read "Permission granted to construct solar energy facility (proposed MSEP)."

1.5.1.3 Plan Amendment Process

The PA process is outlined in Chapter 7 of the CDCA Plan. In analyzing a potential amendment of the CDCA Plan, the BLM District Manager, Desert District, will:

1. Determine if the request has been properly submitted and if any law or regulation prohibits granting the requested amendment;
2. Determine if alternative locations within the CDCA are available that would meet the applicant's needs without requiring a change in the plan's classification, or an amendment to any plan element;
3. Determine the environmental effects of granting and/or implementing the applicant's request;
4. Consider the economic and social impacts of granting and/or implementing the applicant's request;
5. Provide opportunities for and consideration of public comment on the proposed amendment, including input from the public and from federal, state, and local government agencies; and
6. Evaluate the effect of the proposed amendment on BLM management's desert-wide obligation to achieve and maintain a balance between resource use and resource protection.

1.5.1.4 Decision Criteria for Evaluation of a Plan Amendment

The decision criteria to be used for approval or disapproval of the PA require that the following determinations be made by the BLM Desert District Manager:

1. The proposed PA is in accordance with applicable laws and regulations; and
2. The proposed PA will provide for the immediate and future management, use, development, and protection of the public lands within the CDCA.

The BLM Desert District Manager will base the rationale for these determinations on the principles of multiple use, sustained yield, and maintenance of environmental quality as required in FLPMA.

1.5.1.5 Decision Criteria for Evaluation of Application

In addition to defining the required analyses and Decision Criteria for Plan Amendments, the Plan also defines the Decision Criteria to be used to evaluate future applications in the Energy Production and Utility Corridors Element of Chapter 3. These Decision Criteria include:

1. Minimize the number of separate rights-of-way by utilizing existing rights-of-way as a basis for planning corridors;

2. Encourage joint-use of corridors for transmission lines, canals, pipelines, and cables;
3. Provide alternative corridors to be considered during processing of applications;
4. Avoid sensitive resources wherever possible;
5. Conform to local plans whenever possible;
6. Consider wilderness values and be consistent with final wilderness recommendations;
7. Complete the delivery systems network;
8. Consider ongoing projects for which decisions have been made; and
9. Consider corridor networks which take into account power needs and alternative fuel resources.

1.6 Document Organization

This document follows regulations promulgated by the CEQ for Implementing the Procedural Provisions of NEPA (40 CFR §§1500-1508); the Department of the Interior's NEPA regulations, 43 CFR Part 46; the BLM NEPA Handbook, H-1790-1; FLPMA §§201, 202, and 206 (43 CFR §1600); the BLM Land Use Planning Handbook, H1601-1; and DOE's NEPA implementing procedures (10 CFR §1021). This Draft PA/EIS describes the components of and reasonable alternatives to the Proposed Action and environmental consequences of the Proposed Action and the alternatives.

The Draft PA/EIS is organized as follows:

Chapter 1 provides general background on the Proposed Action; identifies the purpose and need for the Proposed Action; and identifies roles of the BLM, other agencies, and authorities regulating various aspects of the Proposed Action.

Chapter 2 describes the Proposed Action and the alternatives development and screening process conducted for the Project. It also presents a range of reasonable alternatives that address the stated purpose and need for the Proposed Action and identifies and explains why other alternatives were considered but not analyzed in detail.

Chapter 3 describes the affected environment (existing conditions) for 23 environmental resource and issue areas relevant to that area that would be affected by the Proposed Action.

Chapter 4 provides a comprehensive analysis and assessment of impacts (direct, indirect, and cumulative) and mitigation measures (by environmental resource and issue area) for the Proposed Action and alternatives (including a No Action Alternative). It also describes other aspects of BLM compliance with NEPA procedures, including including any irreversible or irretrievable commitments of resources (40 CFR §1502.16).

Chapter 5 identifies the persons, groups, agencies, and other governmental bodies that were consulted or that contributed to the preparation of the PA/EIS; describes Native American consultations and public participation during scoping; provides a list of PA/EIS preparers; and lists agencies, organizations, and persons to whom the PA/EIS will be or has been sent.

Chapter 6 includes a list of acronyms and abbreviations used in the PA/EIS.

Chapter 7 includes a list of Project-specific and environmental terms used in the PA/EIS.

Chapter 8 identifies the references used in preparing the PA/EIS.

Chapter 9 provides an index for key words used in the PA/EIS.

Appendices contain information that supplements or supports the analyses in the body of the PA/EIS.

1.7 Issues Addressed in the Analysis

The BLM solicited internal and external input on the issues, impacts, and potential alternatives to be addressed in the PA/EIS for the MSEP, as well as the extent to which those issues and impacts would be analyzed in the document. This process is called "scoping" (40 CFR §1501.7). Internal input was provided by BLM, cooperating agency staff, and Riverside County as an interdisciplinary process, to help define issues, alternatives, and data needs. External scoping involved notification and opportunities for feedback from other agencies, organizations, tribes, local governments, and the public. Formal public scoping begins following publication of a Notice of Intent (NOI) to prepare an EIS under NEPA and release of a Notice of Preparation (NOP) of an Environmental Impact Report (EIR) under CEQA.

The NOI for the Proposed Action was published in the Federal Register on August 29, 2011 (76 FR 53693). On September 20, 2011, BLM held a public scoping meeting at the University of California-Riverside, Palm Desert Graduate Center in Palm Desert, California. The NOP was issued on October 3, 2011, and Riverside County held a public scoping meeting on October 19, 2011, in the Blythe City Council Chambers.

Following the scoping period for each notice, a draft scoping report was prepared in November 2011. In addition to property owners in the vicinity of the proposed MSEP and other interested parties, notification was provided to federal, state, and local public interest and regulatory organizations with an expressed or anticipated interest in the Proposed Action. Also, elected and certain appointed officials similarly were notified of the hearing and site visit. The issues, impacts, and potential alternatives to be addressed in the Draft PA/EIS for the MSEP were identified during this scoping process. See Appendix B, Results of Scoping.

1.8 Permits and Approvals

Review and approval of the Proposed Action is within the primary jurisdiction of the BLM for portions of the Proposed Action that would be constructed, operated, maintained, and decommissioned on BLM-administered public land, and within the County's primary land use jurisdiction for portions of the Proposed Action that would be developed and operated on privately owned or County-owned land within its jurisdiction. The BLM may issue a ROD making a decision regarding the issuance of the ROW grant for the portions of the Proposed Action on public land. The County may issue the CUP and/or PUP for the portions on private

land and County-owned land. Other federal, state, and local agencies also could exercise authority over specific elements of the Proposed Action with respect to land use, biological and cultural resources, stormwater drainage and hydrology issues, roadway easements, and crossing encroachments.

CHAPTER 2
Proposed Action and Alternatives

2.1 Introduction

This chapter describes the Applicant's proposal to construct, operate, maintain, and decommission an up to 750 MW solar PV energy generating facility and related infrastructure in unincorporated Riverside County, California, to be known as the McCoy Solar Energy Project (MSEP or Project) on a combination of public land administered by the BLM, private land, and land owned by the County. This chapter also describes alternatives to the MSEP, including a reduced acreage alternative that would support a 250 MW solar PV facility, two alternative routes to connect the facility to the regional electrical power grid, a No Action Alternative as required by NEPA, and two Plan Amendment-only (No Project) alternatives with no ROW grant component. Each of the action alternatives would require amendment of the CDCA Plan (BLM, 1980). The Project and requisite CDCA Plan Amendment collectively are referred to in this document as the "Proposed Action." Finally, this chapter also describes the alternatives screening process, including alternatives that were considered but eliminated from detailed analysis.

2.2 Alternatives Development and Screening

Alternatives were evaluated using the following NEPA criteria:

1. Does the alternative fulfill the BLM's purpose and need?

2. Does it avoid or reduce effects to human/environmental resources associated with the Proposed Action, or, conversely, would the alternative create significant effects potentially greater than those of the Proposed Action?

3. Is it feasible to construct, operate, maintain, and decommission from a legal, regulatory, and technical perspective?

4. Are there any conflicts between the alternative and the objectives of federal, state, regional, and local land use plans, policies or regulations for the area concerned?

5. Is it reasonable, in that its analysis will foster informed decision making and meaningful public participation?

The Project, Reduced Acreage Alternative, and Reconfigured Gen-tie/Access Road Alternatives (each of which is described in Section 2.3) met all of the criteria listed above and were carried forward for more detailed analysis in Chapter 4. Potential alternatives that did not meet the criteria were eliminated from further analysis; these are described in Section 2.11. The No Action

Alternative is described in Section 2.7, and the CDCA Plan Amendment/No Project alternatives are described in Sections 2.8 and 2.9.

2.2.1 Proposed Land Use Plan Amendment Decisions

The Applicant has applied for a ROW grant and did not directly request an amendment of the CDCA Plan. Nonetheless, the BLM has determined that a CDCA Plan amendment would be required if a ROW were granted for a solar power generating facility on the proposed site. Regardless of whether the MSEP is approved, the BLM could elect to amend the CDCA Plan. Consequently, the range of outcomes of the BLM's CDCA Plan amendment process includes the following:

PA1: The CDCA Plan would be amended to identify the development footprint as suitable for the proposed type of solar energy use. (This would be adopted if a ROW were granted for the Project or the Reconfigured Gen-tie/Access Road Alternative).

PA2: The CDCA Plan would not be amended. (This would result if the No Action Alternative were selected).

PA3: The CDCA Plan would be amended to identify the ROW application area as suitable for any type of solar energy development. (This is the CDCA Plan Amendment A/No Project Alternative.)

PA4: The CDCA Plan would be amended to identify the ROW application area as unsuitable for any type of solar energy development. (This is CDCA Plan Amendment B/No Project Alternative.)

The BLM and the DOE's Office of Energy Efficiency and Renewable Energy are preparing a Programmatic Environmental Impact Statement for Solar Energy Development in Six Southwestern States (Solar PEIS) to evaluate solar energy development, develop and implement agency-specific programs, and amend relevant agency land use plans to adopt a new BLM-wide solar energy program. The site proposed for development of the MSEP is located within the area designated in the draft Solar PEIS as the Riverside East solar energy zone (SEZ). This designation identifies the MSEP site and the surrounding area as preferred for large-scale solar energy development based on its environmental and technical suitability for such development. A Supplement to the Draft Solar PEIS was issued for agency and public review on October 27, 2011 (BLM, 2011e).

2.3 Action Alternatives, Including the Proposed Action

This section first describes features common to all action alternatives, and then describes the distinguishing features specific to the Proposed Action, Reduced Acreage Alternative, and Reconfigured Gen-tie/Access Road Alternative. Each action alternative consists of two main components associated with generating and delivering electricity: the solar plant and the gen-tie line that would interconnect to the CRS, which is a 500/230-kilovolt (kV) substation currently under construction that will be owned and operated by SCE and is not a part of the Project.[1] As

[1] The CRS is not a part of the MSEP because it will be constructed and operated by SCE to serve numerous power generation facilities. SCE received a Permit to Construct the CRS from the California Public Utilities Commission (CPUC) on July 14, 2011, and the BLM issued a ROD covering the CRS on July 13, 2011. SCE commenced construction in the third quarter of 2011. The facility is expected to be in service in 2013. Once operational, the CRS will be a full 2240 megavolt-ampere 500/230 kV substation occupying approximately 90 acres of land.

explained in more detail below, the Project would consist of solar plant Unit 1, solar plant Unit 2, and a gen-tie line along the Eastern Route. The Reduced Acreage Alternative would consist of solar plant Unit 1 and any of the gen-tie line routes (i.e., the proposed Eastern Route or alternative Central Route or Western Route).

2.3.1 Features Common to All Action Alternatives

This section details the Project components that would be developed if any of the action alternatives were approved, regardless of the particular solar plant layout or gen-tie line route selected. Distinctions specific to each action alternative are detailed in Section 2.3.2, relating to the Proposed Action; in Section 2.3.3 relating to the Reduced Acreage Alternative; and in Section 2.3.4, relating to the Reconfigured Gen-tie/Access Road Alternative.

2.3.1.1 Overview

The Applicant proposes to construct, operate, maintain, and decommission the MSEP in a location approximately 13 miles northwest of the City of Blythe, California, 32 miles east of Desert Center, and 6 miles north of I-10. The MSEP solar plant site would be developed on approximately 4,315 acres of public land administered by the BLM and on approximately 477 acres of private land subject to the County's land use jurisdiction (McCoy Solar LLC, 2011b). See Figure 2-1 and Figure 2-2.

The Applicant provided technical information about the Project described in this section. All numbers, including those referring to land disturbance, equipment, schedule, mileage, and workforce, are based on the most current data available and generally represent conservative estimates for purposes of analyzing impacts. The numbers may change based on final engineering and various agencies' permit requirements. The Applicant provided current information about the MSEP on November 21, 2011 (McCoy Solar LLC, 2011a); in the revised draft Plan of Development (POD) for the MSEP submitted to the BLM in August 2011 (Tetra Tech EC, Inc., 2011a); and in CUP and PUP applications submitted to the County in May and October, 2011 (NextEra Energy Resources LLC, 2011 and McCoy Solar LLC, 2011b, respectively). Supplementary information has been provided in response to requests for additional data and clarifications of previously provided information. Based on this input, key components of the Project are:

1. The solar plant site, i.e., all facilities that create a footprint in and around the field of solar panels, including: the solar field (consisting of up to two solar power plants identified as Unit 1 and Unit 2), up to two on-site substations (the Unit 1 and Unit 2 substations), an operations and maintenance (O&M) facility to be shared by Unit 1 and Unit 2 (if constructed); and related infrastructure and improvements;

2. A double-circuit, overhead 230 kV gen-tie line;

3. A 230 kV switchyard located near the CRS;

4. Two telecommunications lines;

5. An SCE-owned and operated distribution line; and

6. An access road providing access to the solar plant site.

Key components of the Project are shown in Figure 2-2. The Project would operate year-round, and would generate electricity during daylight hours when electricity demand is at its peak. The MSEP would generate and deliver solar-generated power to the regional electrical grid through an interconnection at the CRS.

To initiate the environmental review process under NEPA, the Applicant submitted a SF-299 requesting a ROW grant (Application CACA-048728) from the BLM for the portion of the Project that would be developed on BLM-administered land.[2] If a ROW grant is approved for the MSEP, then a land use plan amendment also would be required to identify the site in the CDCA Plan as an appropriate site for the proposed use. The CDCA Plan amendment also would require analysis of proposed impacts under NEPA. The BLM is the NEPA lead agency.

2.3.1.2 Project Location and Existing Land Use

The proposed solar plant site is located in a rural area of the Sonoran Desert in unincorporated Riverside County, primarily on BLM-administered land. It is located approximately 13 miles northwest of the town of Blythe, California, approximately 32 miles east of the town of Desert Center, California, and approximately 6 miles north of I-10. It is south of McCoy Wash, east of the McCoy Mountains, and north of the Blythe Airport. The Project would be developed in the Mojave Desert Air Basin and over the Palo Verde Mesa Groundwater Basin.

The MSEP is proposed on a site located adjacent to (and immediately north of) the Blythe Solar Power Project (BSPP) and adjacent to (and immediately south of) the BLM ROW application filed under the name enXco McCoy (enXco Project).[3] The land in the vicinity of the site is primarily agricultural and vacant to the east, and vacant with mountains to the west.

Solar plant site access would be via the Mesa Drive/Airport exit from I-10 by heading west onto Black Rock Road. Approximately 1.5 miles west of Mesa Drive along Black Rock Road, an existing, unimproved access road installed by the BSPP from Black Rock Road to a point just south of the southern edge of the MSEP solar plant site boundary would be improved as part of the Project. The Applicant would use this north/south access road for at least 2 miles, then veer to the east.

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2 The Applicant's initial CACA-048728 application was filed on January 29, 2007, for 20,480 acres. It later was modified by a letter on January 15, 2008, to reduce the requested ROW size by 9,920 acres to 10,560 acres. By letter of July 15, 2010, the Applicant requested that an additional 3,040 acres be removed from the requested ROW area to reflect the current approximately 7,700-acre ROW application area. On December 1, 2011, the Applicant filed an amended SF-299 to include land needed for linear facilities such as the gen-tie and access roads.

3 The BLM approved the ROW for the BSPP in November 2010. The project commenced construction but was placed on hold in August 2011 pending permit revisions (BLM, 2011d). Construction of the BSPP remains on hold as of the drafting of the MSEP PA/EIS. enXco filed a POD for the enXco McCoy Project with the BLM in February, 2009.

The proposed MSEP site is located in Sections or portions of Sections 25, 26, 27, 28, 29, 30, 32, 33, 34, 35, and 36, Township 5S, Range 21E. For purposes of administration and planning, the proposed site is within the BLM's California Desert District and within the planning boundaries of the CDCA Plan, which is the applicable Resource Management Plan (RMP) for the Project site and the surrounding areas. The site bears the CDCA Plan land use classification of "Class L" or limited use. Solar energy facilities are permitted in Class L areas provided NEPA is complied with and the CDCA Plan amendment process is followed. The site also lies within the planning boundaries of the Northern and Eastern Colorado Desert Coordinated Management (NECO) Plan. There are no Wilderness Areas, Areas of Critical Environmental Concern (ACECs), Desert Wildlife Management Areas (DWMAs), or Wildlife Habitat Management Areas (WHMAs) within or adjacent to the solar plant site. There are 1,256 acres of lands with wilderness characteristics within Unit 2 of the Project site.

The privately owned parcels consist of Assessor's Parcel Numbers 812-130-006, 812-130-007-4, and 812-130-008-5. McCoy Solar LLC has made agreements with these private land owners to purchase the private land which would be used as a part of the MSEP.

The proposed gen-tie line, estimated to be approximately 12.5 to 15.5 miles long depending on the route alternative implemented (including approximately 2 miles within the solar plant site boundary), would be parallel to the BSPP gen-tie line for nearly half of the length: the two transmission lines are expected to be between 50 and 100 feet apart (see Figure 2-2). The MSEP gen-tie line is expected to permanently occupy a legal ROW corridor of approximately 140 to 180 acres outside of the MSEP solar plant site boundary. This acreage is based on a distance of 10.5 to 13.5 miles from the solar plant site boundary to the CRS with an average width of 100 feet (50 feet on either side of the line).

The solar plant site also is located approximately 4 miles northwest of the Blythe Airport, which is an active Riverside County airport. At its closest, the proposed gen-tie line would be located approximately 1.5 miles from the airport. The Applicant would submit a "Notice of Proposed Construction and Alteration" (Form 7460) to the Federal Aviation Administration (FAA) consistent with the advance notice requirement contained in FAA regulations.

2.3.1.3 Project Facilities

The MSEP would be constructed in up to two units. Unit 1 is expected to have a 250 MW capacity comprising an estimated 125 complete or equivalent partial 2 MW blocks. Unit 2 would have an up to 500 MW capacity consisting of up to 250 complete or equivalent partial 2 MW blocks. The construction of Unit 1 would include the access road, water treatment system, initial gen-tie line (consisting of the support towers and first circuit), O&M building, parking area, and the first 125 complete or equivalent partial 2 MW blocks. Proposed facilities on private and County-owned land would be limited to solar arrays and inverters, and a portion of the access road, gen-tie line, distribution line, and telecommunication line. Of the total Project, approximately 50 MW is expected to be developed on the private land as shown in Figure 2-3.

Unit 1 would be arranged on the eastern side of the solar plant site; Unit 2 would be located west of Unit 1 within the solar plant site. Linear facilities extending out of the solar plant site would include the main access road, gen-tie line, switchyard, telecommunication lines, and distribution line. The approximate disturbance acreage associated with each proposed land use is provided in Table 2-1. The acreages in Table 2-1 are based on a thin film cadmium telluride (CdTe) PV panel using a single-axis tracker (see Figure 2-3).

The design and operation of proposed facilities are described in detail below. The proposed overall site layout is shown in Figure 2-3.

2.3.1.3.1 Solar Panel Arrays and Support Structures

The MSEP would convert sunlight into direct current (DC) electrical energy within PV modules (also referred to as "panels"). PV modules can be mounted together in different configurations (also referred to "arrays") depending on the equipment selected. MSEP arrays primarily would be organized into 2 MW blocks, with some additional arrays configured in 1 MW or 0.5 MW blocks to utilize land space efficiently. Although the acreage of each block would depend on the technology, spacing, mounting equipment, and other design criteria subject to change in detailed engineering, each block is expected to cover approximately 15 acres. Unit 1 would cover approximately 2,194 acres; Unit 2 would cover the remainder of the approximately 4,792-acre solar plant site. Each block would consist of PV modules and a power conversion station (PCS) that includes inverters and transformers to convert the DC electricity to alternating current (AC) electricity for transmission across the grid. Figure 2-4 shows an example of a PV array, and Figure 2-5 depicts a typical block configuration using thin film (CdTe) panels on tracking units.

The arrays and PCS would be accessible by two access corridors, one in a north-south direction every third block (approximately 3,000 feet) of nominal 24 foot width and the other in an east-west alignment passing every PCS unit of nominal 16 foot width. These access corridors would consist of unpaved compacted road base and would be used only as necessary during operation and maintenance activities.

The blocks of solar arrays proposed by the MSEP would be configured in two solar fields, i.e., Unit 1 and Unit 2. Unit 1 would produce 250 MW. Unit 2 would produce between 250 and 500 MW, for a potential combined total of up to 750 MW. Solar energy technologies are continuing to advance at a rapid rate, and the Applicant is continuing to evaluate the evolving benefits of various options at this time. Each option is described below, and the associated impacts are evaluated in this PA/EIS. In this way, the best information available during final design can inform decisions about the exact technology, arrangement and nature of the PV system to be used for the MSEP.

Different materials display different energy generation efficiencies; higher efficiency panels produce more electricity per given area, but generally cost more per panel area. Materials commonly used for PV solar cells include monocrystalline silicon, polycrystalline silicon, amorphous silicon, cadmium telluride, and copper indium selenide/sulfide. Several of the PV cells currently available are manufactured from bulk materials that are cut into very thin wafers,

TABLE 2-1
ESTIMATED LAND DISTURBANCE ACREAGE FOR THE MCCOY SOLAR ENERGY PROJECT

Solar Plant Site	**Unit 1 (Ac)[a]**	**Unit 2 (Ac)[a]**
Solar Field (includes all acreage within the solar plant site covered by the solar panels and trackers, the inverter pad areas, the maintenance roads between the solar arrays, any engineered drainage features and the gen-tie line area within the solar plant)	2,142.0	2,006.0
Perimeter / Fence Maintenance Road (assumes 24 ft wide, approximately 22 miles)	17.6	43.4
On-site Substations	2.8	2.8
Shared Water Treatment Area	3.0	0
Shared O&M Building (approximately 3,000 square ft) and Parking Area (approximately 10,000 square ft)	0.3	0
Main Access Road within solar plant site boundary (assumes improved, 24 ft wide with 3 ft shoulders, approximately 2.6 miles)	4.6	4.8
Unit Subtotal for Solar Plant Site Permanent Disturbed Acreage	***2,170.3***	***2,057.0***
Total On-site Permanent Disturbed Acreage	**4,227.3**	
Temporary Laydown Area, Unit 1/Unit 2 (converted to permanent solar field area at end of construction)[b]	15[b]	13[b]
Area in and around natural drainages that will remain ungraded	24.0	541.0[c]
Subtotal for Acreage within Solar Plant Site Fence	***2,194.3***	***2,598.0***
Total Acreage Within Solar Plant Site Fence	**4,792.3**	
Linear Facilities Outside Solar Plant Site Boundary	**Permanent (Ac)**	**Temporary (Ac)**
Main Access Road outside of the solar plant site boundary (assumes improved, 24 ft wide road with 3 ft shoulders, 50 ft wide temporary disturbance, approximately 5.5 miles, not including already disturbed access road)[d]	20.0	13.3
Gen-tie Support Poles (assumes 57 monopoles and 52 H-frame poles to be spaced about 800 ft apart, each foundation requiring 50 ft by 50 ft temporary disturbance and 12 ft by 12 ft permanent disturbance)[e]	0.5	8.7
Gen-tie line Maintenance Road (assumes 24 ft wide with 3 ft shoulders, 50 ft wide temporary disturbance, approximately 7.75 miles (approximately 5.5 miles access is provided by the Main Access Road), assumes the BSPP gen-tie line access road would be shared along the length of the MSEP gen-tie line that parallels the BSPP gen-tie line)[d]	28.2	18.8
Gen-tie line Spur Roads (assumes 15 ft wide permanent disturbance, 50 ft wide temporary disturbance, 26 spur roads 220 ft long near airport, 24 spur roads 100 ft long near CRS, no spur roads assumed along main access road north of the BSPP gen-tie line crossing)	2.8	6.5
Gen-tie line Construction Laydown/Assembly Areas	0	3
String Pulling Sites (assumes 54 pulling sites 100 ft by 300 ft, not including pole disturbances listed previously)	0	34.5
Switchyard adjacent to CRS	2	0
Telecommunications Lines	0	0
Distribution Line Poles (assumes 135 poles to be spaced about 150 ft apart, each requiring 25 ft by 25 ft temporary disturbance and 3 ft by 3 ft permanent disturbance)	0.0	1.9
Distribution Line Spur Roads (assumes 135 spur roads corresponding to every pole, 12 ft wide and approximately 50 ft long)e	1.9	0

TABLE 2-1 (Continued)
ESTIMATED LAND DISTURBANCE ACREAGE FOR THE MCCOY SOLAR ENERGY PROJECT

Linear Facilities Outside Solar Plant Site Boundary (cont.)	Permanent (Ac)	Temporary (Ac)
Distribution Line Maintenance Road (assumes 24 ft wide with 3 ft shoulders, 1.0 miles (approximately 3 miles access is provided by the Main Access Road)	3.6	0
Subtotal for Linear Facilities Outside of Solar Plant Site Disturbed Acreage	***59***	***87***
Total for Linear Facilities Outside of Solar Plant Site	**146**	
Total Solar Plant Site and Linear Facility Permanent Disturbed Acreage	**4,286**	
Total Solar Plant Site (Within Fence) and Linear Facilities Acreage (Temporary and Permanent)	**4,938**	

NOTES:

[a] These acreages are based on the thin film tracking configuration as shown in **Figure 2-3**.

[b] These acreages are not included in totals because area is within land that would be affected by other solar plant site facilities.

[c] The 541 acres in and around drainages within Unit 2 would remain undisturbed. The Applicant intends to exclude all or a portion of these 541 acres within the solar plant site as a result of final engineering; however, because this area currently is shown within the fence of Unit 2, it is considered permanently disturbed for purposes of Chapter 4's analysis of impacts to biological resources.

[d] Disturbance may be accounted for in disturbance road acreage of other projects and may be removed at a later date.

[e] The temporary disturbance for gen-tie line and distribution line poles does not include the permanent disturbance or the portion of the spur road that would be coincident with the pole construction area.

SOURCES: McCoy Solar LLC 2011a

i.e., between 180 to 240 micrometers thick. Others are constructed from thin-film layers. The Applicant is considering the installation of both polycrystalline and cadmium telluride solar cells. Both technologies are proven and viable for utility-scale PV plants. Characteristics of typical panels are given in Table 2-2.

Solar Panels

The system would incorporate high-efficiency commercially available solar PV panels that are Underwriters Laboratory (UL)-listed or approved by another nationally recognized testing laboratory. By design, the solar PV panels would absorb sunlight to maximize electrical output and use anti-reflective glass. Due to the limited rotation angles, the solar PV panels have no potential for reflecting the sun's rays upon any ground-based observer off-site. These panels would be protected from impact by tempered glass, and would have factory applied ultraviolet (UV) and weather-resistant "quick connect" wire connectors.

A CdTe solar panel uses solar cells constructed in a thin semiconductor layer (also known as a "thin film") to absorb and convert sunlight into electricity. The Applicant is considering the use of thin film CdTe panels as one of its technology options. If thin film CdTe panels are used, the Applicant would ensure that the vendor offers a PV module recycling program through which any module may be returned for recycling.

Silicon is the traditional material choice for PV solar cells, and the Applicant is considering polycrystalline silicon PV modules for use at the MSEP.

TABLE 2-2
TYPICAL PV PANEL CHARACTERISTICS

Typical Panel Physical and Electrical Characteristics	Thin Film (CdTe) (First Solar FS Series 3)	Polycrystalline (Yingli Solar YGE 280 Series)
Length	1.2 m	1.9 m
Width	0.6 m	0.99 m
Weight	12 kg	26.8 kg
Cell Type	CdS/CdTe semiconductor, 154 active cells	72 multicrystalline
Frame Material	None	Anodized aluminum alloy, silver, clear
Cover Type	3.2 mm heat strengthened front glass laminated to 3.2mm tempered black glass	Low-iron tempered glass
Nominal Power	85 W	290 W
Efficiency	~12%	~15%
Voltage at Pmax	48.5 V	35.8 V
Current at Pmax	1.76 A	8.10 A
Open Circuit Voltage	61.0 V	45.3 V
Short Circuit Current	1.98 A	8.62 A
Maximum System Voltage	1000 V DC	1000 V DC
Temperature Coefficient of Pmpp	-0.25%/°C	-0.45%/°C

SOURCE: McCoy Solar LLC, 2011a

Support and Mounting Structures

The Applicant plans to use either a single-axis tracking system or a fixed tilt ground mount for the structures that support the PV modules. Figure 2-4 shows examples of a PV single-axis tracker and a fixed tilt ground mount.

Either of two types of single-axis tracker systems could be selected for the MSEP. Tracker Option 1 is a "ganged system" that would use one motor to control multiple rows of PV modules through a series of mechanical linkages and gearboxes. By comparison, Tracker Option 2, a stand-alone tracker system, would use a single motor and gearbox for each row of PV modules. A single-axis tracking system optimizes production by rotating the panels to follow the path of the sun throughout the day. The central axis of the tracking structure is oriented north to south and is constructed to rotate the panels east to west while limiting self shading between rows. Each tracker holds 30 to 50 PV modules mounted on a metal framework structure. The steel structure would be able to withstand high-wind conditions (up to 90 miles per hour (mph)), site-specific wind gust and aerodynamic pressure effects, and seismic events.

The drive unit typically consists of a bi-directional AC motor or a hydraulic system utilizing biodegradable fluid. The drive unit would be connected to an industrial-grade variable-frequency drive that translates commands from the control computer.

The tracker controller is a self-contained industrial-grade control computer that would incorporate all of the software needed to operate the system. The controller would include a liquid crystal display monitor that displays a combination of calibration parameters and status values, providing field personnel with a user-friendly configuration and diagnostic interface. The monitor would enable field adjustment, calibration, and testing.

A fixed-tilt ground mount system, also being considered by the Applicant, orients the panels in a permanent "fixed" position towards the south at approximately 30 degrees to optimize production throughout the year without any mechanical movement. These racks are simple, open "table" constructions manufactured into a metal framework.

Both trackers and fixed-tilt mounting systems are supported by steel posts spaced at no less than 10 feet apart and installed in a variety of ways. The most prevalent foundation design uses pile driven posts inserted into the ground to a typical depth of 4 to 7 feet below grade. Other foundation options include, but are not limited to, screw piles, grouted steel piles, and concrete foundations. The choice of foundation design is dependent on geotechnical information about the soil and the mounting structural design. Once mounted on a foundation, the bottom of each solar module array would be approximately 1.5 to 2 feet above ground at a minimum, while the top would be at approximately 6 to 10 feet above grade at a maximum. As the solar modules move throughout the day for the tracking option, these heights would vary slightly during the course of a typical day.

The spacing between the rows of tracking units or fixed mounts is dependent on site-specific features and would be identified in the final design. The configuration in Figure 2-5 shows the spacing at approximately 34 feet between rows (post to post), which allows at least 20 feet of clearance for maintenance vehicles and panel access.

2.3.1.3.2 Solar Field DC Distribution and Power Conversion

DC Distribution

The PV modules would be electrically connected in series by wire harnesses that conduct DC electricity to combiner boxes. Each combiner box would collect power from several rows of modules and feed a PCS via cables placed in covered underground trenches (or within above ground cable trays or conduits in limited circumstances where underground trenching is determined not to be practical) as detailed in Figure 2-5. The DC trenches would be approximately 3 feet deep and from 1.5 to 2.5 feet wide. The bottom of each trench would be filled with clean fill surrounding the DC cables and the remainder of the trench would be back-filled with native soil and compacted to 90 percent (95 percent when crossing under roadways). Power screeners could be used on site for a limited period of time (less than 1 year) to extract the required clean fill from native soils for use as bedding material in the trenches. A power screener is a motorized piece of equipment that uses moving screens to filter soils to a particular granularity. Use of this equipment is assumed in the air quality analysis (see Section 4.2, *Air Quality*).

Each PCS comprises an inverter package consisting of multiple inverters connected to adjacent transformers. An overhead shade would cover the inverters or a common equipment enclosure would include multiple inverters. The individual inverter packages would be approximately 7 feet tall, and the transformer exterior to the enclosure would be approximately 6.5 feet tall as shown in Figure 2-6. The overhead shade would be 10 to 12 feet tall. The equipment enclosure, if utilized, would be up to approximately 35 feet long by 10 feet wide by 10 feet tall. In the PCS, the inverters would change the DC output from the combiner boxes to AC electricity. Integrated with the inverter, a data acquisition system (DAS) would utilize a data logger and sensors to record AC power output. Other integrated components would include equipment to record weather conditions, including ambient temperature measured in degrees Celsius (°C), incoming solar radiation measured in watts per square meter (W/m^2), and wind speed measured in meters per second (m/s). The DAS would enable system data transfer and performance monitoring via the proposed O&M facility.

The resulting AC current from each individual inverter would be routed through underground AC cables (or within above ground conduits in limited circumstances where underground trenching is determined not to be practical) to an oil-filled, medium voltage, step-up transformer positioned within secondary containment. Based on preliminary design, the 265 volt output from an inverter would be stepped up (increased) to the desired substation feed voltage of 34.5 kV by the transformer. The medium-voltage transformer would be placed on a pre-cast concrete pad delivered by flatbed truck during construction. The medium voltage collection circuits would be installed underground to the Unit 1 and Unit 2 substations in trenches that would be approximately 3 feet deep with pole-mounted above-ground circuits possible on the final "home runs" to the substations. The medium voltage cabling would create multiple collection circuits that would carry the electricity from the solar field to the unit's substation.

AC Collection

Multiple PCS blocks (approximately 10 MW total) would form a lateral configuration and transmit the AC power at 34.5 kV via aboveground double circuit monopoles or underground lines in covered trenches (or within above ground conduits in limited circumstances where underground trenching is determined not to be practical). Approximately three laterals would be combined into an aboveground or underground feeder line (24 to 26 MW) that would transmit the AC power to the Power Distribution Center (PDC) at each substation. As applicable, AC trenches would be approximately 3 feet deep and from 8 inches to 6.5 feet wide and also would be used to house fiber optic cables for communication. The bottoms of the trenches would be filled with sand surrounding the fiber optic cables, and the remainder of the trench would be back-filled with native soil and compacted.

Each of the two Units would have a substation that combines all the AC power from the feeders within the respective Unit. An elevation view of the substation is shown in Figure 2-8. Each substation facility would be located in an approximately 7-acre fenced area as shown in Figure 2-7. Access to each substation would be provided by the main 24-foot-wide paved access road from the improved and extended BSPP access road.

Each substation would consist of parallel sets of internal power distribution systems, including 34.5 kV buses and circuit breakers, disconnect switches, and main step-up transformers. Shield wires and lightning arrestors would be included to protect the substation equipment and personnel against lightning strikes.

2.3.1.3.3 Generation Transmission Line

In the substation of each Unit, the voltage would be stepped up to 230 kV to match the voltage of the gen-tie line that would interconnect Project generation output with the CRS. The gen-tie line generally would use a single set of support towers and a separate circuit for each Unit, resulting in a total of up to two transmission circuits from the MSEP to the CRS. The Unit 1 circuit would connect to the electrical grid via a 230 kV switchyard located near SCE's CRS, where the power for that circuit would be merged (as required by the Applicant's Interconnection Agreement with SCE) with the power from the Genesis Solar Energy Project (GSEP) before being connected to the CRS.

As part of the construction for Unit 2, if constructed, the second circuit would be added to the then existing MSEP gen-tie structures or on new structures in height restricted areas, and follow the same gen-tie line corridor from the Project's Unit 1 substation to the CRS. The circuit from Unit 2 would be routed directly to the CRS rather than through the MSEP/GSEP switchyard.

The MSEP gen-tie line route would extend south from the solar plant site along the eastern and south-eastern border of the BSPP site as proposed, or if a different route alternative is selected, either through the center of the BSPP site or along the western border of the BSPP site before turning south to cross the I-10 and west toward the CRS south of I-10 as shown on Figure 2-2. The MSEP gen-tie line route is estimated to be approximately 12.5 to 15.5 miles long, including 2 miles within the solar plant site boundary.

The first half of the route exiting the MSEP would consist of all transmission lines strung on a single pole. The gen-tie monopole structures would be designed for double circuit use, with the first circuit (from Unit 1) being strung during the gen-tie line construction. As the gen-tie line nears the Blythe Airport and an FAA navigation beacon south of I-10, the two circuits could be carried on H-frame structures or on individual monopoles, as necessary, to maintain height requirements. The gen-tie support towers would be approximately 70 to 145 feet tall, depending on the location and local terrain, with final heights determined during detailed design. Typical double-circuit 230 kV monopoles designed with a vertical string configuration are shown in Figure 2-8. The final transmission tower design including tangent, angle, dead end, and pull-off structures and associated hardware would be determined during the final engineering of the proposed interconnection. The towers would be reinforced as necessary to withstand design loads.

Typical spacing between monopole or H-frame structures would be approximately 800 to 1,000 feet along the route. Concrete or self-weathering steel would be used for the poles and/or H-frames. Self-weathering steel is composed of a special alloy that forms a protective coating over time and inhibits corrosion. The finish appears as a matte patina and commonly is used in areas where a shiny appearance would be undesirable. All towers and poles would be designed to

be avian-safe in accordance with the *Suggested Practices for Avian Protection on Power Lines: the State of the Art in 2006* (APLIC, 2006). The transmission lines would be insulated from the poles using porcelain insulators engineered for safe and reliable operation. Shield wires would be included along the length of the transmission lines to protect against lightning strikes.

Based on the Project requirements, access, terrain, and available geotechnical information, it is expected that direct embedded foundations would be used for tangent structures and anchor bolted, drilled shaft foundations for angle and dead-end structures. Vibrated casing foundations also may be used, depending on the results of planned further geotechnical investigation. A geotechnical investigation for the gen-tie line route would be completed before final design and construction of the Project.

2.3.1.3.4 Plant Communications and Proposed Telecommunication Lines (Fiber Optic Cable)

A Supervisory Control and Data Acquisition (SCADA) system would be included for remote control and monitoring of inverters, trackers, and other equipment within the MSEP.

New telecommunications lines would connect the MSEP substations with the electrical grid through the CRS. As required for connection and interaction with the electrical grid, two independent telecommunication lines would be provided. The primary telecommunication line would be hung at the top of the gen-tie support structures (i.e., towers) during the gen-tie line construction for Unit 1. The secondary telecommunication line would be located within the disturbance area of the access or maintenance roads[4] and could be installed during construction of either unit.

2.3.1.3.5 Colorado River Substation Switchyard

The proposed Unit 1 transmission line circuit of the solar plant would tie into the CRS via a switchyard located adjacent to the CRS. This switchyard would consist of three 230kV, 1200A circuit breakers on a low profile ring bus configuration. The switchyard would allow for the Unit 1 gen-tie line to be merged with the GSEP gen-tie line so that the power from both the GSEP and MSEP Unit 1 could enter the CRS as a single circuit in accordance with the Applicant's interconnection agreement with SCE. The line from the switchyard to connect to the CRS would be less than 100 feet long.

The switchyard would occupy an approximately 2-acre fenced area with the southern fence line of the switchyard located approximately 25 feet from the northern fence line of the CRS. Once operational, the switchyard would be accessible only to authorized personnel and contractors. It would contain parallel sets of internal power distribution systems, including buses and circuit breakers that would act as protective relays, disconnect switches, and main step-up transformers. The location of the proposed switchyard is shown on Figure 2-3.

[4] For purposes of the analysis in Chapter 4, all references to the gen-tie line and access road route include potential effects from construction, operation, maintenance and decommissioning of the telecommunication lines.

2.3.1.3.6 Operation and Maintenance Building

The MSEP would include an approximately 3,000-square-foot O&M building located on BLM-administered land on the eastern side of the solar plant site, adjacent to the proposed 24-foot-wide access road and main gate, and shared for services to Units 1 and 2. The building would provide an administration area, a work area for performing minor repairs, and a storage area for spare parts, transformer oil, and other incidental chemicals. The administration area would be air conditioned and include offices, conference rooms, a break room, rest rooms, and locker rooms with showers.

The building would be supported on reinforced concrete mat foundations or individual spread footings as determined during detailed design. Excavation for the footings would be approximately 2 feet deep. Excavation within the perimeter of the building would be approximately 1 foot deep. An aggregate or stone base would be laid after excavation. The floor would consist of a 6-inch reinforced concrete slab. Concrete for this slab would come from Blythe. A typical O&M building plan is shown in Figure 2-7 and an elevation view in Figure 2-8.

The O&M building would be a pre-engineered metal building approximately 17 feet high at its peak with a neutral-colored metal siding and roof to minimize visual impact. The building's maintenance area would include roll-up doors to provide equipment access as well as personnel access doors.

The proposed SCE distribution line would provide electrical service to the O&M building. Telecommunications would be provided by a new fiber optic line constructed at the same time as the distribution line. Sanitary waste would be disposed through the septic system described in Section 2.3.1.4.10.

An approximately 10,000-square-foot parking area would be provided at the O&M building. The location of the proposed O&M building and parking area is shown on Figure 2-7.

2.3.1.3.7 Other Site Improvements

Weather Station

One or more permanent meteorological stations would be installed at the solar plant site to track weather patterns. Figure 2-9 depicts a typical meteorological station. The meteorological station(s) would be attached to the DAS to collect data for analysis and system monitoring.

Temporary Laydown Area

An approximately 15-acre temporary laydown area (approximately 970 feet by 685 feet) would be located within the footprint of Unit 1 to support the construction of Unit 1. This area would accommodate 15 to 20 office trailers connected to power through a temporary on-site generator or the proposed SCE distribution line for contractor accommodations during construction. The laydown area would be used for the storage of construction tools and equipment, materials such as concrete, gravel, wire, cable, and solar field equipment, and would contain a staging area for pre-assembly of the solar field components. The laydown area also would contain construction worker parking and ample space for vehicle turn-around.

The Unit 2 temporary laydown area would be located east of Unit 1 most likely near the Unit 2 substation location. Access would be through the Unit 2 substation area from the 50-foot wide corridor with 24-foot-wide paved road that connects the two site substations. This laydown area would occupy approximately 13 acres (1,000 feet by 650 feet) and would contain the same types of trailers, equipment storage, parking, and staging areas as the Unit 1 laydown area. It is anticipated that the Unit 2 laydown area would require less space than the Unit 1 laydown area because there would be no need to construct an additional operations area. Construction power for the Unit 2 laydown would be provided by local distribution power or a temporary portable generator.

Temporary bollards would control access to a 50-foot by 100-foot area. These would consist of vertical poles embedded in the ground around the area and back-filled with native soil. The estimated depth of ground disturbance for pole embedment is up to 15 feet deep by up to a 42-inch diameter.

Gen-tie Line Temporary Laydown Area

One additional approximately 3-acre laydown area would be required for construction of the gen-tie line. An already disturbed area (e.g., gen-tie line maintenance or spur road) would be used for this purpose, the location of which would be determined at the onset of the gen-tie line construction.

Construction materials such as concrete, wire and cable, fuels, and small tools, and consumables would be delivered to the gen-tie line laydown area by truck. The laydown area also would contain construction worker parking, a staging area, and mobile/modular trailers or similar suitable facilities for construction contractor offices.

Access Roads

Access roads would be developed for ingress and egress, and between the solar array rows to facilitate installation, maintenance, and cleaning of the solar panels. Locations of the proposed access roads are shown in the site plan (Figure 2-3). During decommissioning of the facility, the same access roads would be used to remove facility components.

Main Access Road. Primary solar plant site access would be provided via Mesa Drive. From the Airport exit off I-10, construction workers, other personnel, and visitors would proceed west on Black Rock Road to the existing BSPP unimproved access road. The Applicant would improve this access road, extend it from its current terminus to the MSEP solar plant site, maintain it for the life of the Project and ultimately decommission it. As improved, the access road would be 30 feet wide, consisting of a 24-foot-wide, two-lane paved area with an unpaved 3-foot-wide shoulder on each side. The asphalt concrete surface would overlie Class 2 aggregate base and compacted subgrade, and would be designed to meet the Riverside County Fire Department (RCFD) requirements. Solar plant site access would be controlled as described below under Fencing and Site Security.

Internal Access Roads. Within the solar plant site, a 24-foot-wide paved road would lead from the front gate to the temporary lay-down area, O&M building, Unit 1 substation, and water treatment area. If Unit 2 is constructed, another 24-foot-wide paved road would occupy a 50-foot-wide corridor between the Unit 1 and Unit 2 substation areas.

An approximately 24-foot-wide gravel perimeter road would be constructed within the perimeter fence line. This road would provide access primarily for security inspections and fence maintenance.

In addition, 24-foot and 16-foot-wide internal roads would provide access to and among the solar panel arrays. This road surface would be scarified, moisture-conditioned, bedded with crushed aggregate and compacted. Parking would be available at points along these internal roads and at the PCS locations as shown in Figure 2-6.

Approximately 50 spur roads, connecting the access road to the transmission line, each 15 feet wide and approximately 50 to 250 feet long, would be constructed.

Fencing and Site Security

For public safety and site security, the Applicant would fence the site and control access via gates located at the entrances to the facility. The main site gate would be either a motor-operated swing or rolling-type security access gate, and would be monitored through a security camera, swipe card, or other mechanism that would control and monitor access. Access through the main gate would be controlled during construction and operation of the MSEP to prevent unauthorized access to the solar plant site. All facility personnel, contractors, and visitors would be logged in and out of the facility through the main gate. A secondary access gate, similar in construction to the main gate, would be used for emergency purposes only. A Fire Department Knox Box or other access device and emergency contact placard would be provided at the main gate and secondary access gate to provide emergency access.

Fencing would be installed around the solar plant site perimeter, substations, and around the evaporation pond described in Section 2.3.1.4.10 as part of the biological clearance survey process. During the construction and initial synchronization of Unit 1 to the CRS, the perimeter fence for the solar plant site would be placed around the Unit 1 solar field area. If Unit 2 is constructed, before the biological clearance surveys for Unit 2 are initiated, the security fence would be constructed around the entire site and the fence along the western boundary portion of the Unit 1 solar field would be removed. Security fencing would be chain-link, approximately 8 feet tall, with 3-strand barbed wire. Some modifications would be needed in areas of stormwater inflow and outflow from the solar field to allow for high flow events. The security fencing would be constructed at least 12 feet inside the solar plant site boundary to allow room for on-foot fence maintenance on the outside of the fence if necessary. Fencing would be designed to resist all wind or other loads imposed on the fence. Posts would be spaced a maximum of 10 feet apart. Tortoise fencing would be installed 1 foot below the ground surface and 2 feet above ground surface, using a fencing type recommended by USFWS.

Along the western boundary of Unit 2, the site plan shows approximately 541 acres in and around natural drainages located within the fence. This area would remain undisturbed. If Unit 2 is constructed, upon final design, the Applicant would wrap the fence more closely around the western-most PV panels such that all or a portion of these 541 acres would remain outside the Unit 2 fence line.

Drainage Improvements

The topography of the solar plant site is relatively flat: the natural slope within the solar plant site is approximately 1 percent or less. The majority of the site has an elevation between approximately 480 and 800 feet above mean sea level (amsl). Based on existing hydrology, stormwater drainage for the solar plant site would be designed to maintain predevelopment hydraulic conditions in the natural watercourses and to minimize the generation of non-point source pollutants. The concept employed for the design and layout of the solar arrays is to minimize the placement of the arrays in large, established channels (to the extent practical) and to utilize equipment and protective measures that would allow existing drainage patterns to be maintained where possible.

On-site runoff at the proposed solar field follows natural grade to the southeast. Minimal grading is proposed within the solar field to maintain anticipated on-site runoff and infiltration close to the existing conditions. Although not anticipated, if larger areas require grading, a disc and roll technique, which uses farm tractors to till the soil over and then roll it level, would be used. Electrical components within the solar arrays, such as inverters, would be placed outside of main drainage channels and weather- or water-proofed to the extent required.

Lighting

During construction, lighting would be strategically located for safety and security in the construction trailer staging area, parking area, and around site security facilities. Lighting would be located on temporary service poles approximately 18 feet high. Power for the lights would be provided by the proposed distribution line or construction office trailer generator. Lighting is not planned for construction activities; however, if required, it would be limited to the locations and amounts 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 operation and maintenance, lighting would be provided at the O&M building, Unit 1 and Unit 2 substations, site entrance, and switchyard. Exterior security lighting would be installed to provide for safe access to Project facilities as well as visual surveillance. Some portable lighting also could be required for maintenance activities that must be performed at night. All lighting would be kept to the minimum required for safety and security; sensors, motion detectors, and switches would be used to keep lighting turned off when not required, and all lights would be hooded and directed to minimize backscatter and off-site light.

During site closure and decommissioning, safety and security lighting would be provided using a combination of the installed lighting system and portable lighting if required. As with the other Project phases, lighting would be focused downward, shielded, and directed so as to minimize light exposure to areas outside the work area.

2.3.1.3.8 Distribution Power Line

During construction, electricity service to the solar plant site and the construction trailers would be required for lighting, air conditioning or space heating, water heating, and to power small appliances, temporary site lighting, and machinery operation. Power during the construction

period, estimated at a peak demand of 10,000 kilowatt hours (kWh) per year, would be supplied by extending a distribution line from the east as shown in Figure 2-2. The new distribution line would be constructed, operated, maintained, and decommissioned by SCE. It would be approximately 20,000 feet long, 2000 kilovolt-amperes, and strung on wooden poles approximately 50 feet high and approximately 150 feet apart, ending at a 12 kV metering pole at the site boundary. A total of 130 to 140 poles would be required for the distribution line.

During operation and maintenance of the Project, this distribution power circuit also could provide a backup power supply for the low voltage tracker motors, various monitoring instruments, computer, access gates, and other low voltage equipment. It would be decommissioned as described in Section 2.6.2.

2.3.1.3.9 Water Supply and Usage

Water Supply and Use

No water service is available at the proposed site. Groundwater in the area is contained within the Palo Verde Mesa Groundwater Basin (PVMGB) of the Colorado River Hydrologic Region.

The Applicant does not propose to extend municipal water or sewer service to the Project site. Water in sufficient quantity and quality to serve Project needs is expected to be available from two or three primary wells and a sufficient number of back-up wells, which would be used in the event the primary wells are shut down for maintenance. All wells would be constructed and operated within the solar plant site at the eastern end of Unit 1; the precise location of the well field would be defined during the detailed design. If possible, one of the wells would be located near the proposed water treatment system area. As currently planned, the wells would pump groundwater from the PVMGB, where the water table has been measured at or near 254 feet amsl.

Well permits would be obtained from the Riverside County Department of Public Health, Environmental Health Services, Safe Drinking Water Permit Section. Wells would be constructed using the minimum standards for construction, reconstruction, abandonments and destruction of all wells per Riverside County Ordinance No. 682: Construction, Reconstruction, Abandonment and Destruction of Wells. Wells would be spaced to minimize water level drawdown and groundwater level monitoring would ensure compliance and provide data for long term groundwater trends identification. Permits would be issued after compliance with the applicable standards. Plans would be submitted to the Department demonstrating compliance with such standards.

Water from the proposed wells would be tested for and meet the domestic water quality and monitoring standards for constituents as required by the California Code of Regulations (22 Cal. Code Regs. §64400.80 et seq.). Regulated wells must be sampled for bacteriological quality once a month and the results submitted to the California Department of Health Services (DHS). The wells also must be monitored for inorganic chemicals once and organic chemicals quarterly during the year designated by the DHS. DHS would designate the year based on historical monitoring frequency and laboratory capacity. The Applicant would sample and conduct groundwater quality monitoring consistent with the Waste Discharge Requirements issued for the MSEP by the Colorado River Regional Water Quality Control Board (RWQCB).

If any on-site wells are determined not to be needed for groundwater production or monitoring purposes, or upon Project closure, the well would be decommissioned and filled under permit from and in accordance with County of Riverside Health Department requirements. The well concrete pads and stickups would be removed to a depth of approximately 5 feet below grade and the ground surface would be restored to its previous contours.

Construction-related Water Needs

Construction-related water use would support site preparation (including operation of a portable batch plant, if needed) and grading activities. During earthwork for the grading of access roads, foundations, equipment pads, and other components, the primary uses of water would be for compaction and dust control. Smaller quantities would be required for preparation of the concrete required for building foundations and other minor uses. Subsequent to the earthwork activities, the primary water use would be for dust suppression. Based on similar projects, the Applicant estimates that the average water usage rate during construction would be approximately 180 to 200 gallons per minute. The total water usage during construction of Unit 1 is estimated to be approximately 450 acre-feet (AF), based on similar projects. The water demand associated with the construction of Unit 2 would be reduced relative to Unit 1, because elements common to the units would have been installed as part of Unit 1. The total water usage during construction of Unit 2 is estimated to be approximately 200 to 300 AF.

Drinking (potable) water would be supplied for construction workers on-site, and is estimated to be approximately 10,000 gallons per month (approximately 0.5 acre-foot per year (AFY)), varying seasonally and by work activities. The potable water could be brought to the solar plant site by tanker truck, or groundwater could be used with a package water treatment system to treat the water to meet potable standards.

Operation and Maintenance-related Water Needs

Water quality is expected to be unsuitable for potable use without treatment, with between 730 and 3,100 milligrams per liter of total dissolved solids (AECOM, 2011). Consequently, the Applicant is considering either options for treatment of groundwater or the importation of trucked potable water to meet the Project's potable water requirements for operation and maintenance. If the groundwater option is selected, water would be treated with a conventional package water treatment system to assure that any drinking water meets potable standards. Either a reverse osmosis/electrodeionization (EDI) system or a deep bed demineralizer system would be used for other (non-drinking water) purposes. The water treatment system design has not been developed, but could include either a trailer-mounted water treatment system or a free-standing facility. The water treatment system would supply water for the MSEP for the purposes and in the amounts indicated in Table 2-3.

A trailer-mounted water treatment system is a totally enclosed, self-contained, containerized water treatment system. This system would include filters and demineralizer vessels. These systems typically are leased with a service contract, contain all the necessary supplies for operation, and are taken off-site for the regular regeneration and periodic maintenance that is required. No wastewater discharge is expected.

TABLE 2-3
OPERATION AND MAINTENANCE-RELATED WATER USE

Water Use		PV Module Cleaning, Dust Control (1)		Potable water (2)	
Solar Field Unit		Unit 1	Unit 2	Unit 1	Unit 2
Annualized Average	Rate (gpd)	13,400 – 19,600	13,400	275	0
Estimated Peak	Rate (gpd)	67,000 – 99,000	67,000 – 99,000	460 – 900	0
Estimated Annual	Use (AF)	15-22	15-22	1	0

SOURCE: McCoy Solar LLC, 2011a

The water treatment area would be constructed on BLM-administered land on the eastern side of the solar plant site, just northwest of the privately owned parcels. It would be a roughly square area up to a maximum of 3 acres. The water treatment area would contain the water treatment system and water storage area. A free-standing water treatment facility would contain different equipment from the trailer-mounted system, and be based predominately on reverse osmosis treatment. It would be constructed on site in an enclosure for permanent use. The enclosure would be a pre-fabricated steel building on a concrete foundation with a maximum height of 17 feet. Water treatment equipment would include pumps, filters, biocide or ozone injection, and a reverse osmosis/EDI system. The water treatment facility would house the filter replacements and tools needed for periodic maintenance of the system. Wastewater discharge would be non-hazardous, have a maximum quantity of up to 42 gallons per minute (gpm), and be produced primarily from the reverse osmosis reject. One or more on-site netted evaporation ponds (up to 8 acres total) would be required for disposal of the wastewater and would be constructed, operated and maintained, and ultimately removed from the water treatment area within the solar plant site boundary. The location of the proposed water treatment area is shown on Figure 2-3.

There would be three tanks on site for the storage of the raw fire water, potable water, and demineralized water for the MSEP. The raw water tank storage capacity also would provide the fire supply. This tank would measure approximately 9.25 feet in diameter and 20 feet high, and would hold up to 15,000 gallons. It would be constructed of bolted or welded steel and painted with a non-reflective coating to blend with the surrounding environment. The potable water tank would be of similar construction with a maximum volume of 5,000 gallons, diameter of 9 feet, and height of 10 feet. The 60,000-gallon demineralized water tank would store water to be used for panel washing. It would be stainless steel and painted with a non-reflective coating, approximately 26 feet in diameter and 16 feet high.

The panels would be cleaned on an as-needed basis, depending on the frequency of rainfall, proximity of arrays to airborne particulates and other factors. The analysis in this document assumes that panel washing would occur in the fall and spring and take approximately 35 days to complete per Unit per wash. Panel washing for both Units could take a total of 140 to 145 days per year to complete. Approximately 67,000 to 99,000 gallons per day (gpd) per unit, which

equates to approximately 9.8 to 14.4 million gallons per year or between 30 and 44 AFY for the entire Project, would be required to wash the panels.

Based on the anticipated uses (including drinking water, showers, restroom facilities, panel washing, dust suppression, and 3,000-gallon dedicated fire supply, among other uses), the estimated quantity of water needed for operation and maintenance of the MSEP would be approximately 15 to 22 AFY per Unit, plus a total of 1 AFY of potable water. The primary use of water during operation and maintenance-related activities would be for panel washing and dust control (the proposed PV technology requires no water for the generation of electricity).

A BLM-approved dust suppressant would be applied to control dust. Water could be used to supplement the dust suppressant in some areas on a limited basis; the amount of water used depends on the type of suppressant used and the manufacturer's recommendations. The concentrate from a reverse osmosis treatment unit (if required for on-site water treatment) might be used for dust control by blending it with water from the on-site water wells.

An additional approximately 14,000 to 27,000 gallons per month (up to about 0.5-1.0 AFY) of potable water would be required to serve the demand of approximately 20 on-site personnel, varying seasonally and by work activities. Potable water could be brought to the solar plant site by tanker truck, or could be provided by treated on-site groundwater. The solar plant site's internal access roads would not be heavily traveled during normal operations.

Decommissioning and Site Reclamation-related Water and Wastewater Needs

Because conditions can change during the course of a 30- to 40-year project life, a final Decommissioning and Closure Plan would be submitted for BLM and County review and approval based on conditions as found at the time of facility closure. Best management practices would be followed during construction to prevent erosion and sedimentation, non-stormwater discharges, and contact between stormwater and potentially polluting substances. Per the requirements of the Mojave Desert Air Quality Management District (MDAQMD), standard dust control mitigation measures would be implemented to reduce dust particulate emissions during demolition and grading activities. It is anticipated that the decommissioning and site reclamation would be staged in phases, allowing for a minimal amount of disturbance and requiring minimal dust control and water usage. Water usage during decommissioning and site reclamation would not exceed operational water usage.

2.3.1.3.10 Waste and Hazardous Materials Management

Wastewater

Two separate wastewater collection systems would be provided as part of the Project: one for sanitary wastes, and another to address the process wastewater.

The sanitary wastewater system would collect sanitary wastewater at the O&M building. Portable chemical toilets would be provided for workers in the solar fields. The sanitary wastewater from sinks, toilets, showers, other sanitary facilities in the O&M building would be discharged to a

sanitary septic system and on-site leach field. The septic system would be designed and permitted in accordance with state and County regulations.

On-site water treatment would discharge minimal wastewater (up to 42 gpm). Depending on the water quality and the need for on-site regeneration of the water treatment system, up to a total of 8 acres of netted evaporation ponds could be required. If required, the evaporation ponds would be located near the water treatment system within the water treatment area. The analysis in this document assumes that the evaporation ponds would be constructed, operated, maintained, and decommissioned as part of the MSEP.

The average pond depth design could be up to 8 feet and residual precipitated solids would be removed approximately every 8 to 10 years, as needed, to maintain a solids depth no greater than 3 feet for operational and safety purposes. The precipitated solids would be sampled and analyzed to meet the characterization requirements of the receiving disposal facility. The characteristics of the precipitated solids would determine the transportation and disposal methodology. It is anticipated the pond solids and other non-hazardous wastes would be classified as Class II non-hazardous industrial waste. Pond solids would be tested using appropriate test methods in advance of removal from the evaporation ponds to confirm this determination; however, preliminary estimates show the material would be non-hazardous.

If evaporation ponds are needed, a Water Discharge Requirement (WDR) permit would be obtained from the Colorado River RWQCB, which is expected to require the preparation of a Water Quality Monitoring and Response Plan that includes monitoring of the Project pond liner to detect leaks, as well as groundwater monitoring. Groundwater monitoring would be done using existing wells where possible and could include additional monitoring wells as needed to provide adequate monitoring of groundwater quality.

A Final Closure and Post-Closure Maintenance Plan would be submitted to the RWQCB as an amendment to the original evaporation pond permit before undergoing complete final closure of any portion of the evaporation ponds. In the Final Closure and Post-Closure Maintenance Plan, the regulatory requirements applicable at that time would be addressed. After the evaporation pond has been closed, a Certification of Closure would be submitted for approval to the RWQCB to verify these impoundments have been closed in accordance with the approved Final Closure and Post-Closure Maintenance Plan.

The preliminary closure activities for the evaporation ponds may include the following processes:

1. Removal of wastewater;
2. Removal of solids / sludge;
3. Removal of hard surface / protective layer and granular fill;
4. Removal of high density polyethylene (HDPE) liners, drainage layers and leak detection system; and then
5. Site restoration, including soil rehabilitation as necessary.

Confirmation sampling would be conducted on the clay layer of the evaporation pond liner system after the removal of the 40 mil HDPE geomembrane secondary liner. If a geosynthetic clay liner (GCL) is used in the final design, then the native materials below the GCL would be sampled after the removal of the overlying liner systems. Samples would be collected from each of the former pond footprints on 100-foot by 100-foot grid spacing. Laboratory analysis would include California Code of Regulations Title 22 metals, biphenyl, diphenyl oxide, and chloride.

The evaporation ponds would be backfilled with native soil to match the existing surrounding grade and restore drainage function. The berm surrounding each evaporation pond would be the primary backfill material. These materials would be placed at depths exceeding 3 feet below final grade. The upper 6 inches of soil would be decompacted as necessary to prepare the soil for revegetation.

The environmental analysis in this document assumes that the evaporation ponds would be constructed, operated, maintained, and decommissioned as part of the Project.

Solid (Non-Hazardous) Waste

Construction, operation, maintenance, and decommissioning of the MSEP would generate non-hazardous solid wastes typical of power generation or other industrial facilities. Solar plant-related wastes generated during all phases of the Project would include: oily rags, worn or broken metal and machine parts, defective or broken electrical materials, other scrap metal and plastic, insulation material, empty containers, paper, glass, and other miscellaneous solid wastes including the typical refuse generated by workers. These materials would be disposed by means of contracted refuse collection and recycling services. Waste collection and disposal would be in accordance with applicable regulatory requirements to minimize health and safety effects.

Information on universal wastes anticipated to be generated during Project construction is provided in Table 2-4. Universal wastes and unusable materials would be handled, stored, and managed per California Universal Waste requirements.

Operation and maintenance of the Project would generate sanitary wastewater, non-hazardous wastes, and small quantities of hazardous wastes. Operation and maintenance of the Project's linear facilities (e.g., the gen-tie line) would generate minimal quantities of waste. The types of waste and their estimated volumes are summarized in Table 2-5.

Facility construction, operation, maintenance, and decommissioning would generate wastes that require proper management and in some cases off-site disposal. There are seven permitted Class III landfills located in the County within approximately 145 miles of the Project site. There are two major permitted Class I hazardous waste landfills located in California, located approximately 350 and 400 road miles from the site, respectively.

TABLE 2-4
SUMMARY OF CONSTRUCTION WASTE STREAMS AND MANAGEMENT METHODS

Waste Stream and Classification[a]	Origin and Composition	Estimated Amount	Estimated Frequency of Generation	On-site Treatment	Waste Management Method/Off-site Treatment
Construction waste – Hazardous	Empty hazardous material containers	1 cubic yard per week (cy/wk)	Intermittent	None. Accumulate on site for <90 days	Return to vendor or dispose at permitted hazardous waste disposal facility
Construction waste – Hazardous	Solvents, used oil, paint, oily rags	175 gallons	Every 90 days	None. Accumulate on site for <90 days	Recycle or use for energy recovery
Spent batteries - Universal Waste	Lead acid, alkaline type	20 in 2 years	Intermittent	None. Accumulate on site for <90 days	Recycle
Construction waste – Non-hazardous	Scrap wood, concrete, steel, glass, plastic, paper	40 cy/wk	Intermittent	None	Recycle wherever possible, otherwise dispose to Class III landfill
Sanitary waste – Non-hazardous	Portable Chemical Toilets - Sanitary Waste	200 gallons/ day	Periodically pumped to tanker truck by licensed contractors	None	Ship to sanitary wastewater treatment plant
Office waste – Non-hazardous	Paper, aluminum, food	1 cy/wk	Intermittent	None	Recycle or dispose to Class III landfill

NOTE:
[a] Classification under 22 California Code of Regulations (CCR) §66261.20 et seq.

SOURCE: McCoy Solar LLC, 2011a

TABLE 2-5
SUMMARY OF OPERATION WASTE STREAMS AND MANAGEMENT METHODS

Waste Stream and Classification[a]	Origin and Composition	Estimated Amount	Estimated Frequency of Generation	Waste Management Method	
				On site	Off site
Used Hydraulic Fluid, Oils and Grease – Non-RCRA[b] Hazardous	Tracker drives, hydraulic equipment	1000 gallons/year	Intermittent	Accumulated for <90 days	Recycle
Oily rags, oil absorbent, and oil filters – Non-RCRA Hazardous	Various	One 55-gallon drum per month	Intermittent	Accumulated for <90 days	Sent off site for recovery or disposed at Class I landfill
Spent batteries – Universal Waste	Rechargeable and household	<10/month	Continuous	Accumulate for <1 year	Recycle
Spent batteries – Hazardous	Lead acid	20 every 2 years	Intermittent	Accumulated for <90 days	Recycle
Spent fluorescent bulbs – Universal Waste	Facility lighting	< 50 per year	Intermittent	Accumulate for <1 year	Recycle
Sanitary wastewater – Nonhazardous	Toilets, washrooms	250 gallons/day	Continuous	Septic leach field	None

NOTES:
[a] Classification under 22 CCR §66261.20 et seq.
[b] Resource Conservation and Recovery Act

SOURCE: McCoy Solar LLC, 2011a

Hazardous Materials Management

During construction, all hazardous materials would be stored on-site in storage tanks, vessels, or other appropriate containers specifically designed for the characteristics of the materials to be stored. The storage facilities would include secondary containment in case of tank or vessel failure. Construction- and decommissioning-related hazardous materials used for development of the Project would include: gasoline, diesel fuel, oil, lubricants, and small quantities of solvents and paints. Material Safety Data Sheets for all applicable materials present on-site would be readily available to on-site personnel.

Fueling of some construction vehicles would occur in the construction area. Other mobile equipment would return to the laydown area for refueling. Special procedures would be identified to minimize the potential for fuel spills, and spill control kits will be carried on all refueling vehicles for activities such as refueling, vehicle or equipment maintenance procedures, waste removal and tank clean-out. Fuel for construction equipment could be provided by a fuel truck or could be stored on-site in aboveground double-walled storage tanks with built-in containment.

A Spill Prevention and Management Plan (SPMP) would include procedures, methods, and equipment supplied during construction to prevent discharges from reaching waters of the state. The plan would be certified by a Registered Professional Engineer and a complete copy of it would be maintained on-site.

During MSEP operation, a variety of chemicals and hazardous materials would be stored and used at the facility. Chemicals would be stored inside the O&M building as appropriate to prevent exposure to the elements and to reduce the potential for accidental releases, and in appropriate chemical storage containers. Bulk chemicals would be stored in storage tanks; other chemicals would be stored in returnable delivery containers. Chemical storage and chemical feed areas would be designed to contain leaks and spills. Containment berm and drain piping design would accommodate a full-tank capacity spill without overflowing the containment berms. For multiple tanks located within the same bermed area, the capacity of the largest single tank would determine the volume of the bermed area and drain piping. The transport, storage, handling, and use of all chemicals would be conducted in accordance with applicable laws, ordinances, regulations, and standards.

The quantities of hazardous materials stored on-site would be evaluated to identify the required usage and to maintain sufficient inventories to meet use rates without stockpiling excess chemicals. Chemicals that could be present during construction, operation and maintenance of the Project are included in Table 2-6.

If a portable, trailer-mounted water treatment system would meet the MSEP flow and water quality demands described above, then no additional chemicals would be required for maintenance and regeneration of the system. However, if a site-specific water treatment system is used, then the regeneration process could require additional chemicals to maintain its performance. Such chemicals could include sodium hydroxide solution, sodium hypochlorite solution, and/or sulfuric acid solution.

TABLE 2-6
SUMMARY OF SPECIAL HANDLING PRECAUTIONS FOR LARGE QUANTITY HAZARDOUS MATERIALS

Hazardous Material	Use	Relative Toxicity[a] and Hazard Class[b]	Permissible Exposure Limit	Storage Description; Capacity	Storage Practices and Special Handling Precautions
Carbon Dioxide		Low toxicity; Hazard class – Nonflammable gas	TLV: 5,000 ppm (9,000 mg/m^3) TWA	Carbon steel tank, 15 tons maximum on-site inventory	Carbon steel tank with crash posts.
Diesel Fuel	Equipment refueling and emergency diesel fire pump	Low toxicity; Hazard class – Combustible liquid	PEL: none established TLV: 100 mg/m^3	Carbon steel tank (3,600 gallons)	Secondary containment, overfill protection, vapor recovery, spill kit.
Hydraulic fluid (if applicable)	Tracker drive units	Low to moderate toxicity; Hazard class – Class IIIB combustible liquid	TWA (oil mist): 5 mg/m^3 STEL: 10 mg/m^3	Hydraulic drive tank, approximately 20 gallons per tracker drive unit (if applicable) throughout solar field. Carbon steel tank, maintenance inventory in 55-gallon steel drums.	Found only in equipment with a small maintenance inventory. Maintenance inventory stored within secondary containment; alternative measures to secondary containment for equipment will be implemented at the project.
Lube Oil	Lubricate rotating equipment (*e.g.,* tracker drive units)	Low toxicity Hazard class – NA	None established	Carbon steel tank, maintenance inventory in 55-gallon steel drums.	Secondary containment for tank and for maintenance inventory.
Mineral Insulating Oil	Transformers/ switchyard	Low toxicity Hazard class – NA	None established	Carbon steel transformers; total on-site inventory of approximately 250,000 gallons (each 1 megavolt-ampere transformer contains approximately 500 gallons). Carbon steel tank, maintenance inventory in 55-gallon steel drums.	Used only in transformers, secondary containment for each transformer. Maintenance inventory stored within secondary containment; alternative measures to secondary containment for equipment will be implemented at the project.
Soil stabilizer Active ingredient: acrylic or vinyl acetate polymer or equivalent		Non-toxic; Hazard class - NA	None established	No on-site storage, supplied in 55-gallon drums or 400-gallon totes, used immediately	No excess inventory stored on-site.
Sulfur Hexafluoride	230 kV breaker insulating medium			Contained within switchyard equipment; maximum of 7500 lbs	Inventory management.
Acetylene	Welding gas	Moderate toxicity; Hazard class – Toxic	PEL: none established	Steel cylinders; 200 cubic foot each, 600 cubic foot total on site	Inventory management, isolated from incompatible chemicals.
Argon	Welding gas	Low toxicity; Hazard class – Nonflammable gas	PEL: none established	Steel cylinders; 200 cubic foot each, 600 cubic foot total on site	Inventory management.
Oxygen	Welding gas	Low toxicity; Hazard class – Oxidizer	PEL: none established	Steel cylinders; 200 cubic foot each, 600 cubic foot total on site	Inventory management, isolated from incompatible chemicals.

NOTES:

[a] Low toxicity is used to describe materials with a National Fire Protection Association (NFPA) Health rating of 0 or 1. Moderate toxicity is used describe materials with an NFPA rating of 2. High toxicity is used to describe materials with an NFPA rating of 3. Extreme toxicity is used to describe materials with an NFPA rating of 4.

[b] NA denotes materials that do not meet the criteria for any hazard class defined in the 1997 Uniform Fire Code.

SOURCE: McCoy Solar LLC, 2011a

The Applicant would develop and implement a variety of plans and programs to ensure safe handling, storage, and use of hazardous materials (e.g., Hazardous Material Business Plan). Solar plant personnel would be supplied with appropriate personal protective equipment (PPE) and would be properly trained in the use of PPE as well as the handling, use, and cleanup of hazardous materials used at the facility and the procedures to be followed in the event of a leak or spill. Adequate supplies of appropriate cleanup materials would be stored on-site.

In addition to the chemicals listed above, small quantities (less than 55 gallons, 500 pounds or 200 cubic feet) of janitorial supplies, office supplies, laboratory supplies, paint, degreasers, herbicides, pesticides, air conditioning fluids (chlorofluorocarbons or CFCs), gasoline, hydraulic fluid, propane, and welding rods typical of those purchased from retail outlets also could be stored and used at the facility. These materials would be stored in the maintenance warehouse or office building. Flammable materials (e.g., paints or solvents) would be stored in flammable material storage cabinet(s) with built-in containment sumps. The remainder of the materials would be stored on shelves, as appropriate.

Hazardous Waste

Small quantities of hazardous wastes would be generated during MSEP construction, operation, maintenance, and decommissioning. Hazardous wastes generated during the construction phase would include substances such as paint and primer, thinners, and solvents. Hazardous solid and liquid waste streams that would be generated during operation of the Project include substances such as used hydraulic fluids, used oils, greases, filters, etc., as well as spent cleaning solutions and spent batteries. Hazardous wastes generated during decommissioning would include substances such as: carbon dioxide, diesel fuel, hydraulic fuel and lube oil. To the extent possible, all hazardous wastes would be recycled.

The Applicant or its contractor would obtain a hazardous waste generator identification number from the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC) prior to generating any hazardous waste. All spills would be reported to BLM and the County. Spills greater than 25 gallons would be reported to the RWQCB. A sampling and cleanup report would be prepared and sent to the RWQCB to document each spill and clean up. Each spill, regardless of amount, would be cleaned up within 48 hours and a spill report completed. Copies of all spill and cleanup reports would be kept on-site.

2.3.1.3.11 Vegetation Management and Fire Protection Systems

Before beginning construction activities, the Applicant would identify areas that require protection to sensitive resources within and/or adjacent to the site, which would be identified by a variety of methods including flagging, marking paint, signs, rope, or staking. Where not otherwise specified, a suitable method for mitigation and/or removal and relocation of the biologically sensitive resource would be selected by the biologist assigned to the Project.

Vegetation Management

Weed management areas would be identified including the solar plant site (fence line and solar fields), linear facilities, and a buffer area 100 feet out from the boundary of these features. The

Applicant would develop a plan for the control of noxious weeds and invasive species that could occur as a result of activities at the solar plant site. The plan would address methods for avoidance of weed introduction and spread by project activities, monitoring, and the management of weeds, including mechanical and chemical methods.

General measures that would be used to limit the spread of weeds and invasive species on the site could include the following:

1. Training for MSEP operation personnel regarding the importance of preventing the introduction or spread of noxious weeds.

2. Limiting disturbance areas during construction to the minimum required to perform work.

3. Limiting ingress and egress to defined routes.

4. Maintaining vehicle wash and inspection stations and closely monitoring the types of materials brought on-site to minimize the potential for weed introduction.

5. Contractor certification of any straw or hay bales used for sediment barrier installations that verifies they are obtained from sources free of primary noxious weeds.

6. Soil management by limiting ground disturbance to the minimum feasible acreage to minimize the spread of seeds. Cleared vegetation and salvaged topsoil will be stockpiled adjacent to the area from which they are stripped to eliminate the transport of soil-borne noxious weed seeds, roots, or rhizomes. During reclamation of the temporarily cleared areas, the contractor would return topsoil and vegetative material to the areas from which they were stripped.

7. Dust palliatives and water would be used during construction to minimize the spread of airborne weed seeds, especially during very windy days, which are characteristic in the MSEP vicinity. As appropriate, temporary drift fences could be installed to help control sand movement during construction.

8. Because Saharan mustard, Russian thistle, Mediterranean grass, and tamarisk occur both on-site and within the MSEP vicinity, measures would be implemented to control and suppress current weed populations from spreading and increasing in density.

9. The Applicant primarily would use mechanical weed removal techniques with the use of BLM-approved herbicides, as appropriate

10. The Applicant would use BLM-approved pre- and/or post-emergent herbicides (within their respective jurisdictions), if applicable. Pre-emergent herbicides would be applied to the soil before the weed seed germinates and usually is incorporated into the soil with irrigation or rainfall. Post-emergent herbicides would be applied directly to plants. Herbicides would be investigated in detail, made a part of the Weed Management Plan, and approved by the applicable agency before use.

11. Before beginning construction on the MSEP, a more detailed Invasive Weed Management Plan would be prepared and circulated to the BLM for its comment and approval. The approved plan would be implemented.

Pesticide use would be limited to non-persistent, immobile pesticides applied only in accordance with label and application permit directions and stipulations for terrestrial and aquatic applications. Any pesticide applications, if used, would be conducted within the framework of BLM and Department of Interior policies, and would entail only the use of U.S. Environmental Protection Agency (USEPA) registered pesticides.

Fire Protection

Fires are most likely to be introduced from human activity, and also could occur as a result of lightning strikes or equipment malfunctions. Project-related fire-protection activities would be taken to limit personnel injury, property loss, and Project downtime resulting from a fire. During construction, a water truck or other portable trailer-mounted water tank would be kept on-site and available to workers for use in extinguishing small man-made fires. Fire watches would be required during hot work on-site. An Emergency Action Plan (EAP) would designate responsibilities and actions to be taken in the event of a fire or other emergency during construction. The EAP, including fire prevention and suppression, and a worker safety plan would be provided to BLM and local fire departments for approval before the Applicant receives a Notice to Proceed (NTP). During operation and maintenance of the Project, fire protection systems for the solar plant site would include a fire protection water system for protection of the O&M building, including portable fire extinguishers and possibly hydrants. The fire protection water system would be supplied from a 15,000-gallon raw and fire water storage tank located on the solar plant site near the O&M area.

To decrease the risk of fire during operation and maintenance of the Project, all vegetation underneath the panels would be managed via either mechanical mowing/trimming or with a BLM-approved herbicide in accordance with guidance provided in the Solar PEIS; Vegetation Treatments Using Herbicides on BLM Lands in 17 Western States and the Final Vegetation Treatments Programmatic Environmental Report (PER) (BLM, 2007).[5] A pre-emergent herbicide would be applied in the spring, and spot foliar applications may be used throughout the year to manage invasive vegetation.

Fire support services to the MSEP site would be under the jurisdiction of the RCFD. Fire Station No. 43 in Blythe, which is equipped with a medic engine, a squad, a County engine, and a water tender, and Fire Station No. 45 located at the Blythe airbase, 7 miles from the solar plant site, which is equipped with a medic engine, are the closest stations to the MSEP. The closest hazmat responder would be Fire Station No. 81 in Palm Desert.

[5] The Record of Decision associated with the PER (72 FR 57065-01), published October 5, 2007, outlines the herbicides that are approved for use on public lands, including 14 herbicides with the following USEPA registered active ingredients: 2, 4-D, bromacil, chlorsulfuron, clopyralid, dicamba, diuron, glyphosate, hexazinone, imazapyr, metsulfuron methyl, picloram, sulfometuron methyl, tebuthiuron, and triclopyr identifies the states where the active ingredients are approved. It also identified six herbicide active ingredients that are not permitted for use BLM lands unless a need is shown by the BLM and updated risk assessments for human health and ecological risks are assessed. The six precluded active ingredients are: 2, 4-DP, asulam, atrazine, fosamine, mefluidide, and simazine.

2.3.1.3.12 Health and Safety

The Applicant would document worker safety practices and training in a Safety and Health Program to ensure worker safety and minimize worker hazards during construction and operation. The program would include a PPE Program, an EAP that designates responsibilities and actions to be taken in the event of an emergency, and an Injury and Illness Prevention Program (IIPP) to address health and safety issues associated with normal and unusual (emergency) conditions associated with the high voltage systems, mechanical systems, and other solar plant operations.

Construction-related safety programs and procedures would include a hearing conservation program, respiratory protection program, fall protection procedures, hot work procedures, cranes and rigging/lifting requirements, heavy equipment procedures, and others. An operational emergency response plan would be developed for use by solar plant operators. Safety showers and eyewashes would be provided adjacent to or in the area of all chemical storage and use areas. Appropriate PPE would be supplied to solar plant personnel for use during any chemical spill containment and cleanup activities. Personnel would be properly trained in the handling of these chemicals and wastes and instructed in the procedures to follow in case of a chemical spill or accidental release.

2.3.1.4 Applicant Proposed Measures and Management Practices

The Applicant has proposed certain measures (Applicant Proposed Measures, or APMs) to reduce or avoid potential environmental impacts that could result from the Project or any of the action alternatives (Table 2-7). These APMs would be implemented like other elements of the Project, and are not “mitigation measures” as the term is used in the NEPA context.

2.3.2 Alternative 1: Proposed Action

2.3.2.1 Project-specific Deviations from Features Common to All Action Alternatives

The MSEP would deviate from the other action alternatives in four ways: it would generate more electricity, use a gen-tie/access road alignment to the east of the BSPP, include a gen-tie connection between the Unit 1 and Unit 2 substations, result in greater permanent disturbance, and require more water. The Project would have the capacity to produce up to 750 MW of solar power. Unit 1 would generate approximately 250 MW from a solar array on the eastern side of the proposed solar plant site covering approximately 2,194 acres (1,717 acres of BLM land and 477 acres of private land) and Unit 2 would generate somewhere between 250 and 500 MW in a solar array adjacent to and west of Unit 2.

The proposed gen-tie line would extend south from the proposed solar plant site approximately in parallel with the eastern and south-eastern border of the BSPP site until it diverts south from the BSPP toward the CRS south of I-10. This document refers to the proposed gen-tie line route as the “Eastern Route.” Approximately 123 gen-tie structures would be required for the Eastern Route, based on anticipated 800- to 1,000-foot spacing plus end structures for possible changes in

TABLE 2-7
APPLICANT PROPOSED MEASURES AND MANAGEMENT PRACTICES

APM No.	APM Description
Air Resources	
AIR-1	**To reduce construction-generated air quality impacts:** a. The main access roads through the facility to the unit substation areas shall be either paved or stabilized using soil binders, or equivalent methods, to provide a stabilized surface that is similar for the purposes of dust control to paving, that may or may not include a crushed rock (gravel or similar material with fines removed) top layer, prior to initiating construction in the main unit substation area. b. All unpaved construction roads and unpaved operation and maintenance site roads, as they are being constructed, shall be stabilized with a non-toxic soil stabilizer or soil weighting agent that can be determined to be both as efficient or more efficient for fugitive dust control as California Air Resources Board (ARB)-approved soil stabilizers, and shall not increase any other environmental impacts including loss of vegetation to areas beyond where the soil stabilizers are being applied for dust control. All other disturbed areas in the solar plant site and linear construction sites shall be watered as frequently as necessary during grading; and after active construction activities shall be stabilized with a nontoxic soil stabilizer or soil weighting agent, or alternative approved soil stabilizing methods. The frequency of watering can be reduced or eliminated during periods of precipitation. c. No vehicle shall exceed 10 miles per hour on unpaved areas within the site, with the exception that vehicles may travel up to 25 miles per hour on stabilized unpaved roads as long as such speeds do not create visible dust emissions. d. Visible speed limit signs shall be posted at the site entrance(s). e. All construction equipment vehicle tires shall be inspected and washed as necessary to be cleaned free of dirt prior to entering paved roadways. f. Gravel ramps of at least 20 feet in length shall be provided at the tire washing/cleaning station. g. All unpaved exits from the construction site shall be graveled or treated to prevent track-out to public roadways. h. All construction vehicles shall enter the construction site through the treated entrance roadways. i. All paved roads within the construction site shall be swept daily or as needed (less during periods of precipitation) on days when construction activity occurs to prevent the accumulation of dirt and debris. j. At least the first 500 feet of any paved public roadway exiting the construction site or exiting other unpaved roads en route from the construction site or construction staging areas shall be swept as needed (less during periods of precipitation) on days when construction activity occurs or on any other day when dirt or runoff resulting from the construction site activities is visible on the public paved roadways. k. All soil storage piles and disturbed areas that remain inactive for longer than 10 days shall be covered, or shall be treated with appropriate dust suppressant compounds. l. All vehicles that are used to transport solid bulk material on public roadways and that have potential to cause visible emissions shall be provided with a cover, or the materials shall be sufficiently wetted and loaded onto the trucks in a manner to provide at least one foot of freeboard. m. Wind erosion control techniques (such as windbreaks, water, chemical dust suppressants, and/or vegetation) shall be used on all construction areas that may be disturbed. Any windbreaks installed to comply with this measure shall remain in place until the soil is stabilized or permanently covered with vegetation. n. The disruption of desert pavement shall be minimized to the extent feasible.
AIR-2	**To reduce operation- and maintenance related air emissions:** a. The main access roads through the facility to the unit substation areas shall either be paved or stabilized using soil binders, or equivalent methods, to provide a stabilized surface that is similar for the purposes of dust control to paving, that may or may not include a crushed rock (gravel or similar material with fines removed) top layer, and delivery areas for operations materials (chemicals, replacement parts, etc.) shall be paved or treated prior to taking initial deliveries. b. All unpaved operation and maintenance site roads shall be stabilized with a non-toxic soil stabilizer or soil weighting agent that can be determined to be both as efficient or more efficient for fugitive dust control as ARB-approved soil stabilizers, and shall not increase any other environmental impacts including loss of vegetation to areas beyond where the soil stabilizers are being applied for dust control. After construction activities, all disturbed areas in the solar plant site and linear sites shall be stabilized with a nontoxic soil stabilizer or soil weighting agent, or alternative approved soil stabilizing methods.

TABLE 2-7 (Continued)
APPLICANT PROPOSED MEASURES AND MANAGEMENT PRACTICES

APM No.	APM Description
Air Resources (cont.)	
AIR-2 (cont.)	c. No vehicle shall exceed 10 miles per hour on unpaved areas within the site, with the exception that vehicles may travel up to 25 miles per hour on stabilized unpaved roads as long as such speeds do not create visible dust emissions. d. Visible speed limit signs shall be posted at the site entrance(s). e. All vehicles that are used to transport solid bulk material on public roadways and that have potential to cause visible emissions shall be provided with a cover, or the materials shall be sufficiently wetted and loaded onto the trucks in a manner to provide at least one foot of freeboard. f. The disruption of desert pavement shall be minimized to the extent feasible.
Biological Resources	
BIO-1	**Desert tortoise-specific protection measures during construction:** a. ***Environmental Compliance Personnel*****:** Environmental compliance personnel shall be employed to oversee the implementation of all desert tortoise protection measures in accordance with a Biological Opinion (BO). An Environmental Compliance Manager (ECM) will be assigned to the Project who shall be an on-site staff member of the Project. The ECM will be responsible for facilitating implementation of the environmental conditions of the Project and for coordinating compliance with the BLM and USFWS. A Project Lead Biologist and alternate Lead Biologists with demonstrated expertise with desert tortoise shall oversee compliance with the protection measures for the desert tortoise and other special-status species. There also shall be Authorized Biologists (ABs) that have demonstrated expertise to conduct specific activities for desert tortoise protection; the Lead Biologist also will be an AB. Additionally, qualified Biological Monitors (BM) will assist the AB in enforcing PMs. McCoy Solar shall submit the names and qualifications of the proposed Lead Biologist(s) and all ABs to the USFWS and BLM for review and approval prior to pre-construction clearance surveys. Project activities involving ground disturbance shall not begin until the Lead Biologist and ABs are approved by the aforementioned agencies. Replacement of Lead Biologist and ABs would require USFWS and BLM approval. The ECM, ABs, and BMs shall have the authority to halt all non-emergency activities that are in violation of the protection measures, or if a desert tortoise wanders into a work site. Work will proceed only after hazards to the desert tortoise are removed, the species no longer is at risk, or the animal has been moved from harm's way by the AB. The ABs will document any incident occurring during Project activities which is in non-compliance with the protection measures stated in the BO. The Lead Biologist and ECM shall ensure that appropriate corrective action is taken. Corrective actions shall be documented by the AB or BM. The following incidents shall require immediate cessation of the Project activities causing the incident: 1. Imminent threat of injury or death to a desert tortoise. 2. Unauthorized handling of a desert tortoise. 3. Operation of construction equipment or vehicles outside of areas secured with desert tortoise fencing without a BM present, except on designated roads. 4. Conducting any construction activity without an AB or BM present where one is required. b. ***Desert Tortoise Exclusion Fencing*****:** Prior to the onset of ground disturbing activities, the entire solar plant site will be fenced with permanent tortoise exclusion fence per current USFWS requirements (USFWS, 2009) to keep tortoises from entering the solar plant site during construction and operations phases. The fencing type will be 1-inch by 2-inch vertical mesh galvanized fence material, extending at least 2 feet above the ground and buried at least 1 foot. Where burial is impossible, the mesh will be bent at a right angle toward the outside of the fence and covered with dirt, rocks, or gravel to prevent tortoises from digging under the fence. Tortoise-proof gates will be established at all site entry points. Fence construction may be completed during any time of the year (USFWS, 2010). As necessary, linear facilities (e.g., gen-tie line and switchyard) will be temporarily fenced to prevent tortoise entry during construction. Alternatively, monitoring during construction can be used to protect tortoises instead of temporary fencing. Temporary fencing will follow current USFWS guidelines for permanent fencing and supporting stakes will be sufficiently spaced to maintain fence integrity; burial may be minimized to avoid surface disturbance. All fence construction will be monitored by an AB or BMs to ensure that no desert tortoises are harmed. Following installation, all permanent exclusion fencing will be inspected monthly and during all major rainfall events; temporary fencing will be inspected at least weekly, or more often as necessary. Any damage to the fencing will be repaired immediately. All fencing erected during a tortoise activity period or prior to tortoises exiting

TABLE 2-7 (Continued)
APPLICANT PROPOSED MEASURES AND MANAGEMENT PRACTICES

APM No.	APM Description
Biological Resources (cont.)	
BIO-1 (cont.)	brumation will be inspected at least three times each day for a minimum of 2 weeks (or for a minimum of two weeks after tortoises become active following brumation), to search for any tortoises that might be fence-walking; at least one search will occur immediately prior to lethal ambient temperatures. c. ***Pre-Construction Clearance Surveys*:** Within 1 week prior to fence installation, the AB and/or approved BMs will survey the staked fence line location for all desert tortoise burrows and tortoises, covering a swath of at least 90 feet centered on the fence line, using 15-foot-wide transects. All potential desert tortoise burrows or pallets will be searched. Burrows along the fence line that must be disturbed will be excavated by ABs or approved BMs using hand tools. Tortoise burrows will be mapped using Global Positioning System (GPS), and the size and age identified. Where flagging would not attract poaching, burrows will also be flagged. All fence construction then will be monitored by BMs. A clearance survey for tortoises will be conducted inside all fenced areas. Consistent with the McCoy Desert Tortoise Translocation Plan (BIO-1[d]), a minimum of two consecutive clearance passes without finding any new tortoises must be completed and these must coincide with heightened tortoise activity from mid-March through May and September through early November, or as otherwise agreed to by BLM and USFWS. This will maximize the probability of finding all tortoises. Clearance transects will be a maximum of 15 feet (5-meters) apart per USFWS approved protocols (USFWS, 2009), except on broad patches of unvegetated, well-developed desert pavement, where the width may be increased to a maximum of 30 feet (9 meters). Once the solar plant site is deemed free of tortoises, then heavy equipment will be allowed to enter the site to perform construction activities. It is anticipated that very few tortoises will be found during clearance or monitoring activities, but if tortoises are observed, the biologists will implement the McCoy Desert Tortoise Translocation Plan. The AB and BMs also will conduct clearance surveys of construction areas outside of the solar plant site. Burrows will be avoided if at all possible (especially if this is temporary fencing). But, if a burrow must be destroyed for fencing to occur, then it will be visually and tactilely examined for occupancy by tortoises and other wildlife. If occupancy is negative or cannot be established, the burrow will be carefully excavated with hand tools, using standardized techniques approved by USFWS (2009) and the Desert Tortoise Council (1994), including disinfection techniques for all tools. No burrows that can be avoided will be collapsed during perimeter fence construction. Other tortoise burrows will be flagged judiciously to avoid attraction of tortoise predators or people to the burrow. All BMs, the AB, and relevant construction personnel will be informed of all potential tortoise activity adjacent to an unfenced construction area. Following Project area clearance, a report will be prepared by the Project Lead Biologist to document the clearance surveys, the capture and release locations of all desert tortoises found, post-release monitoring, individual tortoise data, and other relevant data, consistent with the McCoy Desert Tortoise Translocation Plan. This report will be submitted to the BLM and USFWS. d. ***Desert Tortoise Translocation Plan*:** The Applicant will prepare and implement a Desert Tortoise Translocation Plan that will be approved by USFWS prior to construction. e. ***Construction Monitoring*:** No construction will occur in unfenced areas (see BIO-1[b], *Desert Tortoise Exclusion Fencing*) on the linear facilities without BMs present. This includes both the construction phase (construction, revegetation) and maintenance activities during the operations phase that require new surface disturbance. An adequate number of trained and experienced monitors must be present during all construction activities in unfenced areas, depending on the various construction tasks, locations, and season. f. ***Dead, Injured, and Sick Desert Tortoises*:** The Lead Biologist will notify the BLM and USFWS immediately if a dead or injured desert tortoise is observed. Written notification must be made within 2 days of the date of the finding or incident (if known) and must include: Location of the tortoise, photographs, cause of death (if known), and other pertinent information. The AB will ensure that all tortoises injured by Project activities receive prompt veterinary care at the Applicant's expense. If an injured animal recovers, the BLM and USFWS will be contacted by the Applicant for final disposition of the animal. However, if efforts to keep the injured animal separate from other tortoises and turtles are successful during the tortoise's treatment, then it is recommended that it be released at or near its capture point to continue to contribute to the persistence of the local tortoise population. Tortoises fatally injured or killed from Project-related activities will be submitted for necropsy as outlined in Salvaging Injured, Recently Dead, Ill, and Dying Wild, Free-Roaming Desert Tortoises (Gopherus agassizii) (Berry, 2001) at the Applicant's expense. Care will be taken by the AB in handling dead specimens to preserve biological material in the best possible state.

TABLE 2-7 (Continued)
APPLICANT PROPOSED MEASURES AND MANAGEMENT PRACTICES

APM No.	APM Description
Biological Resources (cont.)	
BIO-2	**General protection measures during construction:** a. ***Biological Resources Mitigation and Monitoring Plan (BRMMP)*:** The BRMMP will outline steps to implement the protection measures; document their implementation; and monitor their effectiveness. The BRMMP will identify the terms and conditions of any permits associated with the Project, including, but not limited to, the USFWS §7 Biological Opinion, CDFG §2081 Incidental Take Permit, and CDFG Streambed Alteration Agreement. The BRMMP will be submitted to the BLM and USFWS for approval prior to the start of ground disturbance. b. ***Reporting*:** As part of implementing protection measures, regular reports will be submitted to the relevant resource agencies to document the Project activities, mitigation implemented and mitigation effectiveness, and provide recommendations as needed. A schedule of reporting will be specific to individual plans. However, the Lead Biologist will submit monthly reports to the ECM during construction, annual comprehensive reports, and special-incident reports. The Lead Biologist will be responsible for reviewing and signing reports prior to submittal to the agencies. In addition to a regular reporting schedule, all encounters with desert tortoises will be reported to the Lead Biologist, who will report the following information in Monthly and Annual Reports: 1. Location (narrative and maps) and dates of observations; 2. General condition and health, including injuries and state of healing; 3. Diagnostic markings, including identification numbers or markers; and 4. Disposition (if moved). c. ***Worker Environmental Training*:** The Applicant will prepare and implement site-specific Worker Environmental Training to inform Project personnel about the biological constraints of the Project. The training will be included in the BRMMP and will be developed and presented by a qualified Project biologist prior to the commencement of construction activity. All Project personnel must attend the training. The training will include information regarding the sensitive biological resources, restrictions, protection measures, and individual responsibilities associated with the Project. Special emphasis will be placed on protection measures developed for the desert tortoise and the consequences of non-compliance. Written material will be provided to employees at orientation and participants will sign an attendance sheet documenting their participation. d. ***Construction-related Activities*:** Existing roads will be utilized wherever possible to avoid unnecessary impacts. New and existing roads that are planned for either construction or widening will not extend beyond the planned impact area and will minimize surface disturbance in native habitats, where practical. All vehicles passing or turning around will do so within the planned impact area or in previously disturbed areas. Along the linear facilities, the anticipated impact zones, including staging areas, equipment access, and disposal or temporary placement of spoils, will be delineated with stakes and/or flagging prior to construction to avoid natural resources, where possible. Outside the Project boundaries, personnel will utilize established roadways (paved or unpaved) for traveling to and from the Project Area, including for transmission line construction. No work in unfenced and uncleared habitat will occur except under the direct supervision of a BM. Cross-country vehicle and equipment use outside designated work areas will be prohibited. Best Management Practices will be employed to prevent loss of habitat due to erosion caused by Project-related impacts (i.e., grading or clearing for new roads). All detected erosion will be remedied within 2 days of discovery. Additionally, fueling of equipment will take place within existing paved or contained areas and not within or adjacent to drainages or native desert habitats. Contractor equipment will be checked for leaks prior to operation and repaired as necessary. All vehicles and equipment will be in proper working condition to minimize the potential for fugitive emissions of motor oil, antifreeze, hydraulic fluid, grease, or other hazardous materials. The AB and BM will be informed of any hazardous spills within 24 hours. Hazardous spills will be immediately cleaned up and the contaminated soil will be properly disposed of at a licensed facility. Employees and contractors will look under vehicles and equipment for the presence of desert tortoises prior to movement. No equipment will be moved until the animal has left voluntarily or an AB removes it. e. ***Construction Speed Limits*:** To minimize the likelihood for vehicle strikes of tortoises and other species during construction, a speed limit of 25 miles per hour will be established for travel on all dirt Project access roads. Signs will be posted at appropriate locations (for example, at Arizona crossings of drainages) to remind drivers to be aware of the potential for desert tortoise and other wildlife occurring on the roadways. f. ***Ground Excavations*:** The Applicant will ensure that Project features located outside the permanently fenced sites, such as open trenches, pits, bores and other excavations that might trap, entangle, or constitute as pitfalls to desert tortoises and other wildlife, be filled in, fenced, covered, or otherwise modified at the end of each work day so they are no longer a hazard to desert tortoises and other wildlife. All excavations in tortoise habitat outside the permanently

TABLE 2-7 (Continued)
APPLICANT PROPOSED MEASURES AND MANAGEMENT PRACTICES

APM No.	APM Description
Biological Resources (cont.)	
BIO-2 (cont.)	fenced sites will be inspected for trapped desert tortoises at the beginning, middle, and end of the work day, at a minimum, but also will be continuously monitored by BMs as part of monitoring construction outside of fenced areas. Should a tortoise become entrapped, the AB will remove it immediately. These Project features will not need to be inspected if they are located within the permanently fenced solar plant site after the clearance surveys have been completed. However, any such Project features inside temporarily fenced locations that have been cleared of tortoises will be inspected daily for other wildlife. g. ***Construction Material Storage*:** The Applicant will ensure that any construction pipe, culvert, or similar structure stored less than 8 inches above the ground, stored for one or more nights, and within desert tortoise habitat outside the permanently fenced sites, will be inspected for tortoises before the material is moved, buried or capped. As an alternative, all such structures may be capped before being stored on the construction site or placed on pipe racks. These materials will not need to be inspected or capped if they are stored within the permanently fenced solar plant site after the clearance surveys have been completed or inside temporarily fenced locations. h. ***Hazardous Materials*:** The Applicant will ensure all vehicles and equipment are in proper working condition to ensure that there is no potential for fugitive emissions of motor oil, fuel, antifreeze, hydraulic fluid, grease, or other hazardous materials. Contractor equipment will be checked for leaks prior to operation and repaired as necessary. Fueling of equipment will take place within existing paved roads, where possible, and not within or adjacent to drainages. Hazardous spills will be immediately cleaned up and the contaminated soil will be properly disposed of at a licensed facility. The ECM, Lead Biologist, and BLM will be informed of any significant hazardous spills within 24 hours. i. ***Trash Abatement*:** Trash and food items will be contained in secure, closed lid (raven- and coyote-proof) containers. Trash will be removed regularly (at least once a week) to reduce the attractiveness to the site to opportunistic tortoise predators such as common ravens (*Corvus corax*) and coyotes and to reduce the possibility of animals ingesting or becoming entangled in foreign matter. j. ***Roadkill Removal*:** To preclude providing food to scavengers, including potential tortoise predators, such as ravens and coyotes, all road kills on construction entry roads will be collected, bagged, and put in a secure trash bin, daily. All personnel will be required to report road kills to a BM or AB daily, to ensure timely removal. k. ***Pets and Firearms*:** The Applicant will prohibit workers from bringing pets or firearms to the Project. l. ***Plant and Wildlife Collection*:** The Applicant will prohibit the intentional killing or collection of all native plant or native wildlife species, including, but not limited to desert tortoise. Workers will not disturb, capture, handle, or move animals, or their nests/burrows. Violations will be reported in the monthly and annual reports. m. ***Raven Management*:** The Applicant will provide funds to the USFWS' range-wide raven monitoring and control program to support the more comprehensive goals of that program. These funds will be in lieu of extensive quantitative monitoring at the Project site. The amount will be determined through negotiation with USFWS. In addition, a Raven Management Plan will be designed and implemented to identify the conditions of concern specific to the Project that may attract ravens to the Project and to define a plan that will 1) monitor raven activity and 2) specify management and control measures. The monitoring effort is intended to provide qualitative and semi-quantitative data to ensure that ravens do not pose a threat to desert tortoises. n. ***Weed Management Plan:*** The Applicant will prepare and implement a Weed Management Plan to prevent the spread of existing weeds and the introduction of new weeds to the Project Area. o. ***Water Application for Dust Control*:** The Applicant will ensure water is applied to the construction area, dirt roads, trenches, spoil piles, and other areas where ground disturbance has taken place to minimize dust emissions and topsoil erosion. A BM will patrol these areas to ensure water does not pool for long periods of time and potentially attract desert tortoises, common ravens, and other wildlife. p. ***Cleanup and Restoration; Revegetation Plan:*** The Applicant will ensure that all unused material and equipment will be removed upon completion of construction activities or maintenance activities conducted outside the permanently fenced sites (this includes non-emergency and emergency repairs). Upon completion, all construction equipment and refuse, including, but not limited to wrapping material, cables, cords, wire, boxes, rope, broken equipment parts, twine, strapping, buckets, metal or plastic containers will be removed from the site and disposed of properly. Any unused or leftover hazardous products will be properly disposed of off-site. The Applicant will prepare and implement a Revegetation Plan to restore temporarily disturbed areas.

TABLE 2-7 (Continued)
APPLICANT PROPOSED MEASURES AND MANAGEMENT PRACTICES

APM No.	APM Description
Biological Resources (cont.)	
BIO-3	**Protection measures during operation and maintenance:** Road, transmission line, and pipeline maintenance activities are expected to occur during the life of the Project. To the extent possible, major road surface maintenance activities outside the solar plant site will be scheduled for the season with the least desert tortoise activity (typically November 1 through February 28), unless accompanied by an AB. During operation, all personnel who encounter a desert tortoise will immediately report the encounter to the ECM. An AB will monitor all major maintenance activities; minor maintenance (e.g., inspections) does not have to be accompanied by an AB. Only an AB may move tortoises during the operations phase and only if necessary. If feasible, all tortoises will be allowed to move into a safe area on their own. In order to prevent roadkills, any tortoise observed on the Project access road will be watched until it is safely off the road before the personnel can continue. If a desert tortoise is found inside the fenced solar plant site, an AB will be contacted immediately to translocate the desert tortoise from the solar plant site; in the interim, the tortoise will be captured, enclosed in a clean cardboard box with a lid, and held in a climate controlled situation until translocation by an AB, in accordance with details described in the McCoy Desert Tortoise Translocation Plan (BIO-1[d]). The ECM or AB will document the location (narrative and maps), date of observations, general condition and health (if known), including injuries and state of healing; diagnostic markings, including identification numbers or markers; and disposition, in the annual report.
BIO-4	**Desert Tortoise Compensation:** To fully mitigate for habitat loss and potential take of desert tortoise, the Applicant will provide compensatory mitigation at a 1:1 ratio for impacts to all Category 3 desert tortoise habitat in accordance with the NECO Plan (BLM, 2002). Approximately 4,900 acres of Category 3 habitat would be disturbed). This excludes 38 acres of sand dunes, agricultural areas, and areas that are currently developed or disturbed along the access road. Acreage of disturbance was based on the best available Project plans and would be adjusted, based on pre- and post-construction aerial photography, to reflect the final Project disturbance footprint. Because the construction of Unit 1, Unit 2, and the linear facilities would be phased, compensation obligations (e.g., security deposits and the actual funding or acquisition of mitigation land) should be apportioned as follows: a. Unit 1: 2,194 acres at a 1:1 ratio; b. Unit 2: 2,598 acres at a 1:1 ratio; and c. Linear facilities: 106 acres at a 1:1 ratio. The following qualitative criteria would be used to select compensation lands to ensure that they provide mitigation for the incidental take of desert tortoises: a. Compensation lands should be part of a larger block of lands that are either already protected or planned for protection, or feasibly could be protected by a public resource agency or a private biological reserve organization. b. Parcels should provide habitat that is as good as or better than the habitat being impacted by the Project. Preferably, the lands would comprise sufficiently good habitat that they are either currently occupied or could be occupied by the desert tortoise once they are protected from anthropogenic impacts and/or otherwise enhanced. c. Parcels should not be subject to such intensive recreational, grazing, or other uses that recovery is rendered unlikely or lengthy. Nor should those invasive species that are likely to jeopardize habitat recovery (e.g., Sahara mustard [*Brassica tournefortii*]) be present in uncontrollable numbers, either on or immediately adjacent to the parcels under consideration. d. The parcels should be connected to occupied desert tortoise habitat or in sufficiently close proximity to known occupied tortoise habitat such that an unencumbered genetic flow is possible. Preferably, the existing populations of desert tortoise on these lands would represent populations that are stable, recovering, or likely to recover. d. The parcels should be consistent with the goals, objectives, and recovery actions of an accepted recovery strategy (e.g., recovery plan) for the desert tortoise if possible.

TABLE 2-7 (Continued)
APPLICANT PROPOSED MEASURES AND MANAGEMENT PRACTICES

APM No.	APM Description
Biological Resources (cont.)	
BIO-5	**Protection measures during decommissioning/closure:** Project Decommissioning: The planned operating life of the Project is 30 years. In the event the Project permanently shuts down, and no other project will occupy the same industrial space, the Applicant will prepare and implement a Decommissioning Plan to ensure that the environment is protected during the decommissioning phase. Prior to decommissioning, a plan will be finalized and approved by the BLM. The Applicant shall retain an AB for the decommissioning phase of the Project to ensure that all environmental protection measures are implemented. The Applicant will submit the names and qualifications of all proposed biologists to the USFWS and BLM for review and approval at least 30 days prior to decommissioning activities and prior to initiation of any tortoise handling. Decommissioning activities will not begin until the ABs are approved by the aforementioned agencies.
Paleontological Resources	
PALEO-1	**To address potential paleontological impacts during the pre-construction phase:** a. Prior to the start of any Project-related construction (defined as construction-related vegetation clearing, ground disturbance and preparation, and site excavation activities), the Applicant shall ensure that a qualified paleontologist is available for field activities and is prepared to implement the conditions of approval. The qualified paleontologist shall be responsible for implementing all the paleontological conditions of approval and for using qualified personnel to assist in this work. b. Prior to the start of construction, the qualified paleontologist shall prepare a worker's environmental awareness training program. The paleontological training program shall address the potential to encounter paleontological resources in the field, the sensitivity and importance of these resources, and the legal obligations to preserve and protect such resources. The training program also shall include the set of reporting procedures that workers are to follow if paleontological resources are encountered during Project activities. The training program shall be presented by a qualified paleontologist and may be combined with other training programs prepared for cultural and biological resources, hazardous materials, or any other areas of interest or concern.
PALEO-2	**To address potential paleontological impacts during the construction phase:** a. Qualified paleontologist or paleontological monitor shall be present at all times he or she deems appropriate to monitor construction-related grading, excavation, trenching, and/or augering in areas with a significant potential for fossil-bearing sediments to occur. All ground-disturbing activities in areas determined to have a high sensitivity shall be monitored on a full-time basis at the start of the Project. All ground disturbances in areas determined to have low to high sensitivity at depths of 1.5 m (5 feet) or greater shall also require monitoring on a full-time basis, initially. If no significant fossils are found, then the frequency of monitoring shall be adjusted at the discretion of the qualified paleontologist after an adequate amount of time is spent observing the geologic deposits in the Project area. No monitoring is required in areas determined to have a low sensitivity. b. Paleontological monitoring will include inspection of exposed rock units and collection of matrix to be testing for the presence of microscopic fossils. Paleontological monitors will have authority to temporarily divert excavations or drilling away from exposed fossils in order to efficiently and professionally recover the fossil specimens and collect associated data. Any paleontological fieldwork occurring on lands administered by the BLM would require a Paleontological Resources Use Permit issued by the BLM state office.
PALEO-3	**To address potential paleontological impacts during the post-construction phase**: The Applicant shall ensure preparation of a paleontological resources monitoring report by the qualified paleontologist. The report shall be completed following the analysis of any recovered fossil materials and related information. The report shall include, but not be limited to, a description and inventory list of recovered fossil materials (if any); a map showing the location of paleontological resources found in the field; determinations of scientific significance; and a statement by the qualified paleontologist that project impacts to paleontological resources have been mitigated.

TABLE 2-7 (Continued)
APPLICANT PROPOSED MEASURES AND MANAGEMENT PRACTICES

APM No.	APM Description
Hydrology and Water Quality	
HYDRO-1	**To address impacts to state jurisdictional washes**: a. The Project will be designed to ensure that post-development downstream hydrology will remain essentially the current downstream hydrology. b. The final locations of poles and spur roads associated with the linear facilities will be designed to be flexible so that drainages that cross the linear corridor will be avoided to the extent feasible. c. The Applicant proposes the following mitigation ratios to be used for the state jurisdictional waters that will be impacted by the Project:

SOLAR PLANT SITE

Channel Vegetation Community	Channel Forms	Unit 1 Permanent Impacts (acres)	Unit 2 Permanent Impacts (acres)	Proposed Mitigation Ratio	Mitigation Acres Unit 1	Mitigation Acres Unit 2	Mitigation Acres Total
Desert Dry Wash Woodland (Blue Palo Verde-Ironwood Woodland Alliance)	Single Thread	0	1.5	3:1	0	4.5	4.5
Mesquite Bosque Alliance	Man-made Borrow Pit	0	0	0	0	0	0
Vegetated Ephemeral Channels (Wash-Dependent Vegetation with Sparsely-Scattered Trees) (<10%)	Single Thread, Compound, Swales	2.8	42.2	1.5:1	4.2	63.3	67.5
Vegetated Ephemeral Channels (Vegetated with No Trees)	Single Thread, Compound, Swales	44.8	61.1	1:1	44.8	61.1	105.9
Unvegetated (approximately less than or equal to 5% cover)	Compound, Swales, Discontinuous Channels	8.8	20.3	1:1	8.8	20.3	29.1
Totals	**-**	**56.4**	**125.1**	**-**	**57.8**	**149.2**	**207**
		181.5					

TABLE 2-7 (Continued)
APPLICANT PROPOSED MEASURES AND MANAGEMENT PRACTICES

<table>
<tr><th>APM No.</th><th>APM Description</th></tr>
<tr><td colspan="2">Hydrology and Water Quality (cont.)</td></tr>
<tr><td>HYDRO-1 (cont.)</td><td>
LINEAR FACILITIES
<table>
<tr><th rowspan="2">Channel Vegetation Community</th><th rowspan="2">Channel Forms</th><th colspan="2">Impacts (acres)</th><th rowspan="2">Proposed Mitigation Ratio</th><th rowspan="2">Mitigation Acres</th></tr>
<tr><th>Temporary</th><th>Permanent</th></tr>
<tr><td>Desert Dry Wash Woodland
(Blue Palo Verde-Ironwood Woodland Alliance)</td><td>Single Thread</td><td>0.7</td><td>1.1</td><td>3:1</td><td>5.4</td></tr>
<tr><td>Mesquite Bosque Alliance</td><td>Man-made Borrow Pit</td><td>0.2</td><td>0.3</td><td>3:1</td><td>1.5</td></tr>
<tr><td>Vegetated Ephemeral Channels
(Wash-Dependent Vegetation with Sparsely-Scattered Trees) (<10%)</td><td>Single Thread, Compound, Swales</td><td>0.0</td><td>0.0</td><td>1.5:1</td><td>0.0</td></tr>
<tr><td>Vegetated Ephemeral Channels
(Vegetated with No Trees)</td><td>Single Thread, Compound, Swales</td><td>0.3</td><td>0.5</td><td>1:1</td><td>0.8</td></tr>
<tr><td>Unvegetated (approximately less than or equal to 5% cover)</td><td>Compound, Swales, Discontinuous Channels</td><td>0.2</td><td>0.3</td><td>1:1</td><td>0.5</td></tr>
<tr><td rowspan="2">Total</td><td rowspan="2">-</td><td>1.4</td><td>2.2</td><td rowspan="2">-</td><td rowspan="2">8.2</td></tr>
<tr><td colspan="2">3.6</td></tr>
<tr><td>Grand Total
(Solar Plant Site and Linear Facilities)</td><td>-</td><td colspan="2">185.1</td><td>-</td><td>215.2</td></tr>
</table>
</td></tr>
<tr><td colspan="2">Transportation and Traffic</td></tr>
<tr><td>TRANS-1</td><td>To minimize the potential for any peak AM or PM work day delays associated with the Mesa Drive, Black Rock Road, and Hobson Way intersections: The Applicant would reduce the number of vehicle on these approaches by splitting construction crew with staggered start times to reduce peak arrivals by about half; encouraging carpooling by workers; and scheduling Project deliveries and truck trips for off-peak hours in order to avoid interference with the peak on-site worker AM and PM commute.</td></tr>
</table>

SOURCE: Tetra Tech EC, Inc., 2011c

direction. The Applicant would improve, and thereafter maintain and decommission approximately 2 miles of the north/south aligned, unimproved access road constructed for the BSPP before veering east, where the Applicant would construct, maintain, and decommission a new access road. The full length of the improved access road would serve as the gen-tie line maintenance road.

Overall construction-related water use is anticipated to be between 650 and 750 AF. Operation and maintenance of the Project would require approximately 15 to 22 AFY per Unit, plus an additional 1 AFY of potable water (31 to 45 AFY for the entire Project), based on the anticipated uses (including drinking water, showers, restroom facilities, panel washing, dust suppression, and 3,000-gallon dedicated fire supply, among other uses).

2.3.3 Alternative 2: Reduced Acreage Alternative

Common elements to the MSEP would be: the Unit 1 solar field, the perimeter/fence maintenance road, Unit 1 substation, distribution line, water treatment area, O&M building, main access road, and the temporary laydown area, each of which is described above. The Reduced Acreage Alternative would deviate from the features common to all action alternatives in that its solar plant would consist solely of Unit 1.

As a result, less permanent disturbance, less time to construct, and less water would be required than for the MSEP. As shown in Table 2-8, the Reduced Acreage Alternative would permanently disturb approximately 2,170 acres on the solar plant site (1,693 acres on BLM-administered land and 477 acres private land) and permanently disturb approximately 5.5 acres off-site. It is estimated that a notice to proceed for this alternative would be issued in December 2012, and that construction would be complete in November 2014 reducing the overall Project schedule by up to 24 months. The workforce and types of equipment would be the same as the MSEP, although the duration of equipment use required for the Reduced Acreage Alternative would be shorter. The total water usage during construction of the Reduced Acreage Alternative would be approximately 450 AF. Operation and maintenance-related water demand would be approximately half of what would be required for the Project. Approximately 70 days would be required to complete panel washing per year. The demand for water to wash the panels would be approximately 67,000 to 99,000 gpd or 15 to 22 AFY. The amount of potable water required for up to 13 on-site staff members would be approximately 14,000 gallons per month.

2.3.4 Alternative 3: Reconfigured Gen-Tie/Access Road Alternatives

The Project proposes to interconnect to the CRS via an approximately 14.5-mile-long eastern gen-tie line/access road route (Eastern Route). This alternative describes two other gen-tie line/access road options that could connect the solar plant site to the CRS: an approximately 12.5-mile central gen-tie line/access road route (Central Route) and an approximately 15.5-mile western gen-tie line/access road route (Western Route). Either of the Reconfigured Gen-tie/Access Road Alternatives described in this section could support the proposed solar plant site, resulting in a total of three gen-tie line route options for the Project. By contrast, only the proposed Eastern Route or the Central

TABLE 2-8
ESTIMATED LAND DISTURBANCE ACREAGE FOR THE REDUCED ACREAGE ALTERNATIVE

Solar Plant Site	**Permanent (Ac)[a]**	
Solar Field (includes all acreage within the solar plant site covered by the solar panels and trackers, the inverter pad areas, maintenance roads between the solar arrays, any engineered drainage features, and the gen-tie line area within the solar plant site).	2,142	
Perimeter / Fence Maintenance Road (assumes 24 feet wide, approximately 22 miles)	17.6	
On-site Substation	2.8	
Shared Water Treatment Area	3	
Operations and Maintenance Building (approximately 3,000 square feet) and Parking Area (approximately 10,000 square feet)	0.3	
Main Access Road within solar plant site boundary (assumes improved, 24 feet wide with 3-foot shoulders, approximately 2.6 miles)	4.6	
Subtotal for Solar Plant Site Acreage	**2,170.3**	
Area in and around natural drainages that would remain ungraded	24	
Temporary Laydown Area to be converted to permanent solar field area at end of construction[b]	15	
Total Acreage Within Solar Plant Site Fence	**2194.3**	
Linear Facilities Outside Solar Plant Site Boundary	**Permanent (Ac)**	**Temporary (Ac)**
Distribution Line Poles (assumes 135 poles to be spaced about 150 ft apart, each requiring 25 ft by 25 ft temporary disturbance and 3 ft by 3 ft permanent disturbance)	0.0	1.9
Distribution Line Spur Roads (assumes 135 spur roads corresponding to every pole, 12 ft wide and approximately 50 ft long) [c]	1.9	0
Distribution Line Maintenance Road (assumes 24 ft wide with 3 ft shoulders, 1.0 miles (approximately 3 miles access is provided by the Main Access Road)	3.6	0
Subtotal for Linear Facilities Outside of Solar Plant Site Disturbed Acreage	**5.5**	**1.9**
Total On- and Off-site Permanent Disturbed Acreage	**2,175.8**	**-**

NOTES:

a These acreages are based on the thin film tracking configuration as shown in Figure 2-3.
b This acreage is not included in totals because area is within land that would be affected by other solar plant site facilities.
c The temporary disturbance for distribution line poles does not include the permanent disturbance or the portion of the spur road that is coincident with the pole construction area.

SOURCE: McCoy Solar LLC, 2011a

Route could practically support the Reduced Acreage Alternative, resulting in a total of two gen-tie line route options for that alternative.

Any of the gen-tie line route options would use primarily a single set of monopole support structures to support a double-circuit gen-tie line. The Central Route and Western Route gen-tie support structures would be approximately 80 to 90 feet tall, depending on the location and local terrain, with final heights to be determined during detailed design. Like the proposed Eastern Route, the Central Route and Western Route structures would be spaced approximately 800 to 1,000 feet apart including end structures to accommodate changes in direction, would be made of concrete or a self-weathering steel with a matte finish, designed to be avian-safe and reinforced as necessary to withstand design loads. The lines would be insulated from the poles using porcelain

insulators engineered for safe and reliable operation. Shield wires along the length of the line would protect against lightning strikes. Also like the proposed Eastern Route, direct embedded foundations would be used for tangent structures and anchor bolted, drilled shaft foundations for angle and dead-end structures. The corridor for each of the three gen-tie line route options would be approximately 100 feet wide (50 feet on either side of the line).

The approach to the Alternatives analysis for Alternative 3 is to examine only those portions of the Central and Western routes that differ from the proposed route, from each route's beginning within the solar plant site to the point where each of these lines meet, which is approximately 2 miles north of I-10, as shown in Figure 2-11. For the purposes of the Alternatives analysis, the Central Route would be 5.5 miles long and the Western Route would be 8.5 miles long, as compared to the 7.5 miles that would be unique to the Proposed Action. From the point at which the alternative routes meet until interconnection with the CRS, the alternative gen-tie line routes would be the same, and the effects of this portion are therefore analyzed only in the discussion of the Proposed Action.

2.3.4.1 Central Gen-tie/Access Road Route

The Central Route would be approximately 12.5 miles long, extending south from solar plant Unit 1, through the center of the BSPP site, and continuing toward the CRS south of I-10. Approximately 100 gen-tie structures would be required. The maintenance road and spur roads associated with the Central Route would parallel the gen-tie line within the ROW for the length of the route. Like the maintenance road associated with the route, the maintenance road for the Central Route would be 24 feet wide with 3-foot shoulders and spur roads would be 15 feet wide. Construction and decommissioning of the gen-tie line maintenance road and spur roads would require up to a 50-foot-wide area of temporary disturbance – the same as the proposed Eastern Route.

2.3.4.2 Western Gen-tie/Access Road Route

The Western Route would be approximately 15.5 miles long, extending west and south from Unit 2, and then travel south and east toward the CRS, roughly paralleling the western border of the BSPP site, until veering east and turning south from the BSPP site toward the CRS south of I-10. Approximately 130 gen-tie structures would be required for the Western Route. No maintenance road would be collocated within the gen-tie line corridor.

2.4 Construction

Unit 1 and associated linear facilities (e.g., gen-tie line and access roads) would be constructed first, followed by the construction of Unit 2. Construction of Unit 1 and associated linear facilities would take approximately 22 months; construction of Unit 2 would take approximately 21 months. Since it is possible that there may be some delay between the time Unit 1 is fully operational and the time construction is commenced on Unit 2, the analysis in this document assumes a total construction period for Units 1 and 2 of up to 46 months. Construction activities would include site preparation; construction of the solar array, O&M building and substations;

construction of the gen-tie line and telecommunications line; construction of the switchyard; and distribution line installation. The anticipated construction schedule and workforce are described in Section 2.4.10.

The construction of Unit 1 would include the access road, water treatment system, initial gen-tie line (consisting of the support towers and first circuit), O&M building, parking area, and the first 125 arrays of 2 MW blocks.

While the site does not lie within a state-established earthquake fault zone, it is located about 25 miles northeast of the active Aztec Mine Wash fault and approximately 60 miles east of the San Andreas Fault Zone. Because regional faults are capable of generating Magnitude 7 earthquakes and subjecting the MSEP to ground shaking up to 10 percent gravity, all structures would be designed to comply with the latest California Building Code or International Building Code requirements.

2.4.1 Site Preparation

All employees and contractors working in the field would be required to complete an environmental training session before beginning work. The program would include discussions on the biology, distribution, and ecology of any special-status species within the general area of construction. It also would cover the protection of historic and Native American-related resources. It would address penalties for noncompliance, reporting requirements, and the importance of compliance with all protection measures.

Pre-construction biological resource-related surveys would be completed and reported prior to beginning construction in a particular area. The biologist making the survey would file the results electronically in a standard report format. This report would be sent electronically or by fax directly to the agencies requesting it and to the Environmental Supervisor, who would enter the report into the database for the MSEP.

2.4.1.1 Surveying and Staking

Before commencing construction, the land surveyor would obtain or calculate benchmark data, grades, and alignment from plan information and provide control staking to establish the alignments, benchmarks, and elevations. The detailed design documents would provide data for the horizontal and vertical control points and horizontal alignments, profiles, and elevations. During construction, the surveyor would re-establish and set additional control points to maintain the horizontal and vertical control points as needed. Surveying and staking of environmental resources also would occur during construction as necessary.

2.4.1.2 Vegetation Removal, Grading, and Site Clearance

Before commencing construction, sensitive resource areas would be identified by a variety of methods including flagging, marking paint, signs, rope, or staking. Where not otherwise specified, a suitable method for mitigation and/or removal and relocation of a biologically sensitive resource would be selected by the biologist assigned to the Project. Once sensitive areas

are marked, construction areas would be cleared and mowed of vegetation and miscellaneous debris. Grading activities primarily would be associated with the main access road and the gen-tie line, with lesser quantities associated with solar plant site buildings, parking areas, internal access roads, the Unit 1 and Unit 2 substations, and associated foundations.

Grading would consist of the excavation and compaction of earth to meet final design requirements. The use of either tracker technology or a fixed tilt mount would allow the existing topography to be essentially left in the existing (ungraded) condition because the height of the supports could be adjusted to level the PV modules. Also, because the site is nearly flat, localized grading would occur only where there are gullies or sections that otherwise would be impassable by vehicles. Although not anticipated, if larger areas require grading, a disc and roll technique would be used. The disc and roll technique is based on conventional farming practices using tractors to till the soil, which helps level out low spots, and then drum rollers to compact the soil. This technique would minimize the impacts of conventional cut and fill grading. Grading activities at the solar plant site would result in a balanced cut and fill quantity of earthwork to maintain the existing conditions to the extent practical.

Materials suitable for compaction would be brought to the site as needed and off-loaded at the designated road or building location for immediate dispersion. All materials would be clean of weeds, weed seeds, and hazardous materials. Materials unsuitable for compaction, such as mowed debris, would be removed and loaded immediately for subsequent disposal at an acceptable off-site location. Contaminated materials are not anticipated; however, if any such materials are encountered during excavation, they would be disposed of at the nearest appropriate facility in accordance with applicable laws, ordinances, regulations, and standards. It is estimated that not more than 1 cubic yard of construction debris and material waste would be generated each week, which would be accumulated in a construction debris container and hauled off monthly.

2.4.2 Solar Array Assembly and Construction

Construction of the tracker or fixed tilt assemblies may be conducted in a temporary building on-site at the construction laydown area, transported via truck to the proper location, and placed on the pre-installed supports. Alternately, the array assembly could occur adjacent to the installation point. Final assembly typically involves tractors, welding machines, and forklifts to place the trackers onto the support structures. During this work, multiple crews and vehicles would be working on the solar plant site, including flat bed trucks for transporting the arrays. Array construction vehicles would include small all-terrain vehicles (ATVs) or pick-up trucks to transport materials and workers on access roads and array aisles.

Depending on the final PV technology and vendor selected, the design of the tracker support structures could vary. Typical installations of this type are constructed using steel piles or concrete foundations. Steel piles may be driven, screwed, or grouted. Driven steel pile foundations typically are galvanized and used where high load bearing capacities are required. The pile is driven using a hydraulic ram where up to two workers are required. Soil disturbance would be restricted to the pile insertion location with temporary disturbance from the hydraulic ram machinery, which is about the size of a small tractor. Screw piles, if used, would be driven into the ground with a truck-mounted

auger requiring two or three personnel. Screw piles create a similar soil disturbance footprint as driven piles. Grouted steel piles, if used, would require pre-drilling with auger equipment so that the pile could be inserted into the cleaned hole. The pile then would be grouted into place from bottom to top until grout flows out of the top of the hole. Soil disturbance would be the same as the previous steel pile descriptions with additional disturbance from the soil removal and insertion of grout at the pile location. Concrete foundations avoid ground penetration by withstanding the design loads from the weight of the concrete itself. Concrete requires time to cure and can be pre-cast and transported to the site or poured in place for installation. Concrete foundations reduce the ground penetration, but increase the permanent disturbance.

The design method and installation time of the support structures would depend on the support structure and block design with driven piles being the fastest installation method. Final construction and installation details would be determined in the detailed design of the Project.

Solar PV panels would be manufactured off-site and shipped to the site ready for installation. Concrete pads for the drive motors would be pre-cast and brought to the site via flatbed truck. Once most of the components have been placed on their respective foundations, the electricians and instrumentation installers would run the electrical cabling throughout the solar field. After the equipment is connected, electrical service would be verified, motors checked, and control logic verified. The various hydraulic systems would be charged with their appropriate fluids and startup testing would proceed. As the solar arrays are installed, the balance of the plant would continue to be constructed and installed and the electrical power and instrumentation would be placed. Once all of the individual systems have been tested, integrated testing of the MSEP would occur.

2.4.3 O&M Building and Substation Construction

The Unit 1 and Unit 2 substations each would take approximately 4 months to construct. Each substation would consist of two 230 kV, 1200A SF6 circuit breakers, along with approximately six 1200A vertical break disconnect switches and rigid bus on post insulators and fittings. Construction work within the substation sites would include site preparation and installation of substructures and electrical equipment. Substation materials and equipment would be delivered to and stored at the respective substation site, as required, during construction.

Galvanized steel would support most of the equipment. Concrete foundations and embedments for equipment would be installed, requiring trenching machines, concrete trucks and pumpers, vibrators, forklifts, boom trucks, and large cranes. Above-ground and below-ground conduits from this equipment would run to a control enclosure that will house the protection, control, and automation relay panels. A station service transformer would be installed for auxiliary AC power requirements. Battery banks would be installed inside the enclosure for DC power requirements of the switchyard. Battery chargers would be included.

For personnel safety and equipment protection during faulted conditions, a ground grid would be installed in the substation. This would consist of #4/0 Br Cu conductors meshed and buried 24 inches below ground. Each piece of equipment and supporting structure would be electrically connected to the ground grid.

Crushed rock would cover the expanded area of the substation. Adequate perimeter lighting would be provided. It is expected that construction of the entire switchyard would be completed in 3 to 4 months and would be designed and constructed within the limits of prevailing SCE standards/requirements.

The O&M building would be a pre-engineered metal building with metal siding and roof. The building would be supported on reinforced concrete mat foundations or individual spread footings as determined during detailed design. The floor would consist of a reinforced 3,000-square-foot concrete slab corresponding to the dimensions of the building. The prefabricated steel building structure then would be assembled. Exterior finishes would be constructed as the mechanical and electrical systems are being built inside. Interior finishing work would follow, and final fixtures and equipment would be installed.

2.4.4 Gen-tie Line Construction

The gen-tie line would be installed on a set of monopole and/or H-frame structures, designed for double circuit use. Poles would be 70 to 145 feet tall, spaced approximately 800 to 1,000 feet apart between the substation on the solar plant site to the switchyard at CRS for Unit 1 or directly into the CRS for Unit 2. Each pole would require approximately 50 feet by 50 feet of temporary disturbance and 12 feet by 12 feet of permanent disturbance. Porcelain insulators and shield wires would be installed to protect personnel and equipment from lightning strikes and other hazards.

The gen-tie line would be constructed for operation at 230 kV, the nominal operating voltage of the regional transmission system. The use of 230 kV as the targeted design voltage would be consistent with the industry use of the 230 kV term to describe the nominal voltage for this class of system. The tower designs would be engineered to provide design limits for purposes of the electric and magnetic field studies and in accordance with the current standards. Crossings of the BSPP gen-tie line and I-10 or other transmission lines would occur in accordance with the most current revision of the Institute of Electrical and Electronics Engineers (IEEE) National Electric Safety Code and the CPUC's Rules for Overhead Line Construction, General Order 95 (GO-95).

The gen-tie line would be constructed with crews working continuously along the route, with construction of the monopoles and first circuit (i.e., Unit 1 conductors) requiring a peak workforce of approximately 34 workers. Gen-tie line construction would involve the following activities:

1. Preparation of laydown areas
2. Surveying and site delineation staking
3. Access road and spur road construction
4. Pole site preparation and installation
5. Circuit installation
6. Cleanup and site reclamation

Circuit stringing and cleanup and site restoration activities are described below. Several construction crews would operate simultaneously at different locations along the gen-tie line. Construction would last approximately 4 days at each pole location. The following subsections describe in more detail the construction activities related to the proposed gen-tie line.

2.4.4.1 Laydown Areas

Preparation of the laydown areas would involve a pre-construction reconnaissance of the area, staking of the laydown boundaries, mowing or grubbing of the laydown area (which may require use of 365 HP Scraper Cat or equivalent equipment), some possible light grading (which would require use of a Dozer Cat D6R or equivalent), construction of parking area, installation and construction of temporary construction buildings or trailers and construction and installation of storage areas and facilities. Construction of the laydown area would take up to 1 month and a peak of 38 on-site personnel.

2.4.4.2 Road Work

The construction, operation and maintenance, and decommissioning of the proposed gen-tie line would require that heavy vehicles be able to access the tower sites along the road. The Applicant would use existing or otherwise planned access roads to the extent possible and anticipates that new spur roads would be required. Construction of the proposed roads would involve a pre-construction reconnaissance of the roadways, staking of the road boundaries, clearing and grubbing of the roadways (which would require use of 365 HP Scraper Cat or equivalent equipment), light grading (which would require use of a Dozer Cat D6R or equivalent), installation of rock road base, and installation of asphalt paving (which would require use of a Cat BG600D Paver and Cat CB—434D Roller Vibrator). Construction of the roadways would take up to 18 alternating months and a peak of 24 personnel.

2.4.4.3 Pole Site Work and Installation

At each site, a work area would be required for the tower footing location, structure assembly, and the necessary crane maneuvers. Each such work area (one per pole) would be approximately 50 feet by 50 feet. Each area would be cleared of vegetation and graded only to the extent necessary to facilitate the safe operation of heavy construction vehicles and equipment.

Installation of new steel or concrete tower structures to support the 230 kV circuit would begin with the excavation of foundations approximately 6 feet in diameter and 20 feet deep. A vehicle-mounted power auger or backhoe would be used to excavate for the structure foundation. The temporary disturbance from construction of each tower employing an auger would be approximately 50 feet by 50 feet while the permanent disturbance would be less than 12 feet by 12 feet. Although not expected, the use of a backhoe or blasting could be necessary in some instances because of specific geologic conditions. In the unlikely event blasting is necessary, conventional or plastic explosives would be used. Industry standard safeguards, such as blasting mats, would be employed when adjacent areas require protection. If blasting is used, the temporary disturbance area would be isolated and minimized to disturb only the area required to construct.

Once the foundation holes have been cleaned, towers with preassembled insulators, hardware, and stringing sheaves would be lifted into position, inserted into the foundation holes, and gravel or concrete would be poured to backfill the hole and create a foundation. Any native soil not used to backfill would be spread around the pole. The total amount of temporary and permanent

disturbance associated with gen-tie line installation would depend on the route selected. Total temporary disturbance can be calculated by multiplying the number of poles to be installed by the disturbance associated with the method of excavation used. For permanent disturbance, the gen-tie line would result in total permanent disturbance area of approximately 0.5 acres off-site. Erecting each tower structure would take approximately 6 to 8 hours.

2.4.5 Conductor Stringing

Transmission conductor stringing would consist of the installation of the circuits and ground wires needed to connect the electricity generated at the MSEP to the grid. It would begin at the solar plant substations, where circuits would be strung aboveground from the step-up transformer, through circuit breakers and off-site to the switchyard (for Unit 1) or directly into the CRS (for Unit 2). Gen-tie line conductor stringing activities are illustrated in Figure 2-10.

Pilot lines would be pulled from structure to structure and threaded through the stringing sheaves at each structure. This work would employ the use of a helicopter to position linemen on each structure for hanging stringing wheels and guide rope. The conductors then would be pulled back through the stringing wheels using a machine located on the ground. This process would be repeated until all of the conductors are pulled through all sheaves. During the construction of Unit 2, the second circuit would be strung in a similar manner on the Unit 1 gen-tie towers. Approximately 54 pulling sites would be required to install the conductors along the gen-tie line route. These sites would be accessed from the access or spur roads. The shield wire and conductors would be strung using powered pulling equipment at one end and powered braking or tensioning equipment at the other end, approximately 1 mile apart. Tensioners and/or pullers, line trucks, wire trailers, and tractors needed for stringing and anchoring ground wires or conductors would be necessary at each pulling site. The tensioner, in concert with the puller, would maintain tension on the shield wires or conductors while they are pulled through the structures.

Crossing structures consisting of H-frame wood poles temporarily would be placed on either side of obstacles, such as roadways, to prevent ground wire, conductors, or equipment from falling on the obstacle. They would be removed when conductor installation is complete. The same equipment would be used to erect the crossing structures and gen-tie towers. Crossing structures may not be required for small roads or other areas where suitable safety measures such as barriers, flagmen, or other traffic controls could provide necessary safe guards.

2.4.6 Telecommunications Line Installation

As required for connection and interaction with the electrical grid, two independent telecommunication lines would be installed. The primary telecommunication line would be strung at the top of the gen-tie support towers and would run to each unit's substation. The secondary line would be installed underground within the disturbance area of the access or maintenance roads. The primary telecommunication line would be installed as part of the gen-tie line construction for Unit 1. The secondary line could be installed with either unit. Approximately 3 months would be required to install these lines.

2.4.7 Colorado River Substation Switchyard Construction

The Applicant's contractors would construct the switchyard, including site preparation and installation of substructures and electrical equipment. Switchyard construction would be staged from the gen-tie line laydown area and the switchyard site. Following pre-construction activities, the switchyard site would be fenced for security. Underground Service Alert would be contacted to mark the locations of existing buried utilities in the vicinity. Switchyard materials and equipment would be delivered to and stored at the switchyard site, as required, during construction. Conventional grading and construction equipment would be used. Minor excavation would provide concrete footings for the switchyard equipment. The switchyard site would be graveled with crushed rock for grounding and employee safety purposes.

2.4.8 Distribution Line Installation

SCE would install the distribution line using similar construction methods and equipment as the Applicant would use to install the telecommunications line (see Section 2.4.6). The exact routing of the distribution line would be finalized in consultation with SCE; however, the proposed route is shown on Figure 2-2.

2.4.9 Clean Up and Site Reclamation

Construction sites, material storage yards, and access roads would be kept in an orderly condition throughout the construction period. Approved enclosed refuse containers would be used throughout Project work areas. Refuse and trash would be removed from construction sites no more frequently than once per month by a commercial waste facility for suitable disposal to an appropriately licensed facility located within 20 miles of the Project site. Open burning of construction trash would be prohibited.

2.4.10 Construction Schedule, Equipment, and Work Force

The total site construction period would consist of 46 consecutive months, with issuance of the NTP expected in December 2012 and the initiation of preconstruction activities (including site mobilization, and installation of desert tortoise fencing) in March 2013. Construction of the Project would occur in two sequential stages. Construction of Unit 1 and the linear facilities would occur first and is scheduled to begin following the receipt of the NTP (December 2012). Construction of Unit 2 would begin in spring 2015 to meet the desert tortoise clearance windows. Commercial operation of Unit 2 is anticipated in December 2016. The proposed construction schedule and estimated workforce are shown in Table 2-9.

The total number of construction workers (consisting of laborers, craftsmen, supervisory personnel, support personnel, and construction management personnel) would range between 43 and 600, with the peak number of workers (600) on site during months August, September, and October of 2015. Experience has shown that special circumstances could arise that warrant an increased number of on-site workers for a short period of time. The analysis in this document assumes that up to 750 workers could be on site for a few weeks at a time. Otherwise, the average

TABLE 2-9
PROPOSED CONSTRUCTION SCHEDULE AND WORKFORCE

Month	Construction Activities	Anticipated Number of Worker-Days
YEAR 1		
Month 1	Fence Construction - Unit 1	954
Month 2	Fence Construction, Tortoise Clearance – Unit 1	954
Month 3	Clear & Grub, Water supply construction, project delineation, entrance, parking and staging area, materials storage area, concrete washout construction, grading – Unit 1	1947
Month 4	Clear & Grub, Water supply construction, project delineation, entrance, parking and staging area, materials storage area, concrete washout construction, grading, road construction – Unit 1	2244
Month 5	Clear & Grub, Water supply construction, project delineation, entrance, parking and staging area, materials storage area, concrete washout construction, grading, road construction, PV construction – Unit 1	5028
Month 6	Clear & Grub, Water supply construction, project delineation, entrance, parking and staging area, materials storage area, concrete washout construction, grading, road construction, PV construction – Unit 1; Construct Gen-Tie Line	5450
Month 7	Clear & Grub, grading, road construction, PV construction – Unit 1; Construct Gen-Tie Line	5892
Month 8	Clear & Grub, grading, road construction, PV construction – Unit 1; Construct Gen-Tie Line	6154
Month 9	Clear & Grub, grading, road construction, PV construction – Unit 1; Construct Gen-Tie Line	6154
Month 10	Clear & Grub, grading, road construction, PV construction – Unit 1; Construct Gen-Tie Line	6154
Month 11	Grading, road construction, PV construction – Unit 1; Construct Gen-Tie Line	6154
Month 12	Grading, road construction, PV construction, construction substation, construction ops building, construction water storage tank – Unit 1; Construct Gen-Tie Line	7889
YEAR 2		
Month 1	PV construction, construction substation, construction ops building, construction water storage tank – Unit 1; Construct Gen-Tie Line	7889
Month 2	PV construction, construction substation, construction ops building, construction water storage tank – Unit 1	7889
Month 3	PV construction - Unit 1	5812
Month 4	PV construction - Unit 1	5812
Month 5	PV construction - Unit 1	5812
Month 6	PV construction - Unit 1	5812
Month 7	PV construction - Unit 1	5812
Month 8	PV construction - Unit 1	5812
Month 9	PV construction - Unit 1	5878
Month 10	PV construction, commissioning & testing - Unit 1	5878
Month 11	Commissioning & testing - Unit 1	5878
Month 12	Commissioning & testing - Unit 1	5678

TABLE 2-9 (Continued)
PROPOSED CONSTRUCTION SCHEDULE AND WORKFORCE

Month	Construction Activities	Anticipated Number of Worker-Days
YEAR 3		
Month 1	Commissioning & testing - Unit 1; Fence construction – Unit 2	3889
Month 2	Fence construction, tortoise clearance – Unit 2	3889
Month 3	Clear & grub, grading – Unit 2	6712
Month 4	Clear & grub, grading, road construction – Unit 2	10106
Month 5	Clear & grub, grading, road construction, PV construction – Unit 2	10106
Month 6	Clear & grub, grading, road construction, PV construction, construct substation – Unit 2	13200
Month 7	Clear & grub, grading, road construction, PV construction, construct substation – Unit 2	13200
Month 8	Clear & grub, grading, road construction, PV construction, construct substation – Unit 2	13200
Month 9	Clear & grub, grading, road construction, PV construction – Unit 2	10106
Month 10	Clear & grub, grading, road construction, PV construction – Unit 2	10106
Month 11	Grading, road construction, PV construction – Unit 2	10106
Month 12	Grading, road construction, PV construction – Unit 2	10106
YEAR 4		
Month 1	Grading, PV construction – Unit 2	10106
Month 2	Grading, PV construction – Unit 2	10106
Month 3	PV construction – Unit 2	10106
Month 4	PV construction – Unit 2	10106
Month 5	PV construction – Unit 2	10106
Month 6	PV construction – Unit 2	10106
Month 7	PV construction – Unit 2	10106
Month 8	PV construction, commissioning & testing – Unit 2	10106
Month 9	PV construction, commissioning & testing – Unit 2	10106
Month 10	PV construction, commissioning & testing – Unit 2	10106

SOURCE: McCoy Solar, LLC, 2011a

on-site construction workforce would consist of approximately 341 construction, supervisory, support, and construction management personnel.

2.4.10.1 Construction Equipment

During construction, a variety of equipment and vehicles would be operating at the solar plant site and along the linear facilities. Table 2-10 provides a list of the type and number of equipment and vehicles expected to be required to construct each of component of the Project.

TABLE 2-10
CONSTRUCTION EQUIPMENT BY PROJECT COMPONENT

Equipment	Construction Phases						
	Site Preparation	**Civil Improvements**	**Construction of Solar Array Unit 1**	**Construction of Solar Array Unit 2**	**Installation of Gen-tie Line, Poles**	**Substation and O&M Building**	**Switchyard**
Backhoes	1		1	1		1	1
Cranes			2	2	1	1	1
Vibratory Post Drivers			2	2			
Fork Lifts			2	2	2	2	1
Dozers		1	1	1	1		
Excavator	1	2					
Grader	1	2				1	1
Loaders, Rubber Tired	1	1	2	2	1	2	2
Rollers		1					
Scrapers	1	2					
Trenchers			4	4			
Dump Truck			1	1			
Water Truck	5	3	2	2	1	1	1
Portable Generators	1	2	2	2	1	1	1
Concrete Truck			10	10	1	10	2
Flatbed Truck	10		10	10	2	10	5
Heavy Duty Delivery Truck	5	5	110	110	2	10	5
Light Weight Truck	10	20	20	20	10	20	20

2.4.10.2 Construction Hours

Construction generally would occur between 7 a.m. and 7 p.m., Monday through Friday. Additional hours could be necessary to make up schedule deficiencies or to complete critical construction activities. For example, during placement of concrete or during hot weather, it could be necessary to start work earlier than 7 a.m. to avoid some activities during high ambient temperatures. During the startup phase of the MSEP (Months 22-25 and 44-46), equipment and system testing and similar activities could occur 24 hours per day, 7 days per week.

2.4.10.3 Construction-related Training

Construction would be undertaken sequentially in accordance with a Construction Plan that would include the final design documents, work plan, health and safety plans, permits, project schedule, and O&M manuals. Construction Plan documents would relate at least to the following:

1. Environmental health and safety training
2. Site security measures
3. Site first aid training
4. Construction testing (non-destructive examination, hydro, etc.) requirements
5. Site fire protection and extinguisher maintenance, guidance, and documentation
6. Furnishing and servicing of sanitary facilities records
7. Trash collection and disposal schedule/records
8. Disposal of hazardous materials and waste guidance in accordance with local, state, and federal regulations

2.4.10.4 Construction Traffic

As the site work progresses, equipment and materials would arrive and be staged in the order of installation. Construction materials, other equipment and materials would be delivered by truck. Delivery of construction equipment and MSEP components would be coordinated with local agencies to ensure compliance with California Department of Transportation (Caltrans), County, and BLM requirements. Weight and height restrictions would be verified and any required permits would be obtained by the delivery service. Only the main transformers are expected to require heavy haul (oversize) transport and transportation permits. Transportation of hazardous materials to the solar plant site would comply with all Department of Transportation, USEPA, DTSC, California Highway Patrol, and the California State Fire Marshal regulations for the transportation of hazardous materials.

I-10 would provide the main access route to the solar plant site, regardless of whether vehicles come from the east or west. Construction workers as well as equipment, supplies, and other deliveries would travel/be transported to the site by the same access described in Section 2.3.1.3. Gravel, aggregate, and concrete needs would be supplied either from Ehrenburg, Arizona (20 miles from the solar plant site) or from Indio, California (100 miles from the solar plant site), Approximately 5,900 deliveries (50 mile round trip each) would be required to deliver these

materials to the site. Approximately 10 to 20 deliveries per day (50 mile round-trip each) with a peak of approximately 25 to 30 deliveries per day would be required for the duration of the 46-month construction period. Peak truck travel would occur during the delivery of the modules, trackers, and cabling, and the placement of concrete during plant foundation construction. Truck deliveries would not interfere with the peak on-site worker commute time frame.

Construction worker traffic would vary according to workforce needs (see Table 2-9). Workers would park in designated areas on the solar plant site. Parking along the shoulders of adjacent streets would not be allowed. The Applicant would encourage construction workers to carpool to reduce vehicle trips to the site.

2.4.10.5 Construction Power

Temporary construction power required for the construction offices, laydown area, and the solar plant site would be supplied by the proposed distribution line or a temporary on-site generator. Construction power would be provided to the solar field provided by portable generators.

2.5 Project Operation and Maintenance

2.5.1 Operation and Maintenance Workforce

Approximately 20 permanent, full-time personnel would be employed at the solar plant site during daytime working hours assuming both units are operational. Temporary personnel would be employed, as needed, during seasonal periods when panel washing is required. Monthly visual inspections and annual (minimum) preventive maintenance would be performed. In accordance with United States Department of Labor, Occupational Safety and Health Administration (OSHA) safety regulations, at least two qualified personnel would be present during all energized electrical maintenance activities at the facility. Site security systems would be monitored regularly, by on-site personnel and an off-site 24-hour Remote Operations Center.

2.5.2 Automated Facility Control and Monitoring System

The proposed facility control and monitoring system would have two primary components: an on-site SCADA system and the accompanying sensor network. The on-site SCADA system would offer near real-time readings of the monitored devices, as well as control capabilities for the devices where applicable. Off-site monitoring/data trending systems would collect historical data for remote monitoring and analysis. For example, personnel at the Remote Operations Center would provide continuous 24/7/365 monitoring coverage of Project facilities and would respond to real-time alerts and system upsets using advanced monitoring applications that reside on the servers in their network.

2.5.3 Panel Washing

PV panel washing would be performed by seasonal maintenance crews in the fall and spring, taking approximately 35 days to complete per Unit. Up to 99,000 gpd would be required for this

purpose. Several types of systems are currently available; most involve spraying filtered water onto the modules from a portable tank mounted in the bed of a pickup truck. Sometimes brushes, rods, or circular cleaning heads are used to remove debris. Surfactants would not be used in these procedures. The process water would be allowed to run off the modules and evaporate or percolate into the ground.

2.5.4 Road Maintenance

Paved MSEP roads would be maintained to preserve the asphalt surface from degradation. Maintenance would include seal coating the asphalt surface every 2 to 5 years to prevent decay and oxidization. Potholes or other damage would be repaired as soon as practical.

Unpaved roads would be maintained regularly to control the flow of water on and around the road, remove obstacles, and maintain a solid surface. Maintenance would be completed by conducting regular surveys to inspect the conditions of the road surfaces; blading, grading or compacting the road surfaces to preserve a minimally sloped and smooth planed surface; and applying dust palliatives or aggregate base as needed to reduce dust and erosion.

2.6 Decommissioning and Site Reclamation

2.6.1 Decommissioning of Applicant's Facilities

2.6.1.1 Solar Plant Site Facilities

The Applicant is expected to receive authorizations and permits with 30-year terms. At the end of the term, including any extensions, the MSEP would cease operation. At that time, the facilities would be decommissioned and dismantled and the site restored. Decommissioning activities would require approximately 6,000 truck trips, a workforce of approximately 300 workers, and would take approximately 24 months to complete. Activities would include:

1. Dismantling and removal of all aboveground equipment (solar panels, tracker units, transformers, MSEP Substation, O&M building, switchyard, etc.)
2. Excavation and removal of all belowground cabling
3. Removal of posts
4. Removal of roads (both graveled and paved, including the aggregate base)
5. Break-up and removal of concrete pads and foundations
6. Removal of septic system and leach field
7. Scarification of compacted areas

Because it is expected that the proposed PV panels would continue to have useful electricity-producing capacity after the MSEP authorizations expire, the Applicant anticipates reusing and then recycling them at the end of their useful life. Reuse would involve removal of the panels

from the MSEP site for sale into a secondary PV panel market.[6] The majority of the remaining MSEP components would be recycled. Equipment, such as drive controllers, inverters, transformers, and switchgear, either could be re-used or their components recycled. Poured concrete pads would be removed and recycled or reused as clean fill. Appropriate hazardous materials control and erosion control measures would be used throughout the decommissioning process. It is anticipated that such controls would be substantially similar to those implemented during construction.

2.6.1.2 Gen-tie Line, Telecommunications Lines and Switchyard

Decommissioning would be competed using traditional heavy construction equipment, such as front end loaders, cranes, track mounted and rubber tired excavators, and motor graders. Dismantling would proceed according to four general stages: The first stage would consist of dismantling and demolishing above-ground structures. The second stage would consist of removing concrete foundations, etc. from within 3 feet of final grade. The third stage would consist of excavating and removing soils and broken concrete from the site. The final stage would consist of surface contouring to return the disturbed areas to near original conditions. The gen-tie line would be left in place if it is serving other projects. If it is decommissioned, approximately four workers with a backhoe, dump truck, and flatbed truck would complete the task in approximately 3 weeks.

2.6.2 Decommissioning of Southern California Edison's Distribution Facilities

SCE would own and operate the proposed distribution line. If SCE has no additional obligations or legal rights to maintain and operate the line on the Project site, SCE could decommission and dismantle its own facilities and restore the site. If it is decommissioned, approximately four workers could complete the task with a backhoe, dump truck, and flatbed truck in approximately 3 weeks. Activities would include removing the distribution lines and poles from the interconnection point to the MSEP substations and backfilling the holes left by the pole removal with on-site native soil.

2.7 Alternative 4: No Action Alternative

Under the No Action Alternative, the BLM would not authorize a ROW grant for the Project or amend the CDCA Plan to identify the site as suitable for the proposed use. Because the Project would not be approved, no new structures or facilities would be constructed, operated and maintained, or decommissioned on the site, and no related ground disturbance or other Project impacts would occur. The BLM would continue to manage the land under its land use jurisdiction consistent with the site's multiple use classification as described in the CDCA Plan.

[6] The Applicant expects a robust global market for used PV panels based on the rise in global electricity demand, increase in electricity prices, and anticipated acceleration of demand for solar energy for decades to come. Third world off-grid applications also are expected to boom as used PV panels become available at a fraction of the current cost.

If the Project is not approved, it is possible that a different renewable energy project would be proposed on the BLM-administered portion of the site if the BLM approves the SEZ designation described in Section 2.2, and that other renewable energy projects would be proposed on other sites in Riverside County, in other areas of California, or in adjacent states within the Desert Southwest as developers strive to provide renewable power that complies with utility requirements and state and/or federal mandates. Because the configuration, nature, location, resource intensiveness, and other factors related to any future renewable energy project development are unspecified and uncertain, the BLM cannot predict the environmental consequences that might result from such development, and so finds that particular impacts are too speculative to evaluate meaningfully.

The BLM's Purpose and Need would not be met, and achievement of the federal mandates under Executive Order 13212, Secretarial Order 3285A1, and the EPAct would be deferred to development in other areas at a later date. The EPAct also encourages the Secretary of the Interior to seek approval for non-hydropower renewable energy projects on public lands with a generation capacity of at least 10,000 MW by 2015. The potential to meet this within the specified timeframe would be reduced under the No Action Alternative.

2.8 Alternative 5: CDCA Plan Amendment A/No Project Alternative

Under the CDCA Plan Amendment A/No Project Alternative, the BLM would not authorize a ROW grant for the Project but would amend the CDCA Plan to identify the Project application area as suitable for any type of solar energy development. Because the Project would not be approved, no new structures or facilities would be constructed, operated and maintained, or decommissioned on the site, and no related ground disturbance or other Project impacts would occur. The BLM would continue to manage the land under its land use jurisdiction consistent with the site's multiple use classification as described in the CDCA Plan.

Because the CDCA Plan would be amended to identify the project application area as suitable for any type of solar energy development, it is possible that a different solar energy project would be proposed on the BLM-administered portion of the site. Because the configuration, nature, resource intensiveness, and other factors related to any future solar energy project development on the site are unspecified and uncertain, the BLM cannot predict the environmental consequences that might result from such development, and so finds that particular impacts are too speculative to evaluate meaningfully.

The BLM's Purpose and Need would not be met, and achievement of the federal mandates under Executive Order 13212, Secretarial Order 3285A1, and the EPAct would be deferred to development a later date. The EPAct also encourages the Secretary of the Interior to seek approval for non-hydropower renewable energy projects on public lands with a generation capacity of at least 10,000 MW by 2015. The potential to meet this within the specified timeframe would be reduced under the this alternative.

2.9 Alternative 6: CDCA Plan Amendment B/No Project Alternative

Under the CDCA Plan Amendment B/No Project Alternative, the BLM would not authorize a ROW grant for the Project and would amend the CDCA Plan to identify the Project application area as unsuitable for any type of solar energy development. Because the Project would not be approved, no new structures or facilities would be constructed, operated and maintained, or decommissioned on the site, and no related ground disturbance or other Project impacts would occur. The BLM would continue to manage the land under its land use jurisdiction consistent with the site's multiple use classification as described in the CDCA Plan.

Additionally, because the CDCA Plan would be amended to identify the project application area as unsuitable for any type of solar energy development, no other solar energy project would be approved on the BLM-administered portion of the site. Other uses may occur on the site in the future, but because the configuration, nature, resource intensiveness, and other factors related to any future development on the site are unspecified and uncertain, the BLM cannot predict the environmental consequences that might result from such development, and so finds that particular impacts are too speculative to evaluate meaningfully.

The BLM's Purpose and Need would not be met, and achievement of the federal mandates under Executive Order 13212, Secretarial Order 3285A1, and the EPAct would be deferred to development a later date. The EPAct also encourages the Secretary of the Interior to seek approval for non-hydropower renewable energy projects on public lands with a generation capacity of at least 10,000 MW by 2015. The potential to meet this within the specified timeframe would be reduced under the this alternative.

2.10 Agency Preferred Alternative

Under NEPA, the "preferred alternative" is a preliminary indication of the Lead Agency's preference of action among the Proposed Action and alternatives. A NEPA Lead Agency may select a preferred alternative for a variety of reasons, including the agency's priorities, in addition to the environmental considerations discussed in the EIS. In accordance with NEPA (40 CFR 1502.14(e)), the BLM has identified Alternative 1, the Proposed Action as the preferred alternative.

2.11 Alternatives Considered but Eliminated from Detailed Analysis

2.11.1 Rationale for Eliminating Alternatives

In accordance with 43 CFR 2804.10, the BLM worked closely with the Applicant during the pre-application phase to identify appropriate areas for the Project. BLM discouraged the Applicant from including in its application alternate BLM locations with significant environmental concerns, such as critical habitat, ACECs, DWMAs, designated off-highway vehicle (OHV) areas, wilderness study areas, and designated wilderness areas. BLM encouraged the Applicant to locate its project on public land with the fewest potential conflicts.

Other alternative sites, technologies and methods identified in Table 2-11 and discussed below were considered but eliminated from detailed analysis under NEPA. These alternatives were eliminated from detailed analysis based on one or more of the reasons set forth below:

(1) It would not respond to the BLM's purpose and need for the Project or meet most of the basic objectives of the Project;

(2) It is technologically, legally, socially, or economically infeasible;

(3) It would cause greater environmental impacts than the alternatives analyzed in detail;

(4) Its implementation is remote or speculative.

This process for eliminating these alternatives from detailed analysis complies with 40 CFR 1502.14(a), and BLM IM 2011-059. It is described briefly in the following sections.

2.11.2 Alternatives Considered but Eliminated from Detailed Analysis

Alternative sites, technologies, and methods were considered as alternatives to the MSEP but not carried forward for detailed analysis. Each is discussed below.

2.11.2.1 Site Alternatives

Four potential site alternatives to the MSEP were considered but not carried forward for detailed analysis based on one or more of the criteria identified above: one private land alternative and three alternatives on BLM-administered land (Desert Center 1, Mule Mountain, and Black Hill).

2.11.2.1.1 Private Land Alternative

Private lands within Riverside County were considered for development of the proposed solar PV energy facility. The BLM has no jurisdiction over the siting of a project on such land.

An all-private land alternative was not carried forward for detailed evaluation in the PA/EIS because no private parcels or combinations of parcels of sufficient size were available that met the minimum requirements. At the BLM's request, the Applicant hired a California-licensed real estate broker with relevant experience to research the availability of a minimum of 1,500 acres to accommodate up to a 250 MW project. To merit further inquiry, the available acreage would be contiguous or nearly so; listed or advertised for sale or lease in the November-December 2011 timeframe, located within 20 miles of the CRS, and in proximity to a reasonable gen-tie line option (BLM, 2011f). Research in accordance with these parameters evaluated more than 195,300 acres of private land within 20 miles of the CRS. Of these, 68 individual private parcels, representing approximately 4,732 acres, were for sale or lease. Of these, the largest contiguous block of land was approximately 858 acres and consisted of 7 parcels and 4 unique land owners (Monaghan, 2011). Because insufficient private land was available to meet the most basic needs of the Project, an all-private land alternative was not carried forward for detailed consideration.

2.11.2.1.2 Alternatives on BLM-administered Land

Much of the BLM-administered land in the California desert is precluded from development by special designations such as wilderness areas and ACECs, and many potentially suitable areas outside these designated areas are precluded because they are in use or are proposed for other solar energy projects (see Figure 4.1-1, *Cumulative Projects*). Of the remaining BLM-administered land in the California Desert District, three potential sites were evaluated: Desert Center 1, Mule Mountain, and Black Hill.

Desert Center 1

The potential Desert Center 1 site is located adjacent to State Highway 177 north of I-10. The Applicant submitted an SF-299 ROW grant application in 2007 to the BLM to develop a solar energy project on that site. However, that location could be subsumed in expansions of the Joshua Tree National Park and/or the McCoy Wilderness. Accordingly, in the fall of 2008, the BLM rejected the application for ROW grant for a solar energy use there (Tetra Tech EC, Inc., 2011b). Therefore, this site was eliminated from further consideration.

Mule Mountain

The potential Mule Mountain site is located south of I-10, due south of the western half of the MSEP site. The Applicant submitted an SF-299 ROW grant application in 2007 to the BLM to develop a solar energy project on that site. However, California Natural Diversity Data Base (CNDDB) records indicate that the site would support Desert Tortoise, Mojave Fringed-Toed Lizard, Harwood's Milk Vetch, Cave Myotis, and California leaf-nosed bat. Additionally, the site is crossed by two large desert wash systems, which could increase impacts to biological resources relative to the Proposed Action and alternatives. In May 2007, the Applicant relinquished control of the Mule Mountain site to another company (Tetra Tech EC, Inc., 2011b). Therefore, this site was eliminated from further consideration.

Black Hill

The potential Black Hill site is located northeast of the proposed MSEP site, adjacent to the Big Maria Mountains Wilderness. The Applicant submitted (and then withdrew) an SF-299 ROW grant application in 2007 that proposed a solar energy project on that site. Further investigation raised concerns about environmental consequences as well as conflicting uses, road access, and access to transmission. The site is adjacent to wilderness and crossed by three NECO Plan-designated open routes and numerous ephemeral washes. Because development of this site would likely result in greater environmental impacts than the alternatives analyzed, it was eliminated from further consideration.

2.11.2.2 Other Types of Energy Projects

Table 2-11 describes alternative types of energy projects that were considered but not carried forward for detailed analysis. Although the BLM has the authority to change the technology on a proposal if it is shown that the change would reduce impacts, it was determined that none of the potential alternatives would do so.

TABLE 2-11
OTHER TYPES OF ENERGY PROJECTS ELIMINATED FROM DETAILED ANALYSIS

Alternative	Purpose/Objectives Criteria	Feasibility Criteria	Environmental Criteria	Remote/Speculative
Stirling Dish Technology (Uses mirrors distributed over a parabolic dish surface to concentrate sunlight on a receiver fixed at the focal point. Uses a working fluid such as hydrogen that is heated up to temperatures of approximately 1,200° F in the receiver to drive an engine. A dish will generate 5-30 kilowatts of electricity depending on the system. Stirling Energy Systems' 25 kW SunCatcher™ is 38 feet tall and 40 feet wide.)	Fails Would not meet BLM's purpose and need	Fails Not within the Applicant's area of expertise, and so would not be technically or economically feasible for the Applicant to implement.	Fails With a minimum size of nearly 4,500 acres for 500 MW, Stirling Dish Technology would increase the footprint of the MSEP and, due to the greater height of this technology, also would increase visual impacts relative to the Proposed Action.	Fails Stirling Dish Technology is the proprietary technology of Stirling Energy Systems, which filed for bankruptcy in September, 2011. As such, it is not currently commercially available. Two utility-scale projects would have used this technology: San Diego Gas & Electric cancelled its Imperial Valley project and SCE has filed a new application for the proposed Calico project using different technology.
Solar Power Tower Technology (A flat mirror "heliostat" system that tracks the sun and focuses solar energy on a central receiver at the top of a high tower. The focused energy is used to heat a transfer fluid (800° F to 1,000° F) to produce steam and run a central power generator).	Fails Would not meet BLM's purpose and need	Fails Not within the Applicant's area of expertise, and so would not be technically or economically feasible for the Applicant to implement.	Fails No substantial reduction in impacts would occur under this technology. The large area needed for a solar power tower plant would exceed the land requirement for the MSEP, and the height of the heliostats could cause greater impacts to the Blythe Airport.	Passes On December 8, 2011, Secretary Salazar approved interconnection facilities for the Rice Solar Energy Project, which will use the "power tower" technology to generate 150 MW on 1,410 acres of previously disturbed private land near Blythe.
Linear Fresnel Technology (Uses long parallel rows of flat mirrors to focus the sun's energy onto elevated receivers, which consist of a system of tubes through which water flows. The concentrated sunlight boils the water, generating high-pressure steam for direct use in power generation and industrial steam applications).	Fails Would not meet BLM's purpose and need	Fails This technology is a proprietary technology owned by Ausra, Inc., which is not under the ownership or control of the Applicant. The technology is outside the Applicant's area of expertise.		Fails Ausra operates a 5 MW plant in Bakersfield. There is no indication that the company, which has changed its focus to medium-sized (50 MW) solar steam generating systems, would be available or interested in developing a project with sufficient capacity to take the place of the Proposed Action.
Distributed Solar Technology (Uses small, modular power generators, typically up to 50MW, located at or near customer demand).	Fails Would not meet BLM's purpose and need	Passes		Fails To be a viable alternative to the MSEP, there would have to be sufficient newly installed solar panels to generate 500 MW of capacity. The rate of PV manufacturing and installation is expected to continue to grow and larger distributed solar PV installations are becoming more common. California has approximately 40 million square feet (approximately 920 acres) of

TABLE 2-11 (Continued)
OTHER TYPES OF ENERGY PROJECTS ELIMINATED FROM DETAILED ANALYSIS

Alternative	Purpose/Objectives Criteria	Feasibility Criteria	Environmental Criteria	Remote/Speculative
Distributed Solar Technology (cont.)				distributed solar. An additional approximately 150 million square feet (approximately 3,500 acres) would be required to provide 500 MW.
Wind Energy (Uses one or more wind turbines to convert the kinetic energy of blowing wind into electrical energy through the use of airfoils or similar devices to capture the wind).	Fails Would not meet BLM's purpose and need	Passes This technology is within the Applicant's area of technical expertise.	Fails Utility-scale wind energy projects could cause significant impacts to biological, visual, cultural, water, and soils resources. Accordingly, these alternatives would not reduce impacts relative to the Proposed Action.	Passes The BLM manages 20.6 million acres of public lands with wind potential. The BLM has authorized 198 ROWs for the use of public lands for wind energy site testing or development. Of these, 29 authorizations have a total installed capacity of 437 MW.
Geothermal Energy	Fails Would not meet BLM's purpose and need.	Fails This technology is not within the Applicant's area of expertise, and so would not be technically or economically feasible for the Applicant to implement.		Passes Of the geothermal producing leases managed by the BLM, 59 leases generate about 1,275 MW of installed geothermal energy. The 2008 programmatic EIS relating to BLM's authorization of geothermal leasing estimates a potential for 5,540 megawatts (MW) of new electric generation capacity from 111 new geothermal power plants in 12 western states by 2015, and an additional 6,600 MW from another 133 plants by 2025. In California, 14 parcels have been competitively leased.
Biomass Energy	Fails Would not meet BLM's purpose and need.	Fails Most biomass facilities produce only small amounts of electricity (in the range of 3 to 10 MW) and so could not produce an amount of energy necessary to replace the MSEP. Thus, it would be technically infeasible at the scale required to replace the MSEP. Also, this technology is not within the Applicant's area of expertise, and so would not be technically or economically feasible for the Applicant to implement.	Fails Biomass facilities generate significant air emissions and require numerous truck deliveries to supply the plant with the waste. Other environmental concerns associated with biomass relate to the emission of toxic chemicals, such as dioxin, and the disposal of the toxic ash that results from biomass burning. Accordingly, these alternatives would not reduce impacts relative to the Proposed Action.	Fails Because most biomass facilities produce between 3 and 10 MW, it would be speculative to assume that it would be possible for a biomass alternative to generate sufficient energy output to take the place of the MSEP.

TABLE 2-11 (Continued)
OTHER TYPES OF ENERGY PROJECTS ELIMINATED FROM DETAILED ANALYSIS

Alternative	Purpose/Objectives Criteria	Feasibility Criteria	Environmental Criteria	Remote/Speculative
Tidal Energy	Fails Would not meet BLM's purpose and need.	Fails The use of tidal fence technology is limited to areas that are adjacent to a body of water with a large difference between high and low tides (unlike the proposed site). Also, it would not be within the Applicant's area of expertise, and so would not be technically or economically feasible for it to implement.	Fails Tidal energy alternatives could create significant environmental impacts to ocean ecosystems.	Fails Because in-flow tidal turbines are a relatively new technology, unproven at the scale that would be required to replace the MSEP.
Wave Energy	Fails Would not meet BLM's purpose and need.	Fails Would be technically infeasible at the scale required to replace the MSEP Not within the Applicant's area of expertise, and so would not be technically or economically feasible for the Applicant to implement.		Fails Because wave energy technology is new, it is not known whether it would be technologically feasible at the scale required to replace the MSEP.
Natural Gas	Fails Would not meet BLM's purpose and need.	Fails Would be technically infeasible at the scale required to replace the MSEP Not within the Applicant's area of expertise, and so would not be technically or economically feasible for the Applicant to implement.		
Coal	Fails Would not meet BLM's purpose and need.	Fails Would be technically infeasible at the scale required to replace the MSEP Not within the Applicant's area of expertise, and so would not be technically or economically feasible for the Applicant to implement.		
Nuclear Energy	Fails Would not meet BLM's purpose and need.	Fails The permitting of new nuclear facilities in California is currently illegal, so the implementation of this technology would be legally infeasible. Also, it is not within the Applicant's area of expertise, and so would not be technically or economically feasible for the Applicant to implement.		

TABLE 2-11 (Continued)
OTHER TYPES OF ENERGY PROJECTS ELIMINATED FROM DETAILED ANALYSIS

Alternative	Purpose/Objectives Criteria	Feasibility Criteria	Environmental Criteria	Remote/Speculative
Conservation and Demand-side Management (Consists of a variety of approaches to reduce electricity use, including energy efficiency and conservation, building and appliance standards, and load management and fuel substitution).	Fails Would not meet BLM's purpose and need.	Fails Would be technically infeasible at the scale required to replace the MSEP Not within the Applicant's area of expertise, and so would not be technically or economically feasible for the Applicant to implement.		Fails With population growth and increasing demand for energy, conservation and demand-management alone is not sufficient to address all of California's energy needs.

SOURCES: BLM, 2011a, 2011b, 2011c; SEIA, 2010